Lakeland Industry & Community Association

SEPTEMBER 2022

Monthly Ambient Air Quality Monitoring Integrated Sampling Report

LICA-202209-INTEGRATED

October 21, 2022

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October 21, 2022

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

RE: LICA –September 2022 Monthly Ambient Air Quality Monitoring Integrated Sampling Report

Enclosed is the September 2022 Monthly Ambient Air Quality Monitoring Integrated Sampling Report for the Lakeland Industry and Community Association's (LICA) regional air quality monitoring network. This report summarizes monitoring data for samples collected using integrated methods including volatile organic compounds, polycyclic aromatic hydrocarbons, polycyclic aromatic compounds, particulate matter, ozone, hydrogen sulphide, sulphur dioxide, and nitrogen dioxide.

The representative of the Person Responsible for this monitoring program is

LICA Airshed
Michael Bisaga, Monitoring Programs Manager
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This report has been prepared, reviewed and submitted by Michael Bisaga & Lily Lin of the LICA Airshed.

NETWORK STATION SUMMARY

Listing of Air Monitoring Stations and Integrated Sampling Stations

Station Name	Cold Lake South
Station ID	1174
Coordinates	54.41402, -110.23316
VOCs	√
PAHs	√
Partisol	√
Passive	√

Listing of Passive Sampling Stations

Site ID	Name	Latitude	Longitude
2	Sand River	54.53658	-111.20898
3	Therien	54.31085	-111.22607
4	Flat Lake	54.07262	-111.20510
5	Lake Eliza	53.82417	-111.16605
6	Telegraph Creek	53.74068	-110.57655
8	Muriel-Kehewin	54.09340	-110.74437
9	Dupre	54.33462	-110.77965
10	La Corey	54.49967	-110.81792
11	Wolf lake	54.698845	-110.769700
12	Foster Creek	55.03343	-110.50453
13	Primrose	54.75848	-110.45217
14	Tamarack (formerly Maskwa)	54.60518	-110.45263
15	Ardmore	54.40670	-110.46202
16	Frog Lake	53.89065	-110.38418
17	Clear Range	53.55648	-110.15423
18	Fishing Lake	53.90295	-110.07623
19	Beaverdam	54.16925	-110.23285
22	Cold Lake South (1)	54.41370	-110.23285
23	Medley-Martineau	54.72430	-110.06618
24	Fort George	53.87830	-110.74807
25	Burnt Lake	54.79104	-110.33424
26	Mahihkan	54.63738	-110.57538
27	Mahkeses	54.59014	-110.38028
28	Town of Bonnyville	54.27530	-110.74065
29	Cold Lake South (2)	54.41385	-110.23283
32	St. Lina	54.21639	-111.50295
42	Lac La Biche	54.76516	-111.971449

Listing of Passive Aromatic Compounds Stations

Site ID	Name	Latitude	Longitude
9	Dupre	54.33462	-110.77965
10	La Corey	54.49967	-110.81792
15	Ardmore	54.40670	-110.46202
18	Fishing Lake	53.90295	-110.07623
24	Fort George	53.87830	-110.74807
32	St. Lina	54.21639	-111.50295

List of Contractors who performed the air monitoring activities

Sampling Program	Monitoring Activities Conducted By	Sample Analysis Conducted By	Data/Report Prepared By	Electronic Submission Conducted By
Intermittent (VOCs/PAHs)	Bureau Veritas	InnoTech Alberta Inc	LICA	LICA
Intermittent (PACs)	Bureau Veritas	ECCC	AEP	AEP
Partisols	Bureau Veritas	InnoTech Alberta Inc	LICA	LICA
Passives	Bureau Veritas	Bureau Veritas	LICA	LICA
NMHC Canisters	Bureau Veritas	InnoTech Alberta Inc	LICA	Not Applicable

Monitoring Notes during the Month of September 2022

Cold Lake South Station

- **Volatile Organic Compounds (VOCs)**
  - Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) where applicable.
  - The VOC sampler is programed to collect a 24-hour sample of air every sixth day as per the North American Pollution Surveillance schedule (NAPS).
  - The Xonteck sampler audit was completed on September 19. The sampler passed the audit requirements.
  - Five samples were collected this month: on September 2, 8, 14, 20 and 26.
- **Polycyclic Aromatic Hydrocarbons (PAHs)**
  - The PUF sampler is programed to collect a 24-hour sample of air every sixth day as per the North American Pollution Surveillance schedule (NAPS).
  - The TISCH PUF sampler audit was completed on September 19. The sampler passed the audit requirements.
  - Five samples were collected this month: on September 2, 8, 14, 20 and 26.
- **Partisols**

    - Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) where applicable.
    - The Partisol sampler is programed to collect a 24-hour sample of air every sixth day as per the North American Pollution Surveillance schedule (NAPS).
    - The Partisol 2000i-D sampler audit was completed on September 19. The sampler passed the audit requirements.
    - Five samples were collected this month: September 2, 8, 14, 20 and 26.
- **Passives**
    - There were no exceedances of the AAAQOs for all monitored parameters at any of the passive stations during this month.
    - The passive sample filters were installed at the stations between August 30 and September 1, and were removed between September 28 and September 30.
    - A total of 9 duplicate samples were collected: 2 for H2S, 3 for SO2, 2 for NO2 and 2 for O3.
    - No samples were collected at station 25. The field technician has not completed the necessary safety orientation for the CNRL Primrose/Burnt Lake site and access is not permitted at this time.
    - Station #18: The sampler was destroyed by gunshot. A new sampler was installed on September 29. Both SO2 and O3 sample media were also found missing during sample collection on September 29. No analytical result could be reported.
    - Station #28: The H2S sample starts being collected at this site this month.
    - Chemical species of ammonia (NH3) and nitric acid (HNO3) were added to the network to support the decision from the Acid Deposition Monitoring Strategy in October. The sample media were installed along with the existing passive parameters (SO2, H2S, NO2 and O3) in all LICA passive monitoring stations during the October sample media deployment. The media will be exchanged on a monthly basis.

Lac La Biche Station

- **Non-methane Hydrocarbons (NMHC) Canisters**
    - The canister sampling program collects a 1-hour sample of air when the continuously measured non-methane hydrocarbon (NMHC) concentration reaches a specified trigger point. The current trigger point is 0.3 ppm, and is based on real-time monitoring data that are averaged over a 5-minute period.
    - One triggered canister was collected this month: on September 14 at 07:45, at concentration of 0.54ppm. However, this event was missed during daily reviews and only noted during the monthly review. As a result, the sample was retrieved too late to be of use.

Passive polycyclic aromatic compounds (PACs) Stations

- The PAC sampling program began in December 2019, and is designed to collect a 2-month integrated sample.
- The media for September / October were installed between August 30 and September 1, and they are scheduled to be collected by the end of October or early November.

Revisions to Alberta's Ambient Air Quality Data Warehouse

No revisions to historical data previously submitted to the Alberta's Ambient Air Quality Data Warehouse were made this month.

Deviations from Authorized Monitoring Methods

There were no deviations from authorized monitoring methods.

Certification

The report was prepared and submitted by Lily Lin in accordance with Chapter 9 of the Air Monitoring Directive (AMD 2016).

Lily Lin
Data & Reporting Specialist
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The report was reviewed by Mike Bisaga in accordance with Chapter 9 of the Air Monitoring Directive (AMD 2016).

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. I also certify that at the time of this report's submission, all air data have been electronically uploaded to Alberta ETS as required by the AMD.

Michael Bisaga
Monitoring Programs Manager
Lakeland Industry & Community Association
780-266-7068
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INTEGRATED SAMPLING RESULTS SUMMARY

COLD LAKE SOUTH STATION

- **VOCs analytical results**

Sample Date	2022-09-02	2022-09-08	2022-09-14	2022-09-20	2022-09-26
Canister ID	28906	29018	29026	28891	28961
Maximum Reading (ppbv)	9.6	6.8	2.0	1.1	1.7
Parameter	Acetone	Acetone	Acetone	Acetone	Acetone

- **PAHs analytical results**

Sample Date	2022-09-02		2022-09-08		2022-09-14		2022-09-20		2022-09-26	
PUF S/N	TE-01		TE-03		TE-07		A13-02		TE-11	
Volume (Vstd m^3)	330.41		330.41		330.40		330.42		330.43	
Maximum Reading	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3
	0.30	0.91	0.14	0.42	0.27	0.82	0.16	0.48	0.31	0.94
Parameter	Phenanthrene		Phenanthrene		Phenanthrene		Phenanthrene		Phenanthrene	

- **Partisol analytical results**
  - **$PM_{2.5}$**

Sample Date	2022-09-02		2022-09-08		2022-09-14		2022-09-20		2022-09-26	
Filter #	C1164234		C9698031		C9463209		C9698033		C1164232	
Volume (Vstd m^3)	20.8		21.2		21.1		21.6		21.3	
Result	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)
Particulate Matter	0.054	0.003	0.024	0.001	0.079	0.004	0.028	0.001	0.025	0.001

  - **$PM_{2.5-10}$**

Sample Date	2022-09-02		2022-09-08		2022-09-14		2022-09-20		2022-09-26	
Filter #	C1164235		C9698032		C9463210		C9698034		C1164233	
Volume (Vstd m^3)	2.31		2.36		2.35		2.40		2.37	
Parameter	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)
PM2.5-10 Mass	0.204	0.088	0.021	0.009	0.190	0.081	0.025	0.010	0.086	0.036

- **Passive analytical results**

	H_2S		NO_2		O_3		SO_2	
Minimum (ppb)	0.09	#12	0.2	#23	13.9	#23	0.2	#23
Maximum (ppb)	3.01	#27	4.9	#10	32.3	#42	2.0	#27
Average (ppb)	0.42	-	1.13	-	23.42	-	0.53	-

ANALYTICAL SAMPLING RESULTS

COLD LAKE SOUTH STATION

VOCS

Sample Date		2022-09-02	2022-09-08	2022-09-14	2022-09-20	2022-09-26	
Canister ID		28906	29018	29026	28891	28961	
Method		AC-058	AC-058	AC-058	AC-058	AC-058	
Maximum Reading (ppbv)		9.6	6.8	2.0	1.1	1.7	
Parameter		Acetone	Acetone	Acetone	Acetone	Acetone	
Parameter	**AAAQOs (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**RDL (ppbv)**
1,1,1-Trichloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1,2,2-Tetrachloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1,2-Trichloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1-Dichloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1-Dichloroethylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
1,2,3-Trimethylbenzene		< 0.05	< 0.05	0.11	< 0.05	< 0.05	0.05
1,2,4-Trichlorobenzene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.8
1,2,4-Trimethylbenzene		< 0.03	< 0.03	0.09	< 0.03	0.03	0.05
1,2-Dibromoethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,2-Dichlorobenzene		< 0.03	< 0.03	0.08	< 0.03	< 0.03	0.03
1,2-Dichloroethane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
1,2-Dichloropropane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
1,3,5-Trimethylbenzene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02
1,3-Butadiene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02
1,3-Dichlorobenzene		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	0.3
1,4-Dichlorobenzene		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	0.4
1,4-Dioxane		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.4
1-Butene		< 0.06	< 0.06	< 0.06	< 0.06	0.07	0.02
1-Hexene		< 0.07	< 0.07	< 0.07	< 0.07	< 0.07	0.02
1-Pentene		0.03	< 0.03	0.04	0.03	< 0.03	0.01
2,2,4-Trimethylpentane		< 0.02	< 0.02	0.05	0.04	0.03	0.01
2,2-Dimethylbutane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
2,3,4-Trimethylpentane		< 0.02	< 0.02	0.04	< 0.02	< 0.02	0.01
2,3-Dimethylbutane		< 0.09	< 0.09	< 0.09	< 0.09	< 0.09	0.02
2,3-Dimethylpentane		< 0.02	< 0.02	0.05	< 0.02	0.03	0.02
2,4-Dimethylpentane		< 0.03	< 0.03	0.03	< 0.03	< 0.03	0.01
2-Methylheptane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
2-Methylhexane		< 0.03	< 0.03	0.05	0.04	0.03	0.01
2-Methylpentane		0.04	< 0.02	0.06	< 0.02	< 0.02	0.01
3-Methylheptane		< 0.03	< 0.03	0.04	< 0.03	< 0.03	0.02
3-Methylhexane		0.03	< 0.02	0.04	< 0.02	0.03	0.02
3-Methylpentane		0.02	< 0.02	0.07	0.06	0.05	0.01
Acetone	2400	9.6	6.8	2.0	1.1	1.7	0.4
Acrolein	1.9	0.6	0.4	0.4	0.4	< 0.3	0.3
Benzene	9.0	0.05	0.04	0.06	0.05	0.03	0.01
Benzyl chloride		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Bromodichloromethane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02
Bromoform		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Bromomethane		0.09	0.09	< 0.02	< 0.02	< 0.02	0.01
Carbon disulfide	10	< 0.02	< 0.02	0.02	0.03	0.63	0.01
Carbon tetrachloride		0.05	0.05	0.05	0.05	0.06	0.01
Chlorobenzene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Chloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Chloroform		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Chloromethane		0.93	0.97	0.48	0.49	0.56	0.02
cis-1,2-Dichloroethene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
cis-1,3-Dichloropropene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.04
cis-2-Butene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02
cis-2-Pentene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Cyclohexane		< 0.04	< 0.04	0.08	< 0.04	0.06	0.02
Cyclopentane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
Dibromochloromethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
Ethanol		3.6	1.7	1.3	0.5	1.5	0.3
Ethyl acetate		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Ethylbenzene	460	< 0.03	< 0.03	0.08	0.07	< 0.03	0.01
Freon-11		0.62	0.59	0.18	0.19	0.15	0.02
Freon-113		0.05	0.05	0.02	0.03	< 0.02	0.01
Freon-114		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - September 2022

Volatile Organic Compounds (VOCs) Results

Sample Date		2022-09-02	2022-09-08	2022-09-14	2022-09-20	2022-09-26	
Canister ID		28906	29018	29026	28891	28961	
Method		AC-058	AC-058	AC-058	AC-058	AC-058	
Maximum Reading (ppbv)		9.6	6.8	2.0	1.1	1.7	
Parameter		Acetone	Acetone	Acetone	Acetone	Acetone	
Parameter	**AAAQOs (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**RDL (ppbv)**
Freon-12		0.77	0.75	0.58	0.64	0.37	0.02
Hexachloro-1,3-butadiene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.5
Isobutane		0.42	0.15	0.5	0.16	0.52	0.02
Isopentane		0.56	0.34	0.26	0.11	0.29	0.03
Isoprene		3.51	0.25	0.12	0.1	0.10	0.01
Isopropyl alcohol		< 0.3	< 0.3	0.3	< 0.3	< 0.3	0.4
Isopropylbenzene		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.01
m,p-Xylene		0.06	< 0.04	0.12	0.11	< 0.04	0.03
m-Diethylbenzene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
m-Ethyltoluene		< 0.03	< 0.03	0.04	0.04	< 0.03	0.08
Methyl butyl ketone		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	0.5
Methyl ethyl ketone		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Methyl isobutyl ketone		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Methyl methacrylate		< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	0.07
Methyl tert butyl ether		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
Methylcyclohexane		0.04	0.03	0.05	0.05	0.06	0.01
Methylcyclopentane		< 0.05	< 0.05	0.07	0.06	0.1	0.02
Methylene chloride		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
n-Butane		0.96	0.41	0.51	0.1	0.44	0.03
n-Decane		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.06
n-Dodecane		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
n-Heptane		< 0.04	< 0.04	0.07	0.06	< 0.04	0.01
n-Hexane	5960	0.04	< 0.03	0.04	0.03	0.05	0.01
n-Nonane		< 0.04	< 0.04	0.05	0.04	< 0.04	0.01
n-Octane		< 0.02	< 0.02	0.04	0.04	0.02	0.02
n-Pentane		0.17	0.18	0.18	0.1	0.20	0.1
n-Propylbenzene		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.05
n-Undecane		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.5
Naphthalene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.5
o-Ethyltoluene		< 0.02	< 0.02	0.03	0.03	< 0.02	0.01
o-Xylene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
p-Diethylbenzene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
p-Ethyltoluene		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.07
Styrene	52.0	< 0.04	< 0.04	0.07	0.07	0.04	0.04
Tetrachloroethylene		< 0.02	< 0.02	0.04	0.03	< 0.02	0.04
Tetrahydrofuran		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Toluene	499	0.16	0.14	0.09	0.06	0.07	0.01
trans-1,2-Dichloroethylene		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.01
trans-1,3-Dichloropropylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
trans-2-Butene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
trans-2-Pentene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Trichloroethylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
Vinyl acetate		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Vinyl chloride	51	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02

PAHS

Sample Date	2022-09-02		2022-09-08		2022-09-14		2022-09-20		2022-09-26	
PUF S/N	TE-01		TE-03		TE-07		A13-02		TE-11	
Volume (Vstd m^3)	330.41		330.41		330.40		330.42		330.43	
Method	AC-066		AC-066		AC-066		AC-066		AC-066	
Maximum Reading	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3
	0.30	0.91	0.14	0.42	0.27	0.82	0.16	0.48	0.31	0.94
Parameter	Phenanthrene		Phenanthrene		Phenanthrene		Phenanthrene		Phenanthrene	

Parameter	Result (ug)	Result (ng/m^3)	Result (ug)	Result (ng/m^3)	Result (ug)	Result (ng/m^3)	Result (ug)	Result (ng/m^3)	Result (ug)	Result (ng/m^3)	RDL (ug)
1-Methylnaphthalene	0.04	0.12	0.02	0.06	0.11	0.33	0.06	0.18	0.03	0.09	0.01
2-Methylnaphthalene	0.05	0.15	0.01	0.03	0.16	0.48	0.07	0.21	0.02	0.06	0.01
3-Methylcholanthrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
7,12-Dimethylbenz(a)anthracene	0.02	0.06	0.01	0.03	0.02	0.06	0.02	0.06	0.01	0.03	0.01
Acenaphthene	0.02	0.06	< 0.01	0.00	0.03	0.09	0.01	0.03	< 0.01	0.00	0.01
Acenaphthylene	< 0.01	0.00	< 0.01	0.00	0.01	0.03	< 0.01	0.00	< 0.01	0.00	0.01
Acridine	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Anthracene	< 0.01	0.00	< 0.01	0.00	0.02	0.06	0.02	0.06	0.03	0.09	0.01
Benzo(a)anthracene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Benzo(a)pyrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Benzo(b,j,k)fluoranthene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01	0.03	0.01
Benzo(c)phenanthrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.07	0.21	< 0.01	0.00	0.01
Benzo(e)pyrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Benzo(ghi)perylene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Chrysene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Dibenzo(a,h)pyrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Dibenzo(a,i)pyrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Dibenzo(a,l)pyrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Dibenzo(ah)anthracene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Fluoranthene	0.02	0.06	< 0.01	0.00	0.02	0.06	0.01	0.03	0.03	0.09	0.01
Fluorene	0.07	0.21	0.04	0.12	0.08	0.24	0.04	0.12	0.06	0.18	0.01
Indeno(1,2,3-cd)pyrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Naphthalene	0.03	0.09	< 0.01	0.00	0.12	0.36	0.03	0.09	< 0.01	0.00	0.01
Perylene	0.01	0.03	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Phenanthrene	0.30	0.91	0.14	0.42	0.27	0.82	0.16	0.48	0.31	0.94	0.01
Pyrene	0.03	0.09	< 0.01	0.00	0.02	0.06	0.01	0.03	0.03	0.09	0.01
Retene	0.02	0.06	0.03	0.09	0.03	0.09	0.02	0.06	0.02	0.06	0.01

PARTISOLS

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - September 2022

Partisol Results - $PM_{2.5}$

Sample Date		**2022-09-02**		**2022-09-08**		**2022-09-14**		**2022-09-20**		**2022-09-26**		
Filter #		**C1164234**		**C9698031**		**C9463209**		**C9698033**		**C1164232**		
Volume (Vstd m^3)		**20.8**		**21.2**		**21.1**		**21.6**		**21.3**		
Method		**AC-029**		**AC-029**		**AC-029**		**AC-029**		**AC-029**		
Parameter	**AAAQO (mg/m3)**	**Result (mg)**	**Result (mg/m^3)**	**Result (mg)**	**Result (mg/m^3)**	**Result (mg)**	**Result (mg/m^3)**	**Result (mg)**	**Result (mg/m^3)**	**Result (mg)**	**Result (mg/m^3)**	**RDL (mg)**
Particulate Matter	0.029	**0.054**	**0.003**	**0.024**	**0.001**	**0.079**	**0.004**	**0.028**	**0.001**	**0.025**	**0.001**	0.004
PM2.5 Mass in ug/m3			**2.596**		**1.132**		**3.744**		**1.296**		**1.174**	
RDL in ug/m3			**0.192**		**0.189**		**0.190**		**0.185**		**0.188**	

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - September 2022

Partisol Results -$PM_{2.5}$-PM_{10}

Sample Date	**2022-09-02**	**2022-09-08**	**2022-09-14**	**2022-09-20**	**2022-09-26**
Filter #	**C1164235**	**C9698032**	**C9463210**	**C9698034**	**C1164233**
Volume (Vstd m^3)	**2.31**	**2.36**	**2.35**	**2.40**	**2.37**
Method	**AC-029**	**AC-029**	**AC-029**	**AC-029**	**AC-029**

Parameter	**Result (mg)**	**Result (mg/m^3)**	**Result (mg)**	**Result (mg/m^3)**	**Result (mg)**	**Result (mg/m^3)**	**Result (mg)**	**Result (mg/m^3)**	**Result (mg)**	**Result (mg/m^3)**	**RDL (mg)**
PM2.5-10 Mass	**0.204**	**0.088**	**0.021**	**0.009**	**0.190**	**0.081**	**0.025**	**0.010**	**0.086**	**0.036**	0.004

PM2.5-10 Mass in ug/m3	**88.312**	**8.898**	**80.851**	**10.417**	**36.287**
RDL in ug/m3	**1.732**	**1.695**	**1.702**	**1.667**	**1.688**

PASSIVE SAMPLES

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

September 2022

Passive Results

	H_2S		NO_2		O_3		SO_2	
Minimum (ppb)	0.09	#12	0.2	#23	13.9	#23	0.2	#23
Maximum (ppb)	3.01	#27	4.9	#10	32.3	#42	2.0	#27
Average (ppb)	0.42	-	1.13	-	23.42	-	0.53	-

No.	Station	Sample	Duplicate	Sample	Duplicate	Sample	Duplicate	Sample	Duplicate
3	Therien	0.22		0.9		31.1		0.3	
4	Flat Lake	-		0.8		24.9		0.4	
5	Lake Eliza	0.26		0.7		25.5		0.4	
6	Telegraph Creek	-		3.1		22.6		0.4	0.5
8	Muriel-Kehewin	-		0.7		31.0		0.5	0.5
9	Dupre	-		1.0		20.0		0.3	0.4
10	La Corey	0.15		4.9		16.4		0.5	
11	Wolf Lake	0.11		0.5		16.8		.	
12	Foster Creek	0.09	0.11	0.5		22.1		0.4	
13	Primrose	0.12	0.14	0.4		19.7		0.4	
14	Tamarack	0.46		1.4		27.1		1.8	
15	Ardmore	-		1.0		19.9		0.3	
16	Frog Lake	0.18		0.7		23.5		0.4	
17	Clear Range	0.49		1.1		29.6		0.5	
18	Fishing Lake	Missing 2		0.6		Missing 2		Missing 2	
19	Beaverdam	-		0.6		24.0		0.3	
22	Cold Lake South (1)	0.17		0.8		20.2		0.3	
23	Medley-Martineau	-		0.2	0.3	13.9	15.0	0.2	
24	Fort George	0.20		1.6	1.8	24.5	26.1	0.5	
25	Burnt Lake	Missing 1		-		-		Missing 1	
26	Mahihkan	0.19		-		-		0.6	
27	Mahkeses	3.01		-		-		2.0	
28	Town of Bonnyville	0.64		2.3		23.5		0.6	
29	Cold Lake South (2)	0.26		0.8		20.3		0.3	
32	St. Lina	0.29		0.4		26.4		0.4	
42	Lac La Biche	0.28		0.9		32.3		0.3	
Reportable Detection Limit (RDL)		**0.02**		**0.1**		**0.1**		**0.1**	

Note:

1 - : Sample collection was not required at the station.
2 Missing 1: Access to the station was not possible due to lack of permit to access the stations.
3 Blank (Duplicate): no duplicate sample was taken.
4 Missing 2: The sampler was damaged by gunshot, and sample media were either damaged or missing.
5 Station #28: H2S sample starts being collected this month.

EQUIPMENT AUDIT / CALIBRATION RECORDS

TISCH PUF PLUS SAMPLER AUDIT

Date:	September 19, 2022	**PUF PLUS Serial #:**	100-1020
Company/Airshed:	LICA	**Performed By/Reviewer:**	Alex Yakupov / Chris Wesson
Location/Station Name:	Cold Lake South	**Weather Conditions:**	A few clouds

Reference Standards/I.D./Expiry Date:

Orifice Plate Kit:	Tisch PUF Plus TE-5040A id# 1626 expires Feb 28, 2023
Digital Manometer:	Dwyer 475 Mark III id# 3 expires February 27, 2023
Temperature:	Vaisala HMP76B/ SN: T1640130 / Jun 14, 2023
Pressure:	Fisher Scientific FB61291/ SN: 130168457 / Feb 27, 2023

TISCH PUF PLUS PRESSURE AND TEMPERATURE AUDIT

AS FOUND Reference Barometric Pressure (mmHg):	708	**AS FOUND Reference Temperature (°C):**	9.4
AS FOUND PUF PLUS Barometric Pressure (mmHg):	709	**AS FOUND PUF PLUS Temperature (°C):**	10.1
% Difference (+/- 2% max.):	**-0.14%**	**% Difference (+/- 2 °C max.):**	**-0.7**
****IF THE PRESSURE DEVIATES BY MORE THAN +/- 2% A FLOW CALIBRATION IS REQUIRED****		****IF THE TEMPERATURE DEVIATES BY MORE THAN +/- 2 °C FLOW CALIBRATION IS REQUIRED****	**A**

TISCH PUF PLUS FLOW AUDIT

Flow Audit Calculations:

Enter Barometric Pressure from reference (inHg)	27.87
Barometric Pressure (mmHg)	707.9
Enter Ambient Temperature from reference °C	9.4
Enter "m" variable from calibrated orifice	9.80415
Enter "b" variable from calibrated orifice	-0.06134
Enter Δp in. H_2O	4.91
Standardized Flow lpm=	230.27
Flow Set Point lpm=	230.00
% Difference (+/- 2% max.)=	**-0.12%**

****IF THE FLOW DEVIATES BY MORE THAN +/- 2% A FLOW CALIBRATION IS REQUIRED****

R, A1 and A0 Factors:

	As Found/As Left Pressure:	As Found/As Left Temperature:	As Found/As Left Flow:
A0	14823.1796	-6613.4765	0.2879
A1	22.8942	0.1641	16.8673
R	0.0000	0.0000	0.0000

Notes:

n/a

XONTECK VERIFICATION/CALIBRATION

Date:	September 19, 2022	**Last Cal. Date:**	June 14, 2022
Company/Airshed:	LICA	**Start Time 24 hr. (mst):**	9:14
Station Name:	Cold Lake South	**End Time 24 hr. (mst):**	10:23
Sampler s/n:	6200	**Performed By:**	Alex Yakupov
Purpose:	Routine Quarterly	**Reviewer:**	Chris Wesson

XONTECK MAINTENANCE

Item:	Most Recent Date Completed:
1. Replace sample line and fittings from sampler to canister every 6 months.	September 19, 2022
2. Purge line from manifold--> sampler with zero air every 6 months.	September 19, 2022
3. Sample system cleaning every 2 years.	n/a
4. Perform 12 hour leak check procedure every 6 months.	September 19, 2022

COMMENTS:

A leak check was completed using a VOC canister. Leak check starts at 09:14, ends at 10:15. No leaks were detected over one hour.

Partisol 2000i-D Audit

Date/Previous Audit Date:	September 19, 2022	June 14, 2022	**Weather Conditions:**	A few clouds	
Company:	LICA		**Start Time (mst):**	10:15	
Station:	Cold Lake South		**End Time (mst):**	11:24	
Parameter:	PM 2.5		**Performed By/Reviewer:**	Alex Yakupov	Chris Wesson

Sampler		**Instrument Data**		
Make/Model:	Partisol 2000i-D	**Ambient Temperature (°C):**	9.7	
Serial Number:	200DIW202441804	**Filter Temperature (°C):**	9.2	
Owner:	LICA	**Fine/Coarse Set Flow (litres/min):**	15.00	1.67
Reference Pressure (mmHg):	709.0	**RH (%)**	55.10	

Reference Standards/I.D./Expiry Date:

High Flow:	DwyerMark III /ID# 3/ Feb 27, 2023
Low Flow:	DwyerMark III /ID# 3/ Feb 27, 2023
Digital Manometer:	DwyerMark III /ID# 3/ Feb 27, 2023
Temperature:	Vaisala HMP76B/ SN: T1640130 / Jun 14, 2023
Pressure:	FS FB61291 / SN: 130168457 / Feb 27, 2023

Reference Temperature: (+/-2 °C)	9.5	**Δ °C**	-0.2
Reference Pressure: (+/- 10 mmHg)	708.0	**Δ mmHg**	-1.0
Coarse Reference Flow (+/- 5%)	1.65	**litres/min**	-1.2%
Fine Reference Flow (+/- 5%)	15.10	**litres/min**	0.7%
Relative Humidity (+/- 1.5% RH)	98.0	**%**	42.9

Leak Check - External Mode

Partisol 2000i-D Leak Check: **External Mode has been selected, pass/fail criteria =+/- 25 mmHg.**

Pressure Drop Measured (mmHg): **7** **Pass**

Other Checks:

Rubber Seal Condition:	okay
Inlet Head Cleanliness:	cleaned today
Inline Filter Condition:	okay
Status Alarms:	None
Insulating Jacket Condition:	n/a
Side Hoods and Dust Filters:	cleaned today
Location v.s. AMD:	good
Flow Setting Actual or Standard ?:	actual

		As Found	**As Left**
Did the temperature require adjustment?	**No**	9.7	9.7
Did the ambient pressure require adjustment?	**No**	709.000	709.000
Did the fine flow require adjustment?	**No**	1.65	1.650
Did the coarse flow require adjustment?	**No**	15.10	15.100

Recommendations/Comments:

Sample inlet was cleaned. (Total flow = 16.75, Pm 2.5 flow = 15.1)

End of Report

Lakeland Industry & Community Association

SEPTEMBER 2022

Ambient Air Monitoring

Certified Laboratory Analysis Report

LAB-LICA-202209

Operation and Maintenance:
Bureau Veritas Canada

Data Validation and Analytical Report:
Bureau Veritas Canada and InnoTech Alberta

October 21, 2022

Table of Contents

Cold Lake South Station

Volatile Organic Compounds (VOCs) & Polycyclic Aromatic Hydrocarbons (PAHs) Samples

Sample ID: 22090074-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Sep 2, 2022

RECEIVED
SEP 0 8 2022

Bureau Veritas

VOC Sample Collection Data Sheet Alberta Air FCD AIR FCD-01320 / 2

Client:	LICA	**Sampler S/N:**	6200
Location:	Cold Lake South	**Canister ID:**	28906
Station ID:	LICA 01	**Installation Date/Time (mst):**	Aug 29, 2022 @ 11:13
Sample ID:	LICA/VOC/CLS/Sep 2, 2022	**Removal Date/Time (mst):**	Sep 06, 2022@ 17:34

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
September 2, 2022	0:00	23:59	24

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.3	19.0

Flow Settings		
Flow Reading (sccm)	Pot Set Point	Pump Set (psi)
10.00	4.98	24.0

Deployment/Collection and Maintenance Checklist

Initial leak check deployment vacuum (in. Hg) =	n/a	@	n/a	mst	**Leak rate must be 0.0 psi over a minimum of 5 minutes or repair is required**
Final leak check deployment vacuum (in. Hg) =	n/a	@	n/a	mst	
Total leak rate =	n/a	psi over	n/a	minutes	
Timer reset to zero prior to sampling?	YES	(yes/no)			

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 22090074-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Sep 2, 2022

RECEIVED
SEP 08 2022

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	TE-01
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Aug 29, 2022 @ 11:15
Field Sample ID:	LICA/PUF/CLS/Sep 2, 2022	**Removal Date/Time:**	Sep 06, 2022 @ 17:41

Sample Data Collection Information

Sample Date:	2-Sep-22	**Average Pressure (mmHg)**	711
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	19.8
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.41

Sample Recovery Checklist

	(circle one)	
Flow Rate 230 slpm +/- 0.2 slpm ?	**YES**	NO
Average temperature appears correct?	**YES**	NO
Average pressure appears correct?	**YES**	NO
Any error messages? (if yes list below)	YES	**NO**
Sample duration 24 hours?	**YES**	NO
Other observations?		n/a

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

InnoTech ALBERTA

Canister ID: 28906

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: _____ on: MAY 04 2022

Evacuated: MAY 10 2022 Recertified: AUG 02 2022

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Sep 2, 2022

Sampled By: Alex Yakupov

Starting Vacuum:	End Vacuum:
-27.1 "Hg	+19.0 "Hg/psig

JVP

InnoTech ALBERTA

Canister ID: TE-01

This cleaned canister meets or exceeds TO-15 Method Specifications

PUF

Proofed by: _____ on: _____

Evacuated: _____ Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/PUF/CLS/Sep 2, 2022

Sampled By: Alex Yakupov

Starting Vacuum:	End Vacuum:
_____ "Hg	_____ "Hg/psig

Sample ID: 22090074-001 Priority: Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Sep 2, 2022

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

INVOICE: Maria Cueva
PO Box 8237
5107W-50 St
Bonnyville
AB T9N 2J5

CLIENT SAMPLE ID: LICA/PUF/CLS/Sep 2, 2022
Matrix: Air Filter
CANISTER ID: TE-01
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 02-Sep-22 0:00
DATE RECEIVED: 08-Sep-22
REPORT CREATED: 21-Oct-22
REPORT NUMBER: 22090074
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22090074-002	1-Methylnaphthalene		0.04	ug/Filter	0.01	AC-066	15-Oct-22
22090074-002	2-Methylnaphthalene		0.05	ug/Filter	0.01	AC-066	15-Oct-22
22090074-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Oct-22
22090074-002	7,12-Dimethylbenz(a)anthracene		0.02	ug/Filter	0.01	AC-066	15-Oct-22
22090074-002	Acenaphthene		0.02	ug/Filter	0.01	AC-066	15-Oct-22
22090074-002	Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Oct-22
22090074-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Oct-22
22090074-002	Anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Oct-22
22090074-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Oct-22
22090074-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Oct-22
22090074-002	Benzo(b,j,k)fluoranthene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Oct-22
22090074-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Oct-22
22090074-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Oct-22
22090074-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Oct-22
22090074-002	Chrysene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Oct-22
22090074-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Oct-22
22090074-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Oct-22
22090074-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Oct-22

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

Date: October 21, 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
LICA/PUF/CLS/Sep 2, 2022	TE-01	Air Filter	02-Sep-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22090074 **REPORT CREATED:** 21-Oct-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22090074-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Oct-22
22090074-002	Fluoranthene		0.02	ug/Filter	0.01	AC-066	15-Oct-22
22090074-002	Fluorene		0.07	ug/Filter	0.01	AC-066	15-Oct-22
22090074-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Oct-22
22090074-002	Naphthalene		0.03	ug/Filter	0.01	AC-066	15-Oct-22
22090074-002	Perylene		0.01	ug/Filter	0.01	AC-066	15-Oct-22
22090074-002	Phenanthrene		0.30	ug/Filter	0.01	AC-066	15-Oct-22
22090074-002	Pyrene		0.03	ug/Filter	0.01	AC-066	15-Oct-22
22090074-002	Retene		0.02	ug/Filter	0.01	AC-066	15-Oct-22

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

Date: October 21, 2022

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

InnoTech ALBERTA
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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Sep 2, 2022	28906	Ambient Air	02-Sep-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22090074 **REPORT CREATED:** 21-Oct-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22090074-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Sep-22
22090074-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Sep-22
22090074-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Sep-22
22090074-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Sep-22
22090074-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Sep-22
22090074-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	14-Sep-22
22090074-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Sep-22
22090074-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Sep-22
22090074-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Sep-22
22090074-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Sep-22
22090074-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Sep-22
22090074-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Sep-22
22090074-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Sep-22
22090074-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Sep-22
22090074-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	14-Sep-22
22090074-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	14-Sep-22
22090074-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	14-Sep-22
22090074-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	14-Sep-22
22090074-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	14-Sep-22
22090074-001	1-Pentene	I	0.03	ppbv	0.03	AC-058	14-Sep-22
22090074-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Sep-22
22090074-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Sep-22
22090074-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Sep-22
22090074-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	14-Sep-22
22090074-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Sep-22

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

Date: October 21, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Sep 2, 2022	28906	Ambient Air	02-Sep-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22090074 **REPORT CREATED:** 21-Oct-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22090074-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Sep-22
22090074-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Sep-22
22090074-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Sep-22
22090074-001	2-Methylpentane	I	0.04	ppbv	0.02	AC-058	14-Sep-22
22090074-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Sep-22
22090074-001	3-Methylhexane	I	0.03	ppbv	0.02	AC-058	14-Sep-22
22090074-001	3-Methylpentane	I	0.02	ppbv	0.02	AC-058	14-Sep-22
22090074-001	Acetone		9.6	ppbv	0.4	AC-058	14-Sep-22
22090074-001	Acrolein		0.6	ppbv	0.3	AC-058	14-Sep-22
22090074-001	Benzene	I	0.05	ppbv	0.03	AC-058	14-Sep-22
22090074-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Sep-22
22090074-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Sep-22
22090074-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Sep-22
22090074-001	Bromomethane	I	0.09	ppbv	0.02	AC-058	14-Sep-22
22090074-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Sep-22
22090074-001	Carbon tetrachloride	I	0.05	ppbv	0.02	AC-058	14-Sep-22
22090074-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Sep-22
22090074-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Sep-22
22090074-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Sep-22
22090074-001	Chloromethane		0.93	ppbv	0.04	AC-058	14-Sep-22
22090074-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Sep-22
22090074-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Sep-22
22090074-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Sep-22
22090074-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Sep-22
22090074-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	14-Sep-22

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Sep 2, 2022	28906	Ambient Air	02-Sep-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22090074 **REPORT CREATED:** 21-Oct-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22090074-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Sep-22
22090074-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Sep-22
22090074-001	Ethanol		3.6	ppbv	0.5	AC-058	14-Sep-22
22090074-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Sep-22
22090074-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Sep-22
22090074-001	Freon-11		0.62	ppbv	0.02	AC-058	14-Sep-22
22090074-001	Freon-113	I	0.05	ppbv	0.02	AC-058	14-Sep-22
22090074-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Sep-22
22090074-001	Freon-12		0.77	ppbv	0.03	AC-058	14-Sep-22
22090074-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Sep-22
22090074-001	Isobutane		0.42	ppbv	0.03	AC-058	14-Sep-22
22090074-001	Isopentane		0.56	ppbv	0.04	AC-058	14-Sep-22
22090074-001	Isoprene		3.51	ppbv	0.02	AC-058	14-Sep-22
22090074-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Sep-22
22090074-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	14-Sep-22
22090074-001	m,p-Xylene	I	0.06	ppbv	0.04	AC-058	14-Sep-22
22090074-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Sep-22
22090074-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Sep-22
22090074-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	14-Sep-22
22090074-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Sep-22
22090074-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Sep-22
22090074-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	14-Sep-22
22090074-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Sep-22
22090074-001	Methylcyclohexane	I	0.04	ppbv	0.02	AC-058	14-Sep-22
22090074-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	14-Sep-22

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Sep 2, 2022	28906	Ambient Air	02-Sep-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22090074 **REPORT CREATED:** 21-Oct-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22090074-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Sep-22
22090074-001	n-Butane		0.96	ppbv	0.02	AC-058	14-Sep-22
22090074-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	14-Sep-22
22090074-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Sep-22
22090074-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	14-Sep-22
22090074-001	n-Hexane	I	0.04	ppbv	0.03	AC-058	14-Sep-22
22090074-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Sep-22
22090074-001	n-Pentane		0.17	ppbv	0.04	AC-058	14-Sep-22
22090074-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	14-Sep-22
22090074-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	14-Sep-22
22090074-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Sep-22
22090074-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	14-Sep-22
22090074-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Sep-22
22090074-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Sep-22
22090074-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Sep-22
22090074-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	14-Sep-22
22090074-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	14-Sep-22
22090074-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Sep-22
22090074-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Sep-22
22090074-001	Toluene	I	0.16	ppbv	0.03	AC-058	14-Sep-22
22090074-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	14-Sep-22
22090074-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Sep-22
22090074-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Sep-22
22090074-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Sep-22
22090074-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Sep-22

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Sep 2, 2022	28906	Ambient Air	02-Sep-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22090074 **REPORT CREATED:** 21-Oct-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22090074-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Sep-22
22090074-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Sep-22

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

Date: October 21, 2022

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

Revision History

Order ID	Ver	Date	Reason
22090074	01	21-Oct-22	Report created

Methods

Method	Description
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
AC-066	Polycyclic Aromatic Hydrocarbons from 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

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: 22090152-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Sep 8, 2022

RECEIVED
SEP 15 2022

Bureau Veritas

VOC Sample Collection Data Sheet Alberta Air FCD AIR FCD-01320 / 2

Client:	LICA	**Sampler S/N:**	6200
Location:	Cold Lake South	**Canister ID:**	29018
Station ID:	LICA 01	**Installation Date/Time (mst):**	Sep 6, 2022 @ 17:54
Sample ID:	LICA/VOC/CLS/Sep 8, 2022	**Removal Date/Time (mst):**	Sep 12, 2022@ 18:10

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
September 8, 2022	0:00	23:59	24

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.2	18.2

Flow Settings		
Flow Reading (sccm)	Pot Set Point	Pump Set (psi)
10.00	4.98	24.0

Deployment/Collection and Maintenance Checklist

Initial leak check deployment vacuum (in. Hg) =	n/a	@	n/a	mst	**Leak rate must be 0.0 psi over a minimum of 5 minutes or repair is required**
Final leak check deployment vacuum (in. Hg) =	n/a	@	n/a	mst	
Total leak rate =	n/a	psi over	n/a	minutes	
Timer reset to zero prior to sampling?	YES	(yes/no)			

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 22090152-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Sep 8, 2022

RECEIVED
SEP 15 2022

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	TE-03
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Sep 6, 2022 @ 17:55
Field Sample ID:	LICA/PUF/CLS/Sep 8, 2022	**Removal Date/Time:**	Sep 12, 2022 @ 18:07

Sample Data Collection Information

Sample Date:	8-Sep-22	**Average Pressure (mmHg)**	711
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	13.2
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.41

Sample Recovery Checklist

	(circle one)	
Flow Rate 230 slpm +/- 0.2 slpm ?	YES	NO
Average temperature appears correct?	YES	NO
Average pressure appears correct?	YES	NO
Any error messages? (if yes list below)	YES	NO
Sample duration 24 hours?	YES	NO
Other observations?		n/a

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

Sample ID: 22090152-001 Priority: Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Sep 8, 2022

InnoTech ALBERTA

Canister ID: 29018

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ3 on: MAY 10 2022

Evacuated: JUN 17 2022 Recertified: JUL 08 2022

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Sep 8, 2022

Sampled By: Alex Yakupov

Starting Vacuum: -27.2 "Hg

End Pressure: JWP +18.2 "Hg/ psig

InnoTech ALBERTA

Canister ID: TE-03

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: PUF on:

Evacuated: Recertified:

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/PUF/CLS/Sep8,2022

Sampled By: Alex Yakupov

Starting Vacuum: "Hg

End Vacuum: "Hg/psig

PO Bag 4000
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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

INVOICE: Maria Cueva
PO Box 8237
5107W-50 St
Bonnyville
AB T9N 2J5

CLIENT SAMPLE ID: LICA/PUF/CLS/Sep 8, 2022
Matrix: Air Filter
CANISTER ID: TE-03
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 08-Sep-22 0:00
DATE RECEIVED: 15-Sep-22
REPORT CREATED: 21-Oct-22
REPORT NUMBER: 22090152
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22090152-002	1-Methylnaphthalene		0.02	ug/Filter	0.01	AC-066	15-Oct-22
22090152-002	2-Methylnaphthalene		0.01	ug/Filter	0.01	AC-066	15-Oct-22
22090152-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Oct-22
22090152-002	7,12-Dimethylbenz(a)anthracene		0.01	ug/Filter	0.01	AC-066	15-Oct-22
22090152-002	Acenaphthene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Oct-22
22090152-002	Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Oct-22
22090152-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Oct-22
22090152-002	Anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Oct-22
22090152-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Oct-22
22090152-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Oct-22
22090152-002	Benzo(b,j,k)fluoranthene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Oct-22
22090152-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Oct-22
22090152-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Oct-22
22090152-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Oct-22
22090152-002	Chrysene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Oct-22
22090152-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Oct-22
22090152-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Oct-22
22090152-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Oct-22

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

Date: October 21, 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
LICA/PUF/CLS/Sep 8, 2022	TE-03	Air Filter	08-Sep-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22090152 **REPORT CREATED:** 21-Oct-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22090152-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Oct-22
22090152-002	Fluoranthene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Oct-22
22090152-002	Fluorene		0.04	ug/Filter	0.01	AC-066	15-Oct-22
22090152-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Oct-22
22090152-002	Naphthalene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Oct-22
22090152-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Oct-22
22090152-002	Phenanthrene		0.14	ug/Filter	0.01	AC-066	15-Oct-22
22090152-002	Pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Oct-22
22090152-002	Retene		0.03	ug/Filter	0.01	AC-066	15-Oct-22

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Sep 8, 2022	29018	Ambient Air	08-Sep-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22090152 **REPORT CREATED:** 21-Oct-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22090152-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Sep-22
22090152-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Sep-22
22090152-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Sep-22
22090152-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Sep-22
22090152-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Sep-22
22090152-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	16-Sep-22
22090152-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	16-Sep-22
22090152-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Sep-22
22090152-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Sep-22
22090152-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Sep-22
22090152-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Sep-22
22090152-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Sep-22
22090152-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Sep-22
22090152-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Sep-22
22090152-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	16-Sep-22
22090152-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	16-Sep-22
22090152-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	16-Sep-22
22090152-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	16-Sep-22
22090152-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	16-Sep-22
22090152-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Sep-22
22090152-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Sep-22
22090152-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Sep-22
22090152-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Sep-22
22090152-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	16-Sep-22
22090152-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Sep-22

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

Date: October 21, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Sep 8, 2022	29018	Ambient Air	08-Sep-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22090152 **REPORT CREATED:** 21-Oct-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22090152-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Sep-22
22090152-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Sep-22
22090152-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Sep-22
22090152-001	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Sep-22
22090152-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Sep-22
22090152-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Sep-22
22090152-001	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Sep-22
22090152-001	Acetone		6.8	ppbv	0.4	AC-058	16-Sep-22
22090152-001	Acrolein	I	0.4	ppbv	0.3	AC-058	16-Sep-22
22090152-001	Benzene	I	0.04	ppbv	0.03	AC-058	16-Sep-22
22090152-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	16-Sep-22
22090152-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Sep-22
22090152-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Sep-22
22090152-001	Bromomethane	I	0.09	ppbv	0.02	AC-058	16-Sep-22
22090152-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Sep-22
22090152-001	Carbon tetrachloride	I	0.05	ppbv	0.02	AC-058	16-Sep-22
22090152-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Sep-22
22090152-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Sep-22
22090152-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Sep-22
22090152-001	Chloromethane		0.97	ppbv	0.04	AC-058	16-Sep-22
22090152-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Sep-22
22090152-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Sep-22
22090152-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Sep-22
22090152-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Sep-22
22090152-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	16-Sep-22

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Sep 8, 2022	29018	Ambient Air	08-Sep-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22090152 **REPORT CREATED:** 21-Oct-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22090152-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Sep-22
22090152-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Sep-22
22090152-001	Ethanol		1.7	ppbv	0.5	AC-058	16-Sep-22
22090152-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	16-Sep-22
22090152-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Sep-22
22090152-001	Freon-11		0.59	ppbv	0.02	AC-058	16-Sep-22
22090152-001	Freon-113	I	0.05	ppbv	0.02	AC-058	16-Sep-22
22090152-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Sep-22
22090152-001	Freon-12		0.75	ppbv	0.03	AC-058	16-Sep-22
22090152-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	16-Sep-22
22090152-001	Isobutane		0.15	ppbv	0.03	AC-058	16-Sep-22
22090152-001	Isopentane		0.34	ppbv	0.04	AC-058	16-Sep-22
22090152-001	Isoprene		0.25	ppbv	0.02	AC-058	16-Sep-22
22090152-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	16-Sep-22
22090152-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	16-Sep-22
22090152-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	16-Sep-22
22090152-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Sep-22
22090152-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Sep-22
22090152-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	16-Sep-22
22090152-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	16-Sep-22
22090152-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	16-Sep-22
22090152-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	16-Sep-22
22090152-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Sep-22
22090152-001	Methylcyclohexane	I	0.03	ppbv	0.02	AC-058	16-Sep-22
22090152-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	16-Sep-22

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Sep 8, 2022	29018	Ambient Air	08-Sep-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22090152 **REPORT CREATED:** 21-Oct-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22090152-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	16-Sep-22
22090152-001	n-Butane		0.41	ppbv	0.02	AC-058	16-Sep-22
22090152-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	16-Sep-22
22090152-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	16-Sep-22
22090152-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	16-Sep-22
22090152-001	n-Hexane	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Sep-22
22090152-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Sep-22
22090152-001	n-Pentane		0.18	ppbv	0.04	AC-058	16-Sep-22
22090152-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	16-Sep-22
22090152-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	16-Sep-22
22090152-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	16-Sep-22
22090152-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	16-Sep-22
22090152-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Sep-22
22090152-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Sep-22
22090152-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Sep-22
22090152-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	16-Sep-22
22090152-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	16-Sep-22
22090152-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Sep-22
22090152-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	16-Sep-22
22090152-001	Toluene	I	0.14	ppbv	0.03	AC-058	16-Sep-22
22090152-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	16-Sep-22
22090152-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Sep-22
22090152-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Sep-22
22090152-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Sep-22
22090152-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Sep-22

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Sep 8, 2022	29018	Ambient Air	08-Sep-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22090152 **REPORT CREATED:** 21-Oct-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22090152-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	16-Sep-22
22090152-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Sep-22

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

Date: October 21, 2022

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Revision History

Order ID	Ver	Date	Reason
22090152	01	21-Oct-22	Report created

Methods

Method	Description
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
AC-066	Polycyclic Aromatic Hydrocarbons from 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

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: 22090239-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Sep 14, 2022

RECEIVED
SEP 21 2022

Bureau Veritas

ction Data Sheet Alberta Air FCD AIR FCD-01320 / 2

Client:	LICA	**Sampler S/N:**	6200
Location:	Cold Lake South	**Canister ID:**	29026
Station ID:	LICA 01	**Installation Date/Time (mst):**	Sep 12, 2022 @ 18:11
Sample ID:	LICA/VOC/CLS/Sep 14, 2022	**Removal Date/Time (mst):**	Sep 19, 2022@ 08:22

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
September 14, 2022	0:00	23:59	24

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.2	19.4

Flow Settings		
Flow Reading (sccm)	Pot Set Point	Pump Set (psi)
10.00	4.98	24.0

Deployment/Collection and Maintenance Checklist

Initial leak check deployment vacuum (in. Hg) =	n/a	@	n/a	mst	**Leak rate must be 0.0 psi over a minimum of 5 minutes or repair is required**
Final leak check deployment vacuum (in. Hg) =	n/a	@	n/a	mst	
Total leak rate =	n/a	psi over	n/a	minutes	
Timer reset to zero prior to sampling?	YES	(yes/no)			

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 22090239-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Sep 14, 2022

RECEIVED
SEP 21 2022

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	TE-07
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Sep 12, 2022 @ 18:12
Field Sample ID:	LICA/PUF/CLS/Sep 14, 2022	**Removal Date/Time:**	Sep 19, 2022 @ 08:25

Sample Data Collection Information

Sample Date:	14-Sep-22	**Average Pressure (mmHg)**	710
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	15.7
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.4

Sample Recovery Checklist

	(circle one)	
Flow Rate 230 slpm +/- 0.2 slpm ?	**YES**	NO
Average temperature appears correct?	**YES**	NO
Average pressure appears correct?	**YES**	NO
Any error messages? (if yes list below)	YES	**NO**
Sample duration 24 hours?	**YES**	NO
Other observations?		n/a

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

InnoTech ALBERTA

Canister ID: 29026

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: APR 13 2022

Evacuated: MAY 05 2022 Recertified: AUG 02 2022

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Sep 14, 2022

Sampled By: Alex Yakupov

19psi

Starting Vacuum: -27.2 "Hg

End Vacuum: +19.4 "Hg/psig

JLP

InnoTech ALBERTA

Canister ID: TE-07

This cleaned canister meets or exceeds TO-15 Method Specifications

PUF

Proofed by: on:

Evacuated: Recertified:

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/PUF/CLS/Sep 14, 2022

Sampled By: Alex Yakupov

Starting Vacuum: "Hg

End Vacuum: "Hg/psig

Sample ID: 22090239-001 Priority: Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Sep 14, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

INVOICE: Maria Cueva
PO Box 8237
5107W-50 St
Bonnyville
AB T9N 2J5

CLIENT SAMPLE ID: LICA/PUF/CLS/Sep 14, 2022
Matrix: Air Filter
CANISTER ID: TE-07
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 14-Sep-22 0:00
DATE RECEIVED: 21-Sep-22
REPORT CREATED: 21-Oct-22
REPORT NUMBER: 22090239
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22090239-002	1-Methylnaphthalene		0.11	ug/Filter	0.01	AC-066	16-Oct-22
22090239-002	2-Methylnaphthalene		0.16	ug/Filter	0.01	AC-066	16-Oct-22
22090239-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22090239-002	7,12-Dimethylbenz(a)anthracene		0.02	ug/Filter	0.01	AC-066	16-Oct-22
22090239-002	Acenaphthene		0.03	ug/Filter	0.01	AC-066	16-Oct-22
22090239-002	Acenaphthylene		0.01	ug/Filter	0.01	AC-066	16-Oct-22
22090239-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22090239-002	Anthracene		0.02	ug/Filter	0.01	AC-066	16-Oct-22
22090239-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22090239-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22090239-002	Benzo(b,j,k)fluoranthene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22090239-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22090239-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22090239-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22090239-002	Chrysene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22090239-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22090239-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22090239-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22

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

Date: October 21, 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
LICA/PUF/CLS/Sep 14, 2022	TE-07	Air Filter	14-Sep-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22090239 **REPORT CREATED:** 21-Oct-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22090239-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22090239-002	Fluoranthene		0.02	ug/Filter	0.01	AC-066	16-Oct-22
22090239-002	Fluorene		0.08	ug/Filter	0.01	AC-066	16-Oct-22
22090239-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22090239-002	Naphthalene		0.12	ug/Filter	0.01	AC-066	16-Oct-22
22090239-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22090239-002	Phenanthrene		0.27	ug/Filter	0.01	AC-066	16-Oct-22
22090239-002	Pyrene		0.02	ug/Filter	0.01	AC-066	16-Oct-22
22090239-002	Retene		0.03	ug/Filter	0.01	AC-066	16-Oct-22

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

Date: October 21, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Sep 14, 2022	29026	Ambient Air	14-Sep-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22090239 **REPORT CREATED:** 21-Oct-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22090239-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090239-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090239-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090239-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090239-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090239-001	1,2,3-Trimethylbenzene		0.11	ppbv	0.05	AC-058	30-Sep-22
22090239-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	30-Sep-22
22090239-001	1,2,4-Trimethylbenzene	K, T, U, I	0.09	ppbv	0.03	AC-058	30-Sep-22
22090239-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090239-001	1,2-Dichlorobenzene	I	0.08	ppbv	0.03	AC-058	30-Sep-22
22090239-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	30-Sep-22
22090239-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	30-Sep-22
22090239-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	30-Sep-22
22090239-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	30-Sep-22
22090239-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	30-Sep-22
22090239-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	30-Sep-22
22090239-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	30-Sep-22
22090239-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	30-Sep-22
22090239-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	30-Sep-22
22090239-001	1-Pentene	I	0.04	ppbv	0.03	AC-058	30-Sep-22
22090239-001	2,2,4-Trimethylpentane	I	0.05	ppbv	0.02	AC-058	30-Sep-22
22090239-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090239-001	2,3,4-Trimethylpentane	I	0.04	ppbv	0.02	AC-058	30-Sep-22
22090239-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	30-Sep-22
22090239-001	2,3-Dimethylpentane	I	0.05	ppbv	0.02	AC-058	30-Sep-22

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

Date: October 21, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Sep 14, 2022	29026	Ambient Air	14-Sep-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22090239 **REPORT CREATED:** 21-Oct-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22090239-001	2,4-Dimethylpentane	I	0.03	ppbv	0.03	AC-058	30-Sep-22
22090239-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090239-001	2-Methylhexane	I	0.05	ppbv	0.03	AC-058	30-Sep-22
22090239-001	2-Methylpentane	I	0.06	ppbv	0.02	AC-058	30-Sep-22
22090239-001	3-Methylheptane	I	0.04	ppbv	0.03	AC-058	30-Sep-22
22090239-001	3-Methylhexane	I	0.04	ppbv	0.02	AC-058	30-Sep-22
22090239-001	3-Methylpentane	I	0.07	ppbv	0.02	AC-058	30-Sep-22
22090239-001	Acetone		2.0	ppbv	0.4	AC-058	30-Sep-22
22090239-001	Acrolein	I	0.4	ppbv	0.3	AC-058	30-Sep-22
22090239-001	Benzene	I	0.06	ppbv	0.03	AC-058	30-Sep-22
22090239-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	30-Sep-22
22090239-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	30-Sep-22
22090239-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090239-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090239-001	Carbon disulfide	I	0.02	ppbv	0.02	AC-058	30-Sep-22
22090239-001	Carbon tetrachloride	I	0.05	ppbv	0.02	AC-058	30-Sep-22
22090239-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090239-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090239-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090239-001	Chloromethane		0.48	ppbv	0.04	AC-058	30-Sep-22
22090239-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090239-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	30-Sep-22
22090239-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	30-Sep-22
22090239-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090239-001	Cyclohexane	I	0.08	ppbv	0.04	AC-058	30-Sep-22

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

Date: October 21, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Sep 14, 2022	29026	Ambient Air	14-Sep-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22090239 **REPORT CREATED:** 21-Oct-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22090239-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090239-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090239-001	Ethanol		1.3	ppbv	0.5	AC-058	30-Sep-22
22090239-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	30-Sep-22
22090239-001	Ethylbenzene	I	0.08	ppbv	0.03	AC-058	30-Sep-22
22090239-001	Freon-11		0.18	ppbv	0.02	AC-058	30-Sep-22
22090239-001	Freon-113	I	0.02	ppbv	0.02	AC-058	30-Sep-22
22090239-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	30-Sep-22
22090239-001	Freon-12		0.58	ppbv	0.03	AC-058	30-Sep-22
22090239-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	30-Sep-22
22090239-001	Isobutane		0.50	ppbv	0.03	AC-058	30-Sep-22
22090239-001	Isopentane		0.26	ppbv	0.04	AC-058	30-Sep-22
22090239-001	Isoprene		0.12	ppbv	0.02	AC-058	30-Sep-22
22090239-001	Isopropyl alcohol	I	0.3	ppbv	0.3	AC-058	30-Sep-22
22090239-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	30-Sep-22
22090239-001	m,p-Xylene	I	0.12	ppbv	0.04	AC-058	30-Sep-22
22090239-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090239-001	m-Ethyltoluene	I	0.04	ppbv	0.03	AC-058	30-Sep-22
22090239-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	30-Sep-22
22090239-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	30-Sep-22
22090239-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	30-Sep-22
22090239-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	30-Sep-22
22090239-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	30-Sep-22
22090239-001	Methylcyclohexane	I	0.05	ppbv	0.02	AC-058	30-Sep-22
22090239-001	Methylcyclopentane	I	0.07	ppbv	0.05	AC-058	30-Sep-22

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

Date: October 21, 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
LICA/VOC/CLS/Sep 14, 2022	29026	Ambient Air	14-Sep-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22090239 **REPORT CREATED:** 21-Oct-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22090239-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	30-Sep-22
22090239-001	n-Butane		0.51	ppbv	0.02	AC-058	30-Sep-22
22090239-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	30-Sep-22
22090239-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	30-Sep-22
22090239-001	n-Heptane	I	0.07	ppbv	0.04	AC-058	30-Sep-22
22090239-001	n-Hexane	I	0.04	ppbv	0.03	AC-058	30-Sep-22
22090239-001	n-Octane	I	0.04	ppbv	0.02	AC-058	30-Sep-22
22090239-001	n-Pentane		0.18	ppbv	0.04	AC-058	30-Sep-22
22090239-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	30-Sep-22
22090239-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	30-Sep-22
22090239-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	30-Sep-22
22090239-001	n-Nonane	I	0.05	ppbv	0.04	AC-058	30-Sep-22
22090239-001	o-Ethyltoluene	I	0.03	ppbv	0.02	AC-058	30-Sep-22
22090239-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	30-Sep-22
22090239-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090239-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	30-Sep-22
22090239-001	Styrene	I	0.07	ppbv	0.04	AC-058	30-Sep-22
22090239-001	Tetrachloroethylene	I	0.04	ppbv	0.02	AC-058	30-Sep-22
22090239-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	30-Sep-22
22090239-001	Toluene	I	0.09	ppbv	0.03	AC-058	30-Sep-22
22090239-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	30-Sep-22
22090239-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090239-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	30-Sep-22
22090239-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090239-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22

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

Date: October 21, 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
LICA/VOC/CLS/Sep 14, 2022	29026	Ambient Air	14-Sep-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22090239 **REPORT CREATED:** 21-Oct-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22090239-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	30-Sep-22
22090239-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22

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

Date: October 21, 2022

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

Revision History

Order ID	Ver	Date	Reason
22090239	01	21-Oct-22	Report created

Methods

Method	Description
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
AC-066	Polycyclic Aromatic Hydrocarbons from 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

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: 22090286-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Sep 20, 2022

RECEIVED
SEP 26 2022

Bureau Veritas

VOC Sample Collection Data Sheet Alberta Air FCD AIR FCD-01320 / 2

Client:	LICA	**Sampler S/N:**	6200
Location:	Cold Lake South	**Canister ID:**	28891
Station ID:	LICA 01	**Installation Date/Time (mst):**	Sep 19, 2022 @ 11:20
Sample ID:	LICA/VOC/CLS/Sep 20, 2022	**Removal Date/Time (mst):**	Sep 23, 2022@ 13:29

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
September 20, 2022	0:00	23:59	24

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.1	20.1

Flow Settings		
Flow Reading (sccm)	Pot Set Point	Pump Set (psi)
10.00	4.98	24.0

Deployment/Collection and Maintenance Checklist

Initial leak check deployment vacuum (in. Hg) =	n/a	@	n/a	mst	****Leak rate must be 0.0 psi over a minimum of 5 minutes or repair is required****
Final leak check deployment vacuum (in. Hg) =	n/a	@	n/a	mst	
Total leak rate =	n/a	psi over	n/a	minutes	
Timer reset to zero prior to sampling?	YES	(yes/no)			

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 22090286-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Sep 20, 2022

RECEIVED
SEP 26 2022

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	A13-02
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Sep 19, 2022 @ 11:46
Field Sample ID:	LICA/PUF/CLS/Sep 20, 2022	**Removal Date/Time:**	Sep 23, 2022 @ 13:33

Sample Data Collection Information

Sample Date:	20-Sep-22	**Average Pressure (mmHg)**	714
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	10.1
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.42

Sample Recovery Checklist

	(circle one)	
Flow Rate 230 slpm +/- 0.2 slpm ?	(YES)	NO
Average temperature appears correct?	(YES)	NO
Average pressure appears correct?	(YES)	NO
Any error messages? (if yes list below)	YES	(NO)
Sample duration 24 hours?	(YES)	NO
Other observations?		n/a

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

InnoTech ALBERTA

Canister ID: 28891

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ3 on: JUN 0 2 2022

Evacuated: AUG 0 2 2022 Recertified:

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Sep 20, 2022

Sampled By: Alex Yakupov

Starting Vacuum: -27.1 "Hg

End Vacuum: KG 20.1 "Hg/psig

InnoTech ALBERTA

Canister ID: A13-02

This cleaned canister meets or exceeds TO-15 Method Specifications

PUF

Proofed by: on:

Evacuated: Recertified:

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/PUF/CLS/Sep 20, 2022

Sampled By: Alex Yakupov

Starting Vacuum: "Hg

End Vacuum: "Hg/psig

Sample ID: 22090286-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Sep 20, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

INVOICE: Maria Cueva
PO Box 8237
5107W-50 St
Bonnyville
AB T9N 2J5

CLIENT SAMPLE ID: LICA/PUF/CLS/Sep 20, 2022
Matrix: Air Filter
CANISTER ID: A13-02
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 20-Sep-22 0:00
DATE RECEIVED: 26-Sep-22
REPORT CREATED: 21-Oct-22
REPORT NUMBER: 22090286
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22090286-002	1-Methylnaphthalene		0.06	ug/Filter	0.01	AC-066	16-Oct-22
22090286-002	2-Methylnaphthalene		0.07	ug/Filter	0.01	AC-066	16-Oct-22
22090286-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22090286-002	7,12-Dimethylbenz(a)anthracene		0.02	ug/Filter	0.01	AC-066	16-Oct-22
22090286-002	Acenaphthene		0.01	ug/Filter	0.01	AC-066	16-Oct-22
22090286-002	Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22090286-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22090286-002	Anthracene		0.02	ug/Filter	0.01	AC-066	16-Oct-22
22090286-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22090286-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22090286-002	Benzo(b,j,k)fluoranthene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22090286-002	Benzo(c)phenanthrene		0.07	ug/Filter	0.01	AC-066	16-Oct-22
22090286-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22090286-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22090286-002	Chrysene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22090286-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22090286-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22090286-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22

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

Date: October 21, 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
LICA/PUF/CLS/Sep 20, 2022	A13-02	Air Filter	20-Sep-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22090286 **REPORT CREATED:** 21-Oct-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22090286-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22090286-002	Fluoranthene		0.01	ug/Filter	0.01	AC-066	16-Oct-22
22090286-002	Fluorene		0.04	ug/Filter	0.01	AC-066	16-Oct-22
22090286-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22090286-002	Naphthalene		0.03	ug/Filter	0.01	AC-066	16-Oct-22
22090286-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22090286-002	Phenanthrene		0.16	ug/Filter	0.01	AC-066	16-Oct-22
22090286-002	Pyrene		0.01	ug/Filter	0.01	AC-066	16-Oct-22
22090286-002	Retene		0.02	ug/Filter	0.01	AC-066	16-Oct-22

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

Date: October 21, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Sep 20, 2022	28891	Ambient Air	20-Sep-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22090286 **REPORT CREATED:** 21-Oct-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22090286-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090286-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090286-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090286-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090286-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090286-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	30-Sep-22
22090286-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	30-Sep-22
22090286-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	30-Sep-22
22090286-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090286-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	30-Sep-22
22090286-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	30-Sep-22
22090286-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	30-Sep-22
22090286-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	30-Sep-22
22090286-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	30-Sep-22
22090286-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	30-Sep-22
22090286-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	30-Sep-22
22090286-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	30-Sep-22
22090286-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	30-Sep-22
22090286-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	30-Sep-22
22090286-001	1-Pentene	I	0.03	ppbv	0.03	AC-058	30-Sep-22
22090286-001	2,2,4-Trimethylpentane	I	0.04	ppbv	0.02	AC-058	30-Sep-22
22090286-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090286-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090286-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	30-Sep-22
22090286-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22

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

Date: October 21, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Sep 20, 2022	28891	Ambient Air	20-Sep-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22090286 **REPORT CREATED:** 21-Oct-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22090286-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	30-Sep-22
22090286-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090286-001	2-Methylhexane	I	0.04	ppbv	0.03	AC-058	30-Sep-22
22090286-001	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090286-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	30-Sep-22
22090286-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090286-001	3-Methylpentane	I	0.06	ppbv	0.02	AC-058	30-Sep-22
22090286-001	Acetone		1.1	ppbv	0.4	AC-058	30-Sep-22
22090286-001	Acrolein	I	0.4	ppbv	0.3	AC-058	30-Sep-22
22090286-001	Benzene	I	0.05	ppbv	0.03	AC-058	30-Sep-22
22090286-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	30-Sep-22
22090286-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	30-Sep-22
22090286-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090286-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090286-001	Carbon disulfide	I	0.03	ppbv	0.02	AC-058	30-Sep-22
22090286-001	Carbon tetrachloride	I	0.05	ppbv	0.02	AC-058	30-Sep-22
22090286-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090286-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090286-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090286-001	Chloromethane		0.49	ppbv	0.04	AC-058	30-Sep-22
22090286-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090286-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	30-Sep-22
22090286-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	30-Sep-22
22090286-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090286-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	30-Sep-22

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

Date: October 21, 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
LICA/VOC/CLS/Sep 20, 2022	28891	Ambient Air	20-Sep-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22090286 **REPORT CREATED:** 21-Oct-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22090286-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090286-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090286-001	Ethanol	I	0.5	ppbv	0.5	AC-058	30-Sep-22
22090286-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	30-Sep-22
22090286-001	Ethylbenzene	I	0.07	ppbv	0.03	AC-058	30-Sep-22
22090286-001	Freon-11		0.19	ppbv	0.02	AC-058	30-Sep-22
22090286-001	Freon-113	I	0.03	ppbv	0.02	AC-058	30-Sep-22
22090286-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	30-Sep-22
22090286-001	Freon-12		0.64	ppbv	0.03	AC-058	30-Sep-22
22090286-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	30-Sep-22
22090286-001	Isobutane		0.16	ppbv	0.03	AC-058	30-Sep-22
22090286-001	Isopentane		0.11	ppbv	0.04	AC-058	30-Sep-22
22090286-001	Isoprene	I	0.10	ppbv	0.02	AC-058	30-Sep-22
22090286-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	30-Sep-22
22090286-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	30-Sep-22
22090286-001	m,p-Xylene	I	0.11	ppbv	0.04	AC-058	30-Sep-22
22090286-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090286-001	m-Ethyltoluene	I	0.04	ppbv	0.03	AC-058	30-Sep-22
22090286-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	30-Sep-22
22090286-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	30-Sep-22
22090286-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	30-Sep-22
22090286-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	30-Sep-22
22090286-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	30-Sep-22
22090286-001	Methylcyclohexane	I	0.05	ppbv	0.02	AC-058	30-Sep-22
22090286-001	Methylcyclopentane	I	0.06	ppbv	0.05	AC-058	30-Sep-22

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

Date: October 21, 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
LICA/VOC/CLS/Sep 20, 2022	28891	Ambient Air	20-Sep-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22090286 **REPORT CREATED:** 21-Oct-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22090286-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	30-Sep-22
22090286-001	n-Butane		0.10	ppbv	0.02	AC-058	30-Sep-22
22090286-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	30-Sep-22
22090286-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	30-Sep-22
22090286-001	n-Heptane	I	0.06	ppbv	0.04	AC-058	30-Sep-22
22090286-001	n-Hexane	I	0.03	ppbv	0.03	AC-058	30-Sep-22
22090286-001	n-Octane	I	0.04	ppbv	0.02	AC-058	30-Sep-22
22090286-001	n-Pentane		0.10	ppbv	0.04	AC-058	30-Sep-22
22090286-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	30-Sep-22
22090286-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	30-Sep-22
22090286-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	30-Sep-22
22090286-001	n-Nonane	I	0.04	ppbv	0.04	AC-058	30-Sep-22
22090286-001	o-Ethyltoluene	I	0.03	ppbv	0.02	AC-058	30-Sep-22
22090286-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	30-Sep-22
22090286-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090286-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	30-Sep-22
22090286-001	Styrene	I	0.07	ppbv	0.04	AC-058	30-Sep-22
22090286-001	Tetrachloroethylene	I	0.03	ppbv	0.02	AC-058	30-Sep-22
22090286-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	30-Sep-22
22090286-001	Toluene	I	0.06	ppbv	0.03	AC-058	30-Sep-22
22090286-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	30-Sep-22
22090286-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090286-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	30-Sep-22
22090286-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22
22090286-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22

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

Date: October 21, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Sep 20, 2022	28891	Ambient Air	20-Sep-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22090286 **REPORT CREATED:** 21-Oct-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22090286-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	30-Sep-22
22090286-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	30-Sep-22

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

Date: October 21, 2022

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

Revision History

Order ID	Ver	Date	Reason
22090286	01	21-Oct-22	Report created

Methods

Method	Description
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
AC-066	Polycyclic Aromatic Hydrocarbons from 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

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: 22100010-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Sep 26, 2022

RECEIVED
OCT 04 2022

Bureau Veritas

VOC Sample Collection Data Sheet Alberta Air FCD AIR FCD-01320 / 2

Client:	LICA	Sampler S/N:	6200
Location:	Cold Lake South	Canister ID:	28961
Station ID:	LICA 01	Installation Date/Time (mst):	Sep 23, 2022 @ 13:54
Sample ID:	LICA/VOC/CLS/Sep 26, 2022	Removal Date/Time (mst):	Sep 30, 2022@ 19:57

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
September 26, 2022	0:00	23:59	24

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.1	19.4

Flow Settings		
Flow Reading (sccm)	Fot Set Point	Pump Set (psi)
10.00	4.98	24.0

Deployment/Collection and Maintenance Checklist

Initial leak check deployment vacuum (in. Hg) =	n/a	@	n/a	mst	**Leak rate must be 0.0 psi over a minimum of 5 minutes or repair is required**
Final leak check deployment vacuum (in. Hg) =	n/a	@	n/a	mst	
Total leak rate =	n/a	psi over	n/a	minutes	
Timer reset to zero prior to sampling?	YES	(yes/no)			

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

AIR ECD-01321/2

Sample ID: 22100010-002 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/PUF/CLS/Sep 26, 2022

RECEIVED
OCT 04 2022

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	TE-11
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Sep 23, 2022 @ 13:55
Field Sample ID:	LICA/PUF/CLS/Sep 26, 2022	**Removal Date/Time:**	Sep 30, 2022 @ 19:59

Sample Data Collection Information

Sample Date:	26-Sep-22	**Average Pressure (mmHg)**	714
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	15.9
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.43

Sample Recovery Checklist

	(circle one)	
Flow Rate 230 slpm +/- 0.2 slpm ?	YES	NO
Average temperature appears correct?	YES	NO
Average pressure appears correct?	YES	NO
Any error messages? (if yes list below)	YES	NO
Sample duration 24 hours?	YES	NO
Other observations?		n/a

Deployed By: Alex Yakupov

Collected By: Alex Yakupov

InnoTech ALBERTA

Canister ID: 289161

This cleaned canister meets or exceeds TO-15 Method Specifications

MAY 10 2022

Proofed by: JSQ3 on:

Evacuated: AUG 02 2022 Recertified:

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Sep 26, 2022

Sampled By: Alex Yakupov

20psi JMP

Starting Vacuum:	End Vacuum:
-27.1 "Hg	+19.4 "Hg/psig

InnoTech ALBERTA

Canister ID: TE-11

This cleaned canister meets or exceeds TO-15 Method Specifications

PUF

Proofed by: on:

Evacuated: Recertified:

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/PUF/CLS/Sep 26, 2022

Sampled By: Alex Yakupov

Starting Vacuum:	End Vacuum:
"Hg	"Hg/psig

Sample ID: 22100010-001 Priority: Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Sep 26, 2022

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

INVOICE: Maria Cueva
PO Box 8237
5107W-50 St
Bonnyville
AB T9N 2J5

CLIENT SAMPLE ID: LICA/PUF/CLS/Sep 26, 2022
Matrix: Air Filter
CANISTER ID: TE-11
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 26-Sep-22 0:00
DATE RECEIVED: 04-Oct-22
REPORT CREATED: 21-Oct-22
REPORT NUMBER: 22100010
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22100010-002	1-Methylnaphthalene		0.03	ug/Filter	0.01	AC-066	16-Oct-22
22100010-002	2-Methylnaphthalene		0.02	ug/Filter	0.01	AC-066	16-Oct-22
22100010-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22100010-002	7,12-Dimethylbenz(a)anthracene		0.01	ug/Filter	0.01	AC-066	16-Oct-22
22100010-002	Acenaphthene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22100010-002	Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22100010-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22100010-002	Anthracene		0.03	ug/Filter	0.01	AC-066	16-Oct-22
22100010-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22100010-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22100010-002	Benzo(b,j,k)fluoranthene		0.01	ug/Filter	0.01	AC-066	16-Oct-22
22100010-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22100010-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22100010-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22100010-002	Chrysene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22100010-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22100010-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22100010-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22

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

Date: October 21, 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
LICA/PUF/CLS/Sep 26, 2022	TE-11	Air Filter	26-Sep-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22100010 **REPORT CREATED:** 21-Oct-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22100010-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22100010-002	Fluoranthene		0.03	ug/Filter	0.01	AC-066	16-Oct-22
22100010-002	Fluorene		0.06	ug/Filter	0.01	AC-066	16-Oct-22
22100010-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22100010-002	Naphthalene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22100010-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22100010-002	Phenanthrene		0.31	ug/Filter	0.01	AC-066	16-Oct-22
22100010-002	Pyrene		0.03	ug/Filter	0.01	AC-066	16-Oct-22
22100010-002	Retene		0.02	ug/Filter	0.01	AC-066	16-Oct-22

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

Date: October 21, 2022

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

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Canada T9C 1T4
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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Sep 26, 2022	28961	Ambient Air	26-Sep-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22100010 **REPORT CREATED:** 21-Oct-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22100010-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-22
22100010-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-22
22100010-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-22
22100010-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-22
22100010-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-22
22100010-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Oct-22
22100010-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Oct-22
22100010-001	1,2,4-Trimethylbenzene	I	0.03	ppbv	0.03	AC-058	07-Oct-22
22100010-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-22
22100010-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Oct-22
22100010-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Oct-22
22100010-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Oct-22
22100010-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Oct-22
22100010-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Oct-22
22100010-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	07-Oct-22
22100010-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	07-Oct-22
22100010-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	07-Oct-22
22100010-001	1-Butene/Isobutylene	I	0.07	ppbv	0.06	AC-058	07-Oct-22
22100010-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	07-Oct-22
22100010-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Oct-22
22100010-001	2,2,4-Trimethylpentane	I	0.03	ppbv	0.02	AC-058	07-Oct-22
22100010-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-22
22100010-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-22
22100010-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	07-Oct-22
22100010-001	2,3-Dimethylpentane	I	0.03	ppbv	0.02	AC-058	07-Oct-22

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

Date: October 21, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Sep 26, 2022	28961	Ambient Air	26-Sep-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22100010 **REPORT CREATED:** 21-Oct-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22100010-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Oct-22
22100010-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-22
22100010-001	2-Methylhexane	I	0.03	ppbv	0.03	AC-058	07-Oct-22
22100010-001	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-22
22100010-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Oct-22
22100010-001	3-Methylhexane	I	0.03	ppbv	0.02	AC-058	07-Oct-22
22100010-001	3-Methylpentane	I	0.05	ppbv	0.02	AC-058	07-Oct-22
22100010-001	Acetone		1.7	ppbv	0.4	AC-058	07-Oct-22
22100010-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Oct-22
22100010-001	Benzene	I	0.03	ppbv	0.03	AC-058	07-Oct-22
22100010-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Oct-22
22100010-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Oct-22
22100010-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-22
22100010-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-22
22100010-001	Carbon disulfide		0.63	ppbv	0.02	AC-058	07-Oct-22
22100010-001	Carbon tetrachloride	I	0.06	ppbv	0.02	AC-058	07-Oct-22
22100010-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-22
22100010-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-22
22100010-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-22
22100010-001	Chloromethane		0.56	ppbv	0.04	AC-058	07-Oct-22
22100010-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-22
22100010-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Oct-22
22100010-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Oct-22
22100010-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-22
22100010-001	Cyclohexane	I	0.06	ppbv	0.04	AC-058	07-Oct-22

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

Date: October 21, 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
LICA/VOC/CLS/Sep 26, 2022	28961	Ambient Air	26-Sep-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22100010 **REPORT CREATED:** 21-Oct-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22100010-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-22
22100010-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-22
22100010-001	Ethanol		1.5	ppbv	0.5	AC-058	07-Oct-22
22100010-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Oct-22
22100010-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Oct-22
22100010-001	Freon-11		0.15	ppbv	0.02	AC-058	07-Oct-22
22100010-001	Freon-113	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-22
22100010-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Oct-22
22100010-001	Freon-12		0.37	ppbv	0.03	AC-058	07-Oct-22
22100010-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Oct-22
22100010-001	Isobutane		0.52	ppbv	0.03	AC-058	07-Oct-22
22100010-001	Isopentane		0.29	ppbv	0.04	AC-058	07-Oct-22
22100010-001	Isoprene		0.10	ppbv	0.02	AC-058	07-Oct-22
22100010-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Oct-22
22100010-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	07-Oct-22
22100010-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	07-Oct-22
22100010-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-22
22100010-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Oct-22
22100010-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	07-Oct-22
22100010-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Oct-22
22100010-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Oct-22
22100010-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	07-Oct-22
22100010-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Oct-22
22100010-001	Methylcyclohexane	I	0.06	ppbv	0.02	AC-058	07-Oct-22
22100010-001	Methylcyclopentane	I	0.07	ppbv	0.05	AC-058	07-Oct-22

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

Date: October 21, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Sep 26, 2022	28961	Ambient Air	26-Sep-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22100010 **REPORT CREATED:** 21-Oct-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22100010-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Oct-22
22100010-001	n-Butane		0.44	ppbv	0.02	AC-058	07-Oct-22
22100010-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	07-Oct-22
22100010-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Oct-22
22100010-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	07-Oct-22
22100010-001	n-Hexane	I	0.05	ppbv	0.03	AC-058	07-Oct-22
22100010-001	n-Octane	I	0.02	ppbv	0.02	AC-058	07-Oct-22
22100010-001	n-Pentane		0.20	ppbv	0.04	AC-058	07-Oct-22
22100010-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	07-Oct-22
22100010-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	07-Oct-22
22100010-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Oct-22
22100010-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	07-Oct-22
22100010-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-22
22100010-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Oct-22
22100010-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-22
22100010-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	07-Oct-22
22100010-001	Styrene	I	0.04	ppbv	0.04	AC-058	07-Oct-22
22100010-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-22
22100010-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Oct-22
22100010-001	Toluene	I	0.07	ppbv	0.03	AC-058	07-Oct-22
22100010-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	07-Oct-22
22100010-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-22
22100010-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Oct-22
22100010-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-22
22100010-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-22

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

Date: October 21, 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
LICA/VOC/CLS/Sep 26, 2022	28961	Ambient Air	26-Sep-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22100010 **REPORT CREATED:** 21-Oct-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22100010-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Oct-22
22100010-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-22

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

Date: October 21, 2022

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

Revision History

Order ID	Ver	Date	Reason
22100010	01	21-Oct-22	Report created

Methods

Method	Description
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry
AC-066	Polycyclic Aromatic Hydrocarbons from 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

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.

Partisol Samples

Partisol 2000i-D Sample Data Sheet

Date Sampled:	2-Sep-22
Location:	Cold Lake South
Parameter:	PM 2.5 / PM 10
Start Time	0:00
End Time	23:59
Valid Time	24 hours
Total Time	24 hours
Status	Done

Sample ID: 22090075-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C1164234

	FINE (1) (1)	COURSE (2) (2)
Filter Type:	47mm	47mm
Filter #:	C1164234	C1164235
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	18.4	
Pressure	711	
Std Volume (Instrument)	20.8	2.31

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date):	Alex Yakupov	Date:	29-Aug-22
Removed by (Sign/Date)	Alex Yakupov	Date:	6-Sep-22

Programming
1) Make sure system is in "Stop Mode"
2) Sample Setup >Apply EPA times (start at 00:00 for 24hrs)
3) Navigate to SAMPLE 1 and check/correct START and STOP date/time
4) Make sure to SAVE changes
5). Make sure system is left in WAIT mode

Sample ID: 22090075-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C1164235

RECEIVED
SEP 08 2022

Filter Shipping Record

Sent To: R&B Moving Systems
3410-50 Street
Cold Lake, AB T9M 1S6
(Purolator Depot)
HFPO: Alex Yakupov, BV Labs
780-545-9363

Date: July 26/22

Project: LICA/Bureau Veritas Labs

Prepared by:

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	C1164234 → C1164235

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

INVOICE: Maria Cueva
PO Box 8237
5107W-50 St
Bonnyville
AB T9N 2J5

CLIENT SAMPLE ID: C1164234
Matrix: Air Filter
CANISTER ID:
PRIORITY: Normal
DESCRIPTION: Cold Lake South - Fine - PM 2.5
DATE SAMPLED: 02-Sep-22 0:00
DATE RECEIVED: 08-Sep-22
REPORT CREATED: 14-Sep-22
REPORT NUMBER: 22090075
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22090075-001	Particulate Weight		0.054	mg	0.004	AC-029	09-Sep-22

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

Date: September 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
C1164235		Air Filter	02-Sep-22 0:00

DESCRIPTION: Cold Lake South - Coarse PM 10

REPORT NUMBER: 22090075 **REPORT CREATED:** 14-Sep-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22090075-002	Particulate Weight		0.204	mg	0.004	AC-029	09-Sep-22

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

Date: September 14, 2022

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

Revision History

Order ID	Ver	Date	Reason
22090075	01	14-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

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

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: 22090151-001 Priority: Normal

Customer ID: LICA
Cust Samp ID: C9698031

RECEIVED
SEP 15 2022

›l 2000i-D Sample Data Sheet

Date Sampled:	8-Sep-22
Location:	Cold Lake South
Parameter:	PM 2.5 / PM 10
Start Time	0:00
End Time	23:59
Valid Time	24 hours
Total Time	24 hours
Status	Done

	FINE (1)	COURSE (2)
Filter Type:	47mm	47mm
Filter #:	C9698031	C9698032
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	11.8	
Pressure	711	
Std Volume (Instrument)	21.2	2.36

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date):	Alex Yakupov	Date:	6-Sep-22
Removed by (Sign/Date)	Alex Yakupov	Date:	12-Sep-22

Programming
1) Make sure system is in "Stop Mode"
2) Sample Setup >Apply EPA times (start at 00:00 for 24hrs)
3) Navigate to SAMPLE 1 and check/correct START and STOP date/time
4) Make sure to SAVE changes
5). Make sure system is left in WAIT mode

Sample ID: 22090151-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9698032

RECEIVED
SEP 15 2022

Filter Shipping Record

Sent To: R&B Moving Systems
3410-50 Street
Cold Lake, AB T9M 1S6
(Purolator Depot)
HFPO: Alex Yakupov, BV Labs
780-545-9363

Date: July 8 - 2022

Project: LICA/Bureau Veritas Labs

Prepared by: S Zelenka

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	C9698031 → C9698032

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

INVOICE: Maria Cueva
PO Box 8237
5107W-50 St
Bonnyville
AB T9N 2J5

CLIENT SAMPLE ID	Matrix
C9698031	Air Filter

CANISTER ID:
PRIORITY: Normal
DESCRIPTION: Cold Lake South - Fine - PM 2.5

DATE SAMPLED: 08-Sep-22 0:00
DATE RECEIVED: 15-Sep-22
REPORT CREATED: 11-Oct-22
REPORT NUMBER: 22090151
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22090151-001	Particulate Weight		0.024	mg	0.004	AC-029	28-Sep-22

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

Date: October 11, 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
C9698032		Air Filter	08-Sep-22 0:00

DESCRIPTION: Cold Lake South - Coarse PM 10

REPORT NUMBER: 22090151 **REPORT CREATED:** 11-Oct-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22090151-002	Particulate Weight		0.021	mg	0.004	AC-029	28-Sep-22

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

Date: October 11, 2022

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

Revision History

Order ID	Ver	Date	Reason
22090151	01	11-Oct-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

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

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.

Partisol 2000i-D Sample Data Sheet

Date Sampled:	14-Sep-22
Location:	Cold Lake South
Parameter:	PM 2.5 / PM 10
Start Time	0:00
End Time	23:59
Valid Time	24 hours
Total Time	24 hours
Status	Done

Sample ID: 22090242-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9463209

	FINE (1) 1	COURSE (2) 2
Filter Type:	47mm	47mm
Filter #:	C9463209	C9463210
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	14.3	
Pressure	710	
Std Volume (Instrument)	21.1	2.35

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date):	Alex Yakupov	Date:	12-Sep-22
Removed by (Sign/Date)	Alex Yakupov	Date:	19-Sep-22

Programming
1) Make sure system is in "Stop Mode"
2) Sample Setup >Apply EPA times (start at 00:00 for 24hrs)
3) Navigate to SAMPLE 1 and check/correct START and STOP date/time
4) Make sure to SAVE changes
5). Make sure system is left in WAIT mode

Sample ID: 22090242-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9463210

RECEIVED
SEP 21 2022

Filter Shipping Record

Sent To: R&B Moving Systems
3410-50 Street
Cold Lake, AB T9M 1S6
(Purolator Depot)
HFPO: Alex Yakupov, BV Labs
780-545-9363

Date: December 3/21

Project: LICA/Bureau Veritas Labs

Prepared by:

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	C9463209 → C9463210

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

INVOICE: Maria Cueva
PO Box 8237
5107W-50 St
Bonnyville
AB T9N 2J5

CLIENT SAMPLE ID	Matrix
C9463209	Air Filter

CANISTER ID:
PRIORITY: Normal
DESCRIPTION: Cold Lake South - Fine - PM 2.5

DATE SAMPLED: 14-Sep-22 0:00
DATE RECEIVED: 21-Sep-22
REPORT CREATED: 05-Oct-22
REPORT NUMBER: 22090242
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22090242-001	Particulate Weight		0.079	mg	0.004	AC-029	28-Sep-22

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

Date: October 5, 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
C9463210		Air Filter	14-Sep-22 0:00

DESCRIPTION: Cold Lake South - Coarse - PM 10

REPORT NUMBER: 22090242 **REPORT CREATED:** 05-Oct-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22090242-002	Particulate Weight		0.190	mg	0.004	AC-029	28-Sep-22

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

Date: October 5, 2022

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

Revision History

Order ID	Ver	Date	Reason
22090242	01	05-Oct-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

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

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: 22090285-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9698033

RECEIVED
SEP 26 2022

l 2000i-D Sample Data Sheet

Date Sampled:	20-Sep-22
Location:	Cold Lake South
Parameter:	PM 2.5 / PM 10
Start Time	0:00
End Time	23:59
Valid Time	24 hours
Total Time	24 hours
Status	Done

	FINE (1)	COURSE (2)
Filter Type:	47mm	47mm
Filter #:	C9698033	C9698034
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	9.4	
Pressure	714	
Std Volume (Instrument)	21.6	2.4

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date):	Alex Yakupov	Date:	19-Sep-22
Removed by (Sign/Date)	Alex Yakupov	Date:	23-Sep-22

Programming
1) Make sure system is in "Stop Mode"
2) Sample Setup >Apply EPA times (start at 00:00 for 24hrs)
3) Navigate to SAMPLE 1 and check/correct START and STOP date/time
4) Make sure to SAVE changes
5). Make sure system is left in WAIT mode

Sample ID: 22090285-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9698034

Filter Shipping Record

Sent To: R&B Moving Systems
3410-50 Street
Cold Lake, AB T9M 1S6
(Purolator Depot)
HFPO. Alex Yakupov, BV Labs
780-545-9363

Date: July 8-2022

Project: LICA/Bureau Veritas Labs

Prepared by: S. Jelenka

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	C9698033 → C9698034

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

INVOICE: Maria Cueva
PO Box 8237
5107W-50 St
Bonnyville
AB T9N 2J5

CLIENT SAMPLE ID	Matrix
C9698033	Air Filter

CANISTER ID:
PRIORITY: Normal
DESCRIPTION: Cold Lake South - Fine - PM 2.5

DATE SAMPLED: 20-Sep-22 0:00
DATE RECEIVED: 26-Sep-22
REPORT CREATED: 05-Oct-22
REPORT NUMBER: 22090285
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22090285-001	Particulate Weight		0.028	mg	0.004	AC-029	28-Sep-22

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

Date: October 5, 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
C9698034		Air Filter	20-Sep-22 0:00

DESCRIPTION: Cold Lake South - Coarse PM 10

REPORT NUMBER: 22090285 **REPORT CREATED:** 05-Oct-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22090285-002	Particulate Weight		0.025	mg	0.004	AC-029	28-Sep-22

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

Date: October 5, 2022

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

Revision History

Order ID	Ver	Date	Reason
22090285	01	05-Oct-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

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

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.

Partisol 2000i-D Sample Data Sheet

Date Sampled:	26-Sep-22
Location:	Cold Lake South
Parameter:	PM 2.5 / PM 10
Start Time	0:00
End Time	23:59
Valid Time	24 hours
Total Time	24 hours
Status	Done

Sample ID: 22100011-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C1164232

	FINE (1)	COURSE (2)
Filter Type:	47mm	47mm
Filter #:	C1164232	C1164233
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	13.4	
Pressure	714	
Std Volume (Instrument)	21.3	2.37

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date): Alex Yakupov Date: 23-Sep-22

Removed by (Sign/Date) Alex Yakupov Date: 30-Sep-22

Programming
1) Make sure system is in "Stop Mode"
2) Sample Setup >Apply EPA times (start at 00:00 for 24hrs)
3) Navigate to SAMPLE 1 and check/correct START and STOP date/time
4) Make sure to SAVE changes
5). Make sure system is left in WAIT mode

Sample ID: 22100011-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C1164232

RECEIVED
OCT 04 2022

Filter Shipping Record

Sent To: R&B Moving Systems
3410-50 Street
Cold Lake, AB T9M 1S6
(Purolator Depot)
HFPO: Alex Yakupov, BV Labs
780-545-9363

Date: July 26/22

Project: LICA/Bureau Veritas Labs

Prepared by: S. Melenka

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	C1164232 → C1164233

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

INVOICE: Maria Cueva
PO Box 8237
5107W-50 St
Bonnyville
AB T9N 2J5

CLIENT SAMPLE ID	Matrix
C1164232	Air Filter

CANISTER ID:
PRIORITY: Normal
DESCRIPTION: Cold Lake South - Fine - PM 2.5

DATE SAMPLED: 26-Sep-22 0:00
DATE RECEIVED: 04-Oct-22
REPORT CREATED: 11-Oct-22
REPORT NUMBER: 22100011
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22100011-001	Particulate Weight		0.025	mg	0.004	AC-029	06-Oct-22

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

Date: October 11, 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
C1164233		Air Filter	26-Sep-22 0:00

DESCRIPTION: Cold Lake South - Coarse - PM 10

REPORT NUMBER: 22100011 **REPORT CREATED:** 11-Oct-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22100011-002	Particulate Weight		0.086	mg	0.004	AC-029	06-Oct-22

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

Date: October 11, 2022

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

Revision History

Order ID	Ver	Date	Reason
22100011	01	11-Oct-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

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

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.

Passive Samples

Passive Sampler Field Sheet for LICA, Sep 2022 sample period

ID	SAMPLER				START		END		NOTES
					DATE	TIME	DATE	TIME	
3	H_2S	SO_2	NO_2	O_3	Aug 30	17:25	Sep 28	14:50	
4	---	SO_2	NO_2	O_3	Aug 31	12:17	Sep 29	12:58	
5	H_2S	SO_2	NO_2	O_3	Aug 31	13:05	Sep 29	13:46	
6	---	SO_2	NO_2	O_3	Aug 31	14:45	Sep 29	15:31	
8	---	SO_2	NO_2	O_3	Aug 31	11:12	Sep 29	11:50	
9	---	SO_2	NO_2	O_3	Aug 30	16:17	Sep 28	14:05	
10	H_2S	SO_2	NO_2	O_3	Sep 1	17:06	Sep 30	17:50	
11	H_2S	SO_2	NO_2	O_3	Sep 1	16:51	Sep 30	17:22	
12	H2S	SO2	NO2	O3	Sep 1	15:29	Sep 30	16:15	
13	H_2S	SO_2	NO_2	O_3	Aug 30	15:00	Sep 28	18:00	
14	H_2S	SO_2	NO_2	O_3	Aug 30	13:50	Sep 28	18:58	water isotope sample Falcon
15	---	SO_2	NO_2	O_3	Aug 30	19:55	Sep 28	12:55	
16	H_2S	SO_2	NO_2	O_3	Aug 31	15:48	Sep 29	18:51	
17	H_2S	SO_2	NO_2	O_3	Aug 31	16:52	Sep 29	16:34	
18	H_2S	~~SO_2~~	NO_2	~~O_3~~	Aug 31	17:15	Sep 29	17:58	SO_2/O_3-are missing. Samplers were shot (1)
19	---	SO_2	NO_2	O_3	Aug 31	18:45	Sep 29	19:45	
22	H_2S	SO_2	NO_2	O_3	Aug 30	09:25	Sep 28	10:20	
23	---	SO_2	NO_2	O_3	Aug 30	12:25	Sep 28	20:23	
24	H_2S	SO_2	NO_2	O_3	Aug 31	13:46	Sep 29	14:44	
25	H2S	SO2	---	---					
26	H_2S	SO_2	---	---	Aug 30	14:20	Sep 28	18:25	
27	H_2S	SO_2	---	---	Aug 30	13:30	Sep 28	19:30	
28	H_2S	SO_2	NO_2	O_3	Aug 30	19:32	Sep 28	13:25	
29	H_2S	SO_2	NO_2	O_3	Aug 30	09:34	Sep 28	10:46	
32	H_2S	SO_2	NO_2	O_3	Aug 30	18:20	Sep 28	15:30	
42	H_2S	SO_2	NO_2	O_3	~~Aug~~ Sep 1	12:41	Sep 30	13:15	
DUPLICATES									
23	---	---	NO_2	O_3	Aug 30	12:25	Sep 28	20:23	
24	---	---	NO_2	O_3	Aug 31	13:46	Sep 29	14:44	
6	---	SO2	---	---	Aug 31	14:45	Sep 29	15:31	
8	---	SO2	---	---	Aug 31	11:12	Sep 29	11:50	
9	---	SO2	---	---	Aug 30	16:17	Sep 28	14:05	
12	H2S	---	---	---	Sep 1	15:29	Sep 30	16:15	
13	H_2S	---	---	---	Aug 30	15:00	Sep 28	18:00	

NS 22-10-04 (0715)

(1) # 18 samplers were shot with a gun and completely destroyed I installed 3 new samplers

Your Project #: SEPTEMBER PASSIVES
Site Location: BONNYVILLE, AB

Attention: Monitoring

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
PO BOX 8237
5107W- 50TH STREET
BONNYVILLE, AB
CANADA T9N 2J5

Report Date: 2022/10/17
Report #: R3248731
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C277512
Received: 2022/10/04, 07:30

Sample Matrix: Air
Samples Received: 32

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
H2S Passive Analysis	19	2022/10/12	2022/10/14	PTC SOP-00150	Passive H2S in ATM
H2S Passive Analysis	1	2022/10/14	2022/10/14	PTC SOP-00150	Passive H2S in ATM
NO2 Passive Analysis	25	2022/10/11	2022/10/14	PTC SOP-00148	Passive NO2 in ATM
O3 Passive Analysis	25	2022/10/11	2022/10/14	PTC SOP-00197	EPA 300 R2.1
SO2 Passive Analysis	28	2022/10/06	2022/10/14	PTC SOP-00149	Passive SO2 in ATM

Results relate only to the items tested.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Belma Elefante
Customer Service Associate
17 Oct 2022 09:48:42

Please direct all questions regarding this Certificate of Analysis to your Project Manager.
Customer Service Passives,
Email: PassiveAir@bureauveritas.com
Phone# (780) 378-8500

==========

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For Service Group specific validation please refer to the Validation Signature Page.

Bureau Veritas Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: C277512
Report Date: 2022/10/17

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: SEPTEMBER PASSIVES
Site Location: BONNYVILLE, AB
Sampler Initials: AY

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BDP554			BDP555			BDP556		
Sampling Date		2022/08/30 17:25			2022/08/31 12:17			2022/08/31 13:05		
	UNITS	3	RDL	QC Batch	4	RDL	QC Batch	5	RDL	QC Batch
Passive Monitoring										
Calculated H2S	ppb	0.22	0.02	A753451				0.26	0.02	A753451
Calculated NO2	ppb	0.9	0.1	A750727	0.8	0.1	A750727	0.7	0.1	A750727
Calculated O3	ppb	31.1	0.1	A750685	24.9	0.1	A750685	25.5	0.1	A750685
Calculated SO2	ppb	0.3	0.1	A746224	0.4	0.1	A746224	0.4	0.1	A746224
RDL = Reportable Detection Limit										

Bureau Veritas ID		BDP557	BDP558	BDP559			BDP560	BDP561	BDP562		
Sampling Date		2022/08/31 14:45	2022/08/31 11:12	2022/08/30 16:17			2022/09/01 17:06	2022/09/01 16:51	2022/09/01 05:29		
	UNITS	6	8	9	RDL	QC Batch	10	11	12	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb						0.15	0.11	0.09	0.02	A753451
Calculated NO2	ppb	3.1	0.7	1.0	0.1	A750727	4.9	0.5	0.5	0.1	A750727
Calculated O3	ppb	22.6	31.0	20.0	0.1	A750685	16.4	16.8	22.1	0.1	A750685
Calculated SO2	ppb	0.4	0.5	0.3	0.1	A746224	0.5	0.4	0.4	0.1	A746224
RDL = Reportable Detection Limit											

Bureau Veritas ID		BDP563	BDP564			BDP565			BDP566		
Sampling Date		2022/08/30 15:00	2022/08/30 13:50			2022/08/30 19:55			2022/08/31 15:48		
	UNITS	13	14	RDL	QC Batch	15	RDL	QC Batch	16	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb	0.12	0.46	0.02	A753451				0.18	0.02	A753451
Calculated NO2	ppb	0.4	1.4	0.1	A750727	1.0	0.1	A750727	0.7	0.1	A750727
Calculated O3	ppb	19.7	27.1	0.1	A750685	19.9	0.1	A750685	23.5	0.1	A750685
Calculated SO2	ppb	0.4	1.8	0.1	A746224	0.3	0.1	A746224	0.4	0.1	A746224
RDL = Reportable Detection Limit											

Bureau Veritas ID		BDP568	BDP569			BDP570			BDP571		
Sampling Date		2022/08/31 16:52	2022/08/31 17:15			2022/08/31 18:45			2022/08/30 09:25		
	UNITS	17	18	RDL	QC Batch	19	RDL	QC Batch	22	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb	0.49	DAMAGE	0.02	A753451				0.17	0.02	A753451
Calculated NO2	ppb	1.1	0.6	0.1	A750730	0.6	0.1	A750730	0.8	0.1	A750730
Calculated O3	ppb	29.6	MISSING	0.1	A750685	24.0	0.1	A750685	20.2	0.1	A750685
Calculated SO2	ppb	0.5	MISSING	0.1	A746224	0.3	0.1	A746224	0.3	0.1	A746224
RDL = Reportable Detection Limit											

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Bureau Veritas Job #: C277512
Report Date: 2022/10/17

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: SEPTEMBER PASSIVES
Site Location: BONNYVILLE, AB
Sampler Initials: AY

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BDP572			BDP573			BDP574		BDP575		
Sampling Date		2022/08/30 12:25			2022/08/31 13:46			2022/08/30 14:20		2022/08/30 13:30		
	UNITS	23	RDL	QC Batch	24	RDL	QC Batch	26	QC Batch	27	RDL	QC Batch
Passive Monitoring												
Calculated H2S	ppb				0.20	0.02	A753451	0.19	A753451	3.01	0.02	A753451
Calculated NO2	ppb	0.2	0.1	A750730	1.6	0.1	A750730					
Calculated O3	ppb	13.9	0.1	A750685	24.5	0.1	A750685					
Calculated SO2	ppb	0.2	0.1	A746224	0.5	0.1	A746224	0.6	A746224	2.0	0.1	A746226
RDL = Reportable Detection Limit												

Bureau Veritas ID		BDP576		BDP577	BDP578	BDP579			BDP583		
Sampling Date		2022/08/30 19:32		2022/08/30 09:34	2022/08/30 18:20	2022/09/01 12:41			2022/08/30 16:17		
	UNITS	28	QC Batch	29	32	42	RDL	QC Batch	9 DUP	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb	0.64	A753451	0.26	0.29	0.28	0.02	A753451			
Calculated NO2	ppb	2.3	A750730	0.8	0.4	0.9	0.1	A750730			
Calculated O3	ppb	23.5	A750685	20.3	26.4	32.3	0.1	A750717			
Calculated SO2	ppb	0.6	A746226	0.3	0.4	0.3	0.1	A746226	0.4	0.1	A746226
RDL = Reportable Detection Limit											

Bureau Veritas ID		BDP584	BDP585			BDP586	BDP597			BDP598		
Sampling Date		2022/09/01 15:29	2022/08/30 15:00			2022/08/30 12:25	2022/08/31 13:46			2022/08/31 14:45		
	UNITS	12 DUP	13 DUP	RDL	QC Batch	23 DUP	24 DUP	RDL	QC Batch	6 DUP	RDL	QC Batch
Passive Monitoring												
Calculated H2S	ppb	0.11	0.14	0.02	A753451							
Calculated NO2	ppb					0.3	1.8	0.1	A750730			
Calculated O3	ppb					15.0	26.1	0.1	A750717			
Calculated SO2	ppb									0.5	0.1	A746226
RDL = Reportable Detection Limit												

Bureau Veritas ID		BDP599		
Sampling Date		2022/08/31 11:12		
	UNITS	8 DUP	RDL	QC Batch
Passive Monitoring				
Calculated SO2	ppb	0.5	0.1	A746226
RDL = Reportable Detection Limit				

GENERAL COMMENTS

Sample BDP569 [18] : 20221012/XZ: NO2 sample was received with broken barrier.

Results relate only to the items tested.

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Bureau Veritas Job #: C277512
Report Date: 2022/10/17

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: SEPTEMBER PASSIVES
Site Location: BONNYVILLE, AB
Sampler Initials: AY

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A746224	OZ	Spiked Blank	Calculated SO2			96	%	90 - 110
A746224	OZ	Method Blank	Calculated SO2		<0.1		ppb	
A746226	OZ	Spiked Blank	Calculated SO2			99	%	90 - 110
A746226	OZ	Method Blank	Calculated SO2		<0.1		ppb	
A750685	XSZ	Spiked Blank	Calculated O3			100	%	90 - 110
A750685	XSZ	Method Blank	Calculated O3		<0.1		ppb	
A750717	XSZ	Spiked Blank	Calculated O3			99	%	90 - 110
A750717	XSZ	Method Blank	Calculated O3		<0.1		ppb	
A750727	XSZ	Spiked Blank	Calculated NO2			96	%	90 - 110
A750727	XSZ	Method Blank	Calculated NO2		<0.1		ppb	
A750730	XSZ	Spiked Blank	Calculated NO2			97	%	90 - 110
A750730	XSZ	Method Blank	Calculated NO2		<0.1		ppb	
A753451	YYA	Spiked Blank	Calculated H2S			100	%	90 - 110

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Bureau Veritas Job #: C277512
Report Date: 2022/10/17

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: SEPTEMBER PASSIVES
Site Location: BONNYVILLE, AB
Sampler Initials: AY

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Yang Liu

Yang Liu, Analyst II

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End of Report