Lakeland Industry & Community Association

OCTOBER 2023

Monthly Ambient Air Quality Monitoring Integrated Sampling Report

LICA-202310-INTEGRATED

November 22, 2023

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November 22, 2023

Alberta Environment and Protected Areas (EPA)
11th Floor, Oxbridge Place
9820 106 Street
Edmonton, AB, T5K 2J6

RE: LICA –October 2023 Monthly Ambient Air Quality Monitoring Integrated Sampling Report

Enclosed is the October 2023 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 (VOCs), polycyclic aromatic hydrocarbons (PAHs), polycyclic aromatic compounds (PAHs), particulate matter ($PM_{2.5}$ and $PM_{2.5-10}$), ozone (O_3), hydrogen sulphide (H_2S), sulphur dioxide (SO_2), nitrogen dioxide (NO_2), ammonia (NH_3) and nitric acid (HNO_3).

The representative of the Person Responsible for this monitoring program is

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

NETWORK STATION SUMMARY

Listing of Air Monitoring Stations and Integrated Sampling Stations

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

Listing of Passive Sampling Stations

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

Listing of Passive Aromatic Compounds Stations

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

List of Contractors who performed the air monitoring activities

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

Monitoring Notes during the Month of October 2023

Cold Lake South Station

- **Volatile Organic Compounds (VOCs)**
  - Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) where applicable.
  - The VOC sampler is programed to collect a 24-hour sample of air every sixth day as per the North American Pollution Surveillance schedule (NAPS).
  - The Xonteck unit verification/audit was completed on October 7. The unit passed the check requirements.
  - Five samples were collected this month: on October 3, 9, 15, 21 and 27.
- **Polycyclic Aromatic Hydrocarbons (PAHs)**
  - The PUF sampler is programed to collect a 24-hour sample of air every sixth day as per the North American Pollution Surveillance schedule (NAPS).
  - The TISCH PUF PLUS sampler verification/audit was completed on October 7. The unit passed the check requirements.
  - Five samples were collected this month: on October 3, 9, 15, 21 and 27.
- **Partisols**

- Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) where applicable.
- The Partisol sampler is programed to collect a 24-hour sample of air every sixth day as per the North American Pollution Surveillance schedule (NAPS).
- The Partisol 2000i-D verification/audit was completed on October 7. The unit passed the check requirements.
- Five samples were collected this month: on October 3, 9, 15, 21 and 27.

- **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 October 2, and were removed between October 29 and November 3.
  - A total of 13 duplicate samples were collected: 2 for H2S, 3 for SO2, 2 for NO2, 2 for O3, 2 for NMH3 and 2 for HNO3.
  - A total of 6 blank samples were collected: 3 for NMH3 and 3 for HNO3.

Lac La Biche Station

- **Non-methane Hydrocarbons (NMHC) Canisters**
  - The canister sampling program collects a 1-hour sample of air when the continuously measured non-methane hydrocarbon (NMHC) concentration reaches a specified trigger point. The current trigger point is 0.3 ppm, and is based on real-time monitoring data that are averaged over a 5-minute period.
  - One canister event was recorded this month.

Date	Time	Concentration (ppm)
03-Oct	07:05	0.63

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 the September/October monitoring period were installed between August 31 and September 3. The media were removed between October 29 and November 3.
- The media for the November/December monitoring period were installed between October 29 and November 3. The media are scheduled to be removed by the end December.

Revisions to Alberta's Ambient Air Quality Data Warehouse

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

Deviations from Authorized Monitoring Methods

There were no deviations from authorized monitoring methods.

Certification

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

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

I certify that I have reviewed and verified this report and that the information is complete, accurate and representative of the monitoring results, reporting timeframe and the specified analysis, summarization and reporting requirements. I also certify that at the time of this report's submission, all air data have been electronically uploaded to Alberta ETS as required by the AMD.

Michael Bisaga
Monitoring Programs Manager
Lakeland Industry & Community Association
780-266-7068
monitoring@lica.ca

INTEGRATED SAMPLING RESULTS SUMMARY

COLD LAKE SOUTH STATION

- **VOCs analytical results**

Sample Date	2023-10-03	2023-10-09	2023-10-15	2023-10-23
Canister ID	28907	32237	28904	32225
Maximum Reading (ppbv)	1.1	2.2	9.3	0.8
Parameter	Acetone	Acetone	Ethanol	Ethanol

Sample Date	2023-10-27
Canister ID	31818
Maximum Reading (ppbv)	0.9
Parameter	Acetone

- **PAHs analytical results**

Sample Date	2023-10-03		2023-10-09		2023-10-15		2023-10-23	
PUF S/N	TE-08		9702		TE-03		TE-02	
Volume (Vstd m^3)	330.41		330.41		330.42		330.40	
Maximum Reading	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3
	0.39	1.18	0.92	2.78	9.68	29.30	1.66	5.02
Parameter	Phenanthrene		Benzo(e)pyrene		Benzo(e)pyrene		Benzo(e)pyrene	

Sample Date	2023-10-27	
PUF S/N	P13-01	
Volume (Vstd m3)	330.40	
Maximum Reading	ug	ng/m3
	0.98	2.97
Parameter	Benzo(e)pyrene	

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

Sample Date	2023-10-03		2023-10-09		2023-10-15		2023-10-23	
Filter #	AT78789		AT78779		AT85161		AT85577	
Volume (Vstd m^3)	21.3		20.8		21.7		22.2	
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)
Particulate Matter	0.030	0.001	0.093	0.004	0.082	0.004	0.012	0.001

Sample Date	2023-10-27	
Filter #	AT79088	
Volume (Vstd m^3)	22.2	
Result	Result (mg)	Result (mg/m^3)
Particulate Matter	0.071	0.003

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

Sample Date	2023-10-03		2023-10-09		2023-10-15		2023-10-23	
Filter #	AT78790		AT78780		AT78974		AT85578	
Volume (Vstd m^3)	2.38		2.32		2.42		2.47	
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)
PM2.5-10 Mass	0.026	0.011	0.146	0.063	0.120	0.050	<0.004	0.000

Sample Date	2023-10-27	
Filter #	AT79089	
Volume (Vstd m^3)	2.47	
Result	Result (mg)	Result (mg/m^3)
PM2.5-10 Mass	<0.004	0.000

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- **Passive analytical results**

	H_2S		NO_2		O_3		SO_2		NMH3		HNO3	
	Unit (ppb)		Unit (ppb)		Unit (ppb)		Unit (ppb)		Unit (ppb)		Unit (ug/m3)	
Minimum	0.11	#10	0.3	#23	15.0	#23	0.2	#3	0.6	#23	0.28	#13
Maximum	1.15	#27	4.9	#6	42.9	#15	1.4	#14	37.4	#8	3.28	#32
Average	0.26	-	1.56	-	25.82	-	0.40	-	3.40	-	1.35	-

LAC LA BICHE STATION

- **NMHC canister sample analytical results**

Sample Date / Time	2023-10-03 @07:05
Canister Triggered Conc.	0.63 ppm
Canister ID	28938
Maximum Reading (ppbv)	17.7
Parameter	n-Butane

ANALYTICAL SAMPLING RESULTS

COLD LAKE SOUTH STATION

VOCS

Sample Date		2023-10-03	2023-10-09	2023-10-15	2023-10-23	2023-10-27	
Canister ID		28907	32237	28904	32225	31818	
Method		AC-058	AC-058	AC-058	AC-058	AC-058	
Maximum Reading (ppbv)		1.1	2.2	9.3	0.8	0.9	
Parameter		Acetone	Acetone	Ethanol	Ethanol	Acetone	
Parameter	**AAAQOs (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**RDL (ppbv)**
1,1,1-Trichloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1,2,2-Tetrachloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1,2-Trichloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1-Dichloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1-Dichloroethylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
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	0.3
1,2,4-Trimethylbenzene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
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	0.03
1,2-Dichloropropane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
1,3,5-Trimethylbenzene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
1,3-Butadiene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
1,3-Dichlorobenzene		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	0.4
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	0.5
1-Butene		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.06
1-Hexene		< 0.07	< 0.07	< 0.07	< 0.07	< 0.07	0.07
1-Pentene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
2,2,4-Trimethylpentane		0.03	< 0.02	0.05	0.02	< 0.02	0.02
2,2-Dimethylbutane		< 0.02	< 0.02	0.06	0.04	< 0.02	0.02
2,3,4-Trimethylpentane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
2,3-Dimethylbutane		< 0.09	< 0.09	< 0.09	< 0.09	< 0.09	0.09
2,3-Dimethylpentane		0.07	0.03	0.06	< 0.02	< 0.02	0.02
2,4-Dimethylpentane		< 0.03	< 0.03	0.04	< 0.03	< 0.03	0.03
2-Methylheptane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
2-Methylhexane		< 0.03	0.06	0.05	< 0.03	< 0.03	0.03
2-Methylpentane		0.06	0.06	0.15	< 0.02	0.04	0.02
3-Methylheptane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
3-Methylhexane		< 0.02	0.05	0.03	< 0.02	< 0.02	0.02
3-Methylpentane		0.04	< 0.02	0.1	0.04	< 0.02	0.02
Acetone	2400	1.1	2.2	1.4	0.7	0.9	0.4
Acrolein	1.9	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Benzene	9.0	0.13	< 0.03	0.1	0.07	0.08	0.03
Benzyl chloride		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Bromodichloromethane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
Bromoform		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Bromomethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Carbon disulfide	10	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Carbon tetrachloride		0.06	0.06	0.05	0.06	0.06	0.02
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		0.42	0.46	0.48	0.51	0.60	0.04
cis-1,2-Dichloroethene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
cis-1,3-Dichloropropene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
cis-2-Butene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
cis-2-Pentene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Cyclohexane		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.04
Cyclopentane		0.02	< 0.02	0.06	0.04	< 0.02	0.02
Dibromochloromethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Ethanol		0.5	1.2	9.3	0.8	< 0.5	0.5
Ethyl acetate		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Ethylbenzene	460	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
Freon-11		0.19	0.19	0.2	0.19	0.22	0.02
Freon-113		0.05	0.06	0.04	0.04	0.05	0.02
Freon-114		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03

Sample Date		2023-10-03	2023-10-09	2023-10-15	2023-10-23	2023-10-27
Canister ID		28907	32237	28904	32225	31818
Method		AC-058	AC-058	AC-058	AC-058	AC-058
Maximum Reading (ppbv)		1.1	2.2	9.3	0.8	0.9
Parameter		Acetone	Acetone	Ethanol	Ethanol	Acetone

Parameter	AAAQOs (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	RDL (ppbv)
Freon-12		0.48	0.49	0.52	0.52	0.54	0.03
Hexachloro-1,3-butadiene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Isobutane		0.21	0.13	0.93	0.07	0.20	0.03
Isopentane		0.27	0.24	1.15	0.12	0.14	0.04
Isoprene		0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Isopropyl alcohol		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Isopropylbenzene		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.04
m,p-Xylene		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.04
m-Diethylbenzene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
m-Ethyltoluene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
Methyl butyl ketone		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	0.4
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	0.3
Methyl methacrylate		< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	0.08
Methyl tert butyl ether		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
Methylcyclohexane		0.05	0.09	0.04	0.03	0.05	0.02
Methylcyclopentane		< 0.05	< 0.05	0.08	< 0.05	< 0.05	0.05
Methylene chloride		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
n-Butane		0.43	0.39	2.31	0.17	0.31	0.02
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	0.3
n-Heptane		< 0.04	0.09	0.08	0.06	< 0.04	0.04
n-Hexane	5960	0.05	< 0.03	0.12	0.05	0.04	0.03
n-Nonane		< 0.04	< 0.04	0.05	0.04	< 0.04	0.04
n-Octane		< 0.02	< 0.02	0.07	0.07	< 0.02	0.02
n-Pentane		0.16	0.09	0.52	0.07	0.11	0.04
n-Propylbenzene		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.06
n-Undecane		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.5
Naphthalene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
o-Ethyltoluene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
o-Xylene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
p-Diethylbenzene		0.04	< 0.02	< 0.02	< 0.02	< 0.02	0.02
p-Ethyltoluene		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.04
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	0.02
Tetrahydrofuran		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Toluene	499	0.07	0.04	0.09	0.06	< 0.03	0.03
trans-1,2-Dichloroethylene		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.06
trans-1,3-Dichloropropylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
trans-2-Butene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
trans-2-Pentene		< 0.02	< 0.02	0.04	0.02	< 0.02	0.02
Trichloroethylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Vinyl acetate		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Vinyl chloride	51	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02

PAHS

Sample Date	2023-10-03		2023-10-09		2023-10-15		2023-10-23		2023-10-27	
PUF S/N	TE-08		9702		TE-03		TE-02		P13-01	
Volume (Vstd m^3)	330.41		330.41		330.42		330.40		330.40	
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
	0.39	1.18	0.92	2.78	9.68	29.30	1.66	5.02	0.98	2.97
Parameter	Phenanthrene		Benzo(e)pyrene		Benzo(e)pyrene		Benzo(e)pyrene		Benzo(e)pyrene	

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	0.11	0.33	0.02	0.06	0.24	0.73	0.03	0.09	0.12	0.36	0.01
2-Methylnaphthalene	0.16	0.48	0.02	0.06	0.36	1.09	0.03	0.09	0.17	0.51	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	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Acenaphthene	0.03	0.09	0.01	0.03	0.07	0.21	0.02	0.06	0.03	0.09	0.01
Acenaphthylene	0.04	0.12	< 0.01	0.00	0.09	0.27	0.02	0.06	0.01	0.03	0.01
Acridine	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Anthracene	< 0.01	0.00	< 0.01	0.00	0.01	0.03	0.01	0.03	< 0.01	0.00	0.01
Benzo(a)anthracene	< 0.01	0.00	< 0.01	0.00	0.02	0.06	0.02	0.06	< 0.01	0.00	0.01
Benzo(a)pyrene	< 0.01	0.00	< 0.01	0.00	0.02	0.06	0.01	0.03	< 0.01	0.00	0.01
Benzo(b,j,k)fluoranthene	< 0.01	0.00	0.02	0.06	0.07	0.21	0.03	0.09	0.02	0.06	0.01
Benzo(c)phenanthrene	< 0.01	0.00	< 0.01	0.00	0.02	0.06	< 0.01	0.00	< 0.01	0.00	0.01
Benzo(e)pyrene	< 0.01	0.00	0.92	2.78	9.68	29.30	1.66	5.02	0.98	2.97	0.01
Benzo(ghi)perylene	< 0.01	0.00	< 0.01	0.00	0.02	0.06	< 0.01	0.00	< 0.01	0.00	0.01
Chrysene	< 0.01	0.00	0.02	0.06	0.09	0.27	0.02	0.06	0.02	0.06	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	0.03	0.01	0.03	0.01	0.03	< 0.01	0.00	0.01
Dibenzo(ah)anthracene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Fluoranthene	0.04	0.12	0.04	0.12	0.05	0.15	0.05	0.15	0.03	0.09	0.01
Fluorene	0.13	0.39	0.04	0.12	0.13	0.39	0.10	0.30	0.12	0.36	0.01
Indeno(1,2,3-cd)pyrene	< 0.01	0.00	0.01	0.03	0.02	0.06	0.01	0.03	< 0.01	0.00	0.01
Naphthalene	0.08	0.24	0.02	0.06	0.37	1.12	0.04	0.12	0.16	0.48	0.01
Perylene	< 0.01	0.00	0.01	0.03	0.04	0.12	< 0.01	0.00	< 0.01	0.00	0.01
Phenanthrene	0.39	1.18	0.20	0.61	0.25	0.76	0.21	0.64	0.17	0.51	0.01
Pyrene	0.03	0.09	0.04	0.12	0.06	0.18	0.04	0.12	0.02	0.06	0.01
Retene	0.08	0.24	0.07	0.21	0.10	0.30	0.04	0.12	0.05	0.15	0.01

PARTISOLS

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - October 2023

Partisol Results - $PM_{2.5}$

Sample Date		2023-10-03		2023-10-09		2023-10-15		2023-10-23		2023-10-27		
Filter #		AT78789		AT78779		AT85161		AT85577		AT79088		
Volume (Vstd m^3)		21.3		20.8		21.7		22.2		22.2		
Method		AC-029		AC-029		AC-029		AC-029		AC-029		
Parameter	**AAAQO (mg/m3)**	**Result (mg)**	**Result (mg/m^3)**	**Result (mg)**	**Result (mg/m^3)**	**Result (mg)**	**Result (mg/m^3)**	**Result (mg)**	**Result (mg/m^3)**	**Result (mg)**	**Result (mg/m^3)**	**RDL (mg)**
Particulate Matter	0.029	**0.030**	**0.001**	**0.093**	**0.004**	**0.082**	**0.004**	**0.012**	**0.001**	**0.071**	**0.003**	0.004

PM2.5 Mass in ug/m3	**1.408**	**4.471**	**3.779**	**0.541**	**3.198**
RDL in ug/m3	**0.188**	**0.192**	**0.184**	**0.180**	**0.180**

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - October 2023

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

Sample Date	2023-10-03		2023-10-09		2023-10-15		2023-10-23		2023-10-27		
Filter #	AT78790		AT78780		AT78974		AT85578		AT79089		
Volume (Vstd m^3)	2.38		2.32		2.42		2.47		2.47		
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	0.026	0.011	0.146	0.063	0.120	0.050	<0.004	0.000	<0.004	0.000	0.004
PM2.5-10 Mass in ug/m3		10.924		62.931		49.587		1.619		1.619	
RDL in ug/m3		1.681		1.724		1.653		1.619		1.619	

PASSIVE SAMPLES

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

October 2023

Passive Results

		H_2S		NO_2		O_3		SO_2		NMH3		HNO3	
	Unit	**ppb**		**ppb**		**ppb**		**ppb**		**ppb**		**ug/m3**	
	Minimum (ppb)	0.11	#10	0.3	#23	15.0	#23	0.2	#3	0.6	#23	0.28	#13
	Maximum (ppb)	1.15	#27	4.9	#6	42.9	#15	1.4	#14	37.4	#8	3.28	#32
	Average (ppb)	0.26	-	1.56	-	25.82	-	0.40	-	3.40	-	1.35	-
No.	**Station**	**Sample**	**Duplicate**	**Sample**	**Duplicate**	**Sample**	**Duplicate**	**Sample**	**Duplicate**	**Sample**	**Duplicate**	**Sample**	**Duplicate**
3	Therien	0.21		1.7		27.4		0.2		2.8		2.68	
4	Flat Lake	-		0.9		33.3		0.3		2.4		1.87	
5	Lake Eliza	0.24		1.5		25.2		0.3		2.2		0.89	
6	Telegraph Creek	-		4.9		25.1		0.3		5.7		0.68	
8	Muriel-Kehewin	-		0.9		28.3		0.4		37.4		0.87	
9	Dupre	-		1.3		23.8		0.3		1.8		0.91	
10	La Corey	0.11		3.9		16.5		0.2		1.9		1.11	
11	Wolf Lake	0.12		1.0		21.5		0.3		1.4		0.92	
12	Foster Creek	0.12		0.7		26.8		0.3		1.0		2.86	
13	Primrose	0.11		0.4		16.8		0.2		3.9	0.5	0.28	0.69
14	Tamarack	0.48		2.3		26.5		1.4		1.0	0.4	0.29	1.19
15	Ardmore	-		1.9		42.9		0.6		1.5		1.13	
16	Frog Lake	0.18		1.4		21.6		0.3		1.5		1.12	
17	Clear Range	0.29		0.9		26.0		0.3		2.1		0.50	
18	Fishing Lake	0.13		0.8		21.7		0.3		2.1		2.86	
19	Beaverdam	-		0.8		28.1		0.3		2.3		0.41	
22	Cold Lake South (1)	0.16		1.3		25.9		0.3		1.2		2.57	
23	Medley-Martineau	-		0.3		15.0		0.2	0.2	0.6		0.82	
24	Fort George	0.21		1.8		25.6		0.3	0.3	1.5		0.48	
25	Burnt Lake	Missing 1		-		-		Missing 1		-		-	
26	Mahihkan	0.23		-		-		0.7	0.8	2.4		0.62	
27	Mahkeses	1.15	1.34	-		-		1.2		0.8		1.77	
28	Town of Bonnyville	0.45		3.5		23.5		0.4		2.3		0.85	
29	Cold Lake South (2)	0.14		1.3	1.5	25.2	23.6	0.3		1.1		0.73	
32	St. Lina	0.17		0.6	0.6	33.1	37	0.4		2.3		3.28	
42	Lac La Biche	0.17		1.7		34.1		0.2		1.7		3.17	
BLANK -1		-		-		-		-		0.8		0.57	
BLANK -2		-		-		-		-		0.7		0.11	
BLANK -3		-		-		-		-		0.9		0.47	
Reportable Detection Limit (RDL)		**0.02**		**0.1**		**0.1**		**0.1**		**0.1**		**0.04**	

Note:

1 - : Sample collection was not required at the station.

2 Missing 1: Access to the station was not possible due to lack of permit to access the stations.

3 Blank (Duplicate): no duplicate sample was taken.

LAC LA BICHE STATION

NMHC CANISTER SAMPLES

Sample Date/Time	**2023-10-03 @07:05**
Canister Triggered Conc.	**0.63 ppm**
Canister ID	**28938**
Method	**AC-058**
Maximum Reading	**17.7**
Parameter	**n-Butane**

Parameter	AAAQOs	Result (ppbv)	RDL (ppbv)
1,1,1-Trichloroethane		< 0.03	0.03
1,1,2,2-Tetrachloroethane		< 0.03	0.03
1,1,2-Trichloroethane		< 0.03	0.03
1,1-Dichloroethane		< 0.03	0.03
1,1-Dichloroethylene		< 0.03	0.03
1,2,3-Trimethylbenzene		< 0.08	0.075
1,2,4-Trichlorobenzene		< 0.4	0.45
1,2,4-Trimethylbenzene		0.64	0.045
1,2-Dibromoethane		< 0.03	0.03
1,2-Dichlorobenzene		1.19	0.045
1,2-Dichloroethane		< 0.04	0.045
1,2-Dichloropropane		< 0.04	0.045
1,3,5-Trimethylbenzene		0.33	0.045
1,3-Butadiene		< 0.04	0.045
1,3-Dichlorobenzene		< 0.6	0.6
1,4-Dichlorobenzene		0.6	0.6
1,4-Dioxane		< 0.8	0.75
1-Butene		< 0.09	0.09
1-Hexene		< 0.10	0.105
1-Pentene		< 0.04	0.045
2,2,4-Trimethylpentane		0.11	0.03
2,2-Dimethylbutane		0.2	0.03
2,3,4-Trimethylpentane		< 0.03	0.03
2,3-Dimethylbutane		0.25	0.135
2,3-Dimethylpentane		0.18	0.03
2,4-Dimethylpentane		0.05	0.045
2-Methylheptane		< 0.03	0.03
2-Methylhexane		0.16	0.045
2-Methylpentane		1.22	0.03
3-Methylheptane		< 0.04	0.045
3-Methylhexane		0.14	0.03
3-Methylpentane		0.64	0.03
Acetone	2400	1.6	0.6
Acrolein	1.9	< 0.4	0.45
Benzene	9.0	0.33	0.045
Benzyl chloride		< 0.4	0.45
Bromodichloromethane		< 0.04	0.045
Bromoform		< 0.03	0.03
Bromomethane		< 0.03	0.03
Carbon disulfide	10	< 0.03	0.03
Carbon tetrachloride		0.05	0.03
Chlorobenzene		< 0.03	0.03
Chloroethane		< 0.03	0.03
Chloroform		< 0.03	0.03
Chloromethane		0.45	0.06
cis-1,2-Dichloroethene		< 0.03	0.03
cis-1,3-Dichloropropene		< 0.04	0.045
cis-2-Butene		< 0.04	0.045
cis-2-Pentene		0.05	0.03
Cyclohexane		0.06	0.06
Cyclopentane		0.21	0.03
Dibromochloromethane		< 0.03	0.03
Ethanol		2.6	0.75
Ethyl acetate		< 0.4	0.45
Ethylbenzene	460	0.33	0.045
Freon-11		0.19	0.03
Freon-113		0.05	0.03

Sample Date/Time	**2023-10-03 @07:05**
Canister Triggered Conc.	**0.63 ppm**
Canister ID	**28938**
Method	**AC-058**
Maximum Reading	**17.7**
Parameter	**n-Butane**

Parameter	AAAQOs	Result (ppbv)	RDL (ppbv)
Freon-114		< 0.04	0.045
Freon-12		0.47	0.045
Hexachloro-1,3-butadiene		< 0.4	0.45
Isobutane		8.9	0.045
Isopentane		11.8	0.06
Isoprene		< 0.03	0.03
Isopropyl alcohol		< 0.4	0.45
Isopropylbenzene		< 0.06	0.06
m,p-Xylene		0.33	0.06
m-Diethylbenzene		< 0.03	0.03
m-Ethyltoluene		< 0.04	0.045
Methyl butyl ketone		< 0.6	0.6
Methyl ethyl ketone		< 0.4	0.45
Methyl isobutyl ketone		< 0.4	0.45
Methyl methacrylate		< 0.12	0.12
Methyl tert butyl ether		< 0.04	0.045
Methylcyclohexane		0.07	0.03
Methylcyclopentane		0.33	0.075
Methylene chloride		< 0.4	0.45
n-Butane		17.7	0.03
n-Decane		< 0.09	0.09
n-Dodecane		< 0.4	0.45
n-Heptane		0.11	0.06
n-Hexane	5960	0.62	0.045
n-Nonane		< 0.06	0.06
n-Octane		< 0.03	0.03
n-Pentane		4.49	0.06
n-Propylbenzene		< 0.09	0.09
n-Undecane		< 0.8	0.75
Naphthalene		< 0.4	0.45
o-Ethyltoluene		< 0.03	0.03
o-Xylene		0.63	0.045
p-Diethylbenzene		0.06	0.03
p-Ethyltoluene		< 0.06	0.06
Styrene	52.0	< 0.06	0.06
Tetrachloroethylene		< 0.03	0.03
Tetrahydrofuran		< 0.4	0.45
Toluene	499	0.29	0.045
trans-1,2-Dichloroethylene		< 0.09	0.09
trans-1,3-Dichloropropylene		< 0.03	0.03
trans-2-Butene		0.07	0.045
trans-2-Pentene		0.11	0.03
Trichloroethylene		< 0.03	0.03
Vinyl acetate		< 0.4	0.45
Vinyl chloride	51	< 0.03	0.03

EQUIPMENT AUDIT / CALIBRATION RECORDS

TISCH PUF PLUS SAMPLER AUDIT

Date:	October 7, 2023	**PUF PLUS Serial #:**	100-1020
Company/Airshed:	LICA	**Performed By/Reviewer:**	Alex Yakupov / Chris Wesson
Location/Station Name:	Cold Lake South	**Weather Conditions:**	A few clouds

Reference Standards/I.D./Expiry Date:

Orifice Plate Kit:	Tisch PUF Plus TE-5040A id# 1626 expires Jul 21, 2024
Digital Manometer:	Dwyer 475 Mark III id# 2 expires Nov 25, 2023
Temperature:	Vaisala HMP76B/ SN: T1640130 / Jun 26, 2024
Pressure:	Fisher Scientific FB61291/ SN: 130168457 / Mar 20, 2024

TISCH PUF PLUS PRESSURE AND TEMPERATURE AUDIT

AS FOUND Reference Barometric Pressure (mmHg):	713	**AS FOUND Reference Temperature (°C):**	16.9
AS FOUND PUF PLUS Barometric Pressure (mmHg):	713	**AS FOUND PUF PLUS Temperature (°C):**	18.1
% Difference (+/- 2% max.):	**0.00%**	**% Difference (+/- 2 °C max.):**	**-1.2**
****IF THE PRESSURE DEVIATES BY MORE THAN +/- 2% A FLOW CALIBRATION IS REQUIRED****		****IF THE TEMPERATURE DEVIATES BY MORE THAN +/- 2 °C FLOW CALIBRATION IS REQUIRED****	**A**

TISCH PUF PLUS FLOW AUDIT

Flow Audit Calculations:

Enter Barometric Pressure from reference (inHg)	28.07
Barometric Pressure (mmHg)	713.0
Enter Ambient Temperature from reference °C	16.9
Enter "m" variable from calibrated orifice	9.64117
Enter "b" variable from calibrated orifice	-0.04823
Enter Δp in. H_2O	4.94
Standardized Flow lpm=	231.33
Flow Set Point lpm=	230.00
% Difference (+/- 2% max.)=	**-0.58%**

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

R, A1 and A0 Factors:

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

Notes:

n/a

XONTECK VERIFICATION/CALIBRATION

Date:	October 7, 2023	**Last Cal. Date:**	May 20, 2023
Company/Airshed:	LICA	**Start Time 24 hr. (mst):**	10:48
Station Name:	Cold Lake South	**End Time 24 hr. (mst):**	11:54
Sampler s/n:	6200	**Performed By:**	Alex Yakupov
Purpose:	Routine Quarterly	**Reviewer:**	Chris Wesson

XONTECK MAINTENANCE

Item:	**Most Recent Date Completed:**
1. Replace sample line and fittings from sampler to canister every 6 months.	October 7, 2023
2. Purge line from manifold--> sampler with zero air every 6 months.	October 7, 2023
3. Sample system cleaning every 2 years.	n/a
4. Perform 12 hour leak check procedure every 6 months.	October 7, 2023

COMMENTS:

A leak check was completed using a VOC canister. Leak check starts at 18:06 (Oct 6, 2023) - ends at 10:37 (Oct 7, 2023). No leaks were detected over 16 hours.

Partisol 2000i-D Audit

Date/Previous Audit Date:	October 7, 2023	May 20, 2023	**Weather Conditions:**	A few clouds	
Company:	LICA		**Start Time (mst):**	12:36	
Station:	Cold Lake South		**End Time (mst):**	13:58	
Parameter:	PM 2.5		**Performed By/Reviewer:**	Alex Yakupov	Chris Wesson

Sampler

Make/Model:	Partisol 2000i-D
Serial Number:	200DIW202441804
Owner:	LICA
Reference Pressure (mmHg):	713.0

Instrument Data

Ambient Temperature (°C):	18.4	
Filter Temperature (°C):	19.2	
Fine/Coarse Set Flow (litres/min):	15.00	1.67
RH (%)	32.80	

Reference Standards/I.D./Expiry Date:

High Flow:	DeltaCal DC1, # 201587, Dec 12, 2023
Low Flow:	DeltaCal DC1, # 201587, Dec 12, 2023
Digital Manometer:	DeltaCal DC1, # 201587, Dec 12, 2023
Temperature:	Vaisala HMP76B #T1640130, Exp. Date: Jun 26, 2024
Pressure:	Fisher, Model FB 61291, #130168457, Mar 20, 2024

Reference Temperature: (+/-2 °C)	18.1	**Δ °C**	-0.3
Reference Pressure: (+/- 10 mmHg)	713.0	**Δ mmHg**	0.0
Coarse Reference Flow (+/- 5%)	1.64	**litres/min**	-1.8%
Fine Reference Flow (+/- 5%)	15.08	**litres/min**	0.5%
Relative Humidity (+/- 1.5% RH)	54.3	**%**	21.5

Leak Check - External Mode

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

Pressure Drop Measured (mmHg): **6** **Pass**

Other Checks:

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

		As Found	**As Left**
Did the temperature require adjustment?	**No**	18.4	18.4
Did the ambient pressure require adjustment?	**No**	713.000	713.000
Did the fine flow require adjustment?	**No**	1.64	1.640
Did the coarse flow require adjustment?	**No**	15.08	15.080

Recommendations/Comments:

Sample inlet was cleaned.

End of Report

Lakeland Industry & Community Association

OCTOBER 2023

Ambient Air Monitoring

Certified Laboratory Analysis Report

LAB-LICA-202310

Operation and Maintenance:
Bureau Veritas Canada

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

November 20, 2023

Table of Contents

Cold Lake South Station

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

Sample ID: 23100119-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Oct 03, 2023

RECEIVED
OCT 11 2023

Bureau Veritas

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

Client:	LICA	**Sampler S/N:**	6167
Location:	Cold Lake South	**Canister ID:**	28907
Station ID:	LICA 01	**Installation Date/Time (mst):**	Sep 29, 2023 @ 10:14
Sample ID:	LICA/VOC/CLS/Oct 03, 2023	**Removal Date/Time (mst):**	Oct 07, 2023 @ 10:38

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
October 3, 2023	0:00	23:59	24

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.1	18.7

Flow Settings		
Flow Reading (sccm)	Pot Set Point	Pump Set (psi)
10.00	4.89	27.5

Deployment/Collection and Maintenance Checklist

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

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 23100119-002 Priority: Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Oct 03, 2023

RECEIVED
OCT 11 2023

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:**	Sep 29, 2023 @ 10:15
Field Sample ID:	LICA/PUF/CLS/Oct 03, 2023	**Removal Date/Time:**	Oct 07, 2023 @ 10:57

Sample Data Collection Information

Sample Date:	3-Oct-23	**Average Pressure (mmHg)**	707
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	10.8
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.41

Sample Recovery Checklist

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

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

InnoTech ALBERTA

Canister ID: 28907

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ on: AUG 16 2023

Evacuated: SEP 08 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Oct 3, 2023

Sampled By: Alex Yakupov

Starting Vacuum: -27.1 "Hg

End Vacuum: +18.7 "Hg/psig

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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 3, 20

Sampled By: Alex Yakupov

Starting Vacuum: _____ "Hg

End Pressure: _____ "Hg/ psig

Sample ID: 23100119-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Oct 03, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID: LICA/PUF/CLS/Oct 03, 2023
Matrix: Air Filter
CANISTER ID: TE-08
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 03-Oct-23 0:00
DATE RECEIVED: 11-Oct-23
REPORT CREATED: 02-Nov-23
REPORT NUMBER: 23100119
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100119-002	1-Methylnaphthalene		0.11	ug/Filter	0.01	AC-066	17-Oct-23
23100119-002	2-Methylnaphthalene		0.16	ug/Filter	0.01	AC-066	17-Oct-23
23100119-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23100119-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23100119-002	Acenaphthene		0.03	ug/Filter	0.01	AC-066	17-Oct-23
23100119-002	Acenaphthylene		0.04	ug/Filter	0.01	AC-066	17-Oct-23
23100119-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23100119-002	Anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23100119-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23100119-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23100119-002	Benzo(b,j,k)fluoranthene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23100119-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23100119-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23100119-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23100119-002	Chrysene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23100119-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23100119-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: November 2, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Oct 03, 2023	TE-08	Air Filter	03-Oct-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23100119 **REPORT CREATED:** 02-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100119-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23100119-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23100119-002	Fluoranthene		0.04	ug/Filter	0.01	AC-066	17-Oct-23
23100119-002	Fluorene		0.13	ug/Filter	0.01	AC-066	17-Oct-23
23100119-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23100119-002	Naphthalene		0.08	ug/Filter	0.01	AC-066	17-Oct-23
23100119-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23100119-002	Phenanthrene		0.39	ug/Filter	0.01	AC-066	17-Oct-23
23100119-002	Pyrene		0.03	ug/Filter	0.01	AC-066	17-Oct-23
23100119-002	Retene		0.08	ug/Filter	0.01	AC-066	17-Oct-23

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

Date: November 2, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202310

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 03, 2023	28907	Ambient Air	03-Oct-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23100119 **REPORT CREATED:** 02-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100119-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Oct-23
23100119-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Oct-23
23100119-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Oct-23
23100119-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Oct-23
23100119-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Oct-23
23100119-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	13-Oct-23
23100119-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	13-Oct-23
23100119-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100119-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Oct-23
23100119-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100119-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100119-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100119-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100119-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100119-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	13-Oct-23
23100119-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	13-Oct-23
23100119-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	13-Oct-23
23100119-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	13-Oct-23
23100119-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	13-Oct-23
23100119-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100119-001	2,2,4-Trimethylpentane	I	0.03	ppbv	0.02	AC-058	13-Oct-23
23100119-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Oct-23
23100119-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Oct-23
23100119-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	13-Oct-23
23100119-001	2,3-Dimethylpentane	I	0.07	ppbv	0.02	AC-058	13-Oct-23

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

Date: November 2, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 03, 2023	28907	Ambient Air	03-Oct-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23100119 **REPORT CREATED:** 02-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100119-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100119-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Oct-23
23100119-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100119-001	2-Methylpentane	I	0.06	ppbv	0.02	AC-058	13-Oct-23
23100119-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100119-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Oct-23
23100119-001	3-Methylpentane	I	0.04	ppbv	0.02	AC-058	13-Oct-23
23100119-001	Acetone		1.1	ppbv	0.4	AC-058	13-Oct-23
23100119-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	13-Oct-23
23100119-001	Benzene	I	0.13	ppbv	0.03	AC-058	13-Oct-23
23100119-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	13-Oct-23
23100119-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100119-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Oct-23
23100119-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Oct-23
23100119-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Oct-23
23100119-001	Carbon tetrachloride	I	0.06	ppbv	0.02	AC-058	13-Oct-23
23100119-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Oct-23
23100119-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Oct-23
23100119-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Oct-23
23100119-001	Chloromethane		0.42	ppbv	0.04	AC-058	13-Oct-23
23100119-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Oct-23
23100119-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100119-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100119-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Oct-23
23100119-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	13-Oct-23

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 03, 2023	28907	Ambient Air	03-Oct-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23100119 **REPORT CREATED:** 02-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100119-001	Cyclopentane	I	0.02	ppbv	0.02	AC-058	13-Oct-23
23100119-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Oct-23
23100119-001	Ethanol	I	0.5	ppbv	0.5	AC-058	13-Oct-23
23100119-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	13-Oct-23
23100119-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100119-001	Freon-11		0.19	ppbv	0.02	AC-058	13-Oct-23
23100119-001	Freon-113	I	0.05	ppbv	0.02	AC-058	13-Oct-23
23100119-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100119-001	Freon-12		0.48	ppbv	0.03	AC-058	13-Oct-23
23100119-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	13-Oct-23
23100119-001	Isobutane		0.21	ppbv	0.03	AC-058	13-Oct-23
23100119-001	Isopentane		0.27	ppbv	0.04	AC-058	13-Oct-23
23100119-001	Isoprene	I	0.02	ppbv	0.02	AC-058	13-Oct-23
23100119-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	13-Oct-23
23100119-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	13-Oct-23
23100119-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	13-Oct-23
23100119-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Oct-23
23100119-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100119-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	13-Oct-23
23100119-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	13-Oct-23
23100119-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	13-Oct-23
23100119-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	13-Oct-23
23100119-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100119-001	Methylcyclohexane	I	0.05	ppbv	0.02	AC-058	13-Oct-23
23100119-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	13-Oct-23

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

Date: November 2, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202310

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 03, 2023	28907	Ambient Air	03-Oct-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23100119 **REPORT CREATED:** 02-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100119-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	13-Oct-23
23100119-001	n-Butane		0.43	ppbv	0.02	AC-058	13-Oct-23
23100119-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	13-Oct-23
23100119-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	13-Oct-23
23100119-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	13-Oct-23
23100119-001	n-Hexane	I	0.05	ppbv	0.03	AC-058	13-Oct-23
23100119-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Oct-23
23100119-001	n-Pentane		0.16	ppbv	0.04	AC-058	13-Oct-23
23100119-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	13-Oct-23
23100119-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	13-Oct-23
23100119-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	13-Oct-23
23100119-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	13-Oct-23
23100119-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Oct-23
23100119-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100119-001	p-Diethylbenzene	I	0.04	ppbv	0.02	AC-058	13-Oct-23
23100119-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	13-Oct-23
23100119-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	13-Oct-23
23100119-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Oct-23
23100119-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	13-Oct-23
23100119-001	Toluene	I	0.07	ppbv	0.03	AC-058	13-Oct-23
23100119-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	13-Oct-23
23100119-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Oct-23
23100119-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100119-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Oct-23
23100119-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Oct-23

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

Date: November 2, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202310

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 03, 2023	28907	Ambient Air	03-Oct-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23100119 **REPORT CREATED:** 02-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100119-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	13-Oct-23
23100119-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Oct-23

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

Date: November 2, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202310

Revision History

Order ID	Ver	Date	Reason
23100119	01	02-Nov-23	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

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

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

Qualifiers

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

Order Comments

Sample Comments

Result Comments

Note:

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

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

Sample ID: 23100151-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Oct 09, 2023

RECEIVED
OCT 13 2023

Bureau Veritas

...ple Collection Data Sheet Alberta Air FCD AIR FCD-01320 / 2

Client:	LICA	**Sampler S/N:**	6167
Location:	Cold Lake South	**Canister ID:**	32237
Station ID:	LICA 01	**Installation Date/Time (mst):**	Oct 07, 2023 @ 11:55
Sample ID:	LICA/VOC/CLS/Oct 09, 2023	**Removal Date/Time (mst):**	Oct 12, 2023 @ 11:32

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
October 9, 2023	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	4.89	27.5

Deployment/Collection and Maintenance Checklist

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

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 23100151-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Oct 09, 2023

RECEIVED
OCT 13 2023

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	9702
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Oct 7, 2023 @ 13:22
Field Sample ID:	LICA/PUF/CLS/Oct 09, 2023	**Removal Date/Time:**	Oct 12, 2023 @ 11:34

Sample Data Collection Information

Sample Date:	9-Oct-23	**Average Pressure (mmHg)**	704
Start Time (mst):	0:00	**Average Flow (Q_{std})**	299
End Time (mst):	23:59	**Average Tempurature (°C)**	15.9
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.41

Sample Recovery Checklist

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

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

InnoTech ALBERTA

This cleaned canister meets or exceeds TO-15 Method Specifications

Canister ID: 32237

Proofed by: ISC on: AUG 30 2023

Evacuated: SEP 13 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Oct09, 2023

Sampled By: Alex Yakupov

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

InnoTech ALBERTA

This cleaned canister meets or exceeds TO-15 Method Specifications

Canister ID: 9702

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/Oct9, 2023

Sampled By: Alex Yakupov

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

Sample ID: 23100151-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Oct 09, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID: LICA/PUF/CLS/Oct 09, 2023
Matrix: Air Filter
CANISTER ID: 9702
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 09-Oct-23 0:00
DATE RECEIVED: 13-Oct-23
REPORT CREATED: 17-Nov-23
REPORT NUMBER: 23100151
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100151-002	1-Methylnaphthalene		0.02	ug/Filter	0.01	AC-066	10-Nov-23
23100151-002	2-Methylnaphthalene		0.02	ug/Filter	0.01	AC-066	10-Nov-23
23100151-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23100151-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23100151-002	Acenaphthene		0.01	ug/Filter	0.01	AC-066	10-Nov-23
23100151-002	Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23100151-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23100151-002	Anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23100151-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23100151-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23100151-002	Benzo(b,j,k)fluoranthene		0.02	ug/Filter	0.01	AC-066	10-Nov-23
23100151-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23100151-002	Benzo(e)pyrene		0.92	ug/Filter	0.01	AC-066	10-Nov-23
23100151-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23100151-002	Chrysene		0.02	ug/Filter	0.01	AC-066	10-Nov-23
23100151-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23100151-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: November 17, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202310

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Oct 09, 2023	9702	Air Filter	09-Oct-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23100151 **REPORT CREATED:** 17-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100151-002	Dibenzo(a,l)pyrene		0.01	ug/Filter	0.01	AC-066	10-Nov-23
23100151-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23100151-002	Fluoranthene		0.04	ug/Filter	0.01	AC-066	10-Nov-23
23100151-002	Fluorene		0.04	ug/Filter	0.01	AC-066	10-Nov-23
23100151-002	Indeno(1,2,3-cd)pyrene		0.01	ug/Filter	0.01	AC-066	10-Nov-23
23100151-002	Naphthalene		0.02	ug/Filter	0.01	AC-066	10-Nov-23
23100151-002	Perylene		0.01	ug/Filter	0.01	AC-066	10-Nov-23
23100151-002	Phenanthrene		0.20	ug/Filter	0.01	AC-066	10-Nov-23
23100151-002	Pyrene		0.04	ug/Filter	0.01	AC-066	10-Nov-23
23100151-002	Retene		0.07	ug/Filter	0.01	AC-066	10-Nov-23

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

Date: November 17, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 09, 2023	32237	Ambient Air	09-Oct-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23100151 **REPORT CREATED:** 17-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100151-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Oct-23
23100151-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Oct-23
23100151-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Oct-23
23100151-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Oct-23
23100151-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Oct-23
23100151-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	18-Oct-23
23100151-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	18-Oct-23
23100151-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Oct-23
23100151-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Oct-23
23100151-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Oct-23
23100151-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Oct-23
23100151-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Oct-23
23100151-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Oct-23
23100151-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Oct-23
23100151-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	18-Oct-23
23100151-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	18-Oct-23
23100151-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	18-Oct-23
23100151-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	18-Oct-23
23100151-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	18-Oct-23
23100151-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Oct-23
23100151-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Oct-23
23100151-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Oct-23
23100151-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Oct-23
23100151-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	18-Oct-23
23100151-001	2,3-Dimethylpentane	I	0.03	ppbv	0.02	AC-058	18-Oct-23

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

Date: November 17, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 09, 2023	32237	Ambient Air	09-Oct-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23100151 **REPORT CREATED:** 17-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100151-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Oct-23
23100151-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Oct-23
23100151-001	2-Methylhexane	I	0.06	ppbv	0.03	AC-058	18-Oct-23
23100151-001	2-Methylpentane	I	0.06	ppbv	0.02	AC-058	18-Oct-23
23100151-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Oct-23
23100151-001	3-Methylhexane	I	0.05	ppbv	0.02	AC-058	18-Oct-23
23100151-001	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Oct-23
23100151-001	Acetone		2.2	ppbv	0.4	AC-058	18-Oct-23
23100151-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	18-Oct-23
23100151-001	Benzene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Oct-23
23100151-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	18-Oct-23
23100151-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Oct-23
23100151-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Oct-23
23100151-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Oct-23
23100151-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Oct-23
23100151-001	Carbon tetrachloride	I	0.06	ppbv	0.02	AC-058	18-Oct-23
23100151-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Oct-23
23100151-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Oct-23
23100151-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Oct-23
23100151-001	Chloromethane		0.46	ppbv	0.04	AC-058	18-Oct-23
23100151-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Oct-23
23100151-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Oct-23
23100151-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Oct-23
23100151-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Oct-23
23100151-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	18-Oct-23

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 09, 2023	32237	Ambient Air	09-Oct-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23100151 **REPORT CREATED:** 17-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100151-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Oct-23
23100151-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Oct-23
23100151-001	Ethanol		1.2	ppbv	0.5	AC-058	18-Oct-23
23100151-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	18-Oct-23
23100151-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Oct-23
23100151-001	Freon-11		0.19	ppbv	0.02	AC-058	18-Oct-23
23100151-001	Freon-113	I	0.06	ppbv	0.02	AC-058	18-Oct-23
23100151-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Oct-23
23100151-001	Freon-12		0.49	ppbv	0.03	AC-058	18-Oct-23
23100151-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	18-Oct-23
23100151-001	Isobutane		0.13	ppbv	0.03	AC-058	18-Oct-23
23100151-001	Isopentane		0.24	ppbv	0.04	AC-058	18-Oct-23
23100151-001	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Oct-23
23100151-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	18-Oct-23
23100151-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	18-Oct-23
23100151-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	18-Oct-23
23100151-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Oct-23
23100151-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Oct-23
23100151-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	18-Oct-23
23100151-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	18-Oct-23
23100151-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	18-Oct-23
23100151-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	18-Oct-23
23100151-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Oct-23
23100151-001	Methylcyclohexane	I	0.09	ppbv	0.02	AC-058	18-Oct-23
23100151-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	18-Oct-23

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

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InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202310

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 09, 2023	32237	Ambient Air	09-Oct-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23100151 **REPORT CREATED:** 17-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100151-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	18-Oct-23
23100151-001	n-Butane		0.39	ppbv	0.02	AC-058	18-Oct-23
23100151-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	18-Oct-23
23100151-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	18-Oct-23
23100151-001	n-Heptane	I	0.09	ppbv	0.04	AC-058	18-Oct-23
23100151-001	n-Hexane	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Oct-23
23100151-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Oct-23
23100151-001	n-Pentane	I	0.09	ppbv	0.04	AC-058	18-Oct-23
23100151-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	18-Oct-23
23100151-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	18-Oct-23
23100151-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	18-Oct-23
23100151-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	18-Oct-23
23100151-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Oct-23
23100151-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Oct-23
23100151-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Oct-23
23100151-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	18-Oct-23
23100151-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	18-Oct-23
23100151-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Oct-23
23100151-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	18-Oct-23
23100151-001	Toluene	I	0.04	ppbv	0.03	AC-058	18-Oct-23
23100151-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	18-Oct-23
23100151-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Oct-23
23100151-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Oct-23
23100151-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Oct-23
23100151-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Oct-23

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

Date: November 17, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202310

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 09, 2023	32237	Ambient Air	09-Oct-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23100151 **REPORT CREATED:** 17-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100151-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	18-Oct-23
23100151-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Oct-23

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

Date: November 17, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202310

Revision History

Order ID	Ver	Date	Reason
23100151	01	17-Nov-23	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

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

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

Qualifiers

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

Order Comments

Sample Comments

Result Comments

Note:

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

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

Sample ID: 23100276-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Oct 15, 2023

RECEIVED
OCT 25 2023

Bureau Veritas

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

Client:	LICA	**Sampler S/N:**	6167
Location:	Cold Lake South	**Canister ID:**	28904
Station ID:	LICA 01	**Installation Date/Time (mst):**	Oct 12, 2023 @ 11:42
Sample ID:	LICA/VOC/CLS/Oct 15, 2023	**Removal Date/Time (mst):**	Oct 20, 2023 @ 18:01

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
October 15, 2023	0:00	23:59	24

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.1	17.6

Flow Settings		
Flow Reading (sccm)	Pot Set Point	Pump Set (psi)
10.00	4.89	27.5

Deployment/Collection and Maintenance Checklist

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

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 23100276-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Oct 15, 2023

RECEIVED
OCT 25 2023

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	TE-03
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Oct 12, 2023 @ 11:43
Field Sample ID:	LICA/PUF/CLS/Oct 15, 2023	**Removal Date/Time:**	Oct 20, 2023 @ 18:02

Sample Data Collection Information

Sample Date:	15-Oct-23	**Average Pressure (mmHg)**	714
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	7.9
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.42

Sample Recovery Checklist

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

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

Sample ID: 23100276-003 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Oct 21, 2023

RECEIVED
OCT 25 2023

Bureau Veritas

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

Client:	LICA	**Sampler S/N:**	6167
Location:	Cold Lake South	**Canister ID:**	32225
Station ID:	LICA 01	**Installation Date/Time (mst):**	Oct 20, 2023 @ 18:09
Sample ID:	LICA/VOC/CLS/Oct 21, 2023	**Removal Date/Time (mst):**	Oct 24, 2023 @ 09:44

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
October 21, 2023	0:00	23:59	24

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.1	19.0

Flow Settings		
Flow Reading (sccm)	Pot Set Point	Pump Set (psi)
10.00	4.89	27.5

Deployment/Collection and Maintenance Checklist

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

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 23100276-004 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Oct 21, 2023

RECEIVED
OCT 25 2023

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	TE-02
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Oct 20, 2023 @ 18:10
Field Sample ID:	LICA/PUF/CLS/Oct 21, 2023	**Removal Date/Time:**	Oct 24, 2023 @ 09:54

Sample Data Collection Information

Sample Date:	21-Oct-23	**Average Pressure (mmHg)**	712
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	6.9
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.4

Sample Recovery Checklist

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

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

InnoTech ALBERTA

This cleaned canister meets or exceeds TO-15 Method Specifications

Canister ID: 28904

Proofed by: ISQ on: JUL 13 2023

Evacuated: SEP 08 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: 23100276-001 Priority: Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Oct 15, 2023

Sample ID: LICA/VOC/CLS/Oct 15, 2023

Sampled By: Alex Yakupov

Starting Vacuum:	End Vacuum:
-27.1 "Hg	+ 17.6 "Hg/psig

17psi JMP

InnoTech ALBERTA

This cleaned canister meets or exceeds TO-15 Method Specifications

Canister ID: TE-03

Proofed by: _____ on: _____

Evacuated: _____ Recertified: _____

PUF

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/PUF/CLS/Oct 15, 2023

Sampled By: Alex Yakupov

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

InnoTech ALBERTA

This cleaned canister meets or exceeds TO-15 Method Specifications

Canister ID: 32225

Proofed by: ISQ on: AUG 25 2023

Evacuated: OCT 05 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Oct 21, 2023

Sampled By: Alex Yakupov

JMP

Starting Vacuum:	End Vacuum:
-27.8 "Hg	+19.0 "Hg/psig

InnoTech ALBERTA

This cleaned canister meets or exceeds TO-15 Method Specifications

Canister ID: TE-02

Proofed by: _____ on: _____

Evacuated: _____ Recertified: _____

PUF

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/PUF/CLS/Oct 21, 2023

Sampled By: Alex Yakupov

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID: LICA/PUF/CLS/Oct 15, 2023
Matrix: Air Filter
CANISTER ID: TE-03
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 15-Oct-23 0:00
DATE RECEIVED: 25-Oct-23
REPORT CREATED: 17-Nov-23
REPORT NUMBER: 23100276
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100276-002	1-Methylnaphthalene		0.24	ug/Filter	0.01	AC-066	10-Nov-23
23100276-002	2-Methylnaphthalene		0.36	ug/Filter	0.01	AC-066	10-Nov-23
23100276-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23100276-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23100276-002	Acenaphthene		0.07	ug/Filter	0.01	AC-066	10-Nov-23
23100276-002	Acenaphthylene		0.09	ug/Filter	0.01	AC-066	10-Nov-23
23100276-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23100276-002	Anthracene		0.01	ug/Filter	0.01	AC-066	10-Nov-23
23100276-002	Benzo(a)anthracene		0.02	ug/Filter	0.01	AC-066	10-Nov-23
23100276-002	Benzo(a)pyrene		0.02	ug/Filter	0.01	AC-066	10-Nov-23
23100276-002	Benzo(b,j,k)fluoranthene		0.07	ug/Filter	0.01	AC-066	10-Nov-23
23100276-002	Benzo(c)phenanthrene		0.02	ug/Filter	0.01	AC-066	10-Nov-23
23100276-002	Benzo(e)pyrene		9.68	ug/Filter	0.01	AC-066	10-Nov-23
23100276-002	Benzo(ghi)perylene		0.02	ug/Filter	0.01	AC-066	10-Nov-23
23100276-002	Chrysene		0.09	ug/Filter	0.01	AC-066	10-Nov-23
23100276-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23100276-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: November 17, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Oct 15, 2023	TE-03	Air Filter	15-Oct-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23100276 **REPORT CREATED:** 17-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100276-002	Dibenzo(a,l)pyrene		0.01	ug/Filter	0.01	AC-066	10-Nov-23
23100276-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23100276-002	Fluoranthene		0.05	ug/Filter	0.01	AC-066	10-Nov-23
23100276-002	Fluorene		0.13	ug/Filter	0.01	AC-066	10-Nov-23
23100276-002	Indeno(1,2,3-cd)pyrene		0.02	ug/Filter	0.01	AC-066	10-Nov-23
23100276-002	Naphthalene		0.37	ug/Filter	0.01	AC-066	10-Nov-23
23100276-002	Perylene		0.04	ug/Filter	0.01	AC-066	10-Nov-23
23100276-002	Phenanthrene		0.25	ug/Filter	0.01	AC-066	10-Nov-23
23100276-002	Pyrene		0.06	ug/Filter	0.01	AC-066	10-Nov-23
23100276-002	Retene		0.10	ug/Filter	0.01	AC-066	10-Nov-23

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Oct 21, 2023	TE-02	Air Filter	21-Oct-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23100276 **REPORT CREATED:** 17-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100276-004	1-Methylnaphthalene		0.03	ug/Filter	0.01	AC-066	10-Nov-23
23100276-004	2-Methylnaphthalene		0.03	ug/Filter	0.01	AC-066	10-Nov-23
23100276-004	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23100276-004	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23100276-004	Acenaphthene		0.02	ug/Filter	0.01	AC-066	10-Nov-23
23100276-004	Acenaphthylene		0.02	ug/Filter	0.01	AC-066	10-Nov-23
23100276-004	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23100276-004	Anthracene		0.01	ug/Filter	0.01	AC-066	10-Nov-23
23100276-004	Benzo(a)anthracene		0.02	ug/Filter	0.01	AC-066	10-Nov-23
23100276-004	Benzo(a)pyrene		0.01	ug/Filter	0.01	AC-066	10-Nov-23
23100276-004	Benzo(b,j,k)fluoranthene		0.03	ug/Filter	0.01	AC-066	10-Nov-23
23100276-004	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23100276-004	Benzo(e)pyrene		1.66	ug/Filter	0.01	AC-066	10-Nov-23
23100276-004	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23100276-004	Chrysene		0.02	ug/Filter	0.01	AC-066	10-Nov-23
23100276-004	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23100276-004	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23100276-004	Dibenzo(a,l)pyrene		0.01	ug/Filter	0.01	AC-066	10-Nov-23
23100276-004	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23100276-004	Fluoranthene		0.05	ug/Filter	0.01	AC-066	10-Nov-23
23100276-004	Fluorene		0.10	ug/Filter	0.01	AC-066	10-Nov-23
23100276-004	Indeno(1,2,3-cd)pyrene		0.01	ug/Filter	0.01	AC-066	10-Nov-23
23100276-004	Naphthalene		0.04	ug/Filter	0.01	AC-066	10-Nov-23
23100276-004	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23100276-004	Phenanthrene		0.21	ug/Filter	0.01	AC-066	10-Nov-23

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

Date: November 17, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Oct 21, 2023	TE-02	Air Filter	21-Oct-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23100276 **REPORT CREATED:** 17-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100276-004	Pyrene		0.04	ug/Filter	0.01	AC-066	10-Nov-23
23100276-004	Retene		0.04	ug/Filter	0.01	AC-066	10-Nov-23

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

Date: November 17, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202310

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 15, 2023	28904	Ambient Air	15-Oct-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23100276 **REPORT CREATED:** 17-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100276-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	25-Oct-23
23100276-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Oct-23
23100276-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100276-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100276-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100276-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100276-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100276-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100276-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	25-Oct-23
23100276-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	25-Oct-23
23100276-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	25-Oct-23
23100276-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	25-Oct-23
23100276-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	25-Oct-23
23100276-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100276-001	2,2,4-Trimethylpentane	I	0.05	ppbv	0.02	AC-058	25-Oct-23
23100276-001	2,2-Dimethylbutane	I	0.06	ppbv	0.02	AC-058	25-Oct-23
23100276-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	25-Oct-23
23100276-001	2,3-Dimethylpentane	I	0.06	ppbv	0.02	AC-058	25-Oct-23

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 15, 2023	28904	Ambient Air	15-Oct-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23100276 **REPORT CREATED:** 17-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100276-001	2,4-Dimethylpentane	I	0.04	ppbv	0.03	AC-058	25-Oct-23
23100276-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-001	2-Methylhexane	I	0.05	ppbv	0.03	AC-058	25-Oct-23
23100276-001	2-Methylpentane		0.15	ppbv	0.02	AC-058	25-Oct-23
23100276-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100276-001	3-Methylhexane	I	0.03	ppbv	0.02	AC-058	25-Oct-23
23100276-001	3-Methylpentane		0.10	ppbv	0.02	AC-058	25-Oct-23
23100276-001	Acetone		1.4	ppbv	0.4	AC-058	25-Oct-23
23100276-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Oct-23
23100276-001	Benzene	I	0.10	ppbv	0.03	AC-058	25-Oct-23
23100276-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Oct-23
23100276-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100276-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-001	Carbon tetrachloride	I	0.05	ppbv	0.02	AC-058	25-Oct-23
23100276-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-001	Chloromethane		0.48	ppbv	0.04	AC-058	25-Oct-23
23100276-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100276-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100276-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	25-Oct-23

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 15, 2023	28904	Ambient Air	15-Oct-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23100276 **REPORT CREATED:** 17-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100276-001	Cyclopentane	I	0.06	ppbv	0.02	AC-058	25-Oct-23
23100276-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-001	Ethanol		9.3	ppbv	0.5	AC-058	25-Oct-23
23100276-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Oct-23
23100276-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100276-001	Freon-11		0.20	ppbv	0.02	AC-058	25-Oct-23
23100276-001	Freon-113	I	0.04	ppbv	0.02	AC-058	25-Oct-23
23100276-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100276-001	Freon-12		0.52	ppbv	0.03	AC-058	25-Oct-23
23100276-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Oct-23
23100276-001	Isobutane		0.93	ppbv	0.03	AC-058	25-Oct-23
23100276-001	Isopentane		1.15	ppbv	0.04	AC-058	25-Oct-23
23100276-001	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Oct-23
23100276-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	25-Oct-23
23100276-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	25-Oct-23
23100276-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100276-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	25-Oct-23
23100276-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Oct-23
23100276-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Oct-23
23100276-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	25-Oct-23
23100276-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100276-001	Methylcyclohexane	I	0.04	ppbv	0.02	AC-058	25-Oct-23
23100276-001	Methylcyclopentane	I	0.08	ppbv	0.05	AC-058	25-Oct-23

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

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InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202310

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 15, 2023	28904	Ambient Air	15-Oct-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23100276 **REPORT CREATED:** 17-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100276-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Oct-23
23100276-001	n-Butane		2.31	ppbv	0.02	AC-058	25-Oct-23
23100276-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	25-Oct-23
23100276-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Oct-23
23100276-001	n-Heptane	I	0.08	ppbv	0.04	AC-058	25-Oct-23
23100276-001	n-Hexane	I	0.12	ppbv	0.03	AC-058	25-Oct-23
23100276-001	n-Octane	I	0.07	ppbv	0.02	AC-058	25-Oct-23
23100276-001	n-Pentane		0.52	ppbv	0.04	AC-058	25-Oct-23
23100276-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	25-Oct-23
23100276-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	25-Oct-23
23100276-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Oct-23
23100276-001	n-Nonane	I	0.05	ppbv	0.04	AC-058	25-Oct-23
23100276-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100276-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	25-Oct-23
23100276-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	25-Oct-23
23100276-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Oct-23
23100276-001	Toluene	I	0.09	ppbv	0.03	AC-058	25-Oct-23
23100276-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	25-Oct-23
23100276-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100276-001	trans-2-Pentene	I	0.04	ppbv	0.02	AC-058	25-Oct-23
23100276-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 15, 2023	28904	Ambient Air	15-Oct-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23100276 **REPORT CREATED:** 17-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100276-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Oct-23
23100276-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 21, 2023	32225	Ambient Air	21-Oct-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23100276 **REPORT CREATED:** 17-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100276-003	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-003	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-003	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-003	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-003	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-003	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	25-Oct-23
23100276-003	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Oct-23
23100276-003	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100276-003	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-003	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100276-003	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100276-003	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100276-003	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100276-003	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100276-003	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	25-Oct-23
23100276-003	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	25-Oct-23
23100276-003	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	25-Oct-23
23100276-003	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	25-Oct-23
23100276-003	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	25-Oct-23
23100276-003	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100276-003	2,2,4-Trimethylpentane	I	0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-003	2,2-Dimethylbutane	I	0.04	ppbv	0.02	AC-058	25-Oct-23
23100276-003	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-003	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	25-Oct-23
23100276-003	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 21, 2023	32225	Ambient Air	21-Oct-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23100276 **REPORT CREATED:** 17-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100276-003	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100276-003	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-003	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100276-003	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-003	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100276-003	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-003	3-Methylpentane	I	0.04	ppbv	0.02	AC-058	25-Oct-23
23100276-003	Acetone		0.7	ppbv	0.4	AC-058	25-Oct-23
23100276-003	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Oct-23
23100276-003	Benzene	I	0.07	ppbv	0.03	AC-058	25-Oct-23
23100276-003	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Oct-23
23100276-003	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100276-003	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-003	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-003	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-003	Carbon tetrachloride	I	0.06	ppbv	0.02	AC-058	25-Oct-23
23100276-003	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-003	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-003	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-003	Chloromethane		0.51	ppbv	0.04	AC-058	25-Oct-23
23100276-003	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-003	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100276-003	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100276-003	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-003	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	25-Oct-23

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 21, 2023	32225	Ambient Air	21-Oct-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23100276 **REPORT CREATED:** 17-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100276-003	Cyclopentane	I	0.04	ppbv	0.02	AC-058	25-Oct-23
23100276-003	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-003	Ethanol	I	0.8	ppbv	0.5	AC-058	25-Oct-23
23100276-003	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Oct-23
23100276-003	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100276-003	Freon-11		0.19	ppbv	0.02	AC-058	25-Oct-23
23100276-003	Freon-113	I	0.04	ppbv	0.02	AC-058	25-Oct-23
23100276-003	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100276-003	Freon-12		0.52	ppbv	0.03	AC-058	25-Oct-23
23100276-003	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Oct-23
23100276-003	Isobutane	I	0.07	ppbv	0.03	AC-058	25-Oct-23
23100276-003	Isopentane		0.12	ppbv	0.04	AC-058	25-Oct-23
23100276-003	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-003	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Oct-23
23100276-003	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	25-Oct-23
23100276-003	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	25-Oct-23
23100276-003	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-003	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100276-003	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	25-Oct-23
23100276-003	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Oct-23
23100276-003	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Oct-23
23100276-003	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	25-Oct-23
23100276-003	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100276-003	Methylcyclohexane	I	0.03	ppbv	0.02	AC-058	25-Oct-23
23100276-003	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	25-Oct-23

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

Date: November 17, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202310

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 21, 2023	32225	Ambient Air	21-Oct-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23100276 **REPORT CREATED:** 17-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100276-003	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Oct-23
23100276-003	n-Butane		0.17	ppbv	0.02	AC-058	25-Oct-23
23100276-003	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	25-Oct-23
23100276-003	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Oct-23
23100276-003	n-Heptane	I	0.06	ppbv	0.04	AC-058	25-Oct-23
23100276-003	n-Hexane	I	0.05	ppbv	0.03	AC-058	25-Oct-23
23100276-003	n-Octane	I	0.07	ppbv	0.02	AC-058	25-Oct-23
23100276-003	n-Pentane	I	0.07	ppbv	0.04	AC-058	25-Oct-23
23100276-003	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	25-Oct-23
23100276-003	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	25-Oct-23
23100276-003	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Oct-23
23100276-003	n-Nonane	I	0.04	ppbv	0.04	AC-058	25-Oct-23
23100276-003	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-003	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100276-003	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-003	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	25-Oct-23
23100276-003	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	25-Oct-23
23100276-003	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-003	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Oct-23
23100276-003	Toluene	I	0.06	ppbv	0.03	AC-058	25-Oct-23
23100276-003	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	25-Oct-23
23100276-003	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-003	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Oct-23
23100276-003	trans-2-Pentene	I	0.02	ppbv	0.02	AC-058	25-Oct-23
23100276-003	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23

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

Date: November 17, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 21, 2023	32225	Ambient Air	21-Oct-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23100276 **REPORT CREATED:** 17-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100276-003	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Oct-23
23100276-003	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Oct-23

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

Date: November 17, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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Revision History

Order ID	Ver	Date	Reason
23100276	01	17-Nov-23	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

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

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

Qualifiers

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

Order Comments

Sample Comments

Result Comments

Note:

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

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

Sample ID: 23110086-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Oct 27, 2023

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NOV 08 2023

Bureau Veritas

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

Client:	LICA	**Sampler S/N:**	6167
Location:	Cold Lake South	**Canister ID:**	31818
Station ID:	LICA 01	**Installation Date/Time (mst):**	Oct 24, 2023 @ 10:02
Sample ID:	LICA/VOC/CLS/Oct 27, 2023	**Removal Date/Time (mst):**	Oct 28, 2023 @ 13:23

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
October 27, 2023	0:00	23:59	24

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.1	18.5

Flow Settings		
Flow Reading (sccm)	Pot Set Point	Pump Set (psi)
10.00	4.89	27.5

Deployment/Collection and Maintenance Checklist

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

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 23110086-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Oct 27, 2023

RECEIVED
NOV 08 2023

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, 2023 @ 10:03
Field Sample ID:	LICA/PUF/CLS/Oct 27, 2023	**Removal Date/Time:**	Oct 28, 2023 @ 13:30

Sample Data Collection Information

Sample Date:	27-Oct-23	**Average Pressure (mmHg)**	718
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	-3.3
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.4

Sample Recovery Checklist

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

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

Sample ID: 23110086-003 Priority: Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Nov 02, 2023

RECEIVED
NOV 08 2023

Bureau Veritas

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

Client:	LICA	**Sampler S/N:**	6167
Location:	Cold Lake South	**Canister ID:**	32219
Station ID:	LICA 01	**Installation Date/Time (mst):**	Oct 28, 2023 @ 13:44
Sample ID:	LICA/VOC/CLS/Nov 2, 2023	**Removal Date/Time (mst):**	Nov 04, 2023 @ 15:00

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
November 2, 2023	0:00	23:59	24

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.8	19.1

Flow Settings		
Flow Reading (sccm)	Pot Set Point	Pump Set (psi)
10.00	4.89	27.5

Deployment/Collection and Maintenance Checklist

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

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 23110086-004 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Nov 02, 2023

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 28, 2023 @ 13:45
Field Sample ID:	LICA/PUF/CLS/Nov 2, 2023	**Removal Date/Time:**	Nov 04, 2023 @ 15:01

Sample Data Collection Information

Sample Date:	2-Nov-23	**Average Pressure (mmHg)**	709
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	2.8
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.4

Sample Recovery Checklist

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

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

InnoTech ALBERTA

Canister ID: 31818

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ on: AUG 2 5 2023

Evacuated: OCT 0 5 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Oct 27, 2023

Sampled By: Alex Yakupov

Starting Vacuum:	End Vacuum:
-27.8 "Hg	-18.5 "Hg/psig

InnoTech ALBERTA

Canister ID: P 13-01

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 27, 2023

Sampled By: Alex Yakupov

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

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Canister ID: 32219

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ on: SEP 2 1 2023

Evacuated: OCT 0 5 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Nov 2, 2023

Sampled By: Alex Yakupov

Starting Vacuum:	End Vacuum:
-27.8 "Hg	-19.1 "Hg/psig

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Canister ID: TE-06

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/Nov 2, 2023

Sampled By: Alex Yakupov

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

Sample ID: 23110086-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Oct 27, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID: LICA/PUF/CLS/Nov 02, 2023
Matrix: Air Filter
CANISTER ID: TE-06
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 02-Nov-23 0:00
DATE RECEIVED: 08-Nov-23
REPORT CREATED: 21-Nov-23
REPORT NUMBER: 23110086
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110086-004	1-Methylnaphthalene		0.06	ug/Filter	0.01	AC-066	10-Nov-23
23110086-004	2-Methylnaphthalene		0.08	ug/Filter	0.01	AC-066	10-Nov-23
23110086-004	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23110086-004	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23110086-004	Acenaphthene		0.07	ug/Filter	0.01	AC-066	10-Nov-23
23110086-004	Acenaphthylene		0.20	ug/Filter	0.01	AC-066	10-Nov-23
23110086-004	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23110086-004	Anthracene		0.08	ug/Filter	0.01	AC-066	10-Nov-23
23110086-004	Benzo(a)anthracene		0.05	ug/Filter	0.01	AC-066	10-Nov-23
23110086-004	Benzo(a)pyrene		0.03	ug/Filter	0.01	AC-066	10-Nov-23
23110086-004	Benzo(b,j,k)fluoranthene		0.11	ug/Filter	0.01	AC-066	10-Nov-23
23110086-004	Benzo(c)phenanthrene		0.02	ug/Filter	0.01	AC-066	10-Nov-23
23110086-004	Benzo(e)pyrene		6.10	ug/Filter	0.01	AC-066	10-Nov-23
23110086-004	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23110086-004	Chrysene		0.09	ug/Filter	0.01	AC-066	10-Nov-23
23110086-004	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23110086-004	Dibenzo(a,i)pyrene		0.01	ug/Filter	0.01	AC-066	10-Nov-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: November 21, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Nov 02, 2023	TE-06	Air Filter	02-Nov-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23110086 **REPORT CREATED:** 21-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110086-004	Dibenzo(a,l)pyrene		0.01	ug/Filter	0.01	AC-066	10-Nov-23
23110086-004	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23110086-004	Fluoranthene		0.24	ug/Filter	0.01	AC-066	10-Nov-23
23110086-004	Fluorene		0.34	ug/Filter	0.01	AC-066	10-Nov-23
23110086-004	Indeno(1,2,3-cd)pyrene		0.03	ug/Filter	0.01	AC-066	10-Nov-23
23110086-004	Naphthalene		0.11	ug/Filter	0.01	AC-066	10-Nov-23
23110086-004	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23110086-004	Phenanthrene		0.74	ug/Filter	0.01	AC-066	10-Nov-23
23110086-004	Pyrene		0.18	ug/Filter	0.01	AC-066	10-Nov-23
23110086-004	Retene		0.09	ug/Filter	0.01	AC-066	10-Nov-23

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

Date: November 21, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Oct 27, 2023	P13-01	Air Filter	27-Oct-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23110086 **REPORT CREATED:** 21-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110086-002	1-Methylnaphthalene		0.12	ug/Filter	0.01	AC-066	10-Nov-23
23110086-002	2-Methylnaphthalene		0.17	ug/Filter	0.01	AC-066	10-Nov-23
23110086-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23110086-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23110086-002	Acenaphthene		0.03	ug/Filter	0.01	AC-066	10-Nov-23
23110086-002	Acenaphthylene		0.01	ug/Filter	0.01	AC-066	10-Nov-23
23110086-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23110086-002	Anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23110086-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23110086-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23110086-002	Benzo(b,j,k)fluoranthene		0.02	ug/Filter	0.01	AC-066	10-Nov-23
23110086-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23110086-002	Benzo(e)pyrene		0.98	ug/Filter	0.01	AC-066	10-Nov-23
23110086-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23110086-002	Chrysene		0.02	ug/Filter	0.01	AC-066	10-Nov-23
23110086-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23110086-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23110086-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23110086-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23110086-002	Fluoranthene		0.03	ug/Filter	0.01	AC-066	10-Nov-23
23110086-002	Fluorene		0.12	ug/Filter	0.01	AC-066	10-Nov-23
23110086-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23110086-002	Naphthalene		0.16	ug/Filter	0.01	AC-066	10-Nov-23
23110086-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Nov-23
23110086-002	Phenanthrene		0.17	ug/Filter	0.01	AC-066	10-Nov-23

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

Date: November 21, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Oct 27, 2023	P13-01	Air Filter	27-Oct-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23110086 **REPORT CREATED:** 21-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110086-002	Pyrene		0.02	ug/Filter	0.01	AC-066	10-Nov-23
23110086-002	Retene		0.05	ug/Filter	0.01	AC-066	10-Nov-23

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

Date: November 21, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202310

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 02, 2023	32219	Ambient Air	02-Nov-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23110086 **REPORT CREATED:** 21-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110086-003	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-003	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-003	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-003	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-003	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-003	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	11-Nov-23
23110086-003	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Nov-23
23110086-003	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Nov-23
23110086-003	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-003	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Nov-23
23110086-003	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Nov-23
23110086-003	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Nov-23
23110086-003	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Nov-23
23110086-003	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Nov-23
23110086-003	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	11-Nov-23
23110086-003	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	11-Nov-23
23110086-003	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	11-Nov-23
23110086-003	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	11-Nov-23
23110086-003	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	11-Nov-23
23110086-003	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Nov-23
23110086-003	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-003	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-003	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-003	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	11-Nov-23
23110086-003	2,3-Dimethylpentane	I	0.03	ppbv	0.02	AC-058	11-Nov-23

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 02, 2023	32219	Ambient Air	02-Nov-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23110086 **REPORT CREATED:** 21-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110086-003	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Nov-23
23110086-003	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-003	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Nov-23
23110086-003	2-Methylpentane	I	0.09	ppbv	0.02	AC-058	11-Nov-23
23110086-003	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Nov-23
23110086-003	3-Methylhexane	I	0.03	ppbv	0.02	AC-058	11-Nov-23
23110086-003	3-Methylpentane	I	0.04	ppbv	0.02	AC-058	11-Nov-23
23110086-003	Acetone		1.2	ppbv	0.4	AC-058	11-Nov-23
23110086-003	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Nov-23
23110086-003	Benzene	I	0.14	ppbv	0.03	AC-058	11-Nov-23
23110086-003	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Nov-23
23110086-003	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Nov-23
23110086-003	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-003	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-003	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-003	Carbon tetrachloride	I	0.06	ppbv	0.02	AC-058	11-Nov-23
23110086-003	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-003	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-003	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-003	Chloromethane		0.63	ppbv	0.04	AC-058	11-Nov-23
23110086-003	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-003	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Nov-23
23110086-003	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Nov-23
23110086-003	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-003	Cyclohexane	I	0.07	ppbv	0.04	AC-058	11-Nov-23

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 02, 2023	32219	Ambient Air	02-Nov-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23110086 **REPORT CREATED:** 21-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110086-003	Cyclopentane	I	0.03	ppbv	0.02	AC-058	11-Nov-23
23110086-003	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-003	Ethanol	K, T, U	< 0.5	ppbv	0.5	AC-058	11-Nov-23
23110086-003	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Nov-23
23110086-003	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Nov-23
23110086-003	Freon-11		0.22	ppbv	0.02	AC-058	11-Nov-23
23110086-003	Freon-113	I	0.06	ppbv	0.02	AC-058	11-Nov-23
23110086-003	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Nov-23
23110086-003	Freon-12		0.57	ppbv	0.03	AC-058	11-Nov-23
23110086-003	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Nov-23
23110086-003	Isobutane		0.41	ppbv	0.03	AC-058	11-Nov-23
23110086-003	Isopentane		0.36	ppbv	0.04	AC-058	11-Nov-23
23110086-003	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-003	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Nov-23
23110086-003	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	11-Nov-23
23110086-003	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	11-Nov-23
23110086-003	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-003	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Nov-23
23110086-003	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	11-Nov-23
23110086-003	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Nov-23
23110086-003	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Nov-23
23110086-003	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	11-Nov-23
23110086-003	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Nov-23
23110086-003	Methylcyclohexane	I	0.10	ppbv	0.02	AC-058	11-Nov-23
23110086-003	Methylcyclopentane	I	0.08	ppbv	0.05	AC-058	11-Nov-23

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 02, 2023	32219	Ambient Air	02-Nov-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23110086 **REPORT CREATED:** 21-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110086-003	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Nov-23
23110086-003	n-Butane		0.64	ppbv	0.02	AC-058	11-Nov-23
23110086-003	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	11-Nov-23
23110086-003	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Nov-23
23110086-003	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	11-Nov-23
23110086-003	n-Hexane	I	0.07	ppbv	0.03	AC-058	11-Nov-23
23110086-003	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-003	n-Pentane		0.25	ppbv	0.04	AC-058	11-Nov-23
23110086-003	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	11-Nov-23
23110086-003	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	11-Nov-23
23110086-003	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Nov-23
23110086-003	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	11-Nov-23
23110086-003	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-003	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Nov-23
23110086-003	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-003	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	11-Nov-23
23110086-003	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	11-Nov-23
23110086-003	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-003	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Nov-23
23110086-003	Toluene	I	0.06	ppbv	0.03	AC-058	11-Nov-23
23110086-003	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	11-Nov-23
23110086-003	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-003	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Nov-23
23110086-003	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-003	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 02, 2023	32219	Ambient Air	02-Nov-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23110086 **REPORT CREATED:** 21-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110086-003	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Nov-23
23110086-003	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 27, 2023	31818	Ambient Air	27-Oct-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23110086 **REPORT CREATED:** 21-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110086-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	11-Nov-23
23110086-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Nov-23
23110086-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Nov-23
23110086-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Nov-23
23110086-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Nov-23
23110086-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Nov-23
23110086-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Nov-23
23110086-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Nov-23
23110086-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	11-Nov-23
23110086-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	11-Nov-23
23110086-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	11-Nov-23
23110086-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	11-Nov-23
23110086-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	11-Nov-23
23110086-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Nov-23
23110086-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	11-Nov-23
23110086-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 27, 2023	31818	Ambient Air	27-Oct-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23110086 **REPORT CREATED:** 21-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110086-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Nov-23
23110086-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Nov-23
23110086-001	2-Methylpentane	I	0.04	ppbv	0.02	AC-058	11-Nov-23
23110086-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Nov-23
23110086-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-001	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-001	Acetone		0.9	ppbv	0.4	AC-058	11-Nov-23
23110086-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Nov-23
23110086-001	Benzene	I	0.08	ppbv	0.03	AC-058	11-Nov-23
23110086-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Nov-23
23110086-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Nov-23
23110086-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-001	Carbon tetrachloride	I	0.06	ppbv	0.02	AC-058	11-Nov-23
23110086-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-001	Chloromethane		0.60	ppbv	0.04	AC-058	11-Nov-23
23110086-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Nov-23
23110086-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Nov-23
23110086-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	11-Nov-23

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

Date: November 21, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 27, 2023	31818	Ambient Air	27-Oct-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23110086 **REPORT CREATED:** 21-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110086-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-001	Ethanol	K, T, U	< 0.5	ppbv	0.5	AC-058	11-Nov-23
23110086-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Nov-23
23110086-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Nov-23
23110086-001	Freon-11		0.22	ppbv	0.02	AC-058	11-Nov-23
23110086-001	Freon-113	I	0.05	ppbv	0.02	AC-058	11-Nov-23
23110086-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Nov-23
23110086-001	Freon-12		0.54	ppbv	0.03	AC-058	11-Nov-23
23110086-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Nov-23
23110086-001	Isobutane		0.20	ppbv	0.03	AC-058	11-Nov-23
23110086-001	Isopentane		0.14	ppbv	0.04	AC-058	11-Nov-23
23110086-001	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Nov-23
23110086-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	11-Nov-23
23110086-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	11-Nov-23
23110086-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Nov-23
23110086-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	11-Nov-23
23110086-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Nov-23
23110086-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Nov-23
23110086-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	11-Nov-23
23110086-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Nov-23
23110086-001	Methylcyclohexane	I	0.05	ppbv	0.02	AC-058	11-Nov-23
23110086-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	11-Nov-23

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

Date: November 21, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 27, 2023	31818	Ambient Air	27-Oct-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23110086 **REPORT CREATED:** 21-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110086-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Nov-23
23110086-001	n-Butane		0.31	ppbv	0.02	AC-058	11-Nov-23
23110086-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	11-Nov-23
23110086-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Nov-23
23110086-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	11-Nov-23
23110086-001	n-Hexane	I	0.04	ppbv	0.03	AC-058	11-Nov-23
23110086-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-001	n-Pentane		0.11	ppbv	0.04	AC-058	11-Nov-23
23110086-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	11-Nov-23
23110086-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	11-Nov-23
23110086-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Nov-23
23110086-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	11-Nov-23
23110086-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Nov-23
23110086-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	11-Nov-23
23110086-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	11-Nov-23
23110086-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Nov-23
23110086-001	Toluene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Nov-23
23110086-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	11-Nov-23
23110086-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Nov-23
23110086-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23
23110086-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23

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

Date: November 21, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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Vegreville, Alberta
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(780) 632-8211

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 27, 2023	31818	Ambient Air	27-Oct-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23110086 **REPORT CREATED:** 21-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110086-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Nov-23
23110086-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Nov-23

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

Date: November 21, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202310

Revision History

Order ID	Ver	Date	Reason
23110086	01	21-Nov-23	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

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

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

Qualifiers

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

Order Comments

Sample Comments

Result Comments

Note:

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

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

Partisol Samples

Sample ID: 23100118-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: AT78789

l 2000i-D Sample Data Sheet

Date Sampled:	3-Oct-23
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 #:	AT78789	AT78790
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	9	
Pressure	707	
Std Volume (Instrument)	21.3	2.38

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date):	Alex Yakupov	Date:	29-Sep-23
Removed by (Sign/Date)	Alex Yakupov	Date:	7-Oct-23

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: 23100118-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: AT78790

Filter Shipping Record

RECEIVED
OCT 11 2023

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 2/23

Project: LICA/Bureau Veritas Labs

Prepared by: [signature]

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	AT78779 → AT78780

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID: AT78789

Matrix: Air Filter

CANISTER ID:

PRIORITY: Normal

DESCRIPTION: Cold Lake South - PM 2.5

DATE SAMPLED: 03-Oct-23 0:00

DATE RECEIVED: 11-Oct-23

REPORT CREATED: 24-Oct-23

REPORT NUMBER: 23100118

VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100118-001	Particulate Weight		0.030	mg	0.004	AC-029	13-Oct-23

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

Date: October 24, 2023

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

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202310

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
AT78790		Air Filter	03-Oct-23 0:00

DESCRIPTION: Cold Lake South - PM 10

REPORT NUMBER: 23100118 **REPORT CREATED:** 24-Oct-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100118-002	Particulate Weight		0.026	mg	0.004	AC-029	13-Oct-23

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

Date: October 24, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202310

Revision History

Order ID	Ver	Date	Reason
23100118	01	24-Oct-23	Report created

Methods

Method	Description
AC-029	Procedure for the Equilibration and Weighing of Membrane Filters and PUFs on the Mettler Toledo Micro Balance

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

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

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

Qualifiers

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

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Canada T9C 1T4
(780) 632-8211

Order Comments

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

Sample Comments

Result Comments

Note:

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

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

Sample ID: 23100150-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: AT78779

ol 2000i-D Sample Data Sheet

RECEIVED
OCT 13 2023

Date Sampled:	9-Oct-23
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 #:	AT78779	AT78780
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	14.8	
Pressure	704	
Std Volume (Instrument)	20.8	2.32

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date): Alex Yakupov Date: 7-Oct-23

Removed by (Sign/Date) Alex Yakupov Date: 12-Oct-23

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: 23100150-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: AT78780

RECEIVED
OCT 13 2023

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 2/23

Project: LICA/Bureau Veritas Labs

Prepared by: SMulenka

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	AT78789 → AT78790

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID	Matrix
AT78779	Air Filter

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

DATE SAMPLED: 09-Oct-23 0:00
DATE RECEIVED: 13-Oct-23
REPORT CREATED: 24-Oct-23
REPORT NUMBER: 23100150
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100150-001	Particulate Weight		0.093	mg	0.004	AC-029	17-Oct-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: October 24, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202310

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PO Bag 4000
Vegreville, Alberta
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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
AT78780		Air Filter	09-Oct-23 0:00

DESCRIPTION: Cold Lake South - PM 10

REPORT NUMBER: 23100150 **REPORT CREATED:** 24-Oct-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100150-002	Particulate Weight		0.146	mg	0.004	AC-029	17-Oct-23

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

Date: October 24, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202310

Revision History

Order ID	Ver	Date	Reason
23100150	01	24-Oct-23	Report created

Methods

Method	Description
AC-029	Procedure for the Equilibration and Weighing of Membrane Filters and PUFs on the Mettler Toledo Micro Balance

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

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

Qualifiers

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

Order Comments

Sample Comments

Result Comments

Note:

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

Partisol 2000i-D Sample Data Sheet

RECEIVED
OCT 25 2023
JMP

Date Sampled:	15-Oct-23
Location:	Cold Lake South
Parameter:	PM 2.5 / PM 10
Start Time	0:00
End Time	23:59
Valid Time	24 hours
Total Time	24 hours
Status	Done

Sample ID: 23100275-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: AT85161

	FINE (1)	COURSE (2)
Filter Type:	47mm	47mm
Filter #:	AT85161	AT78974
Average Flow Rate	JMP 15	1.67
Sample Volume	21.6	2.41
Temperature	7.2	
Pressure	714	
Std Volume (Instrument)	21.7	2.42

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date): Alex Yakupov Date: 12-Oct-23

Removed by (Sign/Date) Alex Yakupov Date: 20-Oct-23

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

Partisol 2000i-D Sample Data Sheet

RECEIVED
OCT 25 2023
JMP

Date Sampled:	21-Oct-23
Location:	Cold Lake South
Parameter:	PM 2.5 / PM 10
Start Time	0:00
End Time	23:59
Valid Time	24 hours
Total Time	24 hours
Status	Done

Sample ID: 23100275-003 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: AT85577

	FINE (1) (3)	COURSE (2) (4)
Filter Type:	47mm	47mm
Filter #:	AT85577	AT85578
Average Flow Rate	JMP 15	1.67
Sample Volume	21.6	2.41
Temperature	6.2	
Pressure	712	
Std Volume (Instrument)	22.2	2.47

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date):	Alex Yakupov	Date:	20-Oct-23
Removed by (Sign/Date)	Alex Yakupov	Date:	24-Oct-23

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: 23100275-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: AT85161

RECEIVED
OCT 25 2023

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 31/23

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	AT78974
	1	AT85161

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

Sample ID: 23100275-003 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: AT85577

Filter Shipping Record

RECEIVED
OCT 25 2023

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: OCTOBER 4/23

Project: LICA/Bureau Veritas Labs

Prepared by: S. Melenka.

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	AT85577 → AT85578

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID: AT78974

Matrix: Air Filter

CANISTER ID:

PRIORITY: Normal

DESCRIPTION: Cold Lake South - PM10 - Coarse

DATE SAMPLED: 15-Oct-23 0:00

DATE RECEIVED: 25-Oct-23

REPORT CREATED: 10-Nov-23

REPORT NUMBER: 23100275

VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100275-002	Particulate Weight		0.120	mg	0.004	AC-029	30-Oct-23

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

Date: November 10, 2023

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

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202310

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
AT85161		Air Filter	15-Oct-23 0:00

DESCRIPTION: Cold Lake South - PM2.5 - Fine

REPORT NUMBER: 23100275 **REPORT CREATED:** 10-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100275-001	Particulate Weight		0.082	mg	0.004	AC-029	30-Oct-23

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

Date: November 10, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202310

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
AT85577		Air Filter	21-Oct-23 0:00

DESCRIPTION: Cold Lake South - PM2.5 - Fine

REPORT NUMBER: 23100275 **REPORT CREATED:** 10-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100275-003	Particulate Weight		0.012	mg	0.004	AC-029	30-Oct-23

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

Date: November 10, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202310

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
AT85578		Air Filter	21-Oct-23 0:00

DESCRIPTION: Cold Lake South - PM10 - Coarse

REPORT NUMBER: 23100275 **REPORT CREATED:** 10-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100275-004	Particulate Weight	K, T, U	< 0.004	mg	0.004	AC-029	30-Oct-23

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

Date: November 10, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202310

Revision History

Order ID	Ver	Date	Reason
23100275	01	10-Nov-23	Report created

Methods

Method	Description
AC-029	Procedure for the Equilibration and Weighing of Membrane Filters and PUFs on the Mettler Toledo Micro Balance

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

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

Qualifiers

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

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

Order Comments

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

Sample Comments

Result Comments

Note:

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

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

Sample ID: 23110085-001 Priority: Normal

Customer ID: LICA
Cust Samp ID: AT79088

RECEIVED
NOV 08 2023

l 2000i-D Sample Data Sheet

Date Sampled:	27-Oct-23
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 #:	AT79088	AT79089
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	-2.5	
Pressure	718	
Std Volume (Instrument)	22.2	2.47

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date): Alex Yakupov Date: 24-Oct-23

Removed by (Sign/Date) Alex Yakupov Date: 28-Oct-23

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: 23110085-003 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: AT79044

RECEIVED
NOV 08 2023

›l 2000i-D Sample Data Sheet

Date Sampled:	2-Nov-23
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 #:	AT79044	AT85160
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	1.7	
Pressure	709	
Std Volume (Instrument)	22	2.45

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date): Alex Yakupov Date: 28-Oct-23

Removed by (Sign/Date) Alex Yakupov Date: 4-Nov-23

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: 23110085-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: AT79089

RECEIVED
NOV 08 2023

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 31 23

Project: LICA/Bureau Veritas Labs

Prepared by: J. Zelenka

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	AT79088 → AT79089

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

Sample ID: 23110085-004 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: AT85160

RECEIVED
NOV 08 2023

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 31/23

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	AT79044
	1	AT85160

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID	Matrix
AT79044	Air Filter

CANISTER ID:
PRIORITY: Normal
DESCRIPTION: Cold Lake South - PM2.5 - Fine

DATE SAMPLED: 02-Nov-23 0:00
DATE RECEIVED: 08-Nov-23
REPORT CREATED: 21-Nov-23
REPORT NUMBER: 23110085
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110085-003	Particulate Weight		0.129	mg	0.004	AC-029	10-Nov-23

Report certified by: Andrea Conner, Admin Assistant
On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: November 21, 2023
Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202310

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
AT79088		Air Filter	27-Oct-23 0:00

DESCRIPTION: Cold Lake South - PM2.5 - Fine

REPORT NUMBER: 23110085 **REPORT CREATED:** 21-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110085-001	Particulate Weight		0.071	mg	0.004	AC-029	10-Nov-23

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

Date: November 21, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202310

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
AT79089		Air Filter	27-Oct-23 0:00

DESCRIPTION: Cold Lake South - PM10 - Coarse

REPORT NUMBER: 23110085 **REPORT CREATED:** 21-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110085-002	Particulate Weight	K, T, U	< 0.004	mg	0.004	AC-029	10-Nov-23

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

Date: November 21, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202310

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
AT85160		Air Filter	02-Nov-23 0:00

DESCRIPTION: Cold Lake South - PM10 - Coarse

REPORT NUMBER: 23110085 **REPORT CREATED:** 21-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110085-004	Particulate Weight		0.078	mg	0.004	AC-029	10-Nov-23

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

Date: November 21, 2023

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

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202310

Revision History

Order ID	Ver	Date	Reason
23110085	01	21-Nov-23	Report created

Methods

Method	Description
AC-029	Procedure for the Equilibration and Weighing of Membrane Filters and PUFs on the Mettler Toledo Micro Balance

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

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

Qualifiers

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

Order Comments

Sample Comments

Result Comments

Note:

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

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

Passive Samples

Passive Sampler Field Sheet for LICA, Oct 2023 sample period

ID	SAMPLER						START		END		NOTES
							DATE	TIME	DATE	TIME	
3	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Sep 28	16:55	Oct 29	16:50	
4	---	SO_2	NO_2	O_3	HNO3	NH3	Sep 29	13:05	Nov 2	11:55	
5	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Sep 29	14:02	Nov 2	12:45	
6	---	SO_2	NO_2	O_3	HNO3	NH3	Sep 29	15:40	Nov 2	14:16	
8	---	SO_2	NO_2	O_3	HNO3	NH3	Sep 29	19:16	Nov 2	10:55	
9	---	SO_2	NO_2	O_3	HNO3	NH3	Sep 28	16:11	Oct 29	18:55	
10	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Oct 2	18:35	Nov 3	16:54	
11	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Sep 28	18:28	Nov 3	16:15	
12	H2S	SO2	NO2	O3	HNO3	NH3	Oct 2	16:43	Oct 29	14:25	
13	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Sep 28	13:40	Nov 3	15:10	
14	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Sep 28	12:37	Oct 29	13:16	water isotope sample taken
15	---	SO_2	NO_2	O_3	HNO3	NH3	Sep 28	15:15	Oct 29	20:30	
16	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Sep 29	17:55	Nov 2	17:29	
17	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Sep 29	16:55	Nov 2	15:27	
18	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Sep 29	11:35	Nov 2	16:45	
19	---	SO_2	NO_2	O_3	HNO3	NH3	Oct 2	10:58	Nov 2	19:47	
22	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Oct 3	19:35	Nov 3	18:21	
23	---	SO_2	NO_2	O_3	HNO3	NH3	Sep 28	10:47	Oct 29	11:06	
24	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Sep 29	15:02	Nov 2	13:30	
25	H2S	SO2	---	---							
26	H_2S	SO_2	---	---	HNO3	NH3	Sep 28	13:02	Oct 29	13:44	
27	H_2S	SO_2	---	---	HNO3	NH3	Sep 28	12:10	Oct 29	12:36	
28	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Sep 28	15:50	Oct 29	19:48	
29	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Oct 2	19:46	Nov 3	18:02	
32	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Sep 28	17:46	Oct 29	17:40	
42	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Oct 2	13:39	Nov 3	11:56	
							DUPLICATES				
26	H2S	---	---	---	---	---	Sep 28	13:02	Oct 29	13:44	
27	H2S	---	---	---	---	---	Sep 28	12:10	Oct 29	12:36	
23	---	SO2	---	---	---	---	Sep 28	10:47	Oct 29	11:06	
24		SO2	---	---	---	---	Sep 29	15:02	Nov 2	13:30	
26	---	SO2	---	---	---	---	Sep 28	13:02	Oct 29	13:44	
29	---	---	NO_2	O_3	---	---	Oct 2	19:46	Nov 3	18:02	
32	---	---	NO_2	O_3	---	---	Sep 28	17:46	Oct 29	17:40	
13	---	---	---	---	HNO3	NH3	Sep 28	13:40	Oct 29	14:25	
14	---	---	---	---	HNO3	NH3	Sep 28	12:37	Oct 29	13:16	

Your Project #: OCTOBER 2023 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: 2023/11/20
Report #: R3428637
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C391859
Received: 2023/11/08, 08:00

Sample Matrix: Air
Samples Received: 61

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
H2S Passive Analysis	19	2023/11/16	2023/11/17	PTC SOP-00150	Passive H2S in ATM
HNO3 by Passive Sampler	30	2023/11/10	2023/11/16	PTC SOP-00288	Passive HNO3 in ATM
NH3 by Passive Sampler	30	2023/11/14	2023/11/16	PTC SOP-00157	ASTM D6919
NO2 Passive Analysis	16	2023/11/10	2023/11/16	PTC SOP-00148	Passive NO2 in ATM
NO2 Passive Analysis	9	2023/11/14	2023/11/16	PTC SOP-00148	Passive NO2 in ATM
O3 Passive Analysis	9	2023/11/14	2023/11/16	PTC SOP-00197	EPA 300 R2.1
O3 Passive Analysis	16	2023/11/17	2023/11/17	PTC SOP-00197	EPA 300 R2.1
SO2 Passive Analysis	28	2023/11/10	2023/11/16	PTC SOP-00149	Passive SO2 in ATM

Results relate only to the items tested.

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

Encryption Key

Rowena Geron
Project Manager Assistant
20 Nov 2023 08:02:57

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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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 Branko Banjac, General Manager responsible for Alberta Petroleum laboratory operations.

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

Bureau Veritas Job #: C391859
Report Date: 2023/11/20

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: OCTOBER 2023 PASSIVES
Site Location: BONNYVILLE, AB
Sampler Initials: AY

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		CED668			CED669			CED670		
Sampling Date		2023/09/28 16:55			2023/09/29 13:05			2023/09/29 14:02		
	UNITS	3	RDL	QC Batch	4	RDL	QC Batch	5	RDL	QC Batch
Passive Monitoring										
Calculated H2S	ppb	0.21	0.02	B199635				0.24	0.02	B199635
Calculated NO2	ppb	1.7	0.1	B198672	0.9	0.1	B198672	1.5	0.1	B198672
Calculated O3	ppb	27.4	0.1	B199014	33.3	0.1	B199014	25.2	0.1	B199014
Calculated SO2	ppb	0.2	0.1	B194701	0.3	0.1	B194701	0.3	0.1	B194701
RDL = Reportable Detection Limit										

Bureau Veritas ID		CED671	CED672	CED673			CED674	CED675	CED676		
Sampling Date		2023/09/29 15:40	2023/09/29 19:16	2023/09/28 16:11			2023/10/02 18:35	2023/09/28 18:28	2023/10/02 16:43		
	UNITS	6	8	9	RDL	QC Batch	10	11	12	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb						0.11	0.12	0.12	0.02	B199635
Calculated NO2	ppb	4.9	0.9	1.3	0.1	B198672	3.9	1.0	0.7	0.1	B198672
Calculated O3	ppb	25.1	28.3	23.8	0.1	B199014	16.5	21.5	26.8	0.1	B199014
Calculated SO2	ppb	0.3	0.4	0.3	0.1	B194701	0.2	0.3	0.3	0.1	B194701
RDL = Reportable Detection Limit											

Bureau Veritas ID		CED677	CED678			CED679			CED680		
Sampling Date		2023/09/28 13:40	2023/09/28 12:37			2023/09/28 15:15			2023/09/29 17:55		
	UNITS	13	14	RDL	QC Batch	15	RDL	QC Batch	16	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb	0.11	0.48	0.02	B199635				0.18	0.02	B199635
Calculated NO2	ppb	0.4	2.3	0.1	B198672	1.9	0.1	B198672	1.4	0.1	B198672
Calculated O3	ppb	16.8	26.5	0.1	B202367	42.9	0.1	B202367	21.6	0.1	B202367
Calculated SO2	ppb	0.2	1.4	0.1	B194701	0.6	0.1	B194701	0.3	0.1	B194701
RDL = Reportable Detection Limit											

Bureau Veritas Job #: C391859
Report Date: 2023/11/20

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: OCTOBER 2023 PASSIVES
Site Location: BONNYVILLE, AB
Sampler Initials: AY

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		CED681	CED682			CED683			CED684		
Sampling Date		2023/09/29 16:55	2023/09/29 11:35			2023/10/02 10:58			2023/10/03 19:35		
	UNITS	17	18	RDL	QC Batch	19	RDL	QC Batch	22	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb	0.29	0.13	0.02	B199635				0.16	0.02	B199635
Calculated NO2	ppb	0.9	0.8	0.1	B198672	0.8	0.1	B198672	1.3	0.1	B198959
Calculated O3	ppb	26.0	21.7	0.1	B202367	28.1	0.1	B202367	25.9	0.1	B202367
Calculated SO2	ppb	0.3	0.3	0.1	B194701	0.3	0.1	B194701	0.3	0.1	B194704
RDL = Reportable Detection Limit											

Bureau Veritas ID		CED685			CED899			CED686		
Sampling Date		2023/09/28 10:47			2023/09/28 10:47			2023/09/29 15:02		
	UNITS	23	RDL	QC Batch	23 DUP	RDL	QC Batch	24	RDL	QC Batch
Passive Monitoring										
Calculated H2S	ppb							0.21	0.02	B199635
Calculated NO2	ppb	0.3	0.1	B198959				1.8	0.1	B198959
Calculated O3	ppb	15.0	0.1	B202367				25.6	0.1	B202367
Calculated SO2	ppb	0.2	0.1	B194704	0.2	0.1	B194704	0.3	0.1	B194704
RDL = Reportable Detection Limit										

Bureau Veritas ID		CED900			CED687			CED901		
Sampling Date		2023/09/29 15:02			2023/09/28 13:02			2023/09/28 13:02		
	UNITS	24 DUP	RDL	QC Batch	26	RDL	QC Batch	26 DUP	RDL	QC Batch
Passive Monitoring										
Calculated H2S	ppb				0.23	0.02	B199635			
Calculated SO2	ppb	0.3	0.1	B194704	0.7	0.1	B194704	0.8	0.1	B194704
RDL = Reportable Detection Limit										

Bureau Veritas Job #: C391859
Report Date: 2023/11/20

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: OCTOBER 2023 PASSIVES
Site Location: BONNYVILLE, AB
Sampler Initials: AY

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		CED688			CED897			CED689	CED690		
Sampling Date		2023/09/28 12:10			2023/09/28 12:10			2023/09/28 15:50	2023/10/02 19:46		
	UNITS	27	RDL	QC Batch	27 DUP	RDL	QC Batch	28	29	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb	1.15	0.02	B199635	1.34	0.02	B199635	0.45	0.14	0.02	B199635
Calculated NO2	ppb							3.5	1.3	0.1	B198959
Calculated O3	ppb							23.5	25.2	0.1	B202367
Calculated SO2	ppb	1.2	0.1	B194704				0.4	0.3	0.1	B194704
RDL = Reportable Detection Limit											

Bureau Veritas ID		CED903			CED691			CED904		
Sampling Date		2023/10/02 19:46			2023/09/28 17:46			2023/09/28 17:46		
	UNITS	29 DUP	RDL	QC Batch	32	RDL	QC Batch	32 DUP	RDL	QC Batch
Passive Monitoring										
Calculated H2S	ppb				0.17	0.02	B199635			
Calculated NO2	ppb	1.5	0.1	B198959	0.6	0.1	B198959	0.6	0.1	B198959
Calculated O3	ppb	23.6	0.1	B202367	33.1	0.1	B202367	37.0	0.1	B202367
Calculated SO2	ppb				0.4	0.1	B194704			
RDL = Reportable Detection Limit										

Bureau Veritas ID		CED692			CED702	CED703	CED704	CED705		
Sampling Date		2023/10/02 13:39			2023/09/28 16:55	2023/09/29 13:05	2023/09/29 14:02	2023/09/29 15:40		
	UNITS	42	RDL	QC Batch	3-NH3 HNO3	4-NH3 HNO3	5-NH3 HNO3	6-NH3 HNO3	RDL	QC Batch
Passive Monitoring										
Ammonia by Passive Sampler	ppb				2.8	2.4	2.2	5.7	0.1	B197503
Calculated H2S	ppb	0.17	0.02	B199635						
HNO3 by Passive Sampler	ug/m3				2.68	1.87	0.89	0.68	0.04	B194446
Calculated NO2	ppb	1.7	0.1	B198959						
Calculated O3	ppb	34.1	0.1	B202367						
Calculated SO2	ppb	0.2	0.1	B194704						
RDL = Reportable Detection Limit										

Bureau Veritas Job #: C391859
Report Date: 2023/11/20

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: OCTOBER 2023 PASSIVES
Site Location: BONNYVILLE, AB
Sampler Initials: AY

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		CED706	CED707	CED708	CED709	CED710	CED711		
Sampling Date		2023/09/29 19:16	2023/09/28 16:11	2023/10/02 18:35	2023/09/28 18:28	2023/10/02 18:43	2023/09/28 13:40		
	UNITS	8-NH3 HNO3	9-NH3 HNO3	10-NH3 HNO3	11-NH3 HNO3	12-NH3 HNO3	13-NH3 HNO3	RDL	QC Batch
Passive Monitoring									
Ammonia by Passive Sampler	ppb	37.4	1.8	1.9	1.4	1.0	3.9	0.1	B197503
HNO3 by Passive Sampler	ug/m3	0.87	0.91	1.11	0.92	2.86	0.28	0.04	B194446
RDL = Reportable Detection Limit									

Bureau Veritas ID		CED905		CED712		CED906		
Sampling Date		2023/09/28 13:40		2023/09/28 12:37		2023/09/28 12:37		
	UNITS	13-NH3 HNO3 DUP	QC Batch	14-NH3 HNO3	QC Batch	14-NH3 HNO3 DUP	RDL	QC Batch
Passive Monitoring								
Ammonia by Passive Sampler	ppb	0.5	B197508	1.0	B197503	0.4	0.1	B197508
HNO3 by Passive Sampler	ug/m3	0.69	B194447	0.29	B194446	1.19	0.04	B194447
RDL = Reportable Detection Limit								

Bureau Veritas ID		CED713	CED714		CED715	CED716	CED717		
Sampling Date		2023/09/28 15:15	2023/09/29 17:55		2023/09/29 16:55	2023/09/29 11:35	2023/10/02 10:58		
	UNITS	15-NH3 HNO3	16-NH3 HNO3	QC Batch	17-NH3 HNO3	18-NH3 HNO3	19-NH3 HNO3	RDL	QC Batch
Passive Monitoring									
Ammonia by Passive Sampler	ppb	1.5	1.5	B197503	2.1	2.1	2.3	0.1	B197508
HNO3 by Passive Sampler	ug/m3	1.13	1.12	B194446	0.50	2.86	0.41	0.04	B194446
RDL = Reportable Detection Limit									

Bureau Veritas ID		CED718	CED719	CED720	CED721	CED722	CED724		
Sampling Date		2023/10/03 19:35	2023/09/28 10:47	2023/09/29 15:02	2023/09/28 13:02	2023/09/28 12:10	2023/09/28 15:50		
	UNITS	22-NH3 HNO3	23-NH3 HNO3	24-NH3 HNO3	26-NH3 HNO3	27-NH3 HNO3	28-NH3 HNO3	RDL	QC Batch
Passive Monitoring									
Ammonia by Passive Sampler	ppb	1.2	0.6	1.5	2.4	0.8	2.3	0.1	B197508
HNO3 by Passive Sampler	ug/m3	2.57	0.82	0.48	0.62	1.77	0.85	0.04	B194447
RDL = Reportable Detection Limit									

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

Bureau Veritas Job #: C391859
Report Date: 2023/11/20

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: OCTOBER 2023 PASSIVES
Site Location: BONNYVILLE, AB
Sampler Initials: AY

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		CED725	CED726	CED728	CED732	CED734		
Sampling Date		2023/10/02 19:46	2023/09/28 17:46	2023/10/02 13:39				
	UNITS	29-NH3 HNO3	32-NH3 HNO3	42-NH3 HNO3	BLANK 1-NH3 HNO3	BLANK 2-NH3 HNO3	RDL	QC Batch
Passive Monitoring								
Ammonia by Passive Sampler	ppb	1.1	2.3	1.7	0.8	0.7	0.1	B197508
HNO3 by Passive Sampler	ug/m3	0.73	3.28	3.17	0.57	0.11	0.04	B194447
RDL = Reportable Detection Limit								

Bureau Veritas ID		CED735		
Sampling Date				
	UNITS	BLANK 3-NH3 HNO3	RDL	QC Batch
Passive Monitoring				
Ammonia by Passive Sampler	ppb	0.9	0.1	B197508
HNO3 by Passive Sampler	ug/m3	0.47	0.04	B194447
RDL = Reportable Detection Limit				

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

GENERAL COMMENTS

Results relate only to the items tested.

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

Bureau Veritas Job #: C391859
Report Date: 2023/11/20

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: OCTOBER 2023 PASSIVES
Site Location: BONNYVILLE, AB
Sampler Initials: AY

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
B194446	OZ	Method Blank	HNO3 by Passive Sampler		<0.04		ug/m3	
B194446	OZ	RPD [CED702-01]	HNO3 by Passive Sampler	2023/11/16	NC		%	N/A
B194447	OZ	Method Blank	HNO3 by Passive Sampler		<0.04		ug/m3	
B194447	OZ	RPD [CED718-01]	HNO3 by Passive Sampler	2023/11/16	NC		%	N/A
B194701	OZ	Spiked Blank	Calculated SO2			102	%	90 - 110
B194701	OZ	Method Blank	Calculated SO2		<0.1		ppb	
B194704	OZ	Spiked Blank	Calculated SO2			101	%	90 - 110
B194704	OZ	Method Blank	Calculated SO2		<0.1		ppb	
B197503	SDK	Spiked Blank	Ammonia by Passive Sampler			99	%	90 - 110
B197503	SDK	Method Blank	Ammonia by Passive Sampler		<0.1		ppb	
B197503	SDK	RPD	Ammonia by Passive Sampler	2023/11/16	NC		%	N/A
B197508	SDK	Spiked Blank	Ammonia by Passive Sampler			95	%	90 - 110
B197508	SDK	Method Blank	Ammonia by Passive Sampler		<0.1		ppb	
B197508	SDK	RPD [CED715-01]	Ammonia by Passive Sampler	2023/11/16	0		%	N/A
B198672	S1T	Spiked Blank	Calculated NO2			100	%	90 - 110
B198672	S1T	Method Blank	Calculated NO2		<0.1		ppb	
B198959	S1T	Spiked Blank	Calculated NO2			100	%	90 - 110
B198959	S1T	Method Blank	Calculated NO2		<0.1		ppb	
B199014	S1T	Spiked Blank	Calculated O3			100	%	90 - 110
B199014	S1T	Method Blank	Calculated O3		<0.1		ppb	
B199635	YYA	Spiked Blank	Calculated H2S			100	%	90 - 110
B202367	SDK	Spiked Blank	Calculated O3			103	%	90 - 110
B202367	SDK	Method Blank	Calculated O3		<0.1		ppb	

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.

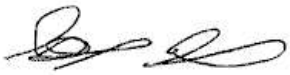
NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

Bureau Veritas Job #: C391859
Report Date: 2023/11/20

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: OCTOBER 2023 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:



Steven Gloux, Senior Analyst

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

Lac La Biche Station

Non- Methane Hydrocarbons (NMHCs) Canister Samples

Sample ID: 23100117-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/NMHC/LLB/Oct 03, 2023

RECEIVED
OCT 11 2023

Bureau Veritas

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

Client:	LICA	**Sampler S/N:**	n/a
Location:	Lac La Biche	**Canister ID:**	28938
Station ID:	LICA 41	**Installation Date/Time (mst):**	Sep 07, 2023 @ 16:45
Sample ID:	LICA/NMHC/LLB/Oct 03, 2023	**Removal Date/Time (mst):**	Oct 04, 2023 @ 17:06

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
October 3, 2023	7:10	n/a	n/a

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	**Final Vacuum (in. Hg)**
-27.1	-3.5

Flow Settings		
Flow Reading (sccm)	**Pot Set Point**	**Pump Set (psi)**
n/a	n/a	n/a

Deployment/Collection and Maintenance Checklist

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

Comments:

Exp. Date: Nov 14, 2023

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

InnoTech ALBERTA

Canister ID: 28938

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ on: JUL 28 2023

Evacuated: AUG 14 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/NMHC/LLB/Oct 03, 2023

Sampled By: Alex Yakupov

Starting Vacuum:	End Vacuum:
-27.1 "Hg	-3.5 "Hg/psig

Sample ID: 23100117-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/NMHC/LLB/Oct 03, 2023

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID: LICA/NMHC/LLB/Oct 03, 2023
Matrix: Ambient Air
CANISTER ID: 28938
PRIORITY: Normal
DESCRIPTION: Lac La Biche
DATE SAMPLED: 03-Oct-23 7:10
DATE RECEIVED: 11-Oct-23
REPORT CREATED: 02-Nov-23
REPORT NUMBER: 23100117
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100117-001	1,1,1-Trichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100117-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100117-001	1,1,2-Trichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100117-001	1,1-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100117-001	1,1-Dichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100117-001	1,2,3-Trimethylbenzene	K, T, U	< 0.08	ppbv	0.08	AC-058	13-Oct-23
23100117-001	1,2,4-Trichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	13-Oct-23
23100117-001	1,2,4-Trimethylbenzene		0.64	ppbv	0.04	AC-058	13-Oct-23
23100117-001	1,2-Dibromoethane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100117-001	1,2-Dichlorobenzene		1.19	ppbv	0.04	AC-058	13-Oct-23
23100117-001	1,2-Dichloroethane	K, T, U	< 0.04	ppbv	0.04	AC-058	13-Oct-23
23100117-001	1,2-Dichloropropane	K, T, U	< 0.04	ppbv	0.04	AC-058	13-Oct-23
23100117-001	1,3,5-Trimethylbenzene		0.33	ppbv	0.04	AC-058	13-Oct-23
23100117-001	1,3-Butadiene	K, T, U	< 0.04	ppbv	0.04	AC-058	13-Oct-23
23100117-001	1,3-Dichlorobenzene	K, T, U	< 0.6	ppbv	0.6	AC-058	13-Oct-23
23100117-001	1,4-Dichlorobenzene	I	0.6	ppbv	0.6	AC-058	13-Oct-23
23100117-001	1,4-Dioxane	K, T, U	< 0.8	ppbv	0.8	AC-058	13-Oct-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: November 2, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202310

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/NMHC/LLB/Oct 03, 2023	28938	Ambient Air	03-Oct-23 7:10

DESCRIPTION: Lac La Biche

REPORT NUMBER: 23100117 **REPORT CREATED:** 02-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100117-001	1-Butene/Isobutylene	K, T, U	< 0.09	ppbv	0.09	AC-058	13-Oct-23
23100117-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.10	ppbv	0.10	AC-058	13-Oct-23
23100117-001	1-Pentene	K, T, U	< 0.04	ppbv	0.04	AC-058	13-Oct-23
23100117-001	2,2,4-Trimethylpentane	I	0.11	ppbv	0.03	AC-058	13-Oct-23
23100117-001	2,2-Dimethylbutane		0.20	ppbv	0.03	AC-058	13-Oct-23
23100117-001	2,3,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100117-001	2,3-Dimethylbutane		0.25	ppbv	0.14	AC-058	13-Oct-23
23100117-001	2,3-Dimethylpentane		0.18	ppbv	0.03	AC-058	13-Oct-23
23100117-001	2,4-Dimethylpentane	I	0.05	ppbv	0.04	AC-058	13-Oct-23
23100117-001	2-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100117-001	2-Methylhexane		0.16	ppbv	0.04	AC-058	13-Oct-23
23100117-001	2-Methylpentane		1.22	ppbv	0.03	AC-058	13-Oct-23
23100117-001	3-Methylheptane	K, T, U	< 0.04	ppbv	0.04	AC-058	13-Oct-23
23100117-001	3-Methylhexane	I	0.14	ppbv	0.03	AC-058	13-Oct-23
23100117-001	3-Methylpentane		0.64	ppbv	0.03	AC-058	13-Oct-23
23100117-001	Acetone		1.6	ppbv	0.6	AC-058	13-Oct-23
23100117-001	Acrolein	K, T, U	< 0.4	ppbv	0.4	AC-058	13-Oct-23
23100117-001	Benzene		0.33	ppbv	0.04	AC-058	13-Oct-23
23100117-001	Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	13-Oct-23
23100117-001	Bromodichloromethane	K, T, U	< 0.04	ppbv	0.04	AC-058	13-Oct-23
23100117-001	Bromoform	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100117-001	Bromomethane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100117-001	Carbon disulfide	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100117-001	Carbon tetrachloride	I	0.05	ppbv	0.03	AC-058	13-Oct-23
23100117-001	Chlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23

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23100117-001	Chloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100117-001	Chloroform	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100117-001	Chloromethane		0.45	ppbv	0.06	AC-058	13-Oct-23
23100117-001	cis-1,2-Dichloroethene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100117-001	cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	13-Oct-23
23100117-001	cis-2-Butene	K, T, U	< 0.04	ppbv	0.04	AC-058	13-Oct-23
23100117-001	cis-2-Pentene	I	0.05	ppbv	0.03	AC-058	13-Oct-23
23100117-001	Cyclohexane	I	0.06	ppbv	0.06	AC-058	13-Oct-23
23100117-001	Cyclopentane		0.21	ppbv	0.03	AC-058	13-Oct-23
23100117-001	Dibromochloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100117-001	Ethanol		2.6	ppbv	0.8	AC-058	13-Oct-23
23100117-001	Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	13-Oct-23
23100117-001	Ethylbenzene		0.33	ppbv	0.04	AC-058	13-Oct-23
23100117-001	Freon-11		0.19	ppbv	0.03	AC-058	13-Oct-23
23100117-001	Freon-113	I	0.05	ppbv	0.03	AC-058	13-Oct-23
23100117-001	Freon-114	K, T, U	< 0.04	ppbv	0.04	AC-058	13-Oct-23
23100117-001	Freon-12		0.47	ppbv	0.04	AC-058	13-Oct-23
23100117-001	Hexachloro-1,3-butadiene	K, T, U	< 0.4	ppbv	0.4	AC-058	13-Oct-23
23100117-001	Isobutane		8.90	ppbv	0.04	AC-058	13-Oct-23
23100117-001	Isopentane		11.8	ppbv	0.06	AC-058	13-Oct-23
23100117-001	Isoprene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100117-001	Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	13-Oct-23
23100117-001	Isopropylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	13-Oct-23
23100117-001	m,p-Xylene	I	0.33	ppbv	0.06	AC-058	13-Oct-23
23100117-001	m-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23

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23100117-001	m-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	13-Oct-23
23100117-001	Methyl butyl ketone	K, T, U	< 0.6	ppbv	0.6	AC-058	13-Oct-23
23100117-001	Methyl ethyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	13-Oct-23
23100117-001	Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	13-Oct-23
23100117-001	Methyl methacrylate	K, T, U	< 0.12	ppbv	0.12	AC-058	13-Oct-23
23100117-001	Methyl tert butyl ether	K, T, U	< 0.04	ppbv	0.04	AC-058	13-Oct-23
23100117-001	Methylcyclohexane	I	0.07	ppbv	0.03	AC-058	13-Oct-23
23100117-001	Methylcyclopentane		0.33	ppbv	0.08	AC-058	13-Oct-23
23100117-001	Methylene chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	13-Oct-23
23100117-001	n-Butane		17.7	ppbv	0.03	AC-058	13-Oct-23
23100117-001	n-Decane	K, T, U	< 0.09	ppbv	0.09	AC-058	13-Oct-23
23100117-001	n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	13-Oct-23
23100117-001	n-Heptane	I	0.11	ppbv	0.06	AC-058	13-Oct-23
23100117-001	n-Hexane		0.62	ppbv	0.04	AC-058	13-Oct-23
23100117-001	n-Octane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100117-001	n-Pentane		4.49	ppbv	0.06	AC-058	13-Oct-23
23100117-001	n-Propylbenzene	K, T, U	< 0.09	ppbv	0.09	AC-058	13-Oct-23
23100117-001	n-Undecane	K, T, U	< 0.8	ppbv	0.8	AC-058	13-Oct-23
23100117-001	Naphthalene	K, T, U	< 0.4	ppbv	0.4	AC-058	13-Oct-23
23100117-001	n-Nonane	K, T, U	< 0.06	ppbv	0.06	AC-058	13-Oct-23
23100117-001	o-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100117-001	o-Xylene		0.63	ppbv	0.04	AC-058	13-Oct-23
23100117-001	p-Diethylbenzene	I	0.06	ppbv	0.03	AC-058	13-Oct-23
23100117-001	p-Ethyltoluene	K, T, U	< 0.06	ppbv	0.06	AC-058	13-Oct-23
23100117-001	Styrene	K, T, U	< 0.06	ppbv	0.06	AC-058	13-Oct-23

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Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100117-001	Tetrachloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100117-001	Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	13-Oct-23
23100117-001	Toluene	I	0.29	ppbv	0.04	AC-058	13-Oct-23
23100117-001	trans-1,2-Dichloroethylene	K, T, U	< 0.09	ppbv	0.09	AC-058	13-Oct-23
23100117-001	trans-1,3-Dichloropropylene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100117-001	trans-2-Butene	I	0.07	ppbv	0.04	AC-058	13-Oct-23
23100117-001	trans-2-Pentene	I	0.11	ppbv	0.03	AC-058	13-Oct-23
23100117-001	Trichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23
23100117-001	Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	13-Oct-23
23100117-001	Vinyl chloride	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Oct-23

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Revision History

Order ID	Ver	Date	Reason
23100117	01	02-Nov-23	Report created

Methods

Method	Description
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry

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

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

Qualifiers

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

Order Comments

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Sample Comments

Result Comments

Note:

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

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

End of Report