



Lakeland Industry & Community Association

OCTOBER 2022

**Monthly Ambient Air Quality Monitoring Integrated
Sampling Report**

LICA-202210-INTEGRATED

November 23, 2022

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November 23, 2022

Alberta Environment and Parks (AEP)

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

Enclosed is the October 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, nitrogen dioxide, ammonia and nitric acid.

The representative of the Person Responsible for this monitoring program is

LICA Airshed

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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 October 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).
 - Five samples were collected this month: on October 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).
 - Five samples were collected this month: on October 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).
 - Five samples were collected this month: October 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 September 28 and September 30, and were removed between November 2 and November 4.
- 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.
- 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 analytical results are included in this monthly report.

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.
- No canister events were recorded this month.

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 were removed between November 2 and November 4. The media for the November / December monitoring period were installed between November 2 and November 4.

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).



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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
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INTEGRATED SAMPLING RESULTS SUMMARY

COLD LAKE SOUTH STATION

- VOCs analytical results

Sample Date	2022-10-02	2022-10-08	2022-10-14	2022-10-20	2022-10-26
Canister ID	29016	32249	28965	32204	H2802
Maximum Reading (ppbv)	2.9	3.8	2.8	1.8	2.1
Parameter	Acetone	Acetone	Ethanol	Acetone	Ethanol

- PAHs analytical results

Sample Date	2022-10-02		2022-10-08		2022-10-14		2022-10-20		2022-10-26	
PUF S/N	9802		TE-12		TE-05		TE-08		P13-01	
Volume (Vstd m³)	330.43		330.41		330.40		330.42		330.41	
Maximum Reading	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3
	0.28	0.85	0.26	0.79	0.85	2.57	0.57	1.73	0.09	0.27
Parameter	Phenanthrene		Phenanthrene		Retene		Retene		Phenanthrene	

- Partisol analytical results

- PM_{2.5}

Sample Date	2022-10-02		2022-10-08		2022-10-14		2022-10-20		2022-10-26	
Filter #	C1164238		C1162142		C1164228		C1164230		C9697009	
Volume (Vstd m ³)	21.0		21.5		21.5		21.0		21.8	
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	0.108	0.005	0.169	0.008	0.122	0.006	0.109	0.005	0.040	0.002

- PM_{2.5-10}

Sample Date	2022-10-02		2022-10-08		2022-10-14		2022-10-20		2022-10-26	
Filter #	C1164239		C1162147		C1164229		C1164231		C9697010	
Volume (Vstd m ³)	2.34		2.39		2.39		2.33		2.43	
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)
PM _{2.5-10} Mass	0.306	0.131	0.135	0.056	0.135	0.056	0.173	0.074	0.055	0.023

- Passive analytical results

	H ₂ S		NO ₂		O ₃		SO ₂		NM ₃		HNO ₃	
	Unit (ppb)		Unit (ppb)		Unit (ppb)		Unit (ppb)		Unit (ppb)		Unit (ug/m ³)	
Minimum	0.05	#12	0.3	#23	16.4	#23	0.2	#15	0.3	#13	0.51	#23
Maximum	0.81	#27	4.3	#10	33.1	#12	1.7	#27	3.3	#16	2.04	#19
Average	0.16	-	1.50	-	25.61	-	0.40	-	1.24	-	1.02	-

LAC LA BICHE STATION

- **NMHC canister sample analytical results**

No canister samples were collected this month.

ANALYTICAL SAMPLING RESULTS

COLD LAKE SOUTH STATION

VOCS



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - October 2022

Volatile Organic Compounds (VOCs) Results

Sample Date		2022-10-02	2022-10-08	2022-10-14	2022-10-20	2022-10-26	
Canister ID		29016	32249	28965	32204	H2802	
Method		AC-058	AC-058	AC-058	AC-058	AC-058	
Maximum Reading (ppbv)		2.9	3.8	2.8	1.8	2.1	
Parameter		Acetone	Acetone	Ethanol	Acetone	Ethanol	
Parameter	AAQOs (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	< 0.05	< 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	< 0.03	< 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	< 0.03	< 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		0.08	0.06	0.08	< 0.06	< 0.06	0.02
1-Hexene		< 0.07	< 0.07	< 0.07	< 0.07	< 0.07	0.02
1-Pentene		< 0.03	0.12	< 0.03	< 0.03	< 0.03	0.01
2,2,4-Trimethylpentane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	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	< 0.02	< 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	0.09	< 0.02	< 0.02	0.02	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	< 0.03	< 0.03	< 0.03	0.01
2-Methylpentane		< 0.02	< 0.02	< 0.02	< 0.02	0.05	0.01
3-Methylheptane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02
3-Methylhexane		< 0.02	< 0.02	< 0.02	< 0.02	0.03	0.02
3-Methylpentane		0.07	0.15	0.13	< 0.02	0.04	0.01
Acetone	2400	2.9	3.8	2.6	1.8	0.9	0.4
Acrolein	1.9	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Benzene	9.0	0.06	0.12	0.1	0.09	0.07	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		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
Carbon disulfide	10	0.03	0.04	0.03	< 0.02	< 0.02	0.01
Carbon tetrachloride		0.07	0.07	0.1	0.07	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		0.67	0.62	0.79	0.51	0.36	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	0.12	< 0.02	< 0.02	< 0.02	0.02
Cyclohexane		0.08	0.15	< 0.04	< 0.04	< 0.04	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		2.9	3.4	2.8	0.8	2.1	0.3
Ethyl acetate		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Ethylbenzene	460	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
Freon-11		0.19	0.21	0.3	0.21	0.22	0.02
Freon-113		0.05	0.04	0.07	0.06	0.06	0.01
Freon-114		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - October 2022

Volatile Organic Compounds (VOCs) Results

Sample Date		2022-10-02	2022-10-08	2022-10-14	2022-10-20	2022-10-26	
Canister ID		29016	32249	28965	32204	H2802	
Method		AC-058	AC-058	AC-058	AC-058	AC-058	
Maximum Reading (ppbv)		2.9	3.8	2.8	1.8	2.1	
Parameter		Acetone	Acetone	Ethanol	Acetone	Ethanol	
Parameter	AAQOs (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	RDL (ppbv)
Freon-12		0.66	0.58	0.86	0.6	0.54	0.02
Hexachloro-1,3-butadiene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.5
Isobutane		0.66	1.05	0.5	0.17	0.76	0.02
Isopentane		0.28	0.75	0.4	0.15	0.39	0.03
Isoprene		< 0.02	0.17	< 0.02	< 0.02	< 0.02	0.01
Isopropyl alcohol		< 0.3	0.8	< 0.3	< 0.3	< 0.3	0.4
Isopropylbenzene		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.01
m,p-Xylene		< 0.04	< 0.04	0.16	< 0.04	< 0.04	0.03
m-Diethylbenzene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
m-Ethyltoluene		< 0.03	< 0.03	< 0.03	< 0.03	< 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		< 0.02	0.15	0.14	0.03	0.04	0.01
Methylcyclopentane		0.08	0.17	< 0.05	< 0.05	< 0.05	0.02
Methylene chloride		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
n-Butane		0.53	1.21	0.62	0.24	0.82	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		0.11	< 0.04	< 0.04	< 0.04	< 0.04	0.01
n-Hexane	5960	0.13	0.24	0.2	0.03	0.08	0.01
n-Nonane		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.01
n-Octane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
n-Pentane		0.18	0.38	0.25	0.08	0.24	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	0.30	0.5
o-Ethyltoluene		< 0.02	< 0.02	< 0.02	< 0.02	< 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	< 0.04	< 0.04	< 0.04	0.04
Tetrachloroethylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
Tetrahydrofuran		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Toluene	499	0.04	0.16	0.1	0.04	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	0.09	< 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



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - October 2022

Polycyclic Aromatic Hydrocarbons (PAHs) Results

Sample Date	2022-10-02		2022-10-08		2022-10-14		2022-10-20		2022-10-26	
PUF S/N	9802		TE-12		TE-05		TE-08		P13-01	
Volume (Vstd m ³)	330.43		330.41		330.40		330.42		330.41	
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
	0.28	0.85	0.26	0.79	0.85	2.57	0.57	1.73	0.09	0.27
Parameter	Phenanthrene		Phenanthrene		Retene		Retene		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	0.02	0.06	0.11	0.33	0.06	0.18	0.02	0.06	0.06	0.18	0.01
2-Methylnaphthalene	0.02	0.06	0.14	0.42	0.03	0.09	0.02	0.06	0.08	0.24	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	0.01	0.03	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Acenaphthene	< 0.01	0.00	0.05	0.15	0.03	0.09	0.01	0.03	0.03	0.09	0.01
Acenaphthylene	< 0.01	0.00	0.13	0.39	0.01	0.03	< 0.01	0.00	0.09	0.27	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	0.03	0.09	0.03	0.09	0.03	0.09	0.02	0.06	0.01	0.03	0.01
Benzo(a)anthracene	< 0.01	0.00	0.01	0.03	< 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	0.04	0.12	0.03	0.09	0.03	0.09	0.02	0.06	0.01
Benzo(c)phenanthrene	0.11	0.33	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Benzo(e)pyrene	< 0.01	0.00	0.01	0.03	< 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	0.03	0.09	0.03	0.09	0.02	0.06	0.01	0.03	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	0.03	0.09	0.11	0.33	0.10	0.30	0.02	0.06	0.01
Fluoranthene	0.03	0.09	0.06	0.18	0.06	0.18	0.04	0.12	0.03	0.09	0.01
Fluorene	0.03	0.09	0.10	0.30	0.11	0.33	0.07	0.21	0.07	0.21	0.01
Indeno(1,2,3-cd)pyrene	< 0.01	0.00	0.01	0.03	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Naphthalene	< 0.01	0.00	0.16	0.48	0.05	0.15	0.04	0.12	0.07	0.21	0.01
Perylene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Phenanthrene	0.28	0.85	0.26	0.79	0.27	0.82	0.19	0.58	0.09	0.27	0.01
Pyrene	0.03	0.09	0.07	0.21	0.08	0.24	0.05	0.15	0.04	0.12	0.01
Retene	0.03	0.09	0.25	0.76	0.85	2.57	0.57	1.73	0.03	0.09	0.01

PARTISOLS



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - October 2022

Partisol Results - PM_{2.5}

Sample Date	2022-10-02	2022-10-08	2022-10-14	2022-10-20	2022-10-26
Filter #	C1164238	C1162142	C1164228	C1164230	C9697009
Volume (Vstd m ³)	21.0	21.5	21.5	21.0	21.8
Method	AC-029	AC-029	AC-029	AC-029	AC-029

Parameter	AAAQO (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)	Result (mg)	Result (mg/m ³)	RDL (mg)
Particulate Matter	0.029	0.108	0.005	0.169	0.008	0.122	0.006	0.109	0.005	0.040	0.002	0.004

PM2.5 Mass in ug/m ³	5.143	7.860	5.674	5.190	1.835
RDL in ug/m ³	0.190	0.186	0.186	0.190	0.183



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - October 2022

Partisol Results -PM_{2.5}-PM₁₀

Sample Date	2022-10-02	2022-10-08	2022-10-14	2022-10-20	2022-10-26						
Filter #	C1164239	C1162147	C1164229	C1164231	C9697010						
Volume (Vstd m ³)	2.34	2.39	2.39	2.33	2.43						
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	0.306	0.131	0.135	0.056	0.135	0.056	0.173	0.074	0.055	0.023	0.004
PM2.5-10 Mass in ug/m3	130.769		56.485		56.485		74.249		22.634		
RDL in ug/m3	1.709		1.674		1.674		1.717		1.646		

PASSIVE SAMPLES

	H ₂ S		NO ₂		O ₃		SO ₂		NM3		HNO ₃	
	Unit (ppb)		Unit (ppb)		Unit (ppb)		Unit (ppb)		Unit (ppb)		Unit (ug/m3)	
Minimum	0.05	#12	0.3	#23	16.4	#23	0.2	#15	0.3	#13	0.51	#23
Maximum	0.81	#27	4.3	#10	33.1	#12	1.7	#27	3.3	#16	2.04	#19
Average	0.16	-	1.50	-	25.61	-	0.40	-	1.24	-	1.02	-

No.	Station	Sample	Duplicate	Sample	Duplicate	Sample	Duplicate	Sample	Duplicate	Sample	Duplicate	Sample	Duplicate
3	Therien	0.13		1.4		24.2		0.3		2.1		0.68	
4	Flat Lake	-		0.8		28.3		0.5		1.1		0.69	
5	Lake Eliza	0.17		0.9		28.6		0.3		1.6		1.53	
6	Telegraph Creek	-		3.5		21.3		0.3		1.3		0.67	
8	Muriel-Kehewin	-		0.8		29.9		0.3		1.9		0.68	
9	Dupre	-		1.4		25.1		0.3		1.2		0.56	
10	La Corey	0.10		4.3		20.8		0.3	0.2	0.7		0.98	
11	Wolf Lake	0.07		1.1		20.7		0.4	0.4	0.7		1.51	
12	Foster Creek	0.05		0.7		33.1		0.3	0.3	0.6		0.88	
13	Primrose	0.12		0.9		24.7		0.3		0.3		0.97	
14	Tamarack	0.16	0.14	1.9		24.8		1.3		0.8	0.8	0.69	0.83
15	Ardmore	-		1.4		31.5		0.2		1.3		0.67	
16	Frog Lake	0.10	0.09	1.7		24.3		0.2		3.3	2.5	0.78	0.42
17	Clear Range	0.16		0.9		31.0		0.4		2.1		1.13	
18	Fishing Lake	0.06		1.0		22.8		0.2		0.6		1.85	
19	Beaverdam	-		1.0		31.1		0.3		0.7		2.04	
22	Cold Lake South (1)	0.07		1.3		22.1		0.2		1.3		1.62	
23	Medley-Martineau	-		0.3		16.4		0.2		0.5		0.51	
24	Fort George	0.13		2.2		27.4		0.3		1.1		0.73	
25	Burnt Lake	Missing 1		-		-		Missing 1		-		-	
26	Mahihkan	0.19		-		-		0.6		0.8		1.57	
27	Mahkeses	0.81		-		-		1.7		1.1		1.04	
28	Town of Bonnyville	0.18		3.1	3.4	23.9	27.7	0.3		1.7		0.76	
29	Cold Lake South (2)	0.12		1.4	1.5	22.9	30.8	0.2		1.1		0.60	
32	St. Lina	0.15		0.9		29.6		0.3		1.6		0.74	
42	Lac La Biche	0.10		1.5		24.5		0.3		1.5		1.72	
Blank Sample 1										1.1		<0.04	
Blank Sample 2										0.6		<0.04	
Blank Sample 3										0.5		<0.04	
Reportable Detection Limit (RDL)		0.02		0.1		0.1		0.1		0.1		0.04	

Note:

- : Sample collection was not required at the station.
- Missing 1: Access to the station was not possible due to lack of permit to access the stations.
- Blank (Duplicate): no duplicate sample was taken.

End of Report



Lakeland Industry & Community Association

OCTOBER 2022

Ambient Air Monitoring

Certified Laboratory Analysis Report

LAB-LICA-202210

Operation and Maintenance:

Bureau Veritas Canada

Data Validation and Analytical Report:

Bureau Veritas Canada and InnoTech Alberta

November 23, 2022

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Cold Lake South Station

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



Customer ID: LICA
 Cust Samp ID: LICA/VOC/CLS/Oct 2, 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: 29016
Station ID: LICA 01	Installation Date/Time (mst): Sep 30, 2022 @ 20:05
Sample ID: LICA/VOC/CLS/Oct 02, 2022	Removal Date/Time (mst): Oct 07, 2022 @ 11:57

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
October 2, 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)	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
 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)

Leak rate must be 0.0 psi over a minimum of 5 minutes or repair is required

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov



Sample ID: 22100057-002 Priority: Normal



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

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	Puf+ S/N:	9802
Location:	Cold Lake South	Motor S/N:	1138/100-1020
Station ID:	LICA 01	Installation Date/Time:	Sep 30, 2022 @ 20:04
Field Sample ID:	LICA/PUF/CLS/Oct 2, 2022	Removal Date/Time:	Oct 07, 2022 @ 11:59

Sample Data Collection Information


Sample Date:	2-Oct-22	Average Pressure (mmHg)	712
Start Time (mst):	0:00	Average Flow (Q _{std})	229
End Time (mst):	23:59	Average Temperature (°C)	18
Elapsed Time (Hours):	24	Volume (V _{std} m ³)	330.43


Sample Recovery Checklist

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

 <p>Canister ID: <u>29016</u></p> <p>This cleaned canister meets or exceeds TO-15 Method Specifications</p>	Sample ID: <u>LICA/VOC/CLS/Oct 02, 2022</u>	
	Sampled By: <u>Alex Yakupov</u>	
Proofed by: _____ on: <u>MAY 09 2022</u> Evacuated: _____ Recertified: <u>AUG 22 2022</u> <small>(Use within: 3 months from evacuation or recertification date)</small> Laboratory Contact Number: 780-632-8403	Starting Vacuum: <u>-27.1</u> "Hg	End Vacuum: <u>19.4</u> "Hg/psig

 <p>Canister ID: <u>9802</u></p> <p>This cleaned canister meets or exceeds TO-15 Method Specifications</p>	Sample ID: <u>LICA/PUF/CLS/Oct 2, 2022</u>	
	Sampled By: <u>Alex Yakupov</u>	
Proofed by: _____ on: _____ Evacuated: _____ Recertified: _____ <small>(Use within: 3 months from evacuation or recertification date)</small> Laboratory Contact Number: 780-632-8403	Starting Vacuum: _____ "Hg	End Vacuum: _____ "Hg/psig

Sample ID: 22100057-001 Priority: Normal



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

RESULTS: Lica Communal Mail Lakeland Industry and Community Assn	CLIENT SAMPLE ID		Matrix	
	LICA/PUF/CLS/Oct 2, 2022		Air Filter	
INVOICE: Maria Cueva PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5	CANISTER ID:	9802		
	PRIORITY:	Normal		
	DESCRIPTION:	Cold Lake South		
	DATE SAMPLED:	02-Oct-22	0:00	DATE RECEIVED: 11-Oct-22
	REPORT CREATED:	21-Oct-22		REPORT NUMBER: 22100057
			VERSION: Version 01	

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22100057-002	1-Methylnaphthalene		0.02	ug/Filter	0.01	AC-066	16-Oct-22
22100057-002	2-Methylnaphthalene		0.02	ug/Filter	0.01	AC-066	16-Oct-22
22100057-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22100057-002	7,12-Dimethylbenz(a)anthracene		0.01	ug/Filter	0.01	AC-066	16-Oct-22
22100057-002	Acenaphthene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22100057-002	Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22100057-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22100057-002	Anthracene		0.03	ug/Filter	0.01	AC-066	16-Oct-22
22100057-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22100057-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22100057-002	Benzo(b,j,k)fluoranthene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22100057-002	Benzo(c)phenanthrene		0.11	ug/Filter	0.01	AC-066	16-Oct-22
22100057-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22100057-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22100057-002	Chrysene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22100057-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22100057-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Oct-22
22100057-002	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



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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID LICA/PUF/CLS/Oct 2, 2022	CANISTER ID 9802	Matrix Air Filter	DATE SAMPLED 02-Oct-22 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 22100057	REPORT CREATED: 21-Oct-22		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22100057-002	Dibenzo(ah)anthracene	K, T, U	< 0.01 ug/Filter	0.01	AC-066	16-Oct-22
22100057-002	Fluoranthene		0.03 ug/Filter	0.01	AC-066	16-Oct-22
22100057-002	Fluorene		0.03 ug/Filter	0.01	AC-066	16-Oct-22
22100057-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01 ug/Filter	0.01	AC-066	16-Oct-22
22100057-002	Naphthalene	K, T, U	< 0.01 ug/Filter	0.01	AC-066	16-Oct-22
22100057-002	Perylene	K, T, U	< 0.01 ug/Filter	0.01	AC-066	16-Oct-22
22100057-002	Phenanthrene		0.28 ug/Filter	0.01	AC-066	16-Oct-22
22100057-002	Pyrene		0.03 ug/Filter	0.01	AC-066	16-Oct-22
22100057-002	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

LAB-LICA-202210

Inquiries: (780) 632 8455

E-mail: EAS.Results@innotechalberta.ca

CLIENT SAMPLE ID LICA/VOC/CLS/Oct 2, 2022	CANISTER ID 29016	Matrix Ambient Air	DATE SAMPLED 02-Oct-22 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 22100057	REPORT CREATED: 21-Oct-22		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22100057-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Oct-22
22100057-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Oct-22
22100057-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Oct-22
22100057-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Oct-22
22100057-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Oct-22
22100057-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	12-Oct-22
22100057-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Oct-22
22100057-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Oct-22
22100057-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Oct-22
22100057-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Oct-22
22100057-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Oct-22
22100057-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Oct-22
22100057-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Oct-22
22100057-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Oct-22
22100057-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Oct-22
22100057-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Oct-22
22100057-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	12-Oct-22
22100057-001	1-Butene/Isobutylene	I	0.08	ppbv	0.06	AC-058	12-Oct-22
22100057-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	12-Oct-22
22100057-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Oct-22
22100057-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Oct-22
22100057-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Oct-22
22100057-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Oct-22
22100057-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	12-Oct-22
22100057-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-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

CLIENT SAMPLE ID LICA/VOC/CLS/Oct 2, 2022	CANISTER ID 29016	Matrix Ambient Air	DATE SAMPLED 02-Oct-22 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 22100057	REPORT CREATED: 21-Oct-22		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22100057-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Oct-22
22100057-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Oct-22
22100057-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Oct-22
22100057-001	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Oct-22
22100057-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Oct-22
22100057-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Oct-22
22100057-001	3-Methylpentane	I	0.07	ppbv	0.02	AC-058	12-Oct-22
22100057-001	Acetone		2.9	ppbv	0.4	AC-058	12-Oct-22
22100057-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Oct-22
22100057-001	Benzene	I	0.06	ppbv	0.03	AC-058	12-Oct-22
22100057-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Oct-22
22100057-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Oct-22
22100057-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Oct-22
22100057-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Oct-22
22100057-001	Carbon disulfide	I	0.03	ppbv	0.02	AC-058	12-Oct-22
22100057-001	Carbon tetrachloride	I	0.07	ppbv	0.02	AC-058	12-Oct-22
22100057-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Oct-22
22100057-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Oct-22
22100057-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Oct-22
22100057-001	Chloromethane		0.67	ppbv	0.04	AC-058	12-Oct-22
22100057-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Oct-22
22100057-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Oct-22
22100057-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Oct-22
22100057-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Oct-22
22100057-001	Cyclohexane	I	0.08	ppbv	0.04	AC-058	12-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

CLIENT SAMPLE ID LICA/VOC/CLS/Oct 2, 2022	CANISTER ID 29016	Matrix Ambient Air	DATE SAMPLED 02-Oct-22 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 22100057	REPORT CREATED: 21-Oct-22		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22100057-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Oct-22
22100057-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Oct-22
22100057-001	Ethanol		2.9	ppbv	0.5	AC-058	12-Oct-22
22100057-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Oct-22
22100057-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Oct-22
22100057-001	Freon-11		0.19	ppbv	0.02	AC-058	12-Oct-22
22100057-001	Freon-113	I	0.05	ppbv	0.02	AC-058	12-Oct-22
22100057-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Oct-22
22100057-001	Freon-12		0.66	ppbv	0.03	AC-058	12-Oct-22
22100057-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Oct-22
22100057-001	Isobutane		0.66	ppbv	0.03	AC-058	12-Oct-22
22100057-001	Isopentane		0.28	ppbv	0.04	AC-058	12-Oct-22
22100057-001	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Oct-22
22100057-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Oct-22
22100057-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Oct-22
22100057-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Oct-22
22100057-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Oct-22
22100057-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Oct-22
22100057-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Oct-22
22100057-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Oct-22
22100057-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Oct-22
22100057-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	12-Oct-22
22100057-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Oct-22
22100057-001	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Oct-22
22100057-001	Methylcyclopentane	I	0.08	ppbv	0.05	AC-058	12-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

CLIENT SAMPLE ID LICA/VOC/CLS/Oct 2, 2022	CANISTER ID 29016	Matrix Ambient Air	DATE SAMPLED 02-Oct-22 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 22100057	REPORT CREATED: 21-Oct-22		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22100057-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Oct-22
22100057-001	n-Butane		0.53	ppbv	0.02	AC-058	12-Oct-22
22100057-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	12-Oct-22
22100057-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Oct-22
22100057-001	n-Heptane	I	0.11	ppbv	0.04	AC-058	12-Oct-22
22100057-001	n-Hexane	I	0.13	ppbv	0.03	AC-058	12-Oct-22
22100057-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Oct-22
22100057-001	n-Pentane		0.18	ppbv	0.04	AC-058	12-Oct-22
22100057-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	12-Oct-22
22100057-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	12-Oct-22
22100057-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Oct-22
22100057-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Oct-22
22100057-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Oct-22
22100057-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Oct-22
22100057-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Oct-22
22100057-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Oct-22
22100057-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Oct-22
22100057-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Oct-22
22100057-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Oct-22
22100057-001	Toluene	I	0.04	ppbv	0.03	AC-058	12-Oct-22
22100057-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	12-Oct-22
22100057-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Oct-22
22100057-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Oct-22
22100057-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Oct-22
22100057-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-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 LICA/VOC/CLS/Oct 2, 2022	CANISTER ID 29016	Matrix Ambient Air	DATE SAMPLED 02-Oct-22 0:00
DESCRIPTION: Cold Lake South	REPORT CREATED: 21-Oct-22		VERSION: Version 01
REPORT NUMBER: 22100057			

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22100057-001	Vinyl acetate	K, T, U	< 0.3 ppbv	0.3	AC-058	12-Oct-22
22100057-001	Vinyl chloride	K, T, U	< 0.02 ppbv	0.02	AC-058	12-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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Revision History

Order ID	Ver	Date	Reason
22100057	01	21-Oct-22	Report created



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ENVIRONMENTAL ANALYTICAL SERVICES

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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



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ENVIRONMENTAL ANALYTICAL SERVICES

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Order Comments



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Sample Comments



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Result Comments

Note:

- 1. Results relate only to items tested and apply to the sample as received.*
- 2. This report shall not be reproduced, except in full, without the explicit approval of the laboratory.*



Customer ID: LICA
 Cust Samp ID: LICA/VOC/CLS/Oct 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: 32249
 Station ID: LICA 01 Installation Date/Time (mst): Oct 07, 2022 @ 12:10
 Sample ID: LICA/VOC/CLS/Oct 08, 2022 Removal Date/Time (mst): Oct 12, 2022 @ 14:57

Date and Time Information

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

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.2	19.9

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
 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)

Leak rate must be 0.0 psi over a minimum of 5 minutes or repair is required

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov



Sample ID: 22100103-002 Priority: Normal



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

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	Puf+ S/N:	TE-12
Location:	Cold Lake South	Motor S/N:	1138/100-1020
Station ID:	LICA 01	Installation Date/Time:	Oct 07, 2022 @ 12:11
Field Sample ID:	LICA/PUF/CLS/Oct 8, 2022	Removal Date/Time:	Oct 12, 2022 @ 15:01

Sample Data Collection Information

Sample Date:	8-Oct-22	Average Pressure (mmHg)	715
Start Time (mst):	0:00	Average Flow (Q _{std})	229
End Time (mst):	23:59	Average Temperature (°C)	13.8
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

 <p>Canister ID: <u>32249</u></p> <p>This cleaned canister meets or exceeds TO-15 Method Specifications</p>	Sample ID: <u>LICA/VOC/CLS/Oct 8, 2022</u>	
	Sampled By: <u>Alex Yakupov</u>	
Proofed by: <u>ISQ3</u> on: <u>JUN 02 2022</u> Evacuated: <u>AUG 02 2022</u> Recertified: <u>AUG 31 2022</u> <small>(Use within: 3 months from evacuation or recertification date)</small> Laboratory Contact Number: 780-632-8403	Starting Vacuum: <u>-27.2</u> "Hg	End Vacuum: <u>+19.9</u> "Hg ^{21 KG} <u>psig</u>

 <p>Canister ID: <u>TE-12</u></p> <p>This cleaned canister meets or exceeds TO-15 Method Specifications</p>	Sample ID: <u>LICA/PUR/CLS/Oct 8, 2022</u>	
	Sampled By: <u>Alex Yakupov</u>	
Proofed by: <u>PVF</u> on: <u>PVF</u> Evacuated: <u>PVF</u> Recertified: <u>PVF</u> <small>(Use within: 3 months from evacuation or recertification date)</small> Laboratory Contact Number: 780-632-8403	Starting Vacuum: <u>—</u> "Hg	End Vacuum: <u>—</u> "Hg/psig

Sample ID: 22100103-001 Priority: Normal



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

<p>RESULTS: Lica Communal Mail Lakeland Industry and Community Assn</p>	<p>CLIENT SAMPLE ID LICA/PUF/CLS/Oct 8, 2022</p> <p>CANISTER ID: TE-12</p> <p>PRIORITY: Normal</p> <p>DESCRIPTION: Cold Lake South</p>	<p>Matrix Air Filter</p>
<p>INVOICE: Maria Cueva PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>DATE SAMPLED: 08-Oct-22 0:00</p> <p>REPORT CREATED: 18-Nov-22</p>	<p>DATE RECEIVED: 14-Oct-22</p> <p>REPORT NUMBER: 22100103</p> <p>VERSION: Version 01</p>

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22100103-002	1-Methylnaphthalene		0.11	ug/Filter	0.01	AC-066	15-Nov-22
22100103-002	2-Methylnaphthalene		0.14	ug/Filter	0.01	AC-066	15-Nov-22
22100103-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Nov-22
22100103-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Nov-22
22100103-002	Acenaphthene		0.05	ug/Filter	0.01	AC-066	15-Nov-22
22100103-002	Acenaphthylene		0.13	ug/Filter	0.01	AC-066	15-Nov-22
22100103-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Nov-22
22100103-002	Anthracene		0.03	ug/Filter	0.01	AC-066	15-Nov-22
22100103-002	Benzo(a)anthracene		0.01	ug/Filter	0.01	AC-066	15-Nov-22
22100103-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Nov-22
22100103-002	Benzo(b,j,k)fluoranthene		0.04	ug/Filter	0.01	AC-066	15-Nov-22
22100103-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Nov-22
22100103-002	Benzo(e)pyrene		0.01	ug/Filter	0.01	AC-066	15-Nov-22
22100103-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Nov-22
22100103-002	Chrysene		0.03	ug/Filter	0.01	AC-066	15-Nov-22
22100103-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Nov-22
22100103-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Nov-22
22100103-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022

Inquiries: (780) 632 8455

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID LICA/PUF/CLS/Oct 8, 2022	CANISTER ID TE-12	Matrix Air Filter	DATE SAMPLED 08-Oct-22 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 22100103	REPORT CREATED: 18-Nov-22		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22100103-002	Dibenzo(ah)anthracene		0.03 ug/Filter	0.01	AC-066	15-Nov-22
22100103-002	Fluoranthene		0.06 ug/Filter	0.01	AC-066	15-Nov-22
22100103-002	Fluorene		0.10 ug/Filter	0.01	AC-066	15-Nov-22
22100103-002	Indeno(1,2,3-cd)pyrene		0.01 ug/Filter	0.01	AC-066	15-Nov-22
22100103-002	Naphthalene		0.16 ug/Filter	0.01	AC-066	15-Nov-22
22100103-002	Perylene	K, T, U	< 0.01 ug/Filter	0.01	AC-066	15-Nov-22
22100103-002	Phenanthrene		0.26 ug/Filter	0.01	AC-066	15-Nov-22
22100103-002	Pyrene		0.07 ug/Filter	0.01	AC-066	15-Nov-22
22100103-002	Retene		0.25 ug/Filter	0.01	AC-066	15-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022

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Inquiries: (780) 632 8455

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CLIENT SAMPLE ID LICA/VOC/CLS/Oct 8, 2022	CANISTER ID 32449	Matrix Ambient Air	DATE SAMPLED 08-Oct-22 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 22100103	REPORT CREATED: 18-Nov-22		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22100103-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Oct-22
22100103-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Oct-22
22100103-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Oct-22
22100103-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Oct-22
22100103-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Oct-22
22100103-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	19-Oct-22
22100103-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	19-Oct-22
22100103-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	19-Oct-22
22100103-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Oct-22
22100103-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	19-Oct-22
22100103-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	19-Oct-22
22100103-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	19-Oct-22
22100103-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	19-Oct-22
22100103-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	19-Oct-22
22100103-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	19-Oct-22
22100103-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	19-Oct-22
22100103-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	19-Oct-22
22100103-001	1-Butene/Isobutylene	I	0.06	ppbv	0.06	AC-058	19-Oct-22
22100103-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	19-Oct-22
22100103-001	1-Pentene		0.12	ppbv	0.03	AC-058	19-Oct-22
22100103-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Oct-22
22100103-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Oct-22
22100103-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Oct-22
22100103-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	19-Oct-22
22100103-001	2,3-Dimethylpentane	I	0.09	ppbv	0.02	AC-058	19-Oct-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022

Inquiries: (780) 632 8455

E-mail: EAS.Results@innotechalberta.ca

CLIENT SAMPLE ID LICA/VOC/CLS/Oct 8, 2022	CANISTER ID 32449	Matrix Ambient Air	DATE SAMPLED 08-Oct-22 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 22100103	REPORT CREATED: 18-Nov-22		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22100103-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	19-Oct-22
22100103-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Oct-22
22100103-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	19-Oct-22
22100103-001	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Oct-22
22100103-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	19-Oct-22
22100103-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Oct-22
22100103-001	3-Methylpentane		0.15	ppbv	0.02	AC-058	19-Oct-22
22100103-001	Acetone		3.8	ppbv	0.4	AC-058	19-Oct-22
22100103-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	19-Oct-22
22100103-001	Benzene	I	0.12	ppbv	0.03	AC-058	19-Oct-22
22100103-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	19-Oct-22
22100103-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	19-Oct-22
22100103-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Oct-22
22100103-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Oct-22
22100103-001	Carbon disulfide	I	0.04	ppbv	0.02	AC-058	19-Oct-22
22100103-001	Carbon tetrachloride	I	0.07	ppbv	0.02	AC-058	19-Oct-22
22100103-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Oct-22
22100103-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Oct-22
22100103-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Oct-22
22100103-001	Chloromethane		0.62	ppbv	0.04	AC-058	19-Oct-22
22100103-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Oct-22
22100103-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	19-Oct-22
22100103-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	19-Oct-22
22100103-001	cis-2-Pentene		0.12	ppbv	0.02	AC-058	19-Oct-22
22100103-001	Cyclohexane	I	0.15	ppbv	0.04	AC-058	19-Oct-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022

Inquiries: (780) 632 8455

E-mail: EAS.Results@innotechalberta.ca

CLIENT SAMPLE ID LICA/VOC/CLS/Oct 8, 2022	CANISTER ID 32449	Matrix Ambient Air	DATE SAMPLED 08-Oct-22 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 22100103	REPORT CREATED: 18-Nov-22		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22100103-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Oct-22
22100103-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Oct-22
22100103-001	Ethanol		3.4	ppbv	0.5	AC-058	19-Oct-22
22100103-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	19-Oct-22
22100103-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	19-Oct-22
22100103-001	Freon-11		0.21	ppbv	0.02	AC-058	19-Oct-22
22100103-001	Freon-113	I	0.04	ppbv	0.02	AC-058	19-Oct-22
22100103-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	19-Oct-22
22100103-001	Freon-12		0.58	ppbv	0.03	AC-058	19-Oct-22
22100103-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	19-Oct-22
22100103-001	Isobutane		1.05	ppbv	0.03	AC-058	19-Oct-22
22100103-001	Isopentane		0.75	ppbv	0.04	AC-058	19-Oct-22
22100103-001	Isoprene		0.17	ppbv	0.02	AC-058	19-Oct-22
22100103-001	Isopropyl alcohol		0.8	ppbv	0.3	AC-058	19-Oct-22
22100103-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	19-Oct-22
22100103-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	19-Oct-22
22100103-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Oct-22
22100103-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	19-Oct-22
22100103-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	19-Oct-22
22100103-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	19-Oct-22
22100103-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	19-Oct-22
22100103-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	19-Oct-22
22100103-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	19-Oct-22
22100103-001	Methylcyclohexane		0.15	ppbv	0.02	AC-058	19-Oct-22
22100103-001	Methylcyclopentane		0.17	ppbv	0.05	AC-058	19-Oct-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022

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CLIENT SAMPLE ID LICA/VOC/CLS/Oct 8, 2022	CANISTER ID 32449	Matrix Ambient Air	DATE SAMPLED 08-Oct-22 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 22100103	REPORT CREATED: 18-Nov-22		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22100103-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	19-Oct-22
22100103-001	n-Butane		1.21	ppbv	0.02	AC-058	19-Oct-22
22100103-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	19-Oct-22
22100103-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	19-Oct-22
22100103-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	19-Oct-22
22100103-001	n-Hexane		0.24	ppbv	0.03	AC-058	19-Oct-22
22100103-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Oct-22
22100103-001	n-Pentane		0.38	ppbv	0.04	AC-058	19-Oct-22
22100103-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	19-Oct-22
22100103-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	19-Oct-22
22100103-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	19-Oct-22
22100103-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	19-Oct-22
22100103-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Oct-22
22100103-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	19-Oct-22
22100103-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Oct-22
22100103-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	19-Oct-22
22100103-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	19-Oct-22
22100103-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Oct-22
22100103-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	19-Oct-22
22100103-001	Toluene	I	0.16	ppbv	0.03	AC-058	19-Oct-22
22100103-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	19-Oct-22
22100103-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Oct-22
22100103-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	19-Oct-22
22100103-001	trans-2-Pentene	I	0.09	ppbv	0.02	AC-058	19-Oct-22
22100103-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	19-Oct-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID LICA/VOC/CLS/Oct 8, 2022	CANISTER ID 32449	Matrix Ambient Air	DATE SAMPLED 08-Oct-22 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 22100103	REPORT CREATED: 18-Nov-22		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22100103-001	Vinyl acetate	K, T, U	< 0.3 ppbv	0.3	AC-058	19-Oct-22
22100103-001	Vinyl chloride	K, T, U	< 0.02 ppbv	0.02	AC-058	19-Oct-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Revision History

Order ID	Ver	Date	Reason
22100103	01	18-Nov-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



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Order Comments



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Sample Comments



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Result Comments

Note:

- 1. Results relate only to items tested and apply to the sample as received.*
- 2. This report shall not be reproduced, except in full, without the explicit approval of the laboratory.*



Customer ID: LICA
 Cust Samp ID: LICA/VOC/CLS/Oct 14, 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: 28965
 Station ID: LICA 01 Installation Date/Time (mst): Oct 12, 2022 @ 15:08
 Sample ID: LICA/VOC/CLS/Oct 14, 2022 Removal Date/Time (mst): Oct 17, 2022 @ 15:24

Date and Time Information

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

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.1	19.6

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
 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)

****Leak rate must be 0.0 psi over a minimum of 5 minutes or repair is required****

Comments: n/a

Deployment Technician Signature: Alex Yakupov
 Collection Technician Signature: Alex Yakupov

Sample ID: 22100187-002 Priority: Normal



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

RECEIVED
OCT 20 2022

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	Puf+ S/N:	TE-095 ^{KG}
Location:	Cold Lake South	Motor S/N:	1138/100-1020
Station ID:	LICA 01	Installation Date/Time:	Oct 12, 2022 @ 15:09
Field Sample ID:	LICA/PUF/CLS/Oct 14, 2022	Removal Date/Time:	Oct 17, 2022 @ 15:26

Sample Data Collection Information

Sample Date:	14-Oct-22	Average Pressure (mmHg)	708
Start Time (mst):	0:00	Average Flow (Q _{std})	229
End Time (mst):	23:59	Average Temperature (°C)	10.2
Elapsed Time (Hours):	24	Volume (V _{std} m ³)	330.4

Sample Recovery Checklist

Flow Rate 230 slpm +/- 0.2 slpm ?	YES	(circle one)	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



Canister ID: 28965

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: AUG 18 2022

Evacuated: AUG 27 2022 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

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

Sampled By: Alex Yampov

Starting Vacuum: -27.1 "Hg

End Vacuum: 119.6 "Hg/psig ^{KG}



Canister ID: TE-09

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: PVF on: _____

Evacuated: _____ Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/PVF/CLS/Oct 14, 2022

Sampled By: Alex Yampov

Starting Vacuum: _____ "Hg

End Vacuum: _____ "Hg/psig

Sample ID: 22100187-001 Priority: Normal



Customer ID: LICA

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

RESULTS: Lica Communal Mail Lakeland Industry and Community Assn	CLIENT SAMPLE ID		Matrix	
	LICA/PUF/CLS/Oct 14, 2022		Air Filter	
INVOICE: Maria Cueva PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5	CANISTER ID: TE-05			
	PRIORITY: Normal			
	DESCRIPTION: Cold Lake South			
	DATE SAMPLED: 14-Oct-22	0:00	DATE RECEIVED: 20-Oct-22	
	REPORT CREATED: 18-Nov-22		REPORT NUMBER: 22100187	
		VERSION: Version 01		

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22100187-002	1-Methylnaphthalene		0.06	ug/Filter	0.01	AC-066	15-Nov-22
22100187-002	2-Methylnaphthalene		0.03	ug/Filter	0.01	AC-066	15-Nov-22
22100187-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Nov-22
22100187-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Nov-22
22100187-002	Acenaphthene		0.03	ug/Filter	0.01	AC-066	15-Nov-22
22100187-002	Acenaphthylene		0.01	ug/Filter	0.01	AC-066	15-Nov-22
22100187-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Nov-22
22100187-002	Anthracene		0.03	ug/Filter	0.01	AC-066	15-Nov-22
22100187-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Nov-22
22100187-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Nov-22
22100187-002	Benzo(b,j,k)fluoranthene		0.03	ug/Filter	0.01	AC-066	15-Nov-22
22100187-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Nov-22
22100187-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Nov-22
22100187-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Nov-22
22100187-002	Chrysene		0.03	ug/Filter	0.01	AC-066	15-Nov-22
22100187-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Nov-22
22100187-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Nov-22
22100187-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID LICA/PUF/CLS/Oct 14, 2022	CANISTER ID TE-05	Matrix Air Filter	DATE SAMPLED 14-Oct-22 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 22100187	REPORT CREATED: 18-Nov-22		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22100187-002	Dibenzo(ah)anthracene		0.11 ug/Filter	0.01	AC-066	15-Nov-22
22100187-002	Fluoranthene		0.06 ug/Filter	0.01	AC-066	15-Nov-22
22100187-002	Fluorene		0.11 ug/Filter	0.01	AC-066	15-Nov-22
22100187-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01 ug/Filter	0.01	AC-066	15-Nov-22
22100187-002	Naphthalene		0.05 ug/Filter	0.01	AC-066	15-Nov-22
22100187-002	Perylene	K, T, U	< 0.01 ug/Filter	0.01	AC-066	15-Nov-22
22100187-002	Phenanthrene		0.27 ug/Filter	0.01	AC-066	15-Nov-22
22100187-002	Pyrene		0.08 ug/Filter	0.01	AC-066	15-Nov-22
22100187-002	Retene		0.85 ug/Filter	0.01	AC-066	15-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022

LAB-LICA-202210
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CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 14, 2022	28965	Ambient Air	14-Oct-22 0:00
DESCRIPTION:	Cold Lake South		
REPORT NUMBER:	22100187	REPORT CREATED:	18-Nov-22
		VERSION:	Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22100187-001	1,1,1-Trichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	20-Oct-22
22100187-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	20-Oct-22
22100187-001	1,1,2-Trichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	20-Oct-22
22100187-001	1,1-Dichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	20-Oct-22
22100187-001	1,1-Dichloroethylene	K, T, U	< 0.02 ppbv	0.02	AC-058	20-Oct-22
22100187-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05 ppbv	0.05	AC-058	20-Oct-22
22100187-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3 ppbv	0.3	AC-058	20-Oct-22
22100187-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Oct-22
22100187-001	1,2-Dibromoethane	K, T, U	< 0.02 ppbv	0.02	AC-058	20-Oct-22
22100187-001	1,2-Dichlorobenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Oct-22
22100187-001	1,2-Dichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Oct-22
22100187-001	1,2-Dichloropropane	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Oct-22
22100187-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Oct-22
22100187-001	1,3-Butadiene	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Oct-22
22100187-001	1,3-Dichlorobenzene	K, T, U	< 0.4 ppbv	0.4	AC-058	20-Oct-22
22100187-001	1,4-Dichlorobenzene	K, T, U	< 0.4 ppbv	0.4	AC-058	20-Oct-22
22100187-001	1,4-Dioxane	K, T, U	< 0.5 ppbv	0.5	AC-058	20-Oct-22
22100187-001	1-Butene/Isobutylene	I	0.08 ppbv	0.06	AC-058	20-Oct-22
22100187-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07 ppbv	0.07	AC-058	20-Oct-22
22100187-001	1-Pentene	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Oct-22
22100187-001	2,2,4-Trimethylpentane	K, T, U	< 0.02 ppbv	0.02	AC-058	20-Oct-22
22100187-001	2,2-Dimethylbutane	K, T, U	< 0.02 ppbv	0.02	AC-058	20-Oct-22
22100187-001	2,3,4-Trimethylpentane	K, T, U	< 0.02 ppbv	0.02	AC-058	20-Oct-22
22100187-001	2,3-Dimethylbutane	K, T, U	< 0.09 ppbv	0.09	AC-058	20-Oct-22
22100187-001	2,3-Dimethylpentane	K, T, U	< 0.02 ppbv	0.02	AC-058	20-Oct-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022

Inquiries: (780) 632 8455

E-mail: EAS.Results@innotechalberta.ca

CLIENT SAMPLE ID LICA/VOC/CLS/Oct 14, 2022	CANISTER ID 28965	Matrix Ambient Air	DATE SAMPLED 14-Oct-22 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 22100187	REPORT CREATED: 18-Nov-22		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22100187-001	2,4-Dimethylpentane	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Oct-22
22100187-001	2-Methylheptane	K, T, U	< 0.02 ppbv	0.02	AC-058	20-Oct-22
22100187-001	2-Methylhexane	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Oct-22
22100187-001	2-Methylpentane	K, T, U	< 0.02 ppbv	0.02	AC-058	20-Oct-22
22100187-001	3-Methylheptane	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Oct-22
22100187-001	3-Methylhexane	K, T, U	< 0.02 ppbv	0.02	AC-058	20-Oct-22
22100187-001	3-Methylpentane		0.13 ppbv	0.02	AC-058	20-Oct-22
22100187-001	Acetone		2.6 ppbv	0.4	AC-058	20-Oct-22
22100187-001	Acrolein	K, T, U	< 0.3 ppbv	0.3	AC-058	20-Oct-22
22100187-001	Benzene	I	0.10 ppbv	0.03	AC-058	20-Oct-22
22100187-001	Benzyl chloride	K, T, U	< 0.3 ppbv	0.3	AC-058	20-Oct-22
22100187-001	Bromodichloromethane	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Oct-22
22100187-001	Bromoform	K, T, U	< 0.02 ppbv	0.02	AC-058	20-Oct-22
22100187-001	Bromomethane	K, T, U	< 0.02 ppbv	0.02	AC-058	20-Oct-22
22100187-001	Carbon disulfide	I	0.03 ppbv	0.02	AC-058	20-Oct-22
22100187-001	Carbon tetrachloride	I	0.10 ppbv	0.02	AC-058	20-Oct-22
22100187-001	Chlorobenzene	K, T, U	< 0.02 ppbv	0.02	AC-058	20-Oct-22
22100187-001	Chloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	20-Oct-22
22100187-001	Chloroform	K, T, U	< 0.02 ppbv	0.02	AC-058	20-Oct-22
22100187-001	Chloromethane		0.79 ppbv	0.04	AC-058	20-Oct-22
22100187-001	cis-1,2-Dichloroethene	K, T, U	< 0.02 ppbv	0.02	AC-058	20-Oct-22
22100187-001	cis-1,3-Dichloropropene	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Oct-22
22100187-001	cis-2-Butene	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Oct-22
22100187-001	cis-2-Pentene	K, T, U	< 0.02 ppbv	0.02	AC-058	20-Oct-22
22100187-001	Cyclohexane	K, T, U	< 0.04 ppbv	0.04	AC-058	20-Oct-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022

Inquiries: (780) 632 8455

E-mail: EAS.Results@innotechalberta.ca

CLIENT SAMPLE ID LICA/VOC/CLS/Oct 14, 2022	CANISTER ID 28965	Matrix Ambient Air	DATE SAMPLED 14-Oct-22 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 22100187	REPORT CREATED: 18-Nov-22		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22100187-001	Cyclopentane	K, T, U	< 0.02 ppbv	0.02	AC-058	20-Oct-22
22100187-001	Dibromochloromethane	K, T, U	< 0.02 ppbv	0.02	AC-058	20-Oct-22
22100187-001	Ethanol		2.8 ppbv	0.5	AC-058	20-Oct-22
22100187-001	Ethyl acetate	K, T, U	< 0.3 ppbv	0.3	AC-058	20-Oct-22
22100187-001	Ethylbenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Oct-22
22100187-001	Freon-11		0.30 ppbv	0.02	AC-058	20-Oct-22
22100187-001	Freon-113	I	0.07 ppbv	0.02	AC-058	20-Oct-22
22100187-001	Freon-114	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Oct-22
22100187-001	Freon-12		0.86 ppbv	0.03	AC-058	20-Oct-22
22100187-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3 ppbv	0.3	AC-058	20-Oct-22
22100187-001	Isobutane		0.50 ppbv	0.03	AC-058	20-Oct-22
22100187-001	Isopentane		0.40 ppbv	0.04	AC-058	20-Oct-22
22100187-001	Isoprene	K, T, U	< 0.02 ppbv	0.02	AC-058	20-Oct-22
22100187-001	Isopropyl alcohol	K, T, U	< 0.3 ppbv	0.3	AC-058	20-Oct-22
22100187-001	Isopropylbenzene	K, T, U	< 0.04 ppbv	0.04	AC-058	20-Oct-22
22100187-001	m,p-Xylene	I	0.16 ppbv	0.04	AC-058	20-Oct-22
22100187-001	m-Diethylbenzene	K, T, U	< 0.02 ppbv	0.02	AC-058	20-Oct-22
22100187-001	m-Ethyltoluene	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Oct-22
22100187-001	Methyl butyl ketone	K, T, U	< 0.4 ppbv	0.4	AC-058	20-Oct-22
22100187-001	Methyl ethyl ketone	K, T, U	< 0.3 ppbv	0.3	AC-058	20-Oct-22
22100187-001	Methyl isobutyl ketone	K, T, U	< 0.3 ppbv	0.3	AC-058	20-Oct-22
22100187-001	Methyl methacrylate	K, T, U	< 0.08 ppbv	0.08	AC-058	20-Oct-22
22100187-001	Methyl tert butyl ether	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Oct-22
22100187-001	Methylcyclohexane		0.14 ppbv	0.02	AC-058	20-Oct-22
22100187-001	Methylcyclopentane	K, T, U	< 0.05 ppbv	0.05	AC-058	20-Oct-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022

Inquiries: (780) 632 8455

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CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 14, 2022	28965	Ambient Air	14-Oct-22 0:00
DESCRIPTION:	Cold Lake South		
REPORT NUMBER:	22100187	REPORT CREATED:	18-Nov-22
		VERSION:	Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22100187-001	Methylene chloride	K, T, U	< 0.3 ppbv	0.3	AC-058	20-Oct-22
22100187-001	n-Butane		0.62 ppbv	0.02	AC-058	20-Oct-22
22100187-001	n-Decane	K, T, U	< 0.06 ppbv	0.06	AC-058	20-Oct-22
22100187-001	n-Dodecane	K, T, U	< 0.3 ppbv	0.3	AC-058	20-Oct-22
22100187-001	n-Heptane	K, T, U	< 0.04 ppbv	0.04	AC-058	20-Oct-22
22100187-001	n-Hexane		0.20 ppbv	0.03	AC-058	20-Oct-22
22100187-001	n-Octane	K, T, U	< 0.02 ppbv	0.02	AC-058	20-Oct-22
22100187-001	n-Pentane		0.25 ppbv	0.04	AC-058	20-Oct-22
22100187-001	n-Propylbenzene	K, T, U	< 0.06 ppbv	0.06	AC-058	20-Oct-22
22100187-001	n-Undecane	K, T, U	< 0.5 ppbv	0.5	AC-058	20-Oct-22
22100187-001	Naphthalene	K, T, U	< 0.3 ppbv	0.3	AC-058	20-Oct-22
22100187-001	n-Nonane	K, T, U	< 0.04 ppbv	0.04	AC-058	20-Oct-22
22100187-001	o-Ethyltoluene	K, T, U	< 0.02 ppbv	0.02	AC-058	20-Oct-22
22100187-001	o-Xylene	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Oct-22
22100187-001	p-Diethylbenzene	K, T, U	< 0.02 ppbv	0.02	AC-058	20-Oct-22
22100187-001	p-Ethyltoluene	K, T, U	< 0.04 ppbv	0.04	AC-058	20-Oct-22
22100187-001	Styrene	K, T, U	< 0.04 ppbv	0.04	AC-058	20-Oct-22
22100187-001	Tetrachloroethylene	K, T, U	< 0.02 ppbv	0.02	AC-058	20-Oct-22
22100187-001	Tetrahydrofuran	K, T, U	< 0.3 ppbv	0.3	AC-058	20-Oct-22
22100187-001	Toluene	I	0.10 ppbv	0.03	AC-058	20-Oct-22
22100187-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06 ppbv	0.06	AC-058	20-Oct-22
22100187-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02 ppbv	0.02	AC-058	20-Oct-22
22100187-001	trans-2-Butene	K, T, U	< 0.03 ppbv	0.03	AC-058	20-Oct-22
22100187-001	trans-2-Pentene	K, T, U	< 0.02 ppbv	0.02	AC-058	20-Oct-22
22100187-001	Trichloroethylene	K, T, U	< 0.02 ppbv	0.02	AC-058	20-Oct-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID LICA/VOC/CLS/Oct 14, 2022	CANISTER ID 28965	Matrix Ambient Air	DATE SAMPLED 14-Oct-22 0:00
DESCRIPTION: Cold Lake South	REPORT CREATED: 18-Nov-22	VERSION: Version 01	
REPORT NUMBER: 22100187			

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22100187-001	Vinyl acetate	K, T, U	< 0.3 ppbv	0.3	AC-058	20-Oct-22
22100187-001	Vinyl chloride	K, T, U	< 0.02 ppbv	0.02	AC-058	20-Oct-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Revision History

Order ID	Ver	Date	Reason
22100187	01	18-Nov-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



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Order Comments



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Sample Comments



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Result Comments

Note:

- 1. Results relate only to items tested and apply to the sample as received.*
- 2. This report shall not be reproduced, except in full, without the explicit approval of the laboratory.*



Customer ID: LICA
 Cust Samp ID: LICA/VOC/CLS/Oct 20, 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: 32204
Station ID: LICA 01	Installation Date/Time (mst): Oct 17, 2022 @ 15:34
Sample ID: LICA/VOC/CLS/Oct 20, 2022	Removal Date/Time (mst): Oct 24, 2022 @ 13:33

Date and Time Information

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

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.1	19.9

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
 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)

Leak rate must be 0.0 psi over a minimum of 5 minutes or repair is required

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 22110012-002 Priority: Normal



AIR FCD-01321/2

Customer ID: LICA

Cust Samp ID: LICA/PUF/CLS/Oct 20, 2022

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	Puf+ S/N:	TE-08
Location:	Cold Lake South	Motor S/N:	1138/100-1020
Station ID:	LICA 01	Installation Date/Time:	Oct 17, 2022 @ 15:34
Field Sample ID:	LICA/PUF/CLS/Oct 20, 2022	Removal Date/Time:	Oct 24, 2022 @ 13:35

Sample Data Collection Information

Sample Date:	20-Oct-22	Average Pressure (mmHg)	704
Start Time (mst):	0:00	Average Flow (Q _{std})	229
End Time (mst):	23:59	Average Temperature (°C)	14.4
Elapsed Time (Hours):	24	Volume (V _{std} m ³)	330.42

Sample Recovery Checklist

Flow Rate 230 slpm +/- 0.2 slpm ?	YES	(circle one)	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





Canister ID: 32204

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: JUL 15 2022

Evacuated: SEP 12 2022 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

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

Sampled By: Alex Yakupov

Starting Vacuum: -27.1 "Hg

End Vacuum: +19.9 "Hg/psig



Canister ID: TE-08

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/Oct 20, 2022

Sampled By: Alex Yakupov

Starting Vacuum: _____ "Hg

End Vacuum: _____ "Hg/psig

Sample ID: 22110012-001 Priority: Normal



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

<p>RESULTS: Lica Communal Mail Lakeland Industry and Community Assn</p>	<p>CLIENT SAMPLE ID LICA/PUF/CLS/Oct 20, 2022</p> <p>MATRIX: Air Filter</p> <p>CANISTER ID: TE-08</p> <p>PRIORITY: Normal</p> <p>DESCRIPTION: Cold Lake South</p> <p>DATE SAMPLED: 20-Oct-22 0:00</p> <p>REPORT CREATED: 18-Nov-22</p>	<p>DATE RECEIVED: 02-Nov-22</p> <p>REPORT NUMBER: 22110012</p> <p>VERSION: Version 01</p>
<p>INVOICE: Maria Cueva PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>		

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110012-002	1-Methylnaphthalene		0.02	ug/Filter	0.01	AC-066	15-Nov-22
22110012-002	2-Methylnaphthalene		0.02	ug/Filter	0.01	AC-066	15-Nov-22
22110012-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Nov-22
22110012-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Nov-22
22110012-002	Acenaphthene		0.01	ug/Filter	0.01	AC-066	15-Nov-22
22110012-002	Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Nov-22
22110012-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Nov-22
22110012-002	Anthracene		0.02	ug/Filter	0.01	AC-066	15-Nov-22
22110012-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Nov-22
22110012-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Nov-22
22110012-002	Benzo(b,j,k)fluoranthene		0.03	ug/Filter	0.01	AC-066	15-Nov-22
22110012-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Nov-22
22110012-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Nov-22
22110012-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Nov-22
22110012-002	Chrysene		0.02	ug/Filter	0.01	AC-066	15-Nov-22
22110012-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Nov-22
22110012-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Nov-22
22110012-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022

Inquiries: (780) 632 8455

E-mail: EAS.Results@innotechalberta.ca

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Oct 20, 2022	TE-08	Air Filter	20-Oct-22 0:00
DESCRIPTION:	Cold Lake South		
REPORT NUMBER:	REPORT CREATED:		VERSION:
22110012	18-Nov-22		Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22110012-002	Dibenzo(ah)anthracene		0.10 ug/Filter	0.01	AC-066	15-Nov-22
22110012-002	Fluoranthene		0.04 ug/Filter	0.01	AC-066	15-Nov-22
22110012-002	Fluorene		0.07 ug/Filter	0.01	AC-066	15-Nov-22
22110012-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01 ug/Filter	0.01	AC-066	15-Nov-22
22110012-002	Naphthalene		0.04 ug/Filter	0.01	AC-066	15-Nov-22
22110012-002	Perylene	K, T, U	< 0.01 ug/Filter	0.01	AC-066	15-Nov-22
22110012-002	Phenanthrene		0.19 ug/Filter	0.01	AC-066	15-Nov-22
22110012-002	Pyrene		0.05 ug/Filter	0.01	AC-066	15-Nov-22
22110012-002	Retene		0.57 ug/Filter	0.01	AC-066	15-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022

LAB-LICA-202210

Inquiries: (780) 632 8455

E-mail: EAS.Results@innotechalberta.ca

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 20, 2022	32204	Ambient Air	20-Oct-22 0:00
DESCRIPTION:	Cold Lake South		
REPORT NUMBER:	22110012	REPORT CREATED:	18-Nov-22
		VERSION:	Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22110012-001	1,1,1-Trichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	03-Nov-22
22110012-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	03-Nov-22
22110012-001	1,1,2-Trichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	03-Nov-22
22110012-001	1,1-Dichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	03-Nov-22
22110012-001	1,1-Dichloroethylene	K, T, U	< 0.02 ppbv	0.02	AC-058	03-Nov-22
22110012-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05 ppbv	0.05	AC-058	03-Nov-22
22110012-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3 ppbv	0.3	AC-058	03-Nov-22
22110012-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	03-Nov-22
22110012-001	1,2-Dibromoethane	K, T, U	< 0.02 ppbv	0.02	AC-058	03-Nov-22
22110012-001	1,2-Dichlorobenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	03-Nov-22
22110012-001	1,2-Dichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	03-Nov-22
22110012-001	1,2-Dichloropropane	K, T, U	< 0.03 ppbv	0.03	AC-058	03-Nov-22
22110012-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	03-Nov-22
22110012-001	1,3-Butadiene	K, T, U	< 0.03 ppbv	0.03	AC-058	03-Nov-22
22110012-001	1,3-Dichlorobenzene	K, T, U	< 0.4 ppbv	0.4	AC-058	03-Nov-22
22110012-001	1,4-Dichlorobenzene	K, T, U	< 0.4 ppbv	0.4	AC-058	03-Nov-22
22110012-001	1,4-Dioxane	K, T, U	< 0.5 ppbv	0.5	AC-058	03-Nov-22
22110012-001	1-Butene/Isobutylene	K, T, U	< 0.06 ppbv	0.06	AC-058	03-Nov-22
22110012-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07 ppbv	0.07	AC-058	03-Nov-22
22110012-001	1-Pentene	K, T, U	< 0.03 ppbv	0.03	AC-058	03-Nov-22
22110012-001	2,2,4-Trimethylpentane	K, T, U	< 0.02 ppbv	0.02	AC-058	03-Nov-22
22110012-001	2,2-Dimethylbutane	K, T, U	< 0.02 ppbv	0.02	AC-058	03-Nov-22
22110012-001	2,3,4-Trimethylpentane	K, T, U	< 0.02 ppbv	0.02	AC-058	03-Nov-22
22110012-001	2,3-Dimethylbutane	K, T, U	< 0.09 ppbv	0.09	AC-058	03-Nov-22
22110012-001	2,3-Dimethylpentane	K, T, U	< 0.02 ppbv	0.02	AC-058	03-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022

Inquiries: (780) 632 8455

E-mail: EAS.Results@innotechalberta.ca

CLIENT SAMPLE ID LICA/VOC/CLS/Oct 20, 2022	CANISTER ID 32204	Matrix Ambient Air	DATE SAMPLED 20-Oct-22 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 22110012	REPORT CREATED: 18-Nov-22		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22110012-001	2,4-Dimethylpentane	K, T, U	< 0.03 ppbv	0.03	AC-058	03-Nov-22
22110012-001	2-Methylheptane	K, T, U	< 0.02 ppbv	0.02	AC-058	03-Nov-22
22110012-001	2-Methylhexane	K, T, U	< 0.03 ppbv	0.03	AC-058	03-Nov-22
22110012-001	2-Methylpentane	K, T, U	< 0.02 ppbv	0.02	AC-058	03-Nov-22
22110012-001	3-Methylheptane	K, T, U	< 0.03 ppbv	0.03	AC-058	03-Nov-22
22110012-001	3-Methylhexane	K, T, U	< 0.02 ppbv	0.02	AC-058	03-Nov-22
22110012-001	3-Methylpentane	K, T, U	< 0.02 ppbv	0.02	AC-058	03-Nov-22
22110012-001	Acetone		1.8 ppbv	0.4	AC-058	03-Nov-22
22110012-001	Acrolein	K, T, U	< 0.3 ppbv	0.3	AC-058	03-Nov-22
22110012-001	Benzene	I	0.09 ppbv	0.03	AC-058	03-Nov-22
22110012-001	Benzyl chloride	K, T, U	< 0.3 ppbv	0.3	AC-058	03-Nov-22
22110012-001	Bromodichloromethane	K, T, U	< 0.03 ppbv	0.03	AC-058	03-Nov-22
22110012-001	Bromoform	K, T, U	< 0.02 ppbv	0.02	AC-058	03-Nov-22
22110012-001	Bromomethane	K, T, U	< 0.02 ppbv	0.02	AC-058	03-Nov-22
22110012-001	Carbon disulfide	K, T, U	< 0.02 ppbv	0.02	AC-058	03-Nov-22
22110012-001	Carbon tetrachloride	I	0.07 ppbv	0.02	AC-058	03-Nov-22
22110012-001	Chlorobenzene	K, T, U	< 0.02 ppbv	0.02	AC-058	03-Nov-22
22110012-001	Chloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	03-Nov-22
22110012-001	Chloroform	K, T, U	< 0.02 ppbv	0.02	AC-058	03-Nov-22
22110012-001	Chloromethane		0.51 ppbv	0.04	AC-058	03-Nov-22
22110012-001	cis-1,2-Dichloroethene	K, T, U	< 0.02 ppbv	0.02	AC-058	03-Nov-22
22110012-001	cis-1,3-Dichloropropene	K, T, U	< 0.03 ppbv	0.03	AC-058	03-Nov-22
22110012-001	cis-2-Butene	K, T, U	< 0.03 ppbv	0.03	AC-058	03-Nov-22
22110012-001	cis-2-Pentene	K, T, U	< 0.02 ppbv	0.02	AC-058	03-Nov-22
22110012-001	Cyclohexane	K, T, U	< 0.04 ppbv	0.04	AC-058	03-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022

Inquiries: (780) 632 8455

E-mail: EAS.Results@innotechalberta.ca

CLIENT SAMPLE ID LICA/VOC/CLS/Oct 20, 2022	CANISTER ID 32204	Matrix Ambient Air	DATE SAMPLED 20-Oct-22 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 22110012	REPORT CREATED: 18-Nov-22		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22110012-001	Cyclopentane	K, T, U	< 0.02 ppbv	0.02	AC-058	03-Nov-22
22110012-001	Dibromochloromethane	K, T, U	< 0.02 ppbv	0.02	AC-058	03-Nov-22
22110012-001	Ethanol	I	0.8 ppbv	0.5	AC-058	03-Nov-22
22110012-001	Ethyl acetate	K, T, U	< 0.3 ppbv	0.3	AC-058	03-Nov-22
22110012-001	Ethylbenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	03-Nov-22
22110012-001	Freon-11		0.21 ppbv	0.02	AC-058	03-Nov-22
22110012-001	Freon-113	I	0.06 ppbv	0.02	AC-058	03-Nov-22
22110012-001	Freon-114	K, T, U	< 0.03 ppbv	0.03	AC-058	03-Nov-22
22110012-001	Freon-12		0.60 ppbv	0.03	AC-058	03-Nov-22
22110012-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3 ppbv	0.3	AC-058	03-Nov-22
22110012-001	Isobutane		0.17 ppbv	0.03	AC-058	03-Nov-22
22110012-001	Isopentane		0.15 ppbv	0.04	AC-058	03-Nov-22
22110012-001	Isoprene	K, T, U	< 0.02 ppbv	0.02	AC-058	03-Nov-22
22110012-001	Isopropyl alcohol	K, T, U	< 0.3 ppbv	0.3	AC-058	03-Nov-22
22110012-001	Isopropylbenzene	K, T, U	< 0.04 ppbv	0.04	AC-058	03-Nov-22
22110012-001	m,p-Xylene	K, T, U	< 0.04 ppbv	0.04	AC-058	03-Nov-22
22110012-001	m-Diethylbenzene	K, T, U	< 0.02 ppbv	0.02	AC-058	03-Nov-22
22110012-001	m-Ethyltoluene	K, T, U	< 0.03 ppbv	0.03	AC-058	03-Nov-22
22110012-001	Methyl butyl ketone	K, T, U	< 0.4 ppbv	0.4	AC-058	03-Nov-22
22110012-001	Methyl ethyl ketone	K, T, U	< 0.3 ppbv	0.3	AC-058	03-Nov-22
22110012-001	Methyl isobutyl ketone	K, T, U	< 0.3 ppbv	0.3	AC-058	03-Nov-22
22110012-001	Methyl methacrylate	K, T, U	< 0.08 ppbv	0.08	AC-058	03-Nov-22
22110012-001	Methyl tert butyl ether	K, T, U	< 0.03 ppbv	0.03	AC-058	03-Nov-22
22110012-001	Methylcyclohexane	I	0.03 ppbv	0.02	AC-058	03-Nov-22
22110012-001	Methylcyclopentane	K, T, U	< 0.05 ppbv	0.05	AC-058	03-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022

Inquiries: (780) 632 8455

E-mail: EAS.Results@innotechalberta.ca

CLIENT SAMPLE ID LICA/VOC/CLS/Oct 20, 2022	CANISTER ID 32204	Matrix Ambient Air	DATE SAMPLED 20-Oct-22 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 22110012	REPORT CREATED: 18-Nov-22		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22110012-001	Methylene chloride	K, T, U	< 0.3 ppbv	0.3	AC-058	03-Nov-22
22110012-001	n-Butane		0.24 ppbv	0.02	AC-058	03-Nov-22
22110012-001	n-Decane	K, T, U	< 0.06 ppbv	0.06	AC-058	03-Nov-22
22110012-001	n-Dodecane	K, T, U	< 0.3 ppbv	0.3	AC-058	03-Nov-22
22110012-001	n-Heptane	K, T, U	< 0.04 ppbv	0.04	AC-058	03-Nov-22
22110012-001	n-Hexane	I	0.03 ppbv	0.03	AC-058	03-Nov-22
22110012-001	n-Octane	K, T, U	< 0.02 ppbv	0.02	AC-058	03-Nov-22
22110012-001	n-Pentane	I	0.08 ppbv	0.04	AC-058	03-Nov-22
22110012-001	n-Propylbenzene	K, T, U	< 0.06 ppbv	0.06	AC-058	03-Nov-22
22110012-001	n-Undecane	K, T, U	< 0.5 ppbv	0.5	AC-058	03-Nov-22
22110012-001	Naphthalene	K, T, U	< 0.3 ppbv	0.3	AC-058	03-Nov-22
22110012-001	n-Nonane	K, T, U	< 0.04 ppbv	0.04	AC-058	03-Nov-22
22110012-001	o-Ethyltoluene	K, T, U	< 0.02 ppbv	0.02	AC-058	03-Nov-22
22110012-001	o-Xylene	K, T, U	< 0.03 ppbv	0.03	AC-058	03-Nov-22
22110012-001	p-Diethylbenzene	K, T, U	< 0.02 ppbv	0.02	AC-058	03-Nov-22
22110012-001	p-Ethyltoluene	K, T, U	< 0.04 ppbv	0.04	AC-058	03-Nov-22
22110012-001	Styrene	K, T, U	< 0.04 ppbv	0.04	AC-058	03-Nov-22
22110012-001	Tetrachloroethylene	K, T, U	< 0.02 ppbv	0.02	AC-058	03-Nov-22
22110012-001	Tetrahydrofuran	K, T, U	< 0.3 ppbv	0.3	AC-058	03-Nov-22
22110012-001	Toluene	I	0.04 ppbv	0.03	AC-058	03-Nov-22
22110012-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06 ppbv	0.06	AC-058	03-Nov-22
22110012-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02 ppbv	0.02	AC-058	03-Nov-22
22110012-001	trans-2-Butene	K, T, U	< 0.03 ppbv	0.03	AC-058	03-Nov-22
22110012-001	trans-2-Pentene	K, T, U	< 0.02 ppbv	0.02	AC-058	03-Nov-22
22110012-001	Trichloroethylene	K, T, U	< 0.02 ppbv	0.02	AC-058	03-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022

Inquiries: (780) 632 8455

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID LICA/VOC/CLS/Oct 20, 2022	CANISTER ID 32204	Matrix Ambient Air	DATE SAMPLED 20-Oct-22 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 22110012	REPORT CREATED: 18-Nov-22		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22110012-001	Vinyl acetate	K, T, U	< 0.3 ppbv	0.3	AC-058	03-Nov-22
22110012-001	Vinyl chloride	K, T, U	< 0.02 ppbv	0.02	AC-058	03-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Revision History

Order ID	Ver	Date	Reason
22110012	01	18-Nov-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



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Order Comments



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Sample Comments



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ENVIRONMENTAL ANALYTICAL SERVICES

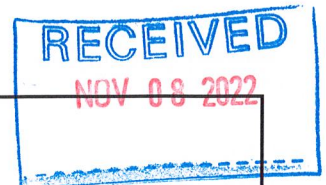
TEST REPORT

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Result Comments

Note:

- 1. Results relate only to items tested and apply to the sample as received.*
- 2. This report shall not be reproduced, except in full, without the explicit approval of the laboratory.*



Customer ID: LICA
 Cust Samp ID: LICA/VOC/CLS/Oct 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: H2802
Station ID: LICA 01	Installation Date/Time (mst): Oct 24, 2022 @ 14:02
Sample ID: LICA/VOC/CLS/Oct 26, 2022	Removal Date/Time (mst): Oct 31, 2022 @ 17:45

Date and Time Information

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

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.1	18.8

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

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)

Leak rate must be 0.0 psi over a minimum of 5 minutes or repair is required

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 22110066-002 Priority: Normal



Customer ID: LICA

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



TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	Puf+ S/N:	P13-01
Location:	Cold Lake South	Motor S/N:	1138/100-1020
Station ID:	LICA 01	Installation Date/Time:	Oct 24, 2022 @ 14:05
Field Sample ID:	LICA/PUF/CLS/Oct 26, 2022	Removal Date/Time:	Oct 31, 2022 @ 17:47

Sample Data Collection Information

Sample Date:	26-Oct-22	Average Pressure (mmHg)	704
Start Time (mst):	0:00	Average Flow (Q _{std})	229
End Time (mst):	23:59	Average Temperature (°C)	3.1
Elapsed Time (Hours):	24	Volume (V _{std} 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



Customer ID: LICA
 Cust Samp ID: LICA/VOC/CLS/Nov 01, 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: _____	29032
Station ID: _____	LICA 01	Installation Date/Time (mst): _____	Oct 31, 2022 @ 17:45
Sample ID: _____	LICA/VOC/CLS/Nov 01, 2022	Removal Date/Time (mst): _____	Nov 04, 2022 @ 20:34

Date and Time Information			
Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
November 1, 2022	00:00	23:59	24

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.1	16.7

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
 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)

****Leak rate must be 0.0 psi over a minimum of 5 minutes or repair is required****

Comments: _____ n/a

Deployment Technician Signature: _____ Alex Yakupov

Collection Technician Signature: _____ Alex Yakupov

Sample ID: 22110066-004 Priority: Normal



Customer ID: LICA

Cust Samp ID: LICA/PUF/CLS/Nov 01, 2022

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	Puf+ S/N:	TE-06
Location:	Cold Lake South	Motor S/N:	1138/100-1020
Station ID:	LICA 01	Installation Date/Time:	Oct 31, 2022 @ 17:47
Field Sample ID:	LICA/PUF/CLS/Nov 01, 2022	Removal Date/Time:	Nov 04, 2022 @ 20:35

Sample Data Collection Information


Sample Date:	01-Nov-22	Average Pressure (mmHg)	707
Start Time (mst):	00:00	Average Flow (Q _{std})	229
End Time (mst):	23:59	Average Temperature (°C)	2.2
Elapsed Time (Hours):	24	Volume (Vstd m ³)	330.41


Sample Recovery Checklist


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


Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov



 <p>Canister ID: <u>H2802</u></p> <p>This cleaned canister meets or exceeds TO-15 Method Specifications</p> <p>Proofed by: <u>ISQ4</u> on: <u>SEP 06 2022</u></p> <p>Evacuated: <u>SEP 12 2022</u> Recertified: _____</p> <p>(Use within: 3 months from evacuation or recertification date)</p> <p>Laboratory Contact Number: 780-632-8403</p>	Sample ID: <u>LICA/VOC/CLS/Oct 26, 2022</u>
	<p>Sampled By: <u>Alex Yakupov</u></p> <p>Starting Vacuum: <u>-27.1</u> "Hg</p> <p>End Pressure: <u>18.8</u> "Hg/psig ^{KG}</p>

 <p>Canister ID: <u>813-01</u></p> <p>This cleaned canister meets or exceeds TO-15 Method Specifications</p> <p>Proofed by: <u>PUF</u> on: _____</p> <p>Evacuated: _____ Recertified: _____</p> <p>(Use within: 3 months from evacuation or recertification date)</p> <p>Laboratory Contact Number: 780-632-8403</p>	Sample ID: <u>LICA/PUF/CLS/Oct 26 2022</u>
	<p>Sampled By: <u>Alex Yakupov</u></p> <p>Starting Vacuum: _____ "Hg</p> <p>End Vacuum: _____ "Hg/psig</p>

 <p>Canister ID: <u>29032</u></p> <p>This cleaned canister meets or exceeds TO-15 Method Specifications</p> <p>Proofed by: <u>ISQ4</u> on: <u>JUL 15 2022</u></p> <p>Evacuated: <u>SEP 21 2022</u> Recertified: _____</p> <p>(Use within: 3 months from evacuation or recertification date)</p> <p>Laboratory Contact Number: 780-632-8403</p>	Sample ID: <u>LICA/VOC/CLS/Nov 1, 2022</u>
	<p>Sampled By: <u>Alex Yakupov</u></p> <p>Starting Vacuum: <u>-27.1</u> "Hg</p> <p>End Vacuum: <u>+16.7</u> "Hg/psig ^{KG}</p>

 <p>Canister ID: <u>TE-06</u></p> <p>This cleaned canister meets or exceeds TO-15 Method Specifications</p> <p>Proofed by: <u>PUF</u> on: _____</p> <p>Evacuated: _____ Recertified: _____</p> <p>(Use within: 3 months from evacuation or recertification date)</p> <p>Laboratory Contact Number: 780-632-8403</p>	Sample ID: <u>LICA/PUF/CLS/Nov 1, 2022</u>
	<p>Sampled By: <u>Alex Yakupov</u></p> <p>Starting Vacuum: _____ "Hg</p> <p>End Pressure: _____ "Hg/psig</p>

Sample ID: 22110066-001 Priority: Normal



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

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/Nov 01, 2022 MATRIX: Air Filter
	CANISTER ID: TE-06 PRIORITY: Normal DESCRIPTION: Cold Lake South DATE SAMPLED: 01-Nov-22 0:00 DATE RECEIVED: 08-Nov-22 REPORT CREATED: 18-Nov-22 REPORT NUMBER: 22110066 VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22110066-004	1-Methylnaphthalene		0.02 ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	2-Methylnaphthalene		0.03 ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	3-Methylcholanthrene	K, T, U	< 0.01 ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01 ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Acenaphthene		0.06 ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Acenaphthylene		0.09 ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Acridine	K, T, U	< 0.01 ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Anthracene		0.04 ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Benzo(a)anthracene		0.01 ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Benzo(a)pyrene	K, T, U	< 0.01 ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Benzo(b,j,k)fluoranthene		0.06 ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Benzo(c)phenanthrene	K, T, U	< 0.01 ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Benzo(e)pyrene		0.01 ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Benzo(ghi)perylene	K, T, U	< 0.01 ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Chrysene		0.04 ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Dibenzo(a,h)pyrene	K, T, U	< 0.01 ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Dibenzo(a,i)pyrene	K, T, U	< 0.01 ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Dibenzo(a,l)pyrene	K, T, U	< 0.01 ug/Filter	0.01	AC-066	16-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022

Inquiries: (780) 632 8455

E-mail: EAS.Results@innotechalberta.ca

CLIENT SAMPLE ID LICA/PUF/CLS/Nov 01, 2022	CANISTER ID TE-06	Matrix Air Filter	DATE SAMPLED 01-Nov-22 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 22110066	REPORT CREATED: 18-Nov-22		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22110066-004	Dibenzo(ah)anthracene		0.06 ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Fluoranthene		0.09 ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Fluorene		0.12 ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Indeno(1,2,3-cd)pyrene		0.01 ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Naphthalene		0.05 ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Perylene	K, T, U	< 0.01 ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Phenanthrene		0.26 ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Pyrene		0.14 ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Retene		0.08 ug/Filter	0.01	AC-066	16-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022

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Page 75 of 161

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CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/PUF/CLS/Oct 26, 2022	P13-01	Air Filter	26-Oct-22	0:00
DESCRIPTION:	Cold Lake South			
REPORT NUMBER:	22110066	REPORT CREATED:	18-Nov-22	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22110066-002	1-Methylnaphthalene		0.06 ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	2-Methylnaphthalene		0.08 ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	3-Methylcholanthrene	K, T, U	< 0.01 ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01 ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Acenaphthene		0.03 ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Acenaphthylene		0.09 ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Acridine	K, T, U	< 0.01 ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Anthracene		0.01 ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Benzo(a)anthracene	K, T, U	< 0.01 ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Benzo(a)pyrene	K, T, U	< 0.01 ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Benzo(b,j,k)fluoranthene		0.02 ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Benzo(c)phenanthrene	K, T, U	< 0.01 ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Benzo(e)pyrene	K, T, U	< 0.01 ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Benzo(ghi)perylene	K, T, U	< 0.01 ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Chrysene		0.01 ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01 ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01 ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01 ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Dibenzo(ah)anthracene		0.02 ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Fluoranthene		0.03 ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Fluorene		0.07 ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01 ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Naphthalene		0.07 ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Perylene	K, T, U	< 0.01 ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Phenanthrene		0.09 ug/Filter	0.01	AC-066	16-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Oct 26, 2022	P13-01	Air Filter	26-Oct-22 0:00
DESCRIPTION:	Cold Lake South		
REPORT NUMBER:	22110066	REPORT CREATED:	18-Nov-22
		VERSION:	Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22110066-002	Pyrene		0.04 ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Retene		0.03 ug/Filter	0.01	AC-066	16-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 01, 2022	29032	Ambient Air	01-Nov-22 0:00
DESCRIPTION:	Cold Lake South		
REPORT NUMBER:	22110066	REPORT CREATED:	18-Nov-22
		VERSION:	Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22110066-003	1,1,1-Trichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-003	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-003	1,1,2-Trichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-003	1,1-Dichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-003	1,1-Dichloroethylene	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-003	1,2,3-Trimethylbenzene	K, T, U	< 0.05 ppbv	0.05	AC-058	10-Nov-22
22110066-003	1,2,4-Trichlorobenzene	K, T, U	< 0.3 ppbv	0.3	AC-058	10-Nov-22
22110066-003	1,2,4-Trimethylbenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-003	1,2-Dibromoethane	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-003	1,2-Dichlorobenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-003	1,2-Dichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-003	1,2-Dichloropropane	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-003	1,3,5-Trimethylbenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-003	1,3-Butadiene	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-003	1,3-Dichlorobenzene	K, T, U	< 0.4 ppbv	0.4	AC-058	10-Nov-22
22110066-003	1,4-Dichlorobenzene	K, T, U	< 0.4 ppbv	0.4	AC-058	10-Nov-22
22110066-003	1,4-Dioxane	K, T, U	< 0.5 ppbv	0.5	AC-058	10-Nov-22
22110066-003	1-Butene/Isobutylene	K, T, U	< 0.06 ppbv	0.06	AC-058	10-Nov-22
22110066-003	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07 ppbv	0.07	AC-058	10-Nov-22
22110066-003	1-Pentene	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-003	2,2,4-Trimethylpentane	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-003	2,2-Dimethylbutane	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-003	2,3,4-Trimethylpentane	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-003	2,3-Dimethylbutane	K, T, U	< 0.09 ppbv	0.09	AC-058	10-Nov-22
22110066-003	2,3-Dimethylpentane	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022

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CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 01, 2022	29032	Ambient Air	01-Nov-22 0:00
DESCRIPTION:	Cold Lake South		
REPORT NUMBER:	22110066	REPORT CREATED:	18-Nov-22
		VERSION:	Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22110066-003	2,4-Dimethylpentane	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-003	2-Methylheptane	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-003	2-Methylhexane	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-003	2-Methylpentane	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-003	3-Methylheptane	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-003	3-Methylhexane	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-003	3-Methylpentane	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-003	Acetone		1.0 ppbv	0.4	AC-058	10-Nov-22
22110066-003	Acrolein	K, T, U	< 0.3 ppbv	0.3	AC-058	10-Nov-22
22110066-003	Benzene	I	0.05 ppbv	0.03	AC-058	10-Nov-22
22110066-003	Benzyl chloride	K, T, U	< 0.3 ppbv	0.3	AC-058	10-Nov-22
22110066-003	Bromodichloromethane	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-003	Bromoform	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-003	Bromomethane	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-003	Carbon disulfide	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-003	Carbon tetrachloride	I	0.07 ppbv	0.02	AC-058	10-Nov-22
22110066-003	Chlorobenzene	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-003	Chloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-003	Chloroform	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-003	Chloromethane		0.37 ppbv	0.04	AC-058	10-Nov-22
22110066-003	cis-1,2-Dichloroethene	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-003	cis-1,3-Dichloropropene	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-003	cis-2-Butene	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-003	cis-2-Pentene	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-003	Cyclohexane	K, T, U	< 0.04 ppbv	0.04	AC-058	10-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022

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CLIENT SAMPLE ID LICA/VOC/CLS/Nov 01, 2022	CANISTER ID 29032	Matrix Ambient Air	DATE SAMPLED 01-Nov-22 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 22110066	REPORT CREATED: 18-Nov-22		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22110066-003	Cyclopentane	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-003	Dibromochloromethane	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-003	Ethanol		1.0 ppbv	0.5	AC-058	10-Nov-22
22110066-003	Ethyl acetate	K, T, U	< 0.3 ppbv	0.3	AC-058	10-Nov-22
22110066-003	Ethylbenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-003	Freon-11		0.19 ppbv	0.02	AC-058	10-Nov-22
22110066-003	Freon-113	I	0.06 ppbv	0.02	AC-058	10-Nov-22
22110066-003	Freon-114	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-003	Freon-12		0.50 ppbv	0.03	AC-058	10-Nov-22
22110066-003	Hexachloro-1,3-butadiene	K, T, U	< 0.3 ppbv	0.3	AC-058	10-Nov-22
22110066-003	Isobutane		0.43 ppbv	0.03	AC-058	10-Nov-22
22110066-003	Isopentane		0.11 ppbv	0.04	AC-058	10-Nov-22
22110066-003	Isoprene	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-003	Isopropyl alcohol	K, T, U	< 0.3 ppbv	0.3	AC-058	10-Nov-22
22110066-003	Isopropylbenzene	K, T, U	< 0.04 ppbv	0.04	AC-058	10-Nov-22
22110066-003	m,p-Xylene	K, T, U	< 0.04 ppbv	0.04	AC-058	10-Nov-22
22110066-003	m-Diethylbenzene	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-003	m-Ethyltoluene	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-003	Methyl butyl ketone	K, T, U	< 0.4 ppbv	0.4	AC-058	10-Nov-22
22110066-003	Methyl ethyl ketone	K, T, U	< 0.3 ppbv	0.3	AC-058	10-Nov-22
22110066-003	Methyl isobutyl ketone	K, T, U	< 0.3 ppbv	0.3	AC-058	10-Nov-22
22110066-003	Methyl methacrylate	K, T, U	< 0.08 ppbv	0.08	AC-058	10-Nov-22
22110066-003	Methyl tert butyl ether	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-003	Methylcyclohexane	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-003	Methylcyclopentane	K, T, U	< 0.05 ppbv	0.05	AC-058	10-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022

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CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 01, 2022	29032	Ambient Air	01-Nov-22 0:00
DESCRIPTION:	Cold Lake South		
REPORT NUMBER:	22110066	REPORT CREATED:	18-Nov-22
		VERSION:	Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22110066-003	Methylene chloride	K, T, U	< 0.3 ppbv	0.3	AC-058	10-Nov-22
22110066-003	n-Butane		0.24 ppbv	0.02	AC-058	10-Nov-22
22110066-003	n-Decane	K, T, U	< 0.06 ppbv	0.06	AC-058	10-Nov-22
22110066-003	n-Dodecane	K, T, U	< 0.3 ppbv	0.3	AC-058	10-Nov-22
22110066-003	n-Heptane	K, T, U	< 0.04 ppbv	0.04	AC-058	10-Nov-22
22110066-003	n-Hexane	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-003	n-Octane	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-003	n-Pentane	I	0.05 ppbv	0.04	AC-058	10-Nov-22
22110066-003	n-Propylbenzene	K, T, U	< 0.06 ppbv	0.06	AC-058	10-Nov-22
22110066-003	n-Undecane	K, T, U	< 0.5 ppbv	0.5	AC-058	10-Nov-22
22110066-003	Naphthalene	I	0.3 ppbv	0.3	AC-058	10-Nov-22
22110066-003	n-Nonane	K, T, U	< 0.04 ppbv	0.04	AC-058	10-Nov-22
22110066-003	o-Ethyltoluene	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-003	o-Xylene	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-003	p-Diethylbenzene	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-003	p-Ethyltoluene	K, T, U	< 0.04 ppbv	0.04	AC-058	10-Nov-22
22110066-003	Styrene	K, T, U	< 0.04 ppbv	0.04	AC-058	10-Nov-22
22110066-003	Tetrachloroethylene	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-003	Tetrahydrofuran	K, T, U	< 0.3 ppbv	0.3	AC-058	10-Nov-22
22110066-003	Toluene	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-003	trans-1,2-Dichloroethylene	K, T, U	< 0.06 ppbv	0.06	AC-058	10-Nov-22
22110066-003	trans-1,3-Dichloropropylene	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-003	trans-2-Butene	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-003	trans-2-Pentene	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-003	Trichloroethylene	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID LICA/VOC/CLS/Nov 01, 2022	CANISTER ID 29032	Matrix Ambient Air	DATE SAMPLED 01-Nov-22 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 22110066	REPORT CREATED: 18-Nov-22		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22110066-003	Vinyl acetate	K, T, U	< 0.3 ppbv	0.3	AC-058	10-Nov-22
22110066-003	Vinyl chloride	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022

CLIENT SAMPLE ID LICA/VOC/CLS/Oct 26, 2022	CANISTER ID H2802	Matrix Ambient Air	DATE SAMPLED 26-Oct-22 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 22110066	REPORT CREATED: 18-Nov-22		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22110066-001	1,1,1-Trichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-001	1,1,2-Trichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-001	1,1-Dichloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-001	1,1-Dichloroethylene	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05 ppbv	0.05	AC-058	10-Nov-22
22110066-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3 ppbv	0.3	AC-058	10-Nov-22
22110066-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-001	1,2-Dibromoethane	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-001	1,2-Dichlorobenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-001	1,2-Dichloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-001	1,2-Dichloropropane	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-001	1,3-Butadiene	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-001	1,3-Dichlorobenzene	K, T, U	< 0.4 ppbv	0.4	AC-058	10-Nov-22
22110066-001	1,4-Dichlorobenzene	K, T, U	< 0.4 ppbv	0.4	AC-058	10-Nov-22
22110066-001	1,4-Dioxane	K, T, U	< 0.5 ppbv	0.5	AC-058	10-Nov-22
22110066-001	1-Butene/Isobutylene	K, T, U	< 0.06 ppbv	0.06	AC-058	10-Nov-22
22110066-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07 ppbv	0.07	AC-058	10-Nov-22
22110066-001	1-Pentene	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-001	2,2,4-Trimethylpentane	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-001	2,2-Dimethylbutane	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-001	2,3,4-Trimethylpentane	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-001	2,3-Dimethylbutane	K, T, U	< 0.09 ppbv	0.09	AC-058	10-Nov-22
22110066-001	2,3-Dimethylpentane	I	0.02 ppbv	0.02	AC-058	10-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022

Inquiries: (780) 632 8455

E-mail: EAS.Results@innotechalberta.ca

CLIENT SAMPLE ID LICA/VOC/CLS/Oct 26, 2022	CANISTER ID H2802	Matrix Ambient Air	DATE SAMPLED 26-Oct-22 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 22110066	REPORT CREATED: 18-Nov-22		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22110066-001	2,4-Dimethylpentane	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-001	2-Methylheptane	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-001	2-Methylhexane	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-001	2-Methylpentane	I	0.05 ppbv	0.02	AC-058	10-Nov-22
22110066-001	3-Methylheptane	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-001	3-Methylhexane	I	0.03 ppbv	0.02	AC-058	10-Nov-22
22110066-001	3-Methylpentane	I	0.04 ppbv	0.02	AC-058	10-Nov-22
22110066-001	Acetone		0.9 ppbv	0.4	AC-058	10-Nov-22
22110066-001	Acrolein	K, T, U	< 0.3 ppbv	0.3	AC-058	10-Nov-22
22110066-001	Benzene	I	0.07 ppbv	0.03	AC-058	10-Nov-22
22110066-001	Benzyl chloride	K, T, U	< 0.3 ppbv	0.3	AC-058	10-Nov-22
22110066-001	Bromodichloromethane	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-001	Bromoform	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-001	Bromomethane	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-001	Carbon disulfide	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-001	Carbon tetrachloride	I	0.06 ppbv	0.02	AC-058	10-Nov-22
22110066-001	Chlorobenzene	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-001	Chloroethane	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-001	Chloroform	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-001	Chloromethane		0.36 ppbv	0.04	AC-058	10-Nov-22
22110066-001	cis-1,2-Dichloroethene	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-001	cis-1,3-Dichloropropene	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-001	cis-2-Butene	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-001	cis-2-Pentene	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-001	Cyclohexane	K, T, U	< 0.04 ppbv	0.04	AC-058	10-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022

Inquiries: (780) 632 8455

E-mail: EAS.Results@innotechalberta.ca

CLIENT SAMPLE ID LICA/VOC/CLS/Oct 26, 2022	CANISTER ID H2802	Matrix Ambient Air	DATE SAMPLED 26-Oct-22 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 22110066	REPORT CREATED: 18-Nov-22		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22110066-001	Cyclopentane	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-001	Dibromochloromethane	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-001	Ethanol		2.1 ppbv	0.5	AC-058	10-Nov-22
22110066-001	Ethyl acetate	K, T, U	< 0.3 ppbv	0.3	AC-058	10-Nov-22
22110066-001	Ethylbenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-001	Freon-11		0.22 ppbv	0.02	AC-058	10-Nov-22
22110066-001	Freon-113	I	0.06 ppbv	0.02	AC-058	10-Nov-22
22110066-001	Freon-114	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-001	Freon-12		0.54 ppbv	0.03	AC-058	10-Nov-22
22110066-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3 ppbv	0.3	AC-058	10-Nov-22
22110066-001	Isobutane		0.76 ppbv	0.03	AC-058	10-Nov-22
22110066-001	Isopentane		0.39 ppbv	0.04	AC-058	10-Nov-22
22110066-001	Isoprene	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-001	Isopropyl alcohol	K, T, U	< 0.3 ppbv	0.3	AC-058	10-Nov-22
22110066-001	Isopropylbenzene	K, T, U	< 0.04 ppbv	0.04	AC-058	10-Nov-22
22110066-001	m,p-Xylene	K, T, U	< 0.04 ppbv	0.04	AC-058	10-Nov-22
22110066-001	m-Diethylbenzene	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-001	m-Ethyltoluene	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-001	Methyl butyl ketone	K, T, U	< 0.4 ppbv	0.4	AC-058	10-Nov-22
22110066-001	Methyl ethyl ketone	K, T, U	< 0.3 ppbv	0.3	AC-058	10-Nov-22
22110066-001	Methyl isobutyl ketone	K, T, U	< 0.3 ppbv	0.3	AC-058	10-Nov-22
22110066-001	Methyl methacrylate	K, T, U	< 0.08 ppbv	0.08	AC-058	10-Nov-22
22110066-001	Methyl tert butyl ether	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-001	Methylcyclohexane	I	0.04 ppbv	0.02	AC-058	10-Nov-22
22110066-001	Methylcyclopentane	K, T, U	< 0.05 ppbv	0.05	AC-058	10-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022

Inquiries: (780) 632 8455

E-mail: EAS.Results@innotechalberta.ca

CLIENT SAMPLE ID LICA/VOC/CLS/Oct 26, 2022	CANISTER ID H2802	Matrix Ambient Air	DATE SAMPLED 26-Oct-22 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 22110066	REPORT CREATED: 18-Nov-22		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22110066-001	Methylene chloride	K, T, U	< 0.3 ppbv	0.3	AC-058	10-Nov-22
22110066-001	n-Butane		0.82 ppbv	0.02	AC-058	10-Nov-22
22110066-001	n-Decane	K, T, U	< 0.06 ppbv	0.06	AC-058	10-Nov-22
22110066-001	n-Dodecane	K, T, U	< 0.3 ppbv	0.3	AC-058	10-Nov-22
22110066-001	n-Heptane	K, T, U	< 0.04 ppbv	0.04	AC-058	10-Nov-22
22110066-001	n-Hexane	I	0.08 ppbv	0.03	AC-058	10-Nov-22
22110066-001	n-Octane	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-001	n-Pentane		0.24 ppbv	0.04	AC-058	10-Nov-22
22110066-001	n-Propylbenzene	K, T, U	< 0.06 ppbv	0.06	AC-058	10-Nov-22
22110066-001	n-Undecane	K, T, U	< 0.5 ppbv	0.5	AC-058	10-Nov-22
22110066-001	Naphthalene	I	0.3 ppbv	0.3	AC-058	10-Nov-22
22110066-001	n-Nonane	K, T, U	< 0.04 ppbv	0.04	AC-058	10-Nov-22
22110066-001	o-Ethyltoluene	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-001	o-Xylene	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-001	p-Diethylbenzene	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-001	p-Ethyltoluene	K, T, U	< 0.04 ppbv	0.04	AC-058	10-Nov-22
22110066-001	Styrene	K, T, U	< 0.04 ppbv	0.04	AC-058	10-Nov-22
22110066-001	Tetrachloroethylene	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-001	Tetrahydrofuran	K, T, U	< 0.3 ppbv	0.3	AC-058	10-Nov-22
22110066-001	Toluene	I	0.07 ppbv	0.03	AC-058	10-Nov-22
22110066-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06 ppbv	0.06	AC-058	10-Nov-22
22110066-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-001	trans-2-Butene	K, T, U	< 0.03 ppbv	0.03	AC-058	10-Nov-22
22110066-001	trans-2-Pentene	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22
22110066-001	Trichloroethylene	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022

Inquiries: (780) 632 8455

E-mail: EAS.Results@innotechalberta.ca



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID LICA/VOC/CLS/Oct 26, 2022	CANISTER ID H2802	Matrix Ambient Air	DATE SAMPLED 26-Oct-22 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 22110066	REPORT CREATED: 18-Nov-22		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22110066-001	Vinyl acetate	K, T, U	< 0.3 ppbv	0.3	AC-058	10-Nov-22
22110066-001	Vinyl chloride	K, T, U	< 0.02 ppbv	0.02	AC-058	10-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022



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Revision History

Order ID	Ver	Date	Reason
22110066	01	18-Nov-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



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ENVIRONMENTAL ANALYTICAL SERVICES

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Order Comments



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Sample Comments



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Result Comments

Note:

- 1. Results relate only to items tested and apply to the sample as received.*
- 2. This report shall not be reproduced, except in full, without the explicit approval of the laboratory.*

Partisol Samples



Customer ID: LICA
 Cust Samp ID: C1164238

2000i-D Sample Data Sheet

Date Sampled: 2-Oct-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 #:	C1164238	C1164239
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	16.6	
Pressure	712	
Std Volume (Instrument)	21	2.34

Comments: Weather Conditions, etc.

n/a

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

Removed by (Sign/Date) Alex Yakupov Date: 7-Oct-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**



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

<p>RESULTS: Lica Communal Mail Lakeland Industry and Community Assn</p>	<p>CLIENT SAMPLE ID C1164238</p> <p>MATRIX: Air Filter</p> <p>CANISTER ID:</p> <p>PRIORITY: Normal</p> <p>DESCRIPTION: Cold Lake South - Fine - PM 2.5</p> <p>DATE SAMPLED: 02-Oct-22 0:00 DATE RECEIVED: 11-Oct-22</p> <p>REPORT CREATED: 25-Oct-22 REPORT NUMBER: 22100056</p> <p>VERSION: Version 01</p>
<p>INVOICE: Maria Cueva PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22100056-001	Particulate Weight		0.108 mg	0.004	AC-029	14-Oct-22



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
C1164239		Air Filter	02-Oct-22 0:00
DESCRIPTION:	Cold Lake South - Coarse - PM 10		
REPORT NUMBER:	22100056	REPORT CREATED:	25-Oct-22
		VERSION:	Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22100056-002	Particulate Weight		0.306 mg	0.004	AC-029	14-Oct-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: October 25, 2022

LAB-LICA-202210

Inquiries: (780) 632 8455

E-mail: EAS.Results@innotechalberta.ca



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Revision History

Order ID	Ver	Date	Reason
22100056	01	25-Oct-22	Report created



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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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



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ENVIRONMENTAL ANALYTICAL SERVICES

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Order Comments



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Sample Comments



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Result Comments

Note:

- 1. Results relate only to items tested and apply to the sample as received.*
- 2. This report shall not be reproduced, except in full, without the explicit approval of the laboratory.*

Sample ID: 22100102-001 Priority: Normal



Customer ID: LICA
Cust Samp ID: C1162142

il 2000i-D Sample Data Sheet



Date Sampled:	8-Oct-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 #:	C1162142	C1162147
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	12.1	
Pressure	714.7	
Std Volume (Instrument)	21.5	2.39

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date): Alex Yakupov Date: 7-Oct-22

Removed by (Sign/Date) Alex Yakupov Date: 12-Oct-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: 22100102-002 Priority: Normal



Customer ID: LICA
Cust Samp ID: C1162147

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: August 16/22

Project: LICA/Bureau Veritas Labs

Prepared by:

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	1	C1162142
	1	C1162147

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





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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

<p>RESULTS: Lica Communal Mail Lakeland Industry and Community Assn</p>	<p>CLIENT SAMPLE ID C1162142</p> <p>MATRIX: Air Filter</p> <p>CANISTER ID:</p> <p>PRIORITY: Normal</p> <p>DESCRIPTION: Cold Lake South - Fine - PM 2.5</p> <p>DATE SAMPLED: 08-Oct-22 0:00 DATE RECEIVED: 14-Oct-22</p> <p>REPORT CREATED: 25-Oct-22 REPORT NUMBER: 22100102</p> <p>VERSION: Version 01</p>
<p>INVOICE: Maria Cueva PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22100102-001	Particulate Weight		0.169 mg	0.004	AC-029	18-Oct-22



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID C1162147	CANISTER ID	Matrix Air Filter	DATE SAMPLED 08-Oct-22 0:00
DESCRIPTION: Cold Lake South - Coarse - PM 10			
REPORT NUMBER: 22100102	REPORT CREATED: 25-Oct-22		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22100102-002	Particulate Weight		0.135 mg	0.004	AC-029	18-Oct-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: October 25, 2022

Inquiries: (780) 632 8455

E-mail: EAS.Results@innotechalberta.ca



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Revision History

Order ID	Ver	Date	Reason
22100102	01	25-Oct-22	Report created



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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
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J3	Reported value is estimated; The value failed to meet QC criteria for either precision or accuracy
J4	Reported value is estimated; The sample matrix interfered with the analysis
K	Off-scale low. Actual value is known to be less than the value given
L	Off-scale high. Actual value is known to be greater than value given
N	Non-target analyte; Tentatively identified compound (using mass spectroscopy)
Q	Sample held beyond the accepted holding time
R	Rejected data; Not suitable for the projects intended use
T	Value reported is less than the laboratory method detection limit
U	Compound was analyzed for but not detected
V	Analyte was detected in both the sample and the associated method blank



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Order Comments



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Sample Comments



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ENVIRONMENTAL ANALYTICAL SERVICES

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Result Comments

Note:

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



Customer ID: LICA
 Cust Samp ID: C1164228

2000i-D Sample Data Sheet



Date Sampled: 14-Oct-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 #:	C1164228	C1164229
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	8.2	
Pressure	708	
Std Volume (Instrument)	21.5	2.39

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date): Alex Yakupov Date: 12-Oct-22

Removed by (Sign/Date): Alex Yakupov Date: 17-Oct-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: 22100186-002 Priority: Normal



Customer ID: LICA
 Cust Samp ID: C1164229

Filter Shipping Record

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

Date: July 26/22
 Project: LICA/Bureau Veritas Labs
 Prepared by: AM Julek

For information contact:
 EAS.Reception@albertainnovates.ca



Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	C1164228 → C1164229

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



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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: C1164228 CANISTER ID: PRIORITY: Normal DESCRIPTION: Cold Lake South - Fine - PM 2.5 DATE SAMPLED: 14-Oct-22 0:00 DATE RECEIVED: 20-Oct-22 REPORT CREATED: 02-Nov-22 REPORT NUMBER: 22100186 VERSION: Version 01
---	---

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22100186-001	Particulate Weight		0.122 mg	0.004	AC-029	25-Oct-22



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID C1164229	CANISTER ID	Matrix Air Filter	DATE SAMPLED 14-Oct-22 0:00
DESCRIPTION: Cold Lake South - Coarse - PM 10			
REPORT NUMBER: 22100186	REPORT CREATED: 02-Nov-22		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22100186-002	Particulate Weight		0.135 mg	0.004	AC-029	25-Oct-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: November 2, 2022

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Inquiries: (780) 632 8455

E-mail: EAS.Results@innotechalberta.ca



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

Revision History

Order ID	Ver	Date	Reason
22100186	01	02-Nov-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



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Sample Comments

Result Comments

Note:

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Customer ID: LICA
Cust Samp ID: C1164230

2000i-D Sample Data Sheet



Date Sampled: 20-Oct-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 #:	C1164230	C1164231
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	12.5	
Pressure	703.1	
Std Volume (Instrument)	21	2.33

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date): Alex Yakupov Date: 17-Oct-22

Removed by (Sign/Date): Alex Yakupov Date: 24-Oct-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: 22110011-002 Priority: Normal



Customer ID: LICA
Cust Samp ID: C1164231

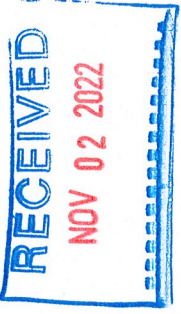
Filter Shipping Record

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: Sept 16/22

Project: LICA/Bureau Veritas Labs

Prepared by: *Amulanda*
For information contact:
EAS.Reception@albertainnovates.ca



Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	C9697009 → C9697010

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



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

<p>RESULTS: Lica Communal Mail Lakeland Industry and Community Assn</p>	<p>CLIENT SAMPLE ID C1164230</p> <p>MATRIX Air Filter</p> <p>CANISTER ID:</p> <p>PRIORITY: Normal</p> <p>DESCRIPTION: Cold Lake South - Fine - PM 2.5</p> <p>DATE SAMPLED: 20-Oct-22 0:00 DATE RECEIVED: 02-Nov-22</p> <p>REPORT CREATED: 10-Nov-22 REPORT NUMBER: 22110011</p> <p>VERSION: Version 01</p>
<p>INVOICE: Maria Cueva PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22110011-001	Particulate Weight		0.109 mg	0.004	AC-029	07-Nov-22



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID C1164231	CANISTER ID	Matrix Air Filter	DATE SAMPLED 20-Oct-22 0:00
DESCRIPTION: Cold Lake South - Coarse - PM 10			
REPORT NUMBER: 22110011	REPORT CREATED: 10-Nov-22		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22110011-002	Particulate Weight		0.173 mg	0.004	AC-029	07-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: November 10, 2022



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Revision History

Order ID	Ver	Date	Reason
22110011	01	10-Nov-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



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ENVIRONMENTAL ANALYTICAL SERVICES

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Order Comments



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ENVIRONMENTAL ANALYTICAL SERVICES

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Sample Comments

Result Comments

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Customer ID: LICA
Cust Samp ID: C9697009

2000i-D Sample Data Sheet



Date Sampled: 26-Oct-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) ¹	COURSE (2) ²
Filter Type:	47mm	47mm
Filter #:	C9697009	C9697010
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	1.3	
Pressure	703	
Std Volume (Instrument)	21.8	2.43

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date): Alex Yakupov Date: 24-Oct-22

Removed by (Sign/Date) Alex Yakupov Date: 31-Oct-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



Customer ID: LICA
Cust Samp ID: C1162116

2000i-D Sample Data Sheet



Date Sampled: 01-Nov-22
Location: Cold Lake South
Parameter: PM 2.5 / PM 10
Start Time: 00:00
End Time: 23:59
Valid Time: 24 hours
Total Time: 24 hours
Status: Done

	FINE (1) ³	COURSE (2) ⁴
Filter Type:	47mm	47mm
Filter #:	C1162116	C1162117
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	1.1	
Pressure	706	
Std Volume (Instrument)	22	2.44

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date): Alex Yakupov Date: 31-Oct-22

Removed by (Sign/Date): Alex Yakupov Date: 04-Nov-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**



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

<p>RESULTS: Lica Communal Mail Lakeland Industry and Community Assn</p> <p>INVOICE: Maria Cueva PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>CLIENT SAMPLE ID C1162116</p> <p>CANISTER ID:</p> <p>PRIORITY: Normal</p> <p>DESCRIPTION: Cold Lake South - Fine - PM 2.5</p> <p>DATE SAMPLED: 01-Nov-22 0:00</p> <p>REPORT CREATED: 18-Nov-22</p>	<p>Matrix Air Filter</p> <p>DATE RECEIVED: 08-Nov-22</p> <p>REPORT NUMBER: 22110065</p> <p>VERSION: Version 01</p>
--	---	---

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22110065-003	Particulate Weight		0.009 mg	0.004	AC-029	10-Nov-22



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID C1162117	CANISTER ID	Matrix Air Filter	DATE SAMPLED 01-Nov-22 0:00
DESCRIPTION: Cold Lake South - Coarse - PM 10			
REPORT NUMBER: 22110065	REPORT CREATED: 18-Nov-22		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22110065-004	Particulate Weight		0.020 mg	0.004	AC-029	10-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022

Inquiries: (780) 632 8455

E-mail: EAS.Results@innotechalberta.ca



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID C9697009	CANISTER ID	Matrix Air Filter	DATE SAMPLED 26-Oct-22 0:00
DESCRIPTION: Cold Lake South - Fine - PM 2.5			
REPORT NUMBER: 22110065	REPORT CREATED: 18-Nov-22		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22110065-001	Particulate Weight		0.040 mg	0.004	AC-029	10-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID C9697010	CANISTER ID	Matrix Air Filter	DATE SAMPLED 26-Oct-22 0:00
DESCRIPTION: Cold Lake South - Coarse - PM 10			
REPORT NUMBER: 22110065	REPORT CREATED: 18-Nov-22		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
22110065-002	Particulate Weight		0.055 mg	0.004	AC-029	10-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022

Inquiries: (780) 632 8455

E-mail: EAS.Results@innotechalberta.ca



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Revision History

Order ID	Ver	Date	Reason
22110065	01	18-Nov-22	Report created



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ENVIRONMENTAL ANALYTICAL SERVICES

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



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ENVIRONMENTAL ANALYTICAL SERVICES

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ENVIRONMENTAL ANALYTICAL SERVICES

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Result Comments

Note:

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Passive Samples

Passive Sampler Field Sheet for LICA, Oct 2022 sample period

ID	SAMPLER						START		END		NOTES
	H ₂ S	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	DATE	TIME	DATE	TIME	
3	H ₂ S	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Sep 28	14:50	Nov 2	18:30	
4	---	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Sep 29	12:58	Nov 3	14:35	
5	H ₂ S	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Sep 29	13:46	Nov 3	15:25	
6	---	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Sep 29	15:31	Nov 3	17:04	
8	---	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Sep 29	11:50	Nov 3	13:05	
9	---	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Sep 28	14:05	Nov 3	11:25	
10	H ₂ S	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Sep 30	17:10	Nov 4	19:20	
11	H ₂ S	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Sep 30	17:22	Nov 4	18:44	
12	H ₂ S	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Sep 20	16:15	Nov 4	17:40	
13	H ₂ S	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Sep 28	18:00	Nov 2	16:32	
14	H ₂ S	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Sep 28	18:57	Nov 2	15:17	
15	---	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Sep 28	12:55	Nov 3	09:54	
16	H ₂ S	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Sep 29	18:51	Nov 4	11:55	
17	H ₂ S	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Sep 29	16:34	Nov 3	18:04	
18	H ₂ S	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Sep 29	17:58	Nov 3	20:15	
19	---	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Sep 29	19:45	Nov 4	11:09	
22	H ₂ S	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Sep 28	10:20	Nov 2	10:38	
23	---	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Sep 28	20:30	Nov 2	13:02	
24	H ₂ S	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Sep 29	14:44	Nov 3	16:12	
25	H ₂ S	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Sep 28	18:35	Nov 2	15:45	
27	H ₂ S	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Sep 28	19:30	Nov 2	17:35	
28	H ₂ S	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Sep 28	13:25	Nov 3	10:58	
29	H ₂ S	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Sep 28	10:46	Nov 2	10:54	
32	H ₂ S	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Sep 28	15:30	Nov 2	19:50	
42	H ₂ S	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Sep 30	13:15	Nov 4	14:37	
DUPLICATES											
28	---	---	NO ₂	O ₃	---	---	Sep 28	13:25	Nov 3	10:58	
29	---	---	NO ₂	O ₃	---	---	Sep 28	10:46	Nov 2	10:54	
10	---	SO ₂	---	---	---	---	Sep 30	17:50	Nov 4	19:20	
11	---	SO ₂	---	---	---	---	Sep 30	17:22	Nov 4	18:44	
12	---	SO ₂	---	---	---	---	Sep 30	16:15	Nov 4	17:40	
14	H ₂ S	---	---	---	HNO ₃	NH ₃	Sep 28	18:58	Nov 2	15:17	
16	H ₂ S	---	---	---	HNO ₃	NH ₃	Sep 29	18:51	Nov 4	11:55	

NOV 22-11-08 33502
 O10130 28003
 23 H2S
 28 NOV 2
 32 NOV 3
 32 NOV 3



Your Project #: OCTOBER 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: 2022/11/21
Report #: R3266631
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C288711

Received: 2022/11/08, 10:30

Sample Matrix: Air
Samples Received: 92

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
H2S Passive Analysis	20	2022/11/16	2022/11/21	PTC SOP-00150	Passive H2S in ATM
HNO3 by Passive Sampler	30	2022/11/14	2022/11/14	PTC SOP-00288	Passive HNO3 in ATM
NH3 by Passive Sampler	30	2022/11/11	2022/11/14	PTC SOP-00157	ASTM D6919
NO2 Passive Analysis	25	2022/11/10	2022/11/21	PTC SOP-00148	Passive NO2 in ATM
O3 Passive Analysis	25	2022/11/09	2022/11/21	PTC SOP-00197	EPA 300 R2.1
SO2 Passive Analysis	28	2022/11/09	2022/11/21	PTC SOP-00149	Passive SO2 in ATM

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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
21 Nov 2022 11:58:37

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

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RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BGQ753			BGQ754			BGQ755		
Sampling Date		2022/09/28 14:50			2022/09/29 12:58			2022/09/29 13:46		
	UNITS	3	RDL	QC Batch	4	RDL	QC Batch	5	RDL	QC Batch
Passive Monitoring										
Calculated H2S	ppb	0.13	0.02	A799988				0.17	0.02	A799988
Calculated NO2	ppb	1.4	0.1	A794021	0.8	0.1	A794021	0.9	0.1	A794021
Calculated O3	ppb	24.2	0.1	A792345	28.3	0.1	A792345	28.6	0.1	A792345
Calculated SO2	ppb	0.3	0.1	A792616	0.5	0.1	A792616	0.3	0.1	A792616
RDL = Reportable Detection Limit										

Bureau Veritas ID		BGQ756	BGQ757	BGQ758			BGQ759	BGQ760		
Sampling Date		2022/09/29 15:31	2022/09/29 11:50	2022/09/28 14:05			2022/09/30 17:50	2022/09/30 17:22		
	UNITS	6	8	9	RDL	QC Batch	10	11	RDL	QC Batch
Passive Monitoring										
Calculated H2S	ppb						0.10	0.07	0.02	A799988
Calculated NO2	ppb	3.5	0.8	1.4	0.1	A794021	4.3	1.1	0.1	A794021
Calculated O3	ppb	21.3	29.9	25.1	0.1	A792345	20.8	20.7	0.1	A792345
Calculated SO2	ppb	0.3	0.3	0.3	0.1	A792616	0.3	0.4	0.1	A792616
RDL = Reportable Detection Limit										

Bureau Veritas ID		BGQ761	BGQ762	BGQ763			BGQ764		
Sampling Date		2022/09/30 16:15	2022/09/28 18:00	2022/09/28 18:58			2022/09/28 12:50		
	UNITS	12	13	14	RDL	QC Batch	15	RDL	QC Batch
Passive Monitoring									
Calculated H2S	ppb	0.05	0.12	0.16	0.02	A799988			
Calculated NO2	ppb	0.7	0.9	1.9	0.1	A794032	1.4	0.1	A794032
Calculated O3	ppb	33.1	24.7	24.8	0.1	A792345	31.5	0.1	A792345
Calculated SO2	ppb	0.3	0.3	1.3	0.1	A792616	0.2	0.1	A792616
RDL = Reportable Detection Limit									

Bureau Veritas ID		BGQ765	BGQ766	BGQ767			BGQ768		
Sampling Date		2022/09/29 18:51	2022/09/29 16:34	2022/09/29 17:58			2022/09/29 19:45		
	UNITS	16	17	18	RDL	QC Batch	19	RDL	QC Batch
Passive Monitoring									
Calculated H2S	ppb	0.10	0.16	0.06	0.02	A799988			
Calculated NO2	ppb	1.7	0.9	1.0	0.1	A794032	1.0	0.1	A794032
Calculated O3	ppb	24.3	31.0	22.8	0.1	A792345	31.1	0.1	A792345
Calculated SO2	ppb	0.2	0.4	0.2	0.1	A792616	0.3	0.1	A792616
RDL = Reportable Detection Limit									



RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BGQ769			BGQ770			BGQ771		
Sampling Date		2022/09/28 10:20			2022/09/28 20:30			2022/09/29 14:44		
	UNITS	22	RDL	QC Batch	23	RDL	QC Batch	24	RDL	QC Batch
Passive Monitoring										
Calculated H2S	ppb	0.07	0.02	A799988				0.13	0.02	A799988
Calculated NO2	ppb	1.3	0.1	A794032	0.3	0.1	A794032	2.2	0.1	A794032
Calculated O3	ppb	22.1	0.1	A792345	16.4	0.1	A792345	27.4	0.1	A792345
Calculated SO2	ppb	0.2	0.1	A792616	0.2	0.1	A792616	0.3	0.1	A792682
RDL = Reportable Detection Limit										

Bureau Veritas ID		BGQ772	BGQ773			BGQ774		BGQ777	BGQ778		
Sampling Date		2022/09/28 18:35	2022/09/28 19:30			2022/09/28 13:25		2022/09/28 10:46	2022/09/28 15:30		
	UNITS	26	27	RDL	QC Batch	28	QC Batch	29	32	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb	0.19	0.81	0.02	A799988	0.18	A799988	0.12	0.15	0.02	A799988
Calculated NO2	ppb					3.1	A794032	1.4	0.9	0.1	A794032
Calculated O3	ppb					23.9	A792345	22.9	29.6	0.1	A792349
Calculated SO2	ppb	0.6	1.7	0.1	A792682	0.3	A792682	0.2	0.3	0.1	A792682
RDL = Reportable Detection Limit											

Bureau Veritas ID		BGQ779			BGQ783	BGQ784	BGQ785			BGQ786		
Sampling Date		2022/09/30 13:15			2022/09/30 17:50	2022/09/30 16:15	2022/09/30 17:22			2022/09/28 13:25		
	UNITS	42	RDL	QC Batch	10 DUP	12 DUP	11 DUP	RDL	QC Batch	28 DUP	RDL	QC Batch
Passive Monitoring												
Calculated H2S	ppb	0.10	0.02	A799988								
Calculated NO2	ppb	1.5	0.1	A794032						3.4	0.1	A794032
Calculated O3	ppb	24.5	0.1	A792349						27.7	0.1	A792349
Calculated SO2	ppb	0.3	0.1	A792682	0.2	0.3	0.4	0.1	A792682			
RDL = Reportable Detection Limit												

Bureau Veritas ID		BGQ787			BGQ788	BGQ789			BGT784		
Sampling Date		2022/09/28 10:06			2022/09/28 18:58	2022/09/29 18:51			2022/09/28 14:50		
	UNITS	29 DUP	RDL	QC Batch	14 DUP	16 DUP	RDL	QC Batch	3-NH3	RDL	QC Batch
Passive Monitoring											
Ammonia by Passive Sampler	ppb								2.1	0.1	A792352
Calculated H2S	ppb				0.14	0.09	0.02	A799988			
Calculated NO2	ppb	1.5	0.1	A794032							
Calculated O3	ppb	30.8	0.1	A792349							
RDL = Reportable Detection Limit											



BUREAU VERITAS

Bureau Veritas Job #: C288711
Report Date: 2022/11/21

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BGT785			BGT787			BGT788		
Sampling Date		2022/09/28 14:50			2022/09/29 12:58			2022/09/29 12:58		
	UNITS	3-HNO3	RDL	QC Batch	4-NH3	RDL	QC Batch	4-HNO3	RDL	QC Batch

Passive Monitoring										
Ammonia by Passive Sampler	ppb				1.1	0.1	A792352			
HNO3 by Passive Sampler	ug/m3	0.68	0.04	A792667				0.69	0.04	A792667
RDL = Reportable Detection Limit										

Bureau Veritas ID		BGT790			BGT791			BGT815		
Sampling Date		2022/09/29 13:46			2022/09/29 13:46			2022/09/29 15:31		
	UNITS	5-NH3	RDL	QC Batch	5-HNO3	RDL	QC Batch	6-NH3	RDL	QC Batch

Passive Monitoring										
Ammonia by Passive Sampler	ppb	1.6	0.1	A792352				1.3	0.1	A792352
HNO3 by Passive Sampler	ug/m3				1.53	0.04	A792667			
RDL = Reportable Detection Limit										

Bureau Veritas ID		BGT816			BGT817			BGT818		
Sampling Date		2022/09/29 15:31			2022/09/29 11:50			2022/09/29 11:50		
	UNITS	6-HNO3	RDL	QC Batch	8-NH3	RDL	QC Batch	8-HNO3	RDL	QC Batch

Passive Monitoring										
Ammonia by Passive Sampler	ppb				1.9	0.1	A792352			
HNO3 by Passive Sampler	ug/m3	0.67	0.04	A792667				0.68	0.04	A792667
RDL = Reportable Detection Limit										

Bureau Veritas ID		BGT819			BGT820			BGT821		
Sampling Date		2022/09/28 14:05			2022/09/28 14:05			2022/09/30 17:50		
	UNITS	9-NH3	RDL	QC Batch	9-HNO3	RDL	QC Batch	10-NH3	RDL	QC Batch

Passive Monitoring										
Ammonia by Passive Sampler	ppb	1.2	0.1	A792352				0.7	0.1	A792352
HNO3 by Passive Sampler	ug/m3				0.56	0.04	A792667			
RDL = Reportable Detection Limit										

Bureau Veritas ID		BGT822			BGT823			BGT824		
Sampling Date		2022/09/30 17:50			2022/09/30 17:22			2022/09/30 17:22		
	UNITS	10-HNO3	RDL	QC Batch	11-NH3	RDL	QC Batch	11-HNO3	RDL	QC Batch

Passive Monitoring										
Ammonia by Passive Sampler	ppb				0.7	0.1	A792352			
HNO3 by Passive Sampler	ug/m3	0.98	0.04	A792667				1.51	0.04	A792667
RDL = Reportable Detection Limit										



RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BGT825			BGT826			BGT827		
Sampling Date		2022/09/30 16:15			2022/09/30 16:15			2022/09/28 18:00		
	UNITS	12-NH3	RDL	QC Batch	12-HNO3	RDL	QC Batch	13-NH3	RDL	QC Batch
Passive Monitoring										
Ammonia by Passive Sampler	ppb	0.6	0.1	A792352				0.3	0.1	A792352
HNO3 by Passive Sampler	ug/m3				0.88	0.04	A792667			
RDL = Reportable Detection Limit										

Bureau Veritas ID		BGT828			BGT834			BGU525			BGT835		
Sampling Date		2022/09/28 18:00			2022/09/28 18:58			2022/09/28 18:58			2022/09/28 18:58		
	UNITS	13-HNO3	RDL	QC Batch	14-NH3	QC Batch	14-NH3-DUP	RDL	QC Batch	14-HNO3	RDL	QC Batch	
Passive Monitoring													
Ammonia by Passive Sampler	ppb				0.8	A792352	0.8	0.1	A792361				
HNO3 by Passive Sampler	ug/m3	0.97	0.04	A792667						0.69	0.04	A792667	
RDL = Reportable Detection Limit													

Bureau Veritas ID		BGU526			BGT836			BGT837		
Sampling Date		2022/09/28 18:58			2022/09/28 12:50			2022/09/28 12:50		
	UNITS	14-HNO3-DUP	RDL	QC Batch	15-NH3	RDL	QC Batch	15-HNO3	RDL	QC Batch
Passive Monitoring										
Ammonia by Passive Sampler	ppb				1.3	0.1	A792352			
HNO3 by Passive Sampler	ug/m3	0.83	0.04	A792677				0.67	0.04	A792667
RDL = Reportable Detection Limit										

Bureau Veritas ID		BGT838			BGU537			BGT839			BGU538		
Sampling Date		2022/09/29 18:51			2022/09/29 18:51			2022/09/29 18:51			2022/09/29 18:51		
	UNITS	16-NH3	QC Batch	16-NH3-DUP	RDL	QC Batch	16-HNO3	QC Batch	16-HNO3-DUP	RDL	QC Batch		
Passive Monitoring													
Ammonia by Passive Sampler	ppb	3.3	A792352	2.5	0.1	A792361							
HNO3 by Passive Sampler	ug/m3						0.78	A792667	0.42	0.04	A792677		
RDL = Reportable Detection Limit													

Bureau Veritas ID		BGT840			BGT841			BGT842		
Sampling Date		2022/09/29 16:34			2022/09/29 16:34			2022/09/29 17:58		
	UNITS	17-NH3	RDL	QC Batch	17-HNO3	RDL	QC Batch	18-NH3	RDL	QC Batch
Passive Monitoring										
Ammonia by Passive Sampler	ppb	2.1	0.1	A792352				0.6	0.1	A792352
HNO3 by Passive Sampler	ug/m3				1.13	0.04	A792667			
RDL = Reportable Detection Limit										



RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BGT843			BGT847			BGT848		
Sampling Date		2022/09/29 17:58			2022/09/29 19:45			2022/09/29 19:45		
	UNITS	18-HNO3	RDL	QC Batch	19-NH3	RDL	QC Batch	19-HNO3	RDL	QC Batch

Passive Monitoring										
Ammonia by Passive Sampler	ppb				0.7	0.1	A792352			
HNO3 by Passive Sampler	ug/m3	1.85	0.04	A792667				2.04	0.04	A792667
RDL = Reportable Detection Limit										

Bureau Veritas ID		BGT849			BGT850			BGT851		
Sampling Date		2022/09/28 10:20			2022/09/28 10:20			2022/09/28 20:30		
	UNITS	22-NH3	RDL	QC Batch	22-HNO3	RDL	QC Batch	23-NH3	RDL	QC Batch

Passive Monitoring										
Ammonia by Passive Sampler	ppb	1.3	0.1	A792352				0.5	0.1	A792352
HNO3 by Passive Sampler	ug/m3				1.62	0.04	A792677			
RDL = Reportable Detection Limit										

Bureau Veritas ID		BGT852			BGT853			BGT854		
Sampling Date		2022/09/28 20:30			2022/09/28 20:30			2022/09/28 20:30		
	UNITS	23-HNO3	RDL	QC Batch	24-NH3	RDL	QC Batch	24-HNO3	RDL	QC Batch

Passive Monitoring										
Ammonia by Passive Sampler	ppb				1.1	0.1	A792352			
HNO3 by Passive Sampler	ug/m3	0.51	0.04	A792677				0.73	0.04	A792677
RDL = Reportable Detection Limit										

Bureau Veritas ID		BGT862			BGT863			BGT865		
Sampling Date		2022/09/28 18:35			2022/09/28 18:35			2022/09/28 19:30		
	UNITS	26-NH3	RDL	QC Batch	26-HNO3	RDL	QC Batch	27-NH3	RDL	QC Batch

Passive Monitoring										
Ammonia by Passive Sampler	ppb	0.8	0.1	A792352				1.1	0.1	A792361
HNO3 by Passive Sampler	ug/m3				1.57	0.04	A792677			
RDL = Reportable Detection Limit										

Bureau Veritas ID		BGT866			BGT867			BGT868		
Sampling Date		2022/09/28 19:30			2022/09/28 13:25			2022/09/28 13:25		
	UNITS	27-HNO3	RDL	QC Batch	28-NH3	RDL	QC Batch	28-HNO3	RDL	QC Batch

Passive Monitoring										
Ammonia by Passive Sampler	ppb				1.7	0.1	A792361			
HNO3 by Passive Sampler	ug/m3	1.04	0.04	A792677				0.76	0.04	A792677
RDL = Reportable Detection Limit										



RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BGT869			BGT870			BGT880		
Sampling Date		2022/09/28 10:46			2022/09/28 10:46			2022/09/28 15:30		
	UNITS	29-NH3	RDL	QC Batch	29-HNO3	RDL	QC Batch	32-NH3	RDL	QC Batch

Passive Monitoring										
Ammonia by Passive Sampler	ppb	1.1	0.1	A792361				1.6	0.1	A792361
HNO3 by Passive Sampler	ug/m3				0.60	0.04	A792677			
RDL = Reportable Detection Limit										

Bureau Veritas ID		BGT881			BGT882			BGT883		
Sampling Date		2022/09/28 15:30			2022/09/30 13:15			2022/09/30 13:15		
	UNITS	32-HNO3	RDL	QC Batch	42-NH3	RDL	QC Batch	42-HNO3	RDL	QC Batch

Passive Monitoring										
Ammonia by Passive Sampler	ppb				1.5	0.1	A792361			
HNO3 by Passive Sampler	ug/m3	0.74	0.04	A792677				1.72	0.04	A792677
RDL = Reportable Detection Limit										

Bureau Veritas ID		BGT892			BGT893			BGT894		
Sampling Date		2022/09/28			2022/09/28			2022/09/28		
	UNITS	BLANK 1-NH3	RDL	QC Batch	BLANK 1-HNO3	RDL	QC Batch	BLANK 2-NH3	RDL	QC Batch

Passive Monitoring										
Ammonia by Passive Sampler	ppb	1.1	0.1	A792361				0.6	0.1	A792361
HNO3 by Passive Sampler	ug/m3				<0.04	0.04	A792677			
RDL = Reportable Detection Limit										

Bureau Veritas ID		BGT895			BGT896			BGT897		
Sampling Date		2022/09/28			2022/09/28			2022/09/28		
	UNITS	BLANK 2-HNO3	RDL	QC Batch	BLANK 3-NH3	RDL	QC Batch	BLANK 3-HNO3	RDL	QC Batch

Passive Monitoring										
Ammonia by Passive Sampler	ppb				0.5	0.1	A792361			
HNO3 by Passive Sampler	ug/m3	<0.04	0.04	A792677				<0.04	0.04	A792677
RDL = Reportable Detection Limit										



**BUREAU
VERITAS**

Bureau Veritas Job #: C288711
Report Date: 2022/11/21

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

GENERAL COMMENTS

Default exposure time(720 hrs) is used for HNO₃ and NH₃ trip blank calculation. --YL6 20221114

Sample BGQ753 [3] : 2022/11/09 XZ: O3 sample was received with broken barrier.

Sample BGQ771 [24] : 2022/11/09 XZ: O3 sample was received with broken barrier.

Results relate only to the items tested.



QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A792345	XSZ	Spiked Blank	Calculated O3			99	%	90 - 110
A792345	XSZ	Method Blank	Calculated O3		<0.1		ppb	
A792349	XSZ	Spiked Blank	Calculated O3			100	%	90 - 110
A792349	XSZ	Method Blank	Calculated O3		<0.1		ppb	
A792352	XSZ	Spiked Blank	Ammonia by Passive Sampler			101	%	90 - 110
A792352	XSZ	Method Blank	Ammonia by Passive Sampler		<0.1		ppb	
A792361	XSZ	Spiked Blank	Ammonia by Passive Sampler			100	%	90 - 110
A792361	XSZ	Method Blank	Ammonia by Passive Sampler		<0.1		ppb	
A792616	OZ	Spiked Blank	Calculated SO2			100	%	90 - 110
A792616	OZ	Method Blank	Calculated SO2		<0.1		ppb	
A792667	OZ	Method Blank	HNO3 by Passive Sampler		<0.04		ug/m3	
A792667	OZ	RPD [BGT785-01]	HNO3 by Passive Sampler	2022/11/14	NC		%	N/A
A792677	OZ	Method Blank	HNO3 by Passive Sampler		<0.04		ug/m3	
A792677	OZ	RPD [BGT850-01]	HNO3 by Passive Sampler	2022/11/14	NC		%	N/A
A792682	OZ	Spiked Blank	Calculated SO2			97	%	90 - 110
A792682	OZ	Method Blank	Calculated SO2		<0.1		ppb	
A794021	XSZ	Spiked Blank	Calculated NO2			101	%	90 - 110
A794021	XSZ	Method Blank	Calculated NO2		<0.1		ppb	
A794032	XSZ	Spiked Blank	Calculated NO2			100	%	90 - 110
A794032	XSZ	Method Blank	Calculated NO2		<0.1		ppb	
A799988	YYA	Spiked Blank	Calculated H2S			99	%	90 - 110

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

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.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).



BUREAU
VERITAS

Bureau Veritas Job #: C288711
Report Date: 2022/11/21

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: OCTOBER 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:

Carmen Toker, CT, Manager Air Laboratory Services

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

End of Report