September 28, 2022

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

RE: Monthly Ambient Air Monitoring Report
August 2022
Clean Harbors Canada, Inc. Approval 10348-03-00

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 August 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 August 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
August 2022
Report Completed on September 28, 2022

Clean Harbors Environmental Services Inc.

Approval Number: 10348-03-00

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 August 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	N	-
Changes to the PM_{10} Sampling Station	N	-
PM_{10} Samples Collected	Y	August 3, 2022 August 15, 2022 August 27, 2022
VOC and TNMOC Samples Collected	Y	August 3, 2022 August 15, 2022 August 27, 2022
Metal Analysis Conducted	N	-
Maintenance Activities	Y	August 3, 2022 August 15, 2022 August 27, 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 August 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 August 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 August 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 August 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 August 2022. Table 2 presents the hourly and 24-hour average wind direction data (degrees from north) for August 2022. Table 3 presents the Wind Class Frequency Distribution for August 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 August 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 August 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 August 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 August 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 was no dust suppression activities, which include using leachate spread on the surface of the active landfill, conducted during August 2022.

6. Conclusions

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

1 The PM_{10} concentrations measured on August 3, August 15, and August 27, 2022 were 5.727 $\mu g/m^3$, 32.143 $\mu g/m^3$ and 20.844 $\mu g/m^3$ 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 August 2022.

3 During August 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 August 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
August 2022

Ryley Wind Speed Data (m/s) - Month of August 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	1.3	1.0	1.5	2.4	2.0	2.6	1.9	3.1	4.6	5.4	5.0	5.4	5.3	5.4	6.6	7.2	5.7	5.5	4.2	1.2	1.5	5.1	3.5	2.0
2	1.3	2.9	5.0	4.9	5.6	5.0	5.8	6.9	7.0	7.7	8.6	9.1	9.4	10.6	10.0	8.0	7.8	7.1	6.5	5.2	2.8	1.5	1.0	1.2
3	2.1	1.5	1.2	1.3	1.7	2.4	3.0	3.4	3.5	3.5	3.1	2.4	3.1	4.6	3.1	2.4	2.6	4.1	5.0	3.6	3.0	1.7	2.6	3.2
4	2.3	3.2	3.3	3.8	4.1	3.1	2.4	3.7	3.6	4.6	6.2	7.0	6.9	7.1	6.9	8.7	6.0	6.8	8.0	6.7	5.0	5.7	7.3	9.6
5	8.3	9.8	11.6	9.7	11.2	10.8	10.3	10.2	10.6	8.4	8.2	8.1	7.3	7.8	8.4	8.5	6.5	6.7	5.3	3.3	2.1	2.5	3.2	3.6
6	3.2	2.7	3.2	3.8	3.5	2.2	2.7	4.3	3.8	4.1	4.6	5.5	6.7	7.1	6.2	6.1	4.6	3.0	2.5	2.0	1.7	1.9	0.8	0.8
7	1.1	1.4	3.3	3.8	3.4	3.5	4.5	4.1	4.0	4.9	5.3	6.2	6.1	5.5	5.7	5.8	5.1	4.1	3.2	2.5	1.4	1.6	1.5	1.0
8	0.9	1.0	1.8	2.5	3.8	3.3	2.3	2.0	2.7	4.1	7.1	9.2	10.1	10.9	10.2	10.9	10.0	8.6	8.0	6.0	3.2	1.9	2.9	3.0
9	3.7	3.5	3.6	3.5	4.1	3.3	2.7	1.8	0.9	1.0	1.3	1.3	1.9	2.3	2.9	3.0	3.1	4.0	4.4	3.9	3.2	3.0	3.1	3.3
10	3.7	4.4	3.5	2.2	2.9	3.5	2.2	2.4	5.5	6.4	5.8	4.9	3.4	3.9	3.7	4.7	4.4	4.5	3.4	2.5	2.7	2.1	2.8	2.1
11	0.8	1.1	1.4	2.4	1.9	1.1	3.1	3.5	3.4	3.1	2.7	2.6	2.2	3.2	4.6	5.4	4.9	2.8	3.1	2.8	2.2	3.5	3.6	3.5
12	3.0	2.9	2.8	3.0	2.5	2.5	2.5	2.6	1.8	2.3	1.2	1.5	1.7	1.7	2.1	2.3	2.7	3.1	3.8	3.3	3.3	2.9	2.8	3.0
13	3.3	3.1	1.6	3.3	5.0	5.2	4.0	4.2	3.6	5.7	7.0	5.6	5.2	4.0	4.3	3.9	3.7	3.9	3.0	2.6	1.7	5.4	2.4	4.2
14	5.2	5.0	4.6	3.3	4.8	4.0	3.8	3.5	4.9	6.5	6.6	6.3	5.8	5.2	5.3	5.5	5.4	4.3	4.1	2.5	2.0	1.1	0.8	1.5
15	2.0	1.3	1.2	1.9	2.0	1.4	1.2	2.9	3.2	4.0	3.6	3.8	4.9	4.3	4.0	3.1	4.2	3.2	2.9	1.8	1.5	1.8	2.2	2.4
16	2.9	2.3	2.8	2.3	1.3	1.2	0.6	1.0	1.4	2.0	2.8	3.5	3.6	3.1	2.2	4.8	7.2	4.6	3.5	4.2	4.0	5.0	3.1	2.1
17	3.1	3.5	3.8	3.8	3.4	3.9	3.5	2.6	3.6	4.5	5.0	6.0	6.6	6.7	6.0	4.7	4.3	4.7	3.9	2.7	1.4	0.8	0.3	1.3
18	0.8	0.5	0.4	1.7	4.0	2.2	3.4	2.5	2.5	2.6	2.6	3.3	3.3	3.0	3.4	2.8	2.7	3.0	3.0	2.2	2.1	2.4	2.8	2.7
19	2.7	2.9	3.4	3.2	2.2	2.3	3.0	3.7	3.9	4.1	3.5	3.8	4.4	5.8	6.6	6.8	6.5	6.1	4.9	3.7	3.1	3.8	3.6	4.5
20	5.3	4.7	4.9	3.8	2.2	3.1	3.0	2.1	2.5	2.2	2.5	4.0	2.9	1.6	2.2	3.8	3.4	2.8	2.0	2.0	0.9	2.0	2.7	3.2
21	3.9	3.4	2.3	6.3	5.2	3.7	3.8	4.8	4.8	5.4	5.7	5.5	5.5	5.0	5.6	5.9	6.4	6.2	5.5	5.7	3.0	2.8	3.0	3.8
22	2.4	1.2	1.0	1.0	1.0	1.2	0.8	1.0	1.3	1.7	1.8	2.9	2.8	2.7	2.5	2.6	2.4	2.5	3.2	3.0	2.6	2.4	2.1	2.0
23	0.9	1.1	0.7	0.7	1.4	1.6	0.8	1.6	1.1	1.1	0.8	1.8	2.6	2.2	2.2	2.1	2.4	2.8	2.5	2.5	2.0	2.0	1.3	1.0
24	1.4	1.3	1.4	1.0	1.9	1.7	1.7	1.4	1.6	2.4	1.8	1.7	2.4	3.4	3.5	3.2	2.7	2.7	2.6	2.5	2.1	2.1	2.0	2.4
25	2.3	2.5	1.5	2.0	1.7	1.4	1.1	1.8	1.5	3.2	4.5	6.0	6.6	6.3	6.4	6.3	5.4	5.1	4.7	4.7	3.0	3.4	2.7	2.8
26	2.7	3.7	3.2	2.6	1.4	1.5	2.0	2.3	2.9	2.4	3.4	4.0	4.2	3.4	2.8	2.4	2.1	2.0	2.4	1.6	0.5	0.8	1.0	2.7
27	4.2	2.4	2.4	3.3	3.5	4.3	4.6	5.1	5.1	6.1	6.7	6.9	7.0	6.3	3.8	4.5	5.6	6.2	7.3	8.1	7.2	7.2	7.5	6.8
28	7.7	8.1	8.3	8.1	7.9	7.8	6.9	6.7	8.2	8.9	7.7	7.3	8.0	7.7	8.2	8.3	8.0	7.4	8.2	4.4	2.1	3.8	4.3	4.7
29	5.2	5.7	5.4	5.4	4.6	3.7	3.7	3.4	2.0	2.0	3.0	4.3	3.7	4.1	3.9	3.7	3.7	3.6	3.3	2.3	0.9	0.6	2.1	1.9
30	2.1	3.8	4.9	5.6	5.1	2.7	1.8	1.2	0.5	0.8	1.3	2.6	3.3	4.2	4.8	4.7	4.0	3.9	3.5	2.1	2.6	3.3	3.5	3.0
31	2.9	1.8	2.7	2.4	1.6	2.1	2.1	1.7	1.0	2.3	3.0	3.0	2.9	3.5	2.7	2.1	2.0	1.9	1.8	1.8	1.8	2.1	2.7	2.8

TABLE 2

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

Ryley Wind Direction Data (degrees, blowing from) - Month of August 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	134	103	182	123	145	158	139	145	175	167	175	164	164	169	173	172	169	172	162	177	260	278	232	176
2	153	265	268	288	302	286	282	299	313	311	310	316	312	317	324	332	319	308	330	153	103	194	54	144
3	201	213	195	152	157	154	142	151	153	148	133	112	115	130	109	64	58	63	91	105	99	75	73	85
4	74	70	80	117	110	82	179	197	157	218	305	333	326	313	305	294	293	285	285	284	274	269	275	295
5	284	292	306	315	323	320	319	322	329	324	330	335	329	324	320	324	323	329	330	320	305	247	234	229
6	226	227	227	231	227	216	218	204	206	219	213	199	200	196	201	202	234	260	243	242	221	232	125	149
7	187	239	237	237	245	231	237	250	257	275	277	283	284	274	282	274	267	269	269	235	216	187	178	179
8	64	120	204	79	41	121	183	293	297	330	322	317	314	319	324	323	330	338	333	335	333	311	308	287
9	281	282	286	278	269	279	283	265	269	100	121	126	110	113	111	129	133	142	118	111	106	117	128	128
10	137	141	130	114	116	130	122	128	146	152	155	158	135	134	131	143	147	147	128	113	96	130	151	184
11	252	186	188	178	149	128	164	179	176	223	248	249	257	290	319	325	335	315	284	325	306	273	272	285
12	310	331	333	333	334	339	338	102	43	58	89	56	83	114	132	121	118	121	139	117	125	123	105	114
13	126	139	196	121	85	116	144	149	121	141	158	161	164	147	142	140	141	151	128	111	137	276	39	281
14	308	325	331	279	267	282	282	303	312	319	323	323	321	328	314	311	300	295	297	252	238	237	100	139
15	165	223	182	217	201	187	222	199	244	237	258	235	222	245	257	247	226	204	211	219	206	187	194	186
16	183	172	166	170	170	181	204	241	175	176	143	133	135	157	219	314	335	97	32	259	323	317	278	318
17	279	284	305	301	295	282	283	277	301	319	323	327	329	314	40	190	204	277	196	30	52	151	180	238
18	196	212	178	220	240	226	237	231	235	228	196	184	165	162	143	152	146	140	140	123	122	130	129	145
19	151	150	163	159	158	157	156	149	150	157	169	181	165	151	152	154	159	145	142	135	133	145	153	150
20	158	167	169	191	169	170	173	172	210	301	189	114	123	110	77	81	111	307	173	257	225	308	301	296
21	292	312	312	326	244	149	317	336	283	38	21	32	21	36	26	27	34	44	55	44	53	57	70	87
22	103	96	55	85	304	312	285	169	82	101	90	70	84	92	87	62	99	93	78	87	84	92	127	132
23	148	142	203	258	267	182	174	140	152	216	155	140	108	122	161	126	85	55	55	42	37	41	119	91
24	145	145	177	166	150	177	161	159	158	176	180	165	171	145	131	158	147	141	159	145	121	139	157	153
25	161	161	173	168	141	159	141	149	145	175	190	181	184	178	181	179	169	182	178	190	188	189	181	159
26	160	166	164	163	196	145	156	162	156	185	176	180	185	184	189	224	191	258	261	102	92	212	215	253
27	287	298	296	284	283	282	287	303	303	311	319	325	318	309	307	321	299	316	323	316	313	311	310	315
28	316	313	316	319	319	314	308	307	309	316	318	317	311	313	326	316	317	321	322	317	300	259	261	268
29	257	242	245	244	260	255	250	244	238	232	219	212	225	231	243	264	299	284	319	150	274	244	191	191
30	211	233	237	236	241	271	274	257	192	173	173	213	223	266	275	290	285	258	262	244	219	217	207	202
31	205	201	215	260	82	157	314	306	228	54	72	86	98	125	97	107	100	112	174	190	177	169	180	178

TABLE 3

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

Frequency Distribution Report: Ryley, Alberta - August 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	110	442	512	434	452	1012	6.6%	2962
Northeast	> 22.5 - 67.5	119	499	739	575	296	423	5.9%	2651
East	> 67.5 - 112.5	108	457	884	961	537	192	7.0%	3139
Southeast	> 112.5 - 157.5	145	992	2084	2166	1571	1263	18.4%	8221
South	> 157.5 - 202.5	192	1084	2168	1758	1031	1671	17.7%	7904
Southwest	> 202.5 - 247.5	142	612	1236	1305	981	786	11.3%	5062
West	> 247.5 - 292.5	130	334	525	1138	1478	1683	11.8%	5288
Northwest	> 292.5 - 337.5	104	468	867	1064	998	5911	21.1%	9412
Missing/Invalid Hours								0.0%	0
Total Occurences by Speed		1050	4888	9015	9401	7344	12941		**44639**
Occurences by %		2.4%	11.0%	20.2%	21.1%	16.5%	29.0%	**100.00%**	

TABLE 4

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

Filter ID	C9702883	C9702881	C9698037
Test ID	804	805	806
Sample Start Date/Time	22/08/03 00:00:00	22/08/15 00:00:00	22/08/27 00:00:00
Sample End Date/Time	22/08/04 00:00:00	22/08/16 00:00:00	22/08/28 00:00:00
Sampling Time (hours)	24	24	24
Flow Rate (l/min)	16.7	16.7	16.7
Volume (m^3)	22.7	22.4	22.5
PM_{10} Mass (mg)	0.13	0.72	0.469
PM_{10} Concentration (ug/m^3)	5.727	32.143	20.844
Sampler Name	2000 FRM-AE / 200FB209860905	2000 FRM-AE / 200FB209860905	2000 FRM-AE / 200FB209860905

Notes:
(1) For Test 805, the Village of Ryley had a small excavation directly next to liftstation occuring during sampling event.

TABLE 5

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

		Date	3-Aug-22	15-Aug-22	27-Aug-22
		Sample ID	804	805	806
Parameter	**Units**	**AAAQO[1]**			
Total Non-Methane Organic Carbon	ppmv	-	< 0.08	< 0.08	< 0.08
1,2,3-Trimethylbenzene	ppbv	-	0.14	< 0.08	0.14
1,2,4-Trimethylbenzene	ppbv	-	< 0.04	< 0.05	0.55
1,3,5-Trimethylbenzene	ppbv	-	< 0.04	< 0.05	0.19
1-Butene/Isobutylene	ppbv	-	0.10	< 0.09	0.97
1-Hexene/2-Methyl-1-pentene	ppbv	-	< 0.10	< 0.11	< 0.11
1-Pentene	ppbv	-	0.16	< 0.05	0.26
2,2,4-Trimethylpentane	ppbv	-	0.06	< 0.03	0.14
2,2-Dimethylbutane	ppbv	-	0.06	< 0.03	< 0.03
2,3,4-Trimethylpentane	ppbv	-	0.07	< 0.03	0.13
2,3-Dimethylbutane	ppbv	-	< 0.14	< 0.14	< 0.14
2,3-Dimethylpentane	ppbv	-	0.07	< 0.03	0.11
2,4-Dimethylpentane	ppbv	-	< 0.04	< 0.05	< 0.05
2-Methylheptane	ppbv	-	< 0.03	< 0.03	0.09
2-Methylhexane	ppbv	-	0.09	< 0.05	0.19
2-Methylpentane	ppbv	-	0.05	0.06	0.19
3-Methylheptane	ppbv	-	0.06	< 0.05	0.09
3-Methylhexane	ppbv	-	0.06	< 0.03	0.25
3-Methylpentane	ppbv	-	0.09	0.03	0.22
Benzene	ppbv	-	0.06	< 0.05	0.14
cis-2-Butene	ppbv	-	< 0.04	< 0.05	0.09
cis-2-Pentene	ppbv	-	0.06	< 0.03	< 0.03
Cyclohexane	ppbv	-	0.10	< 0.06	0.20
Cyclopentane	ppbv	-	0.12	< 0.03	0.10
Ethylbenzene	ppbv	-	0.08	< 0.05	2.55
Isobutane	ppbv	-	0.58	0.14	0.56
Isopentane	ppbv	-	0.14	0.18	1.44
Isoprene	ppbv	-	0.18	0.39	0.47
Isopropylbenzene	ppbv	-	0.12	< 0.06	< 0.06
m,p-Xylene	ppbv	161	0.13	< 0.06	9.62
m-Diethylbenzene	ppbv	-	0.04	< 0.03	< 0.03
m-Ethyltoluene	ppbv	-	0.14	< 0.05	0.35
Methylcyclohexane	ppbv	-	0.10	< 0.03	0.42
Methylcyclopentane	ppbv	-	0.09	< 0.08	0.25
n-Butane	ppbv	-	0.21	0.32	2.99
n-Decane	ppbv	-	< 0.09	< 0.09	0.40
n-Dodecane	ppbv	-	< 0.4	< 0.5	< 0.5
n-Heptane	ppbv	-	0.09	< 0.06	0.30
n-Hexane	ppbv	1990	0.11	< 0.05	0.45
n-Nonane	ppbv	-	< 0.06	< 0.06	0.42
n-Octane	ppbv	-	0.08	< 0.03	0.29
n-Pentane	ppbv	-	0.29	0.13	1.33
n-Propylbenzene	ppbv	-	0.14	< 0.09	0.12
n-Undecane	ppbv	-	< 0.8	< 0.8	< 0.8
o-Ethyltoluene	ppbv	-	0.13	< 0.03	0.15
o-Xylene	ppbv	161	0.06	< 0.05	2.93
p-Diethylbenzene	ppbv	-	< 0.03	< 0.03	0.07
p-Ethyltoluene	ppbv	-	< 0.06	< 0.06	0.16
Styrene	ppbv	-	0.33	< 0.06	2.55
Toluene	ppbv	106	0.24	0.06	14.8
trans-2-Butene	ppbv	-	< 0.04	< 0.05	0.18
trans-2-Pentene	ppbv	-	0.05	< 0.03	< 0.03
Total VOCs [2]	ppbv	-	6.590	4.780	48.630

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.

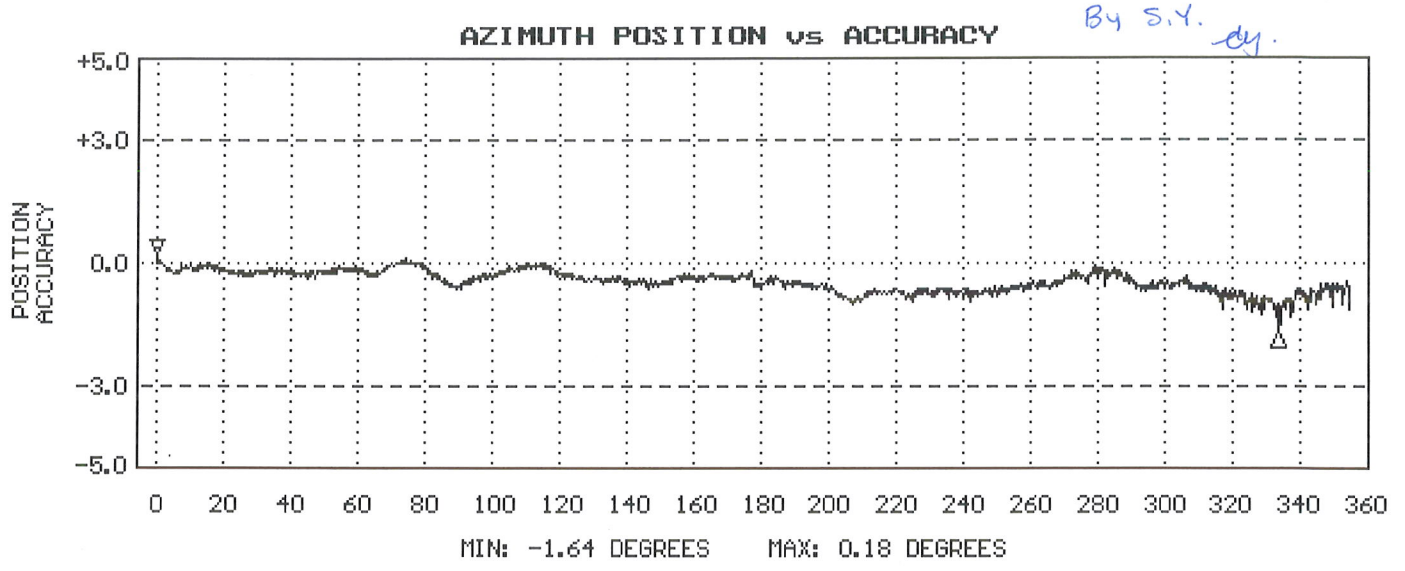
Appendix A
Meteorological Station Calibration Report

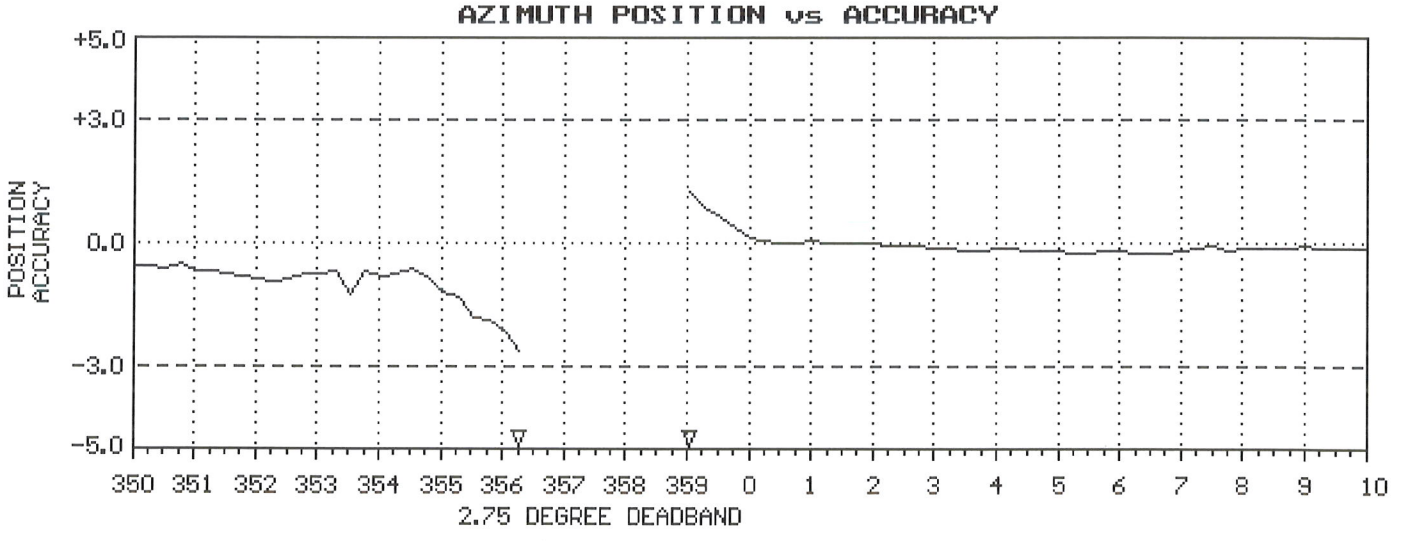
R. M. YOUNG COMPANY WIND SENSOR CALIBRATION CERTIFICATE

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 804	
Sample Canister Location:	Ryley Lift Station -Shed	
Sampled by	T. Webb	
Sampler Name:	Test 804	
Sample Date:	22/08/03	yy/mm/dd
Shipping Date to Laboratory:	22/08/05	
Canister Type (ie. 1 Litre/6 Litre/Other):	6L	
Canister Serial No.:	29019	
Flow Controller Serial No.:	H/L578699/A0334390-5	

B) SAMPLE SET UP

	Set up Conditions	Sample Retrieval
Date:	22/08/02	22/08/04
Ambient Temperature °C (inside shed):	16.3	14.5
Barometric Pressure (mm Hg):	695	693
Canister Pressure Gauge Reading (- Inches Hg):	(-)27.2	(-)5
Sample Time:	24	24

C) OBSERVATIONS

Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?	No
Describe general weather conditions during sampling event:	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:	C9702883			
PO Number:	225922			
Partisol Sampler ID/Serial Number:	2000 FRM-AE / 200FB209860905			
Test number :	Particulate Test 804			
Sample Date:	22/08/03		yy/mm/dd	
Shipping Date to Laboratory:	22/08/05			
B) SAMPLING INFORMATION				
SAMPLE START				
Sampling Start Date:	22/08/03			
Sampling Start Time:	00:00			
Current Instrument Date:	22/08/02			
Current Instrument Time:	9:20			
Ambient Temperature °C:	17.0			
Barometric Pressure (mm Hg):	695			
Leak Check:	Pass		(Pass/Fail)	
Clean PM10 Inlet:	Yes		(Yes/No)	
Weather Conditions Sampling date :	cloudy			
Weather Conditions set up:	mostly cloudy			
SAMPLE RETRIEVAL				
Sampled by	T. Webb			
Sampling End Date:	22/08/04			
Sampling End Time:	00:00			
Current Instrument Date:	22/08/04			
Current Instrument Time:	6:41			
Run Status:	OK		(Ensure Run Status is OK)	
Total Sampling Time (Hours):	24			
Volume Sampled (m^3):	22.7			
Average Flow Rate (L/min):	16.7 L/min			
AmbT °C :	14.6			
Barometric Pressure (mm Hg) :	693			
Sample Filter Temperature °C :	14.0			
Flow Rate Coefficient of Variation (%CV):	0			
Weather Conditions :	cloudy			
Leak Check:	Pass		(Pass/Fail)	
FIELD BLANK			(Once every quarter)	
Was a field blank collected	No		(Yes/No)	
Filter ID:				
Filter Batch Number:				
Current Instrument Date:				
Current Instrument Time:				
C) OBSERVATIONS				
Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?	No			
Describe facility operations that may affect sampling event:	None			
Comments:				

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

A) GENERAL INFORMATION

Sample Identification Number:	Organic Test 805	
Sample Canister Location:	Ryley Lift Station -Shed	
Sampled by	T. Webb	
Sampler Name:	Test 805	
Sample Date:	22/08/15	yy/mm/dd
Shipping Date to Laboratory:	22/08/17	
Canister Type (ie. 1 Litre/6 Litre/Other):	6L	
Canister Serial No.:	28912	
Flow Controller Serial No.:	H/L578699/A0334390-5	

B) SAMPLE SET UP

	Set up Conditions	Sample Retrieval
Date:	22/08/11	22/08/17
Ambient Temperature °C (inside shed):	17.2	14.5
Barometric Pressure (mm Hg):	701	707
Canister Pressure Gauge Reading (- Inches Hg):	(-)27	(-)8
Sample Time:	24	24

C) OBSERVATIONS

Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?	No
Describe general weather conditions during sampling event:	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:	C9702881			
PO Number:	225922			
Partisol Sampler ID/Serial Number:	2000 FRM-AE / 200FB209860905			
Test number :	Particulate Test 805			
Sample Date:	22/08/15		yy/mm/dd	
Shipping Date to Laboratory:	22/08/17			
B) SAMPLING INFORMATION				
SAMPLE START				
Sampling Start Date:	22/08/15			
Sampling Start Time:	00:00			
Current Instrument Date:	22/08/11			
Current Instrument Time:	7:06			
Ambient Temperature °C:	18.5			
Barometric Pressure (mm Hg):	701			
Leak Check:	Pass		(Pass/Fail)	
Clean PM10 Inlet:	Yes		(Yes/No)	
Weather Conditions Sampling date :	Partly cloudy			
Weather Conditions set up:	mostly cloudy			
SAMPLE RETRIEVAL				
Sampled by	T. Webb			
Sampling End Date:	22/08/16			
Sampling End Time:	00:00			
Current Instrument Date:	22/08/17			
Current Instrument Time:	6:49			
Run Status:	OK		(Ensure Run Status is OK)	
Total Sampling Time (Hours):	24			
Volume Sampled (m^3):	22.4			
Average Flow Rate (L/min):	16.7 L/min			
AmbT °C :	14.1			
Barometric Pressure (mm Hg) :	707			
Sample Filter Temperature °C :	13.2			
Flow Rate Coefficient of Variation (%CV):	0.2			
Weather Conditions :	Sunny			
Leak Check:	Pass		(Pass/Fail)	
FIELD BLANK			(Once every quarter)	
Was a field blank collected	No		(Yes/No)	
Filter ID:				
Filter Batch Number:				
Current Instrument Date:				
Current Instrument Time:				
C) OBSERVATIONS				
Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?	No			
Describe facility operations that may affect sampling event:	Village of Ryley had small excavation directly next to liftstation occuring during sa			
Comments:				

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

A) GENERAL INFORMATION

Sample Identification Number:	Organic Test 806	
Sample Canister Location:	Ryley Lift Station -Shed	
Sampled by	T. Webb	
Sampler Name:	Test 806	
Sample Date:	22/08/27	yy/mm/dd
Shipping Date to Laboratory:	22/08/30	
Canister Type (ie. 1 Litre/6 Litre/Other):	6L	
Canister Serial No.:	28884	
Flow Controller Serial No.:	H/L578699/A0334390-5	

B) SAMPLE SET UP

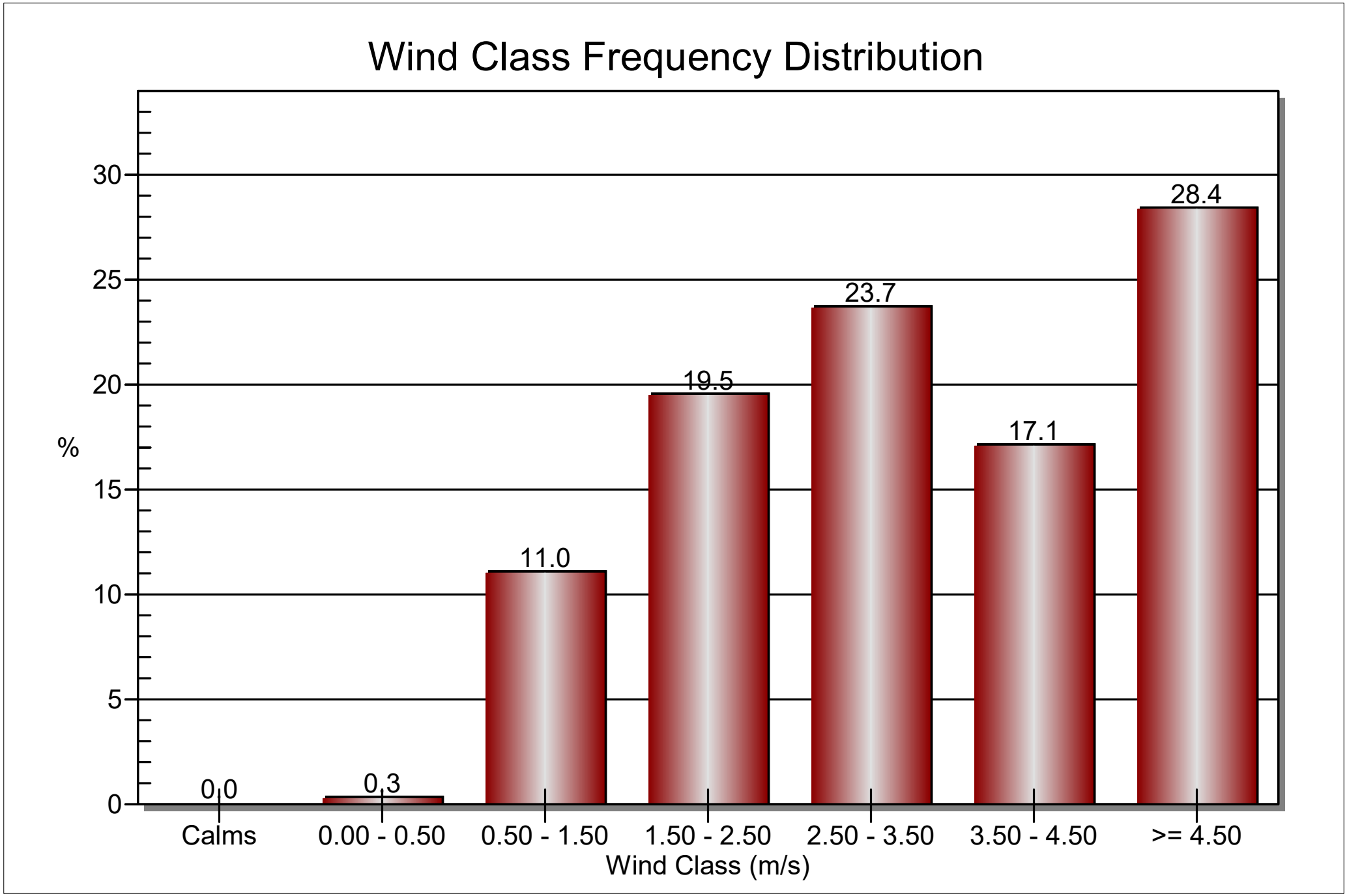
	Set up Conditions	Sample Retrieval
Date:	22/08/25	22/08/29
Ambient Temperature °C (inside shed):	10.7	9.9
Barometric Pressure (mm Hg):	705	700
Canister Pressure Gauge Reading (- Inches Hg):	(-)27.3	(-)5
Sample Time:	24	24

C) OBSERVATIONS

Was there significant precipitation (e.g., >1/2-inch rain) within 24 hours prior to (or during) the sampling event?	No
Describe general weather conditions during sampling event:	scattered showers
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:	C9698037			
PO Number:	225922			
Partisol Sampler ID/Serial Number:	2000 FRM-AE / 200FB209860905			
Test number :	Particulate Test 806			
Sample Date:	22/08/27		yy/mm/dd	
Shipping Date to Laboratory:	22/08/30			
B) SAMPLING INFORMATION				
SAMPLE START				
Sampling Start Date:	22/08/27			
Sampling Start Time:	00:00			
Current Instrument Date:	22/08/25			
Current Instrument Time:	7:27			
Ambient Temperature °C:	11.6			
Barometric Pressure (mm Hg):	705			
Leak Check:	Pass		(Pass/Fail)	
Clean PM10 Inlet:	Yes		(Yes/No)	
Weather Conditions Sampling date :	Scattered Showers			
Weather Conditions set up:	Mostly Sunny			
SAMPLE RETRIEVAL				
Sampled by	T. Webb			
Sampling End Date:	22/08/28			
Sampling End Time:	00:00			
Current Instrument Date:	22/08/29			
Current Instrument Time:	6:42			
Run Status:	OK		(Ensure Run Status is OK)	
Total Sampling Time (Hours):	24			
Volume Sampled (m^3):	22.5			
Average Flow Rate (L/min):	16.7 L/min			
AmbT °C :	10.2			
Barometric Pressure (mm Hg) :	700			
Sample Filter Temperature °C :	8.8			
Flow Rate Coefficient of Variation (%CV):	0.2			
Weather Conditions :	Partly cloudy			
Leak Check:	Pass		(Pass/Fail)	
FIELD BLANK			(Once every quarter)	
Was a field blank collected	Yes		(Yes/No)	
Filter ID:	C9702882			
Filter Batch Number:				
Current Instrument Date:	22/08/25			
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:				
Comments:				

Appendix C
Wind Class Frequency Distribution Graphs and Wind Rose

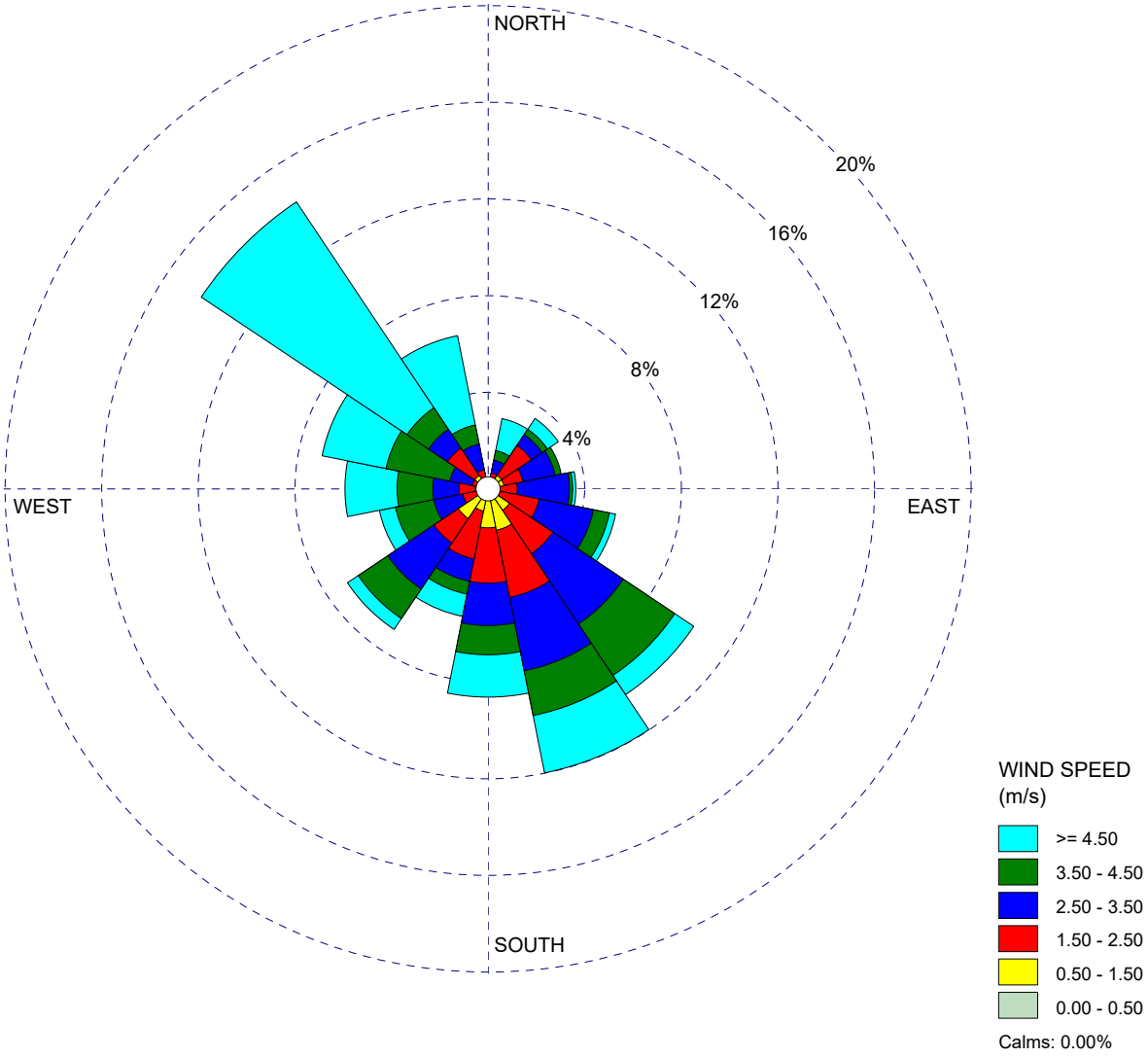

Wind Class Frequency Distribution
30
25
20
15
10
5
0
%
0.0
0.3
11.0
19.5
23.7
17.1
28.4
Calms
0.00 - 0.50
0.50 - 1.50
1.50 - 2.50
2.50 - 3.50
3.50 - 4.50
>= 4.50
Wind Class (m/s)

WIND ROSE PLOT:

Wind Rose Plot - Ryley, AB
August 2022

DISPLAY:

Wind Speed
Direction (blowing from)



COMMENTS:	DATA PERIOD: **Start Date: 8/1/2022 - 00:00** **End Date: 8/31/2022 - 23:00**	COMPANY NAME: **Clean Harbors**	
		MODELER: **GHD**	
	CALM WINDS: **0.00%**	TOTAL COUNT: **743 hrs.**	
	AVG. WIND SPEED: **3.70 m/s**	DATE: **9/7/2022**	PROJECT NO.: **11114644**

Appendix D
Chain of Custody Forms and Laboratory Analytical Reports

Sample ID: 22080077-001 Priority: Normal

ustomer ID: Clean Harbours

ust Samp ID: VOCs and TNMOC Test # 804

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
Phone:	780-663-3828
Email:	Gooding.Robbi@cleanharbors.com
Project ID:	Test 804
PO #:	225922

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
AUG 08 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: 804	Canister	29019	03/08/22	00:00	VOC PAMS & TNMOC
				04/08/22	00:00	
	PM10 Test Number: 804	PM10 filter	C9702883	03/08/22	00:00	FLT Particulate Weight
				04/08/22	00:00	

Client Authorization: _____ Laboratory Personnel: _____

(Signature) *(Signature)*

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

Sample ID: 22080077-002 Priority: Normal

Customer ID: Clean Harbours

Cust Samp ID: Filter C9702883 - PM10 Test # 804

RECEIVED
AUG 08 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: MAY 11 2022

Project: Clean Harbors

Prepared by:

Filter Size	# of Filters in Cassettes	Filter IDs
47 mm	1	C9702883

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: 29019

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: _____ on: MAY 0 9 2022

Evacuated: JUN 1 7 2022 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: Test 804

Sampled By: T. Webb

Starting Vacuum: -27.2 "Hg

End Vacuum: -5 "Hg/psig 6 KG

Sample ID: 22080077-001 **Priority:** Normal

Customer ID: Clean Harbours

Cust Samp ID: VOCs and TNMOC Test # 804

Sample ID: 22080216-001 **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 # 805

Client

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

Client Billing Information

Contact: Robbi Gooding
Phone: 780-663-3828
Email: Gooding.Robbi@cleanharbors.com
Project ID: Test 805
PO #: 225922

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
AUG 18 2022
JNP

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: 805	Canister	28912	15/08/22	00:00	VOC PAMS & TNMOC
				16/08/22	00:00	
2	PM10 Test Number: 805	PM10 filter	C9702881	15/08/22	00:00	FLT Particulate Weight
				16/08/22	00:00	

Client Authorization: _____ Laboratory Personnel: _____

(Signature) *(Signature)*

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

F163-01

Sample ID: 22080216-002 **Priority:** Normal

Customer ID: Clean Harbours
Cust Samp ID: PM10 Test #. 805, C9702881

RECEIVED
AUG 18 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: May 11 2022

Project: Clean Harbors

Prepared by:

Filter Size	# of Filters in Cassettes	Filter IDs
47 mm	1	C9702881

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

Sample ID: 22080216-001 **Priority:** Normal

Customer ID: Clean Harbours
Cust Samp ID: VOCs and TNMOC Test #: 805

InnoTech ALBERTA

Canister ID: 28912

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ 3 on: MAY 10 2022

Evacuated: MAY 19 2022 Recertified: JUL 04 2022

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

Laboratory Contact Number: 780-632-8403

Sample ID: Test 805

Sampled By: T. Wells

Starting Vacuum:	**End Vacuum:**
-27 "Hg	-8 "Hg/psig JMP

Sample ID: 22080349-001 **Priority:** Normal

Customer ID: Clean Harbours

Cust Samp ID: VOCs and TNMOC Test #: 806

CHAIN OF CUSTODY FORM

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

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

Client Reporting Information

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

Client Billing Information

Contact: Robbi Gooding
Phone: 780-663-3828
Email: Gooding.Robbi@cleanharbors.com
Project ID: Test 806
PO #: 225922

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
AUG 31 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: 806	Canister	28884	27/08/22	00:00	VOC PAMS & TNMOC
				28/08/22	00:00	
	PM10 Test Number: 806	PM10 filter	C9698037	27/08/22	00:00	FLT Particulate Weight
				28/08/22	00:00	
	PM10 Quarter 3 Field Blank	PM10 filter	C9702882	25/08/22	7:35	FLT Particulate Weight

Client Authorization: _____ Laboratory Personnel: _____

(Signature) *(Signature)*

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

Sample ID: 22080349-002 **Priority:** Normal

Customer ID: Clean Harbours
Cust Samp ID: Filter C9698037 - PM10 Test # 806

RECEIVED
AUG 31 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:

Filter Size	# of Filters in Cassettes	Filter IDs
47 mm	1	C9698037 test 806

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

Sample ID: 22080349-003 **Priority:** Normal

Customer ID: Clean Harbours
Cust Samp ID: Filter C9702882 - PM10 Quarter 3 Field B

Filter Shipping Record

RECEIVED
AUG 31 2022

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

Date: May 11 2022

Project: Clean Harbors

Prepared by: [signature]

Filter Size	# of Filters in Cassettes	Filter IDs
47 mm	1	C9702882 Qtr 3 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: 28884

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ3 on: JUN 0 8 2022

Evacuated: JUN 1 7 2022 Recertified: JUL 0 8 2022

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

Laboratory Contact Number: 780-632-8403

Sample ID: Test 806

Sampled By: T. Webb

Starting Vacuum:	End Vacuum: KG
-27.3 "Hg	-5 "Hg/psig

Sample ID: 22080349-001 **Priority:** Normal

Customer ID: Clean Harbours

Cust Samp ID: VOCs and TNMOC Test #: 806

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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

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

CLIENT SAMPLE ID: Filter C9702883 - PM10 Test # 804

Matrix: Air Filter

CANISTER ID:

PRIORITY: Normal

DESCRIPTION: PM10 Filter

DATE SAMPLED: 03-Aug-22 0:00

DATE RECEIVED: 08-Aug-22

REPORT CREATED: 18-Aug-22

REPORT NUMBER: 22080077

VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22080077-002	Particulate Weight		0.130	mg	0.004	AC-029	10-Aug-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: August 18, 2022

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
VOCs and TNMOC Test #: 804	29019	Ambient Air	03-Aug-22 0:00

DESCRIPTION: Air Canister

REPORT NUMBER: 22080077 **REPORT CREATED:** 18-Aug-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22080077-001	Total Non-Methane Organic Carbon	K, T, U	< 0.08	ppmv	0.08	NA-028	08-Aug-22
22080077-001	1,2,3-Trimethylbenzene	I	0.14	ppbv	0.08	AC-058	12-Aug-22
22080077-001	1,2,4-Trimethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Aug-22
22080077-001	1,3,5-Trimethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Aug-22
22080077-001	1-Butene/Isobutylene	I	0.10	ppbv	0.09	AC-058	12-Aug-22
22080077-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.10	ppbv	0.10	AC-058	12-Aug-22
22080077-001	1-Pentene		0.16	ppbv	0.04	AC-058	12-Aug-22
22080077-001	2,2,4-Trimethylpentane	I	0.06	ppbv	0.03	AC-058	12-Aug-22
22080077-001	2,2-Dimethylbutane	I	0.06	ppbv	0.03	AC-058	12-Aug-22
22080077-001	2,3,4-Trimethylpentane	I	0.07	ppbv	0.03	AC-058	12-Aug-22
22080077-001	2,3-Dimethylbutane	K, T, U	< 0.14	ppbv	0.14	AC-058	12-Aug-22
22080077-001	2,3-Dimethylpentane	I	0.07	ppbv	0.03	AC-058	12-Aug-22
22080077-001	2,4-Dimethylpentane	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Aug-22
22080077-001	2-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-22
22080077-001	2-Methylhexane	I	0.09	ppbv	0.04	AC-058	12-Aug-22
22080077-001	2-Methylpentane	I	0.05	ppbv	0.03	AC-058	12-Aug-22
22080077-001	3-Methylheptane	I	0.06	ppbv	0.04	AC-058	12-Aug-22
22080077-001	3-Methylhexane	I	0.06	ppbv	0.03	AC-058	12-Aug-22
22080077-001	3-Methylpentane	I	0.09	ppbv	0.03	AC-058	12-Aug-22
22080077-001	Benzene	I	0.06	ppbv	0.04	AC-058	12-Aug-22
22080077-001	cis-2-Butene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Aug-22
22080077-001	cis-2-Pentene	I	0.06	ppbv	0.03	AC-058	12-Aug-22
22080077-001	Cyclohexane	I	0.10	ppbv	0.06	AC-058	12-Aug-22
22080077-001	Cyclopentane	I	0.12	ppbv	0.03	AC-058	12-Aug-22
22080077-001	Ethylbenzene	I	0.08	ppbv	0.04	AC-058	12-Aug-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: August 18, 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 #: 804	29019	Ambient Air	03-Aug-22 0:00

DESCRIPTION: Air Canister

REPORT NUMBER: 22080077 **REPORT CREATED:** 18-Aug-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22080077-001	Isobutane		0.58	ppbv	0.04	AC-058	12-Aug-22
22080077-001	Isopentane	I	0.14	ppbv	0.06	AC-058	12-Aug-22
22080077-001	Isoprene		0.18	ppbv	0.03	AC-058	12-Aug-22
22080077-001	Isopropylbenzene	I	0.12	ppbv	0.06	AC-058	12-Aug-22
22080077-001	m,p-Xylene	I	0.13	ppbv	0.06	AC-058	12-Aug-22
22080077-001	m-Diethylbenzene	I	0.04	ppbv	0.03	AC-058	12-Aug-22
22080077-001	m-Ethyltoluene	I	0.14	ppbv	0.04	AC-058	12-Aug-22
22080077-001	Methylcyclohexane	I	0.10	ppbv	0.03	AC-058	12-Aug-22
22080077-001	Methylcyclopentane	I	0.09	ppbv	0.08	AC-058	12-Aug-22
22080077-001	n-Butane		0.21	ppbv	0.03	AC-058	12-Aug-22
22080077-001	n-Decane	K, T, U	< 0.09	ppbv	0.09	AC-058	12-Aug-22
22080077-001	n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Aug-22
22080077-001	n-Heptane	I	0.09	ppbv	0.06	AC-058	12-Aug-22
22080077-001	n-Hexane	I	0.11	ppbv	0.04	AC-058	12-Aug-22
22080077-001	n-Octane	I	0.08	ppbv	0.03	AC-058	12-Aug-22
22080077-001	n-Pentane		0.29	ppbv	0.06	AC-058	12-Aug-22
22080077-001	n-Propylbenzene	I	0.14	ppbv	0.09	AC-058	12-Aug-22
22080077-001	n-Undecane	K, T, U	< 0.8	ppbv	0.8	AC-058	12-Aug-22
22080077-001	n-Nonane	K, T, U	< 0.06	ppbv	0.06	AC-058	12-Aug-22
22080077-001	o-Ethyltoluene	I	0.13	ppbv	0.03	AC-058	12-Aug-22
22080077-001	o-Xylene	I	0.06	ppbv	0.04	AC-058	12-Aug-22
22080077-001	p-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-22
22080077-001	p-Ethyltoluene	K, T, U	< 0.06	ppbv	0.06	AC-058	12-Aug-22
22080077-001	Styrene		0.33	ppbv	0.06	AC-058	12-Aug-22
22080077-001	Toluene	I	0.24	ppbv	0.04	AC-058	12-Aug-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: August 18, 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 #: 804	29019	Ambient Air	03-Aug-22 0:00

DESCRIPTION: Air Canister

REPORT NUMBER: 22080077 **REPORT CREATED:** 18-Aug-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22080077-001	trans-2-Butene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Aug-22
22080077-001	trans-2-Pentene	I	0.05	ppbv	0.03	AC-058	12-Aug-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: August 18, 2022

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

Revision History

Order ID	Ver	Date	Reason
22080077	01	18-Aug-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

Qualifiers

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

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

Order Comments

22080077

Test # 804. Send results to Stan Yuha.

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

Sample Comments

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

Result Comments

Note:

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

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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

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

CLIENT SAMPLE ID: PM10 Test #: 805, C9702881

Matrix: Air Filter

CANISTER ID:

PRIORITY: Normal

DESCRIPTION: PM10 Filter

DATE SAMPLED: 15-Aug-22 0:00

DATE RECEIVED: 18-Aug-22

REPORT CREATED: 06-Sep-22

REPORT NUMBER: 22080216

VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22080216-002	Particulate Weight		0.720	mg	0.004	AC-029	19-Aug-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: September 6, 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 #: 805	28912	Ambient Air	15-Aug-22 0:00

DESCRIPTION: Air Canister

REPORT NUMBER: 22080216 **REPORT CREATED:** 06-Sep-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22080216-001	Total Non-Methane Organic Carbon	K, T, U	< 0.08	ppmv	0.08	NA-028	18-Aug-22
22080216-001	1,2,3-Trimethylbenzene	K, T, U	< 0.08	ppbv	0.08	AC-058	28-Aug-22
22080216-001	1,2,4-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	28-Aug-22
22080216-001	1,3,5-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	28-Aug-22
22080216-001	1-Butene/Isobutylene	K, T, U	< 0.09	ppbv	0.09	AC-058	28-Aug-22
22080216-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.11	ppbv	0.11	AC-058	28-Aug-22
22080216-001	1-Pentene	K, T, U	< 0.05	ppbv	0.05	AC-058	28-Aug-22
22080216-001	2,2,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Aug-22
22080216-001	2,2-Dimethylbutane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Aug-22
22080216-001	2,3,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Aug-22
22080216-001	2,3-Dimethylbutane	K, T, U	< 0.14	ppbv	0.14	AC-058	28-Aug-22
22080216-001	2,3-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Aug-22
22080216-001	2,4-Dimethylpentane	K, T, U	< 0.05	ppbv	0.05	AC-058	28-Aug-22
22080216-001	2-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Aug-22
22080216-001	2-Methylhexane	K, T, U	< 0.05	ppbv	0.05	AC-058	28-Aug-22
22080216-001	2-Methylpentane	I	0.06	ppbv	0.03	AC-058	28-Aug-22
22080216-001	3-Methylheptane	K, T, U	< 0.05	ppbv	0.05	AC-058	28-Aug-22
22080216-001	3-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Aug-22
22080216-001	3-Methylpentane	I	0.03	ppbv	0.03	AC-058	28-Aug-22
22080216-001	Benzene	K, T, U	< 0.05	ppbv	0.05	AC-058	28-Aug-22
22080216-001	cis-2-Butene	K, T, U	< 0.05	ppbv	0.05	AC-058	28-Aug-22
22080216-001	cis-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Aug-22
22080216-001	Cyclohexane	K, T, U	< 0.06	ppbv	0.06	AC-058	28-Aug-22
22080216-001	Cyclopentane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Aug-22
22080216-001	Ethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	28-Aug-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: September 6, 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 #: 805	28912	Ambient Air	15-Aug-22 0:00

DESCRIPTION: Air Canister

REPORT NUMBER: 22080216 **REPORT CREATED:** 06-Sep-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22080216-001	Isobutane	I	0.14	ppbv	0.05	AC-058	28-Aug-22
22080216-001	Isopentane		0.18	ppbv	0.06	AC-058	28-Aug-22
22080216-001	Isoprene		0.39	ppbv	0.03	AC-058	28-Aug-22
22080216-001	Isopropylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	28-Aug-22
22080216-001	m,p-Xylene	K, T, U	< 0.06	ppbv	0.06	AC-058	28-Aug-22
22080216-001	m-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Aug-22
22080216-001	m-Ethyltoluene	K, T, U	< 0.05	ppbv	0.05	AC-058	28-Aug-22
22080216-001	Methylcyclohexane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Aug-22
22080216-001	Methylcyclopentane	K, T, U	< 0.08	ppbv	0.08	AC-058	28-Aug-22
22080216-001	n-Butane		0.32	ppbv	0.03	AC-058	28-Aug-22
22080216-001	n-Decane	K, T, U	< 0.09	ppbv	0.09	AC-058	28-Aug-22
22080216-001	n-Dodecane	K, T, U	< 0.5	ppbv	0.5	AC-058	28-Aug-22
22080216-001	n-Heptane	K, T, U	< 0.06	ppbv	0.06	AC-058	28-Aug-22
22080216-001	n-Hexane	K, T, U	< 0.05	ppbv	0.05	AC-058	28-Aug-22
22080216-001	n-Octane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Aug-22
22080216-001	n-Pentane	I	0.13	ppbv	0.06	AC-058	28-Aug-22
22080216-001	n-Propylbenzene	K, T, U	< 0.09	ppbv	0.09	AC-058	28-Aug-22
22080216-001	n-Undecane	K, T, U	< 0.8	ppbv	0.8	AC-058	28-Aug-22
22080216-001	n-Nonane	K, T, U	< 0.06	ppbv	0.06	AC-058	28-Aug-22
22080216-001	o-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Aug-22
22080216-001	o-Xylene	K, T, U	< 0.05	ppbv	0.05	AC-058	28-Aug-22
22080216-001	p-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Aug-22
22080216-001	p-Ethyltoluene	K, T, U	< 0.06	ppbv	0.06	AC-058	28-Aug-22
22080216-001	Styrene	K, T, U	< 0.06	ppbv	0.06	AC-058	28-Aug-22
22080216-001	Toluene	I	0.06	ppbv	0.05	AC-058	28-Aug-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: September 6, 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 #: 805	28912	Ambient Air	15-Aug-22 0:00

DESCRIPTION: Air Canister

REPORT NUMBER: 22080216 **REPORT CREATED:** 06-Sep-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22080216-001	trans-2-Butene	K, T, U	< 0.05	ppbv	0.05	AC-058	28-Aug-22
22080216-001	trans-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Aug-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: September 6, 2022

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

Revision History

Order ID	Ver	Date	Reason
22080216	01	06-Sep-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

Qualifiers

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

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

Order Comments

22080216

Project ID: Test 805. Results also to Stan Yuha.

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

Sample Comments

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

Result Comments

Note:

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

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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

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

CLIENT SAMPLE ID: Filter C9698037 - PM10 Test # 806

Matrix: Air Filter

CANISTER ID:

PRIORITY: Normal

DESCRIPTION: PM10 Filter

DATE SAMPLED: 27-Aug-22 0:00

DATE RECEIVED: 31-Aug-22

REPORT CREATED: 12-Sep-22

REPORT NUMBER: 22080349

VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22080349-002	Particulate Weight		0.469	mg	0.004	AC-029	02-Sep-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: September 12, 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
Filter C9702882 - PM10 Quarter 3 Field Blank		Air Filter	25-Aug-22 7:35

DESCRIPTION: Field Blank

REPORT NUMBER: 22080349 **REPORT CREATED:** 12-Sep-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22080349-003	Particulate Weight	K, T, U	< 0.004	mg	0.004	AC-029	02-Sep-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: September 12, 2022

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
VOCs and TNMOC Test #: 806	28884	Ambient Air	27-Aug-22 0:00

DESCRIPTION: Air Canister

REPORT NUMBER: 22080349 **REPORT CREATED:** 12-Sep-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22080349-001	Total Non-Methane Organic Carbon	K, T, U	< 0.08	ppmv	0.08	NA-028	01-Sep-22
22080349-001	1,2,3-Trimethylbenzene	I	0.14	ppbv	0.08	AC-058	03-Sep-22
22080349-001	1,2,4-Trimethylbenzene		0.55	ppbv	0.05	AC-058	03-Sep-22
22080349-001	1,3,5-Trimethylbenzene	I	0.19	ppbv	0.05	AC-058	03-Sep-22
22080349-001	1-Butene/Isobutylene		0.97	ppbv	0.09	AC-058	03-Sep-22
22080349-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.11	ppbv	0.11	AC-058	03-Sep-22
22080349-001	1-Pentene		0.26	ppbv	0.05	AC-058	03-Sep-22
22080349-001	2,2,4-Trimethylpentane	I	0.14	ppbv	0.03	AC-058	03-Sep-22
22080349-001	2,2-Dimethylbutane	K, T, U	< 0.03	ppbv	0.03	AC-058	03-Sep-22
22080349-001	2,3,4-Trimethylpentane	I	0.13	ppbv	0.03	AC-058	03-Sep-22
22080349-001	2,3-Dimethylbutane	K, T, U	< 0.14	ppbv	0.14	AC-058	03-Sep-22
22080349-001	2,3-Dimethylpentane	I	0.11	ppbv	0.03	AC-058	03-Sep-22
22080349-001	2,4-Dimethylpentane	K, T, U	< 0.05	ppbv	0.05	AC-058	03-Sep-22
22080349-001	2-Methylheptane	I	0.09	ppbv	0.03	AC-058	03-Sep-22
22080349-001	2-Methylhexane		0.19	ppbv	0.05	AC-058	03-Sep-22
22080349-001	2-Methylpentane		0.19	ppbv	0.03	AC-058	03-Sep-22
22080349-001	3-Methylheptane	I	0.09	ppbv	0.05	AC-058	03-Sep-22
22080349-001	3-Methylhexane		0.25	ppbv	0.03	AC-058	03-Sep-22
22080349-001	3-Methylpentane		0.22	ppbv	0.03	AC-058	03-Sep-22
22080349-001	Benzene	I	0.14	ppbv	0.05	AC-058	03-Sep-22
22080349-001	cis-2-Butene	I	0.09	ppbv	0.05	AC-058	03-Sep-22
22080349-001	cis-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	03-Sep-22
22080349-001	Cyclohexane	I	0.20	ppbv	0.06	AC-058	03-Sep-22
22080349-001	Cyclopentane	I	0.10	ppbv	0.03	AC-058	03-Sep-22
22080349-001	Ethylbenzene		2.55	ppbv	0.05	AC-058	03-Sep-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: September 12, 2022

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
VOCs and TNMOC Test #: 806	28884	Ambient Air	27-Aug-22 0:00

DESCRIPTION: Air Canister

REPORT NUMBER: 22080349 **REPORT CREATED:** 12-Sep-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22080349-001	Isobutane		0.56	ppbv	0.05	AC-058	03-Sep-22
22080349-001	Isopentane		1.44	ppbv	0.06	AC-058	03-Sep-22
22080349-001	Isoprene		0.47	ppbv	0.03	AC-058	03-Sep-22
22080349-001	Isopropylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	03-Sep-22
22080349-001	m,p-Xylene		9.62	ppbv	0.06	AC-058	03-Sep-22
22080349-001	m-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	03-Sep-22
22080349-001	m-Ethyltoluene		0.35	ppbv	0.05	AC-058	03-Sep-22
22080349-001	Methylcyclohexane		0.42	ppbv	0.03	AC-058	03-Sep-22
22080349-001	Methylcyclopentane		0.25	ppbv	0.08	AC-058	03-Sep-22
22080349-001	n-Butane		2.99	ppbv	0.03	AC-058	03-Sep-22
22080349-001	n-Decane		0.40	ppbv	0.09	AC-058	03-Sep-22
22080349-001	n-Dodecane	K, T, U	< 0.5	ppbv	0.5	AC-058	03-Sep-22
22080349-001	n-Heptane	I	0.30	ppbv	0.06	AC-058	03-Sep-22
22080349-001	n-Hexane		0.45	ppbv	0.05	AC-058	03-Sep-22
22080349-001	n-Octane		0.29	ppbv	0.03	AC-058	03-Sep-22
22080349-001	n-Pentane		1.33	ppbv	0.06	AC-058	03-Sep-22
22080349-001	n-Propylbenzene	I	0.12	ppbv	0.09	AC-058	03-Sep-22
22080349-001	n-Undecane	K, T, U	< 0.8	ppbv	0.8	AC-058	03-Sep-22
22080349-001	n-Nonane		0.42	ppbv	0.06	AC-058	03-Sep-22
22080349-001	o-Ethyltoluene	I	0.15	ppbv	0.03	AC-058	03-Sep-22
22080349-001	o-Xylene		2.93	ppbv	0.05	AC-058	03-Sep-22
22080349-001	p-Diethylbenzene	I	0.07	ppbv	0.03	AC-058	03-Sep-22
22080349-001	p-Ethyltoluene	I	0.16	ppbv	0.06	AC-058	03-Sep-22
22080349-001	Styrene		2.55	ppbv	0.06	AC-058	03-Sep-22
22080349-001	Toluene		14.8	ppbv	0.05	AC-058	03-Sep-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: September 12, 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 #: 806	28884	Ambient Air	27-Aug-22 0:00

DESCRIPTION: Air Canister

REPORT NUMBER: 22080349 **REPORT CREATED:** 12-Sep-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22080349-001	trans-2-Butene		0.18	ppbv	0.05	AC-058	03-Sep-22
22080349-001	trans-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	03-Sep-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: September 12, 2022

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

Revision History

Order ID	Ver	Date	Reason
22080349	01	12-Sep-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

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

Qualifiers

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

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

Order Comments

22080349

Test # 806. Send results to Stan Yuha.

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.

END OF REPORT