Lakeland Industry & Community Association

SEPTEMBER 2023

Monthly Ambient Air Quality Monitoring Integrated Sampling Report

LICA-202309-INTEGRATED

October 24, 2023

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October 24, 2023

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

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

Enclosed is the September 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
5107 50 Street
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E-mail: monitoring@lica.ca

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

NETWORK STATION SUMMARY

Listing of Air Monitoring Stations and Integrated Sampling Stations

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

Listing of Passive Sampling Stations

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

Listing of Passive Aromatic Compounds Stations

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

List of Contractors who performed the air monitoring activities

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

Monitoring Notes during the Month of September 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).
  - Five samples were collected this month: on September 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).
  - Five samples were collected this month: on September 3, 9, 15, 21 and 27.
  - September 3's sample was conducted during an extreme intense smoke event in the area. The filter was found clogged during the filter removal. The sample volume was affected as a result.
- **Partisols**
  - Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) where applicable, except the September 3's sample, concentration of 0.178 mg/m3**.**

AEPA reference #: 420863. The cause for the exceedance was due to widespread wildfire smoke.
    - The Partisol sampler is programed to collect a 24-hour sample of air every sixth day as per the North American Pollution Surveillance schedule (NAPS).
    - Five samples were collected this month: on September 3, 9, 15, 21 and 27.
    - September 3's sample was conducted during an extreme intense smoke event in the area. The filter was found clogged during the filter removal. The sample volume was affected as a result.
- **Passives**
    - There were no exceedances of the AAAQOs for all monitored parameters at any of the passive stations during this month.
    - The passive sample filters were installed at the stations between August 31 and September 3, and were removed between September 28 and October 2.
    - 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.
    - Station 18: The NMH3 sample media was found missing during the September changeout.
    - Station 15: Analytical results for NO2, O3 and SO2 came out lower than expected, which indicated potential errors during sample collections or lab errors. In order to maintain the meaningful historical data trend, analytical results will be excluded from the historical data analysis.

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)
05-Sept	14:55	0.36

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 are scheduled to be removed by the end of October.

Revisions to Alberta's Ambient Air Quality Data Warehouse

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

Deviations from Authorized Monitoring Methods

There were no deviations from authorized monitoring methods.

Certification

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

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

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

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

COLD LAKE SOUTH STATION

- **VOCs analytical results**

Sample Date	2023-09-03	2023-09-09	2023-09-15	2023-09-21
Canister ID	32187	29028	28912	28942
Maximum Reading (ppbv)	5.1	2.4	1.6	1.7
Parameter	Acetone	Acetone	Acetone	Acetone

Sample Date	2023-09-27
Canister ID	32241
Maximum Reading (ppbv)	2.0
Parameter	Acetone

- **PAHs analytical results**

Sample Date	2023-09-03		2023-09-09		2023-09-15		2023-09-21	
PUF S/N	9801		9802		TE-01		TE-09	
Volume (Vstd m^3)	237.75*		330.39		330.40		330.39	
Maximum Reading	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3
	7.14	30.03	0.84	2.54	0.36	1.09	0.59	1.79
Parameter	Retene		Phenanthrene		Phenanthrene		Phenanthrene	

Sample Date	2023-09-27	
PUF S/N	TE-12	
Volume (Vstd m3)	330.42	
Maximum Reading	ug	ng/m3
	0.53	1.60
Parameter	2-Methylnaphthalene	

* Sampling was conducted during an extreme intense smoke event in the area. The filter was found clogged as a result.

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

Sample Date	2023-09-03		2023-09-09		2023-09-15		2023-09-21	
Filter #	C9700145		AT78793		AT78797		AT78795	
Volume (Vstd m^3)	16.6*		21.2		21.2		21.4	
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	2.960	0.178	0.179	0.008	0.119	0.006	0.436	0.020

Sample Date	2023-09-27	
Filter #	AT78791	
Volume (Vstd m^3)	21.1	
Result	Result (mg)	Result (mg/m^3)
Particulate Matter	0.134	0.006

* Sampling was conducted during an extreme intense smoke event in the area. The filter was found clogged as a result.

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

Sample Date	2023-09-03		2023-09-09		2023-09-15		2023-09-21	
Filter #	C9700146		AT78794		AT78798		AT78796	
Volume (Vstd m^3)	1.85*		2.37		2.36		2.39	
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	0.242	0.131	0.125	0.053	0.155	0.066	0.089	0.037

Sample Date	2023-09-27	
Filter #	AT78792	
Volume (Vstd m^3)	2.35	
Result	Result (mg)	Result (mg/m^3)
PM2.5-10 Mass	0.254	0.108

* Sampling was conducted during an extreme intense smoke event in the area. The filter was found clogged as a result.

- **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	0.15	#13	<0.1	#15	<0.1	#15	<0.1	#15	0.4	#12	0.07	#16
Maximum	2.19	#27	4.5	#10	39.5	#14	1.5	#27	13.4	#17	1.44	#24
Average	0.48	-	1.27	-	24.46	-	0.50	-	3.30	-	0.73	-

Note: Station 15: Analytical results for NO2, O3 and SO2 came out lower than expected, which indicated potential errors during sample collections or lab errors. Data will be excluded from the historical data analysis.

LAC LA BICHE STATION

- **NMHC canister sample analytical results**

Sample Date / Time	**2023-09-05 @15:00**
Canister Triggered Conc.	**0.36 PPM**
Canister ID	32219
Maximum Reading (ppbv)	5.8
Parameter	Acetone

ANALYTICAL SAMPLING RESULTS

COLD LAKE SOUTH STATION

VOCS

Sample Date		2023-09-03	2023-09-09	2023-09-15	2023-09-21	2023-09-27	
Canister ID		32187	29028	28912	28942	32241	
Method		AC-058	AC-058	AC-058	AC-058	AC-058	
Maximum Reading (ppbv)		5.1	2.4	1.6	1.7	2.0	
Parameter		Acetone	Acetone	Acetone	Acetone	Acetone	
Parameter	**AAAQOs (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**RDL (ppbv)**
1,1,1-Trichloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1,2,2-Tetrachloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1,2-Trichloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1-Dichloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1-Dichloroethylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
1,2,3-Trimethylbenzene		< 0.05	0.06	< 0.05	< 0.05	< 0.05	0.05
1,2,4-Trichlorobenzene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.8
1,2,4-Trimethylbenzene		1.03	0.04	< 0.03	< 0.03	0.08	0.05
1,2-Dibromoethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,2-Dichlorobenzene		2.48	0.04	< 0.03	< 0.03	< 0.03	0.03
1,2-Dichloroethane		0.29	< 0.03	< 0.03	< 0.03	< 0.03	0.01
1,2-Dichloropropane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
1,3,5-Trimethylbenzene		1.1	< 0.03	< 0.03	< 0.03	< 0.03	0.02
1,3-Butadiene		0.34	< 0.03	< 0.03	< 0.03	< 0.03	0.02
1,3-Dichlorobenzene		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	0.3
1,4-Dichlorobenzene		1.8	< 0.4	< 0.4	< 0.4	< 0.4	0.4
1,4-Dioxane		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.4
1-Butene		0.8	< 0.06	< 0.06	< 0.06	0.07	0.02
1-Hexene		< 0.07	< 0.07	< 0.07	< 0.07	< 0.07	0.02
1-Pentene		0.15	< 0.03	< 0.03	< 0.03	< 0.03	0.01
2,2,4-Trimethylpentane		< 0.02	0.04	< 0.02	< 0.02	0.15	0.01
2,2-Dimethylbutane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
2,3,4-Trimethylpentane		< 0.02	< 0.02	< 0.02	< 0.02	0.05	0.01
2,3-Dimethylbutane		< 0.09	< 0.09	< 0.09	< 0.09	< 0.09	0.02
2,3-Dimethylpentane		< 0.02	0.04	< 0.02	< 0.02	0.10	0.02
2,4-Dimethylpentane		< 0.03	< 0.03	< 0.03	< 0.03	0.04	0.01
2-Methylheptane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
2-Methylhexane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
2-Methylpentane		0.06	< 0.02	< 0.02	< 0.02	0.07	0.01
3-Methylheptane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02
3-Methylhexane		< 0.02	0.03	< 0.02	< 0.02	0.03	0.02
3-Methylpentane		0.02	0.04	< 0.02	0.02	0.04	0.01
Acetone	2400	5.1	2.4	1.6	1.7	2.0	0.4
Acrolein	1.9	0.6	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Benzene	9.0	2.05	0.12	< 0.03	0.25	0.07	0.01
Benzyl chloride		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Bromodichloromethane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02
Bromoform		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Bromomethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
Carbon disulfide	10	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
Carbon tetrachloride		0.04	0.07	0.04	0.03	0.05	0.01
Chlorobenzene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Chloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Chloroform		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Chloromethane		0.7	0.61	0.44	0.36	0.59	0.02
cis-1,2-Dichloroethene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
cis-1,3-Dichloropropene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.04
cis-2-Butene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02
cis-2-Pentene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Cyclohexane		0.04	0.04	< 0.04	0.07	< 0.04	0.02
Cyclopentane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
Dibromochloromethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
Ethanol		1.1	< 0.5	0.6	0.5	1.4	0.3
Ethyl acetate		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Ethylbenzene	460	0.16	0.04	< 0.03	< 0.03	0.07	0.01
Freon-11		0.22	0.24	0.2	0.19	0.21	0.02
Freon-113		0.04	0.06	0.04	0.04	0.05	0.01
Freon-114		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02

Sample Date		2023-09-03	2023-09-09	2023-09-15	2023-09-21	2023-09-27
Canister ID		32187	29028	28912	28942	32241
Method		AC-058	AC-058	AC-058	AC-058	AC-058
Maximum Reading (ppbv)		5.1	2.4	1.6	1.7	2.0
Parameter		Acetone	Acetone	Acetone	Acetone	Acetone

Parameter	AAAQOs (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	RDL (ppbv)
Freon-12		0.65	0.22	0.36	0.35	0.28	0.02
Hexachloro-1,3-butadiene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.5
Isobutane		0.36	0.25	0.09	0.04	0.25	0.02
Isopentane		0.45	0.52	0.19	0.22	0.32	0.03
Isoprene		0.54	0.55	0.32	0.17	0.07	0.01
Isopropyl alcohol		< 0.3	< 0.3	< 0.3	< 0.3	0.30	0.4
Isopropylbenzene		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.01
m,p-Xylene		0.41	0.07	< 0.04	< 0.04	0.05	0.03
m-Diethylbenzene		1.41	0.07	< 0.02	< 0.02	< 0.02	0.04
m-Ethyltoluene		< 0.03	0.06	< 0.03	< 0.03	< 0.03	0.08
Methyl butyl ketone		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	0.5
Methyl ethyl ketone		0.4	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Methyl isobutyl ketone		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Methyl methacrylate		< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	0.07
Methyl tert butyl ether		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
Methylcyclohexane		0.05	0.03	0.08	0.11	0.06	0.01
Methylcyclopentane		0.07	< 0.05	0.06	0.1	0.1	0.02
Methylene chloride		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
n-Butane		1.12	0.85	0.32	0.28	0.76	0.03
n-Decane		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.06
n-Dodecane		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
n-Heptane		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.01
n-Hexane	5960	0.12	0.06	< 0.03	0.06	0.05	0.01
n-Nonane		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.01
n-Octane		0.03	0.02	< 0.02	< 0.02	< 0.02	0.02
n-Pentane		0.37	0.22	0.11	0.17	0.19	0.1
n-Propylbenzene		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.05
n-Undecane		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.5
Naphthalene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.5
o-Ethyltoluene		< 0.02	0.05	< 0.02	< 0.02	< 0.02	0.01
o-Xylene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
p-Diethylbenzene		< 0.02	0.03	< 0.02	< 0.02	< 0.02	0.04
p-Ethyltoluene		< 0.04	< 0.04	< 0.04	< 0.04	0.05	0.07
Styrene	52.0	0.05	0.05	< 0.04	< 0.04	< 0.04	0.04
Tetrachloroethylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
Tetrahydrofuran		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Toluene	499	1.09	0.09	< 0.03	0.11	0.11	0.01
trans-1,2-Dichloroethylene		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.01
trans-1,3-Dichloropropylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
trans-2-Butene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
trans-2-Pentene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Trichloroethylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
Vinyl acetate		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Vinyl chloride	51	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02

PAHS

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - September 2023

Polycyclic Aromatic Hydrocarbons (PAHs) Results

Sample Date	2023-09-03		2023-09-09		2023-09-15		2023-09-21		2023-09-27	
PUF S/N	9801		9802		TE-01		TE-09		TE-12	
Volume (Vstd m^3)	237.75*		330.39		330.40		330.39		330.42	
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
	7.14	30.03	0.84	2.54	0.36	1.09	0.59	1.79	0.53	1.60
Parameter	Retene		Phenanthrene		Phenanthrene		Phenanthrene		2-Methylnaphthalene	

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	0.38	1.60	0.11	0.33	0.04	0.12	0.02	0.06	0.32	0.97	0.01
2-Methylnaphthalene	0.27	1.14	0.09	0.27	0.02	0.06	0.02	0.06	0.53	1.60	0.01
3-Methylcholanthrene	0.01	0.04	< 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	0.02	0.06	0.01	0.03	0.01
Acenaphthene	0.06	0.25	0.03	0.09	< 0.01	0.00	< 0.01	0.00	0.04	0.12	0.01
Acenaphthylene	< 0.01	0.00	0.07	0.21	< 0.01	0.00	0.01	0.03	0.05	0.15	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	0.04	0.12	0.01	0.03	0.04	0.12	0.01	0.03	0.01
Benzo(a)anthracene	0.05	0.21	0.01	0.03	0.01	0.03	0.08	0.24	< 0.01	0.00	0.01
Benzo(a)pyrene	0.05	0.21	0.01	0.03	0.01	0.03	0.02	0.06	< 0.01	0.00	0.01
Benzo(b,j,k)fluoranthene	0.34	1.43	0.04	0.12	0.12	0.36	0.10	0.30	0.01	0.03	0.01
Benzo(c)phenanthrene	0.03	0.13	< 0.01	0.00	< 0.01	0.00	0.01	0.03	< 0.01	0.00	0.01
Benzo(e)pyrene	0.14	0.59	0.01	0.03	0.01	0.03	0.04	0.12	< 0.01	0.00	0.01
Benzo(ghi)perylene	0.04	0.17	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Chrysene	0.47	1.98	0.02	0.06	0.03	0.09	0.14	0.42	< 0.01	0.00	0.01
Dibenzo(a,h)pyrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Dibenzo(a,i)pyrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Dibenzo(a,l)pyrene	0.01	0.04	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Dibenzo(ah)anthracene	0.03	0.13	< 0.01	0.00	< 0.01	0.00	0.01	0.03	< 0.01	0.00	0.01
Fluoranthene	0.30	1.26	0.12	0.36	0.06	0.18	0.36	1.09	0.05	0.15	0.01
Fluorene	0.81	3.41	0.13	0.39	0.05	0.15	0.10	0.30	0.10	0.30	0.01
Indeno(1,2,3-cd)pyrene	0.09	0.38	0.02	0.06	0.01	0.03	0.01	0.03	< 0.01	0.00	0.01
Naphthalene	0.22	0.93	0.06	0.18	< 0.01	0.00	0.02	0.06	0.23	0.70	0.01
Perylene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01	0.03	< 0.01	0.00	0.01
Phenanthrene	3.54	14.89	0.84	2.54	0.36	1.09	0.59	1.79	0.40	1.21	0.01
Pyrene	0.18	0.76	0.09	0.27	0.05	0.15	0.25	0.76	0.04	0.12	0.01
Retene	7.14	30.03	0.40	1.21	0.21	0.64	0.14	0.42	0.07	0.21	0.01

* Sampling was conducted during an extreme intense smoke event in the area. The filter was found clogged as a result.

PARTISOLS

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - September 2023

Partisol Results - $PM_{2.5}$

Sample Date		2023-09-03		2023-09-09		2023-09-15		2023-09-21		2023-09-27		
Filter #		C9700145		AT78793		AT78797		AT78795		AT78791		
Volume (Vstd m^3)		16.6*		21.2		21.2		21.4		21.1		
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	**2.960**	**0.178**	**0.179**	**0.008**	**0.119**	**0.006**	**0.436**	**0.020**	**0.134**	**0.006**	0.004
PM2.5 Mass in ug/m3			**178.313**		**8.443**		**5.613**		**20.374**		**6.351**	
RDL in ug/m3			**0.241**		**0.189**		**0.189**		**0.187**		**0.190**	

* Sampling was conducted during an extreme intense smoke event in the area. The filter was found clogged as a result.

Sample Date	2023-09-03		2023-09-09		2023-09-15		2023-09-21		2023-09-27		
Filter #	C9700146		AT78794		AT78798		AT78796		AT78792		
Volume (Vstd m^3)	1.85*		2.37		2.36		2.39		2.35		
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	0.242	0.131	0.125	0.053	0.155	0.066	0.089	0.037	0.254	0.108	0.004

PM2.5-10 Mass in ug/m3	130.811	52.743	65.678	37.238	108.085
RDL in ug/m3	2.162	1.688	1.695	1.674	1.702

* Sampling was conducted during an extreme intense smoke event in the area. The filter was found clogged as a result.

PASSIVE SAMPLES

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

September 2023

Passive Results

		H_2S		NO_2		O_3		SO_2		NMH3		HNO3	
	Unit	**ppb**		**ppb**		**ppb**		**ppb**		**ppb**		**ug/m3**	
	Minimum (ppb)	0.15	#13	<0.1	#15	<0.1	#15	<0.1	#15	0.4	#12	0.07	#16
	Maximum (ppb)	2.19	#27	4.5	#10	39.5	#14	1.5	#27	13.4	#17	1.44	#24
	Average (ppb)	0.48	-	1.27	-	24.46	-	0.50	-	3.30	-	0.73	-
No.	**Station**	**Sample**	**Duplicate**	**Sample**	**Duplicate**	**Sample**	**Duplicate**	**Sample**	**Duplicate**	**Sample**	**Duplicate**	**Sample**	**Duplicate**
3	Therien	0.26		0.8		23.2		0.3		4.4		1.00	
4	Flat Lake	-		0.7		31.5		0.4		2.6		0.84	
5	Lake Eliza	0.64		0.6		23.1		0.6		9.1		0.61	
6	Telegraph Creek	-		4.1		23.5		0.5		11.5		1.11	
8	Muriel-Kehewin	-		0.5		25.3		0.3		3.6		0.17	
9	Dupre	-		1.2		26.1		0.4		2.7		0.35	
10	La Corey	0.32		4.5		16.6		0.3		3.9		0.91	
11	Wolf Lake	0.23		0.4		16.6		0.4		0.8	1.0	0.41	0.63
12	Foster Creek	0.17		0.4		20.8		0.6		0.4	1.0	0.60	0.73
13	Primrose	0.15		0.6		17.0		0.5		0.8		0.16	
14	Tamarack	0.68		1.8		39.5		1.3		1.3		0.49	
15	Ardmore	-		<0.1*		<0.1*		<0.1*		2.5		0.90	
16	Frog Lake	0.28		1.0		24.1		0.3		1.5		0.07	
17	Clear Range	0.44		0.9		29.3		0.6		13.4		1.14	
18	Fishing Lake	0.16		0.6		15.9		0.3	0.4	Missing 2		0.80	
19	Beaverdam	-		0.7		30.8		0.4	0.3	1.4		0.35	
22	Cold Lake South (1)	0.26	0.26	1.0		19.7		0.3	0.3	1.0		0.84	
23	Medley-Martineau	-		0.2		14.1		0.4		3.2		<0.04	
24	Fort George	0.32	0.37	2.0	1.9	30.6	27.6	0.3		2.4		1.44	
25	Burnt Lake	Missing 1		-		-		Missing 1		-		-	
26	Mahihkan	0.38		-		-		0.8		1.2		0.67	
27	Mahkeses	2.19		-		-		1.5		2.0		1.20	
28	Town of Bonnyville	1.26		3.0	2.6	26	25.8	0.6		4.0		1.29	
29	Cold Lake South (2)	0.32		0.9		22.5		0.3		1.4		0.79	
32	St. Lina	0.35		0.5		32.2		0.3		2.4		0.78	
42	Lac La Biche	0.28		1.6		29.7		0.2		1.8		0.57	
BLANK -1		-		-		-		-		0.3		<0.04	
BLANK -2		-		-		-		-		0.6		0.70	
BLANK -3		-		-		-		-		0.4		<0.04	
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 Blank (Duplicate): no duplicate sample was taken.

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

4 Missing 2: Sample media is missing

5 Station 15: Analytical results for NO2, O3 and SO2 came out lower than expected, which indicated potential errors during sample collections or lab errors. Data will be excluded from the historical data analysis.

LAC LA BICHE STATION

NMHC CANISTER SAMPLES

Sample Date/Time		**2023-09-05 @15:00**
Canister Triggered Conc.		**0.36**
Canister ID		**32219**
Method		**AC-058**
Maximum Reading		**5.8**
Parameter		**Acetone**

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		0.09	0.08
1,2,4-Trichlorobenzene		< 0.4	0.45
1,2,4-Trimethylbenzene		< 0.04	0.05
1,2-Dibromoethane		< 0.03	0.03
1,2-Dichlorobenzene		< 0.04	0.05
1,2-Dichloroethane		< 0.04	0.05
1,2-Dichloropropane		< 0.04	0.05
1,3,5-Trimethylbenzene		< 0.04	0.05
1,3-Butadiene		< 0.04	0.05
1,3-Dichlorobenzene		< 0.6	0.60
1,4-Dichlorobenzene		< 0.6	0.60
1,4-Dioxane		< 0.8	0.75
1-Butene		< 0.09	0.09
1-Hexene		< 0.10	0.11
1-Pentene		0.05	0.05
2,2,4-Trimethylpentane		< 0.03	0.03
2,2-Dimethylbutane		< 0.03	0.03
2,3,4-Trimethylpentane		< 0.03	0.03
2,3-Dimethylbutane		< 0.14	0.14
2,3-Dimethylpentane		< 0.03	0.03
2,4-Dimethylpentane		< 0.04	0.05
2-Methylheptane		< 0.03	0.03
2-Methylhexane		< 0.04	0.05
2-Methylpentane		< 0.03	0.03
3-Methylheptane		< 0.04	0.05
3-Methylhexane		< 0.03	0.03
3-Methylpentane		< 0.03	0.03
Acetone	2400	5.8	0.60
Acrolein	1.9	< 0.4	0.45
Benzene	9.0	0.2	0.05
Benzyl chloride		< 0.4	0.45
Bromodichloromethane		< 0.04	0.05
Bromoform		< 0.03	0.03
Bromomethane		< 0.03	0.03
Carbon disulfide	10	< 0.03	0.03
Carbon tetrachloride		0.07	0.03
Chlorobenzene		< 0.03	0.03
Chloroethane		< 0.03	0.03
Chloroform		< 0.03	0.03
Chloromethane		0.65	0.06
cis-1,2-Dichloroethene		< 0.03	0.03
cis-1,3-Dichloropropene		< 0.04	0.05
cis-2-Butene		< 0.04	0.05
cis-2-Pentene		< 0.03	0.03
Cyclohexane		< 0.06	0.06
Cyclopentane		< 0.03	0.03
Dibromochloromethane		< 0.03	0.03
Ethanol		0.8	0.75
Ethyl acetate		< 0.4	0.45
Ethylbenzene	460	< 0.04	0.05
Freon-11		0.3	0.03
Freon-113		0.06	0.03

Lac La Biche Site - September 2023

Volatile Organic Compounds (VOCs) Results

Sample Date/Time		**2023-09-05 @15:00**
Canister Triggered Conc.		**0.36**
Canister ID		**32219**
Method		**AC-058**
Maximum Reading		**5.8**
Parameter		**Acetone**

Parameter	AAAQOs	Result (ppbv)	RDL (ppbv)
Freon-114		< 0.04	0.05
Freon-12		0.14	0.05
Hexachloro-1,3-butadiene		< 0.4	0.45
Isobutane		< 0.04	0.05
Isopentane		0.16	0.06
Isoprene		0.13	0.03
Isopropyl alcohol		< 0.4	0.45
Isopropylbenzene		< 0.06	0.06
m,p-Xylene		< 0.06	0.06
m-Diethylbenzene		0.1	0.03
m-Ethyltoluene		0.08	0.05
Methyl butyl ketone		< 0.6	0.60
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	0.05
Methylcyclohexane		< 0.03	0.03
Methylcyclopentane		< 0.08	0.08
Methylene chloride		< 0.4	0.45
n-Butane		0.32	0.03
n-Decane		< 0.09	0.09
n-Dodecane		< 0.4	0.45
n-Heptane		< 0.06	0.06
n-Hexane	5960	0.05	0.05
n-Nonane		< 0.06	0.06
n-Octane		< 0.03	0.03
n-Pentane		0.1	0.06
n-Propylbenzene		< 0.09	0.09
n-Undecane		< 0.8	0.75
Naphthalene		< 0.4	0.45
o-Ethyltoluene		0.07	0.03
o-Xylene		< 0.04	0.05
p-Diethylbenzene		< 0.03	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	0.07	0.05
trans-1,2-Dichloroethylene		< 0.09	0.09
trans-1,3-Dichloropropylene		< 0.03	0.03
trans-2-Butene		< 0.04	0.05
trans-2-Pentene		< 0.03	0.03
Trichloroethylene		< 0.03	0.03
Vinyl acetate		< 0.4	0.45
Vinyl chloride	51	< 0.03	0.03

End of Report

Lakeland Industry & Community Association

SEPTEMBER 2023

Ambient Air Monitoring

Certified Laboratory Analysis Report

LAB-LICA-202309

Operation and Maintenance:
Bureau Veritas Canada

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

October 17, 2023

Table of Contents

Cold Lake South Station

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

Sample ID: 23090097-001 **Priority:** Normal

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

RECEIVED
SEP 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:**	32187
Station ID:	LICA 01	**Installation Date/Time (mst):**	Aug 31, 2023 @ 12:42
Sample ID:	LICA/VOC/CLS/Sep 03, 2023	**Removal Date/Time (mst):**	Sep 6, 2023 @ 19:19

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
September 3, 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: Sampling was conducted during an extremely intense smoke event in the area

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 23090097-002 **Priority:** Normal

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

RECEIVED
SEP 08 2023

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	9801
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Aug 31, 2023 @ 12:43
Field Sample ID:	LICA/PUF/CLS/Sep 03, 2023	**Removal Date/Time:**	Sep 6, 2023 @ 19:22

Sample Data Collection Information

Sample Date:	3-Sep-23	**Average Pressure (mmHg)**	705
Start Time (mst):	0:00	**Average Flow (Q_{std})**	226
End Time (mst):	23:59	**Average Tempurature (°C)**	14.6
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	237.75

Sample Recovery Checklist

	(circle one)		
Flow Rate 230 slpm +/- 0.2 slpm ?	**YES**	NO	A.Y.
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? Sampling was conducted during an extremely intense smoke event in the area

The filter was severely clogged. A.Y.

Deployed By: Alex Yakupov

Collected By: Alex Yakupov

InnoTech ALBERTA

Canister ID: 32187.

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: MAY 04 2023

Evacuated: AUG 01 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA / VOC / CLS / Sep 03, 2023

Sampled By: Alex Yakupov

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

InnoTech ALBERTA

Canister ID: 9501

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 / Sep 3, 2023

Sampled By: Alex Yakupov

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

Sample ID: 23090097-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Sep 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/PUF/CLS/Sep 03, 2023
Matrix: Air Filter
CANISTER ID: 9801
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 03-Sep-23 0:00
DATE RECEIVED: 08-Sep-23
REPORT CREATED: 22-Sep-23
REPORT NUMBER: 23090097
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23090097-002	1-Methylnaphthalene		0.38	ug/Filter	0.01	AC-066	19-Sep-23
23090097-002	2-Methylnaphthalene		0.27	ug/Filter	0.01	AC-066	19-Sep-23
23090097-002	3-Methylcholanthrene		0.01	ug/Filter	0.01	AC-066	19-Sep-23
23090097-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	19-Sep-23
23090097-002	Acenaphthene		0.06	ug/Filter	0.01	AC-066	19-Sep-23
23090097-002	Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	19-Sep-23
23090097-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	19-Sep-23
23090097-002	Anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	19-Sep-23
23090097-002	Benzo(a)anthracene		0.05	ug/Filter	0.01	AC-066	19-Sep-23
23090097-002	Benzo(a)pyrene		0.05	ug/Filter	0.01	AC-066	19-Sep-23
23090097-002	Benzo(b,j,k)fluoranthene		0.34	ug/Filter	0.01	AC-066	19-Sep-23
23090097-002	Benzo(c)phenanthrene		0.03	ug/Filter	0.01	AC-066	19-Sep-23
23090097-002	Benzo(e)pyrene		0.14	ug/Filter	0.01	AC-066	19-Sep-23
23090097-002	Benzo(ghi)perylene		0.04	ug/Filter	0.01	AC-066	19-Sep-23
23090097-002	Chrysene		0.47	ug/Filter	0.01	AC-066	19-Sep-23
23090097-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	19-Sep-23
23090097-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	19-Sep-23

Report certified by: Graham Knox, Admin. & Ops. Supervisor
On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: September 22, 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/Sep 03, 2023	9801	Air Filter	03-Sep-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23090097 **REPORT CREATED:** 22-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23090097-002	Dibenzo(a,l)pyrene		0.01	ug/Filter	0.01	AC-066	19-Sep-23
23090097-002	Dibenzo(ah)anthracene		0.03	ug/Filter	0.01	AC-066	19-Sep-23
23090097-002	Fluoranthene		0.30	ug/Filter	0.01	AC-066	19-Sep-23
23090097-002	Fluorene		0.81	ug/Filter	0.01	AC-066	19-Sep-23
23090097-002	Indeno(1,2,3-cd)pyrene		0.09	ug/Filter	0.01	AC-066	19-Sep-23
23090097-002	Naphthalene		0.22	ug/Filter	0.01	AC-066	19-Sep-23
23090097-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	19-Sep-23
23090097-002	Phenanthrene		3.54	ug/Filter	0.01	AC-066	19-Sep-23
23090097-002	Pyrene		0.18	ug/Filter	0.01	AC-066	19-Sep-23
23090097-002	Retene		7.14	ug/Filter	0.01	AC-066	19-Sep-23

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Sep 03, 2023	32187	Ambient Air	03-Sep-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23090097 **REPORT CREATED:** 22-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23090097-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090097-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090097-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090097-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090097-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090097-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	09-Sep-23
23090097-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	09-Sep-23
23090097-001	1,2,4-Trimethylbenzene		1.03	ppbv	0.03	AC-058	09-Sep-23
23090097-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090097-001	1,2-Dichlorobenzene		2.48	ppbv	0.03	AC-058	09-Sep-23
23090097-001	1,2-Dichloroethane		0.29	ppbv	0.03	AC-058	09-Sep-23
23090097-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	09-Sep-23
23090097-001	1,3,5-Trimethylbenzene		1.10	ppbv	0.03	AC-058	09-Sep-23
23090097-001	1,3-Butadiene		0.34	ppbv	0.03	AC-058	09-Sep-23
23090097-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	09-Sep-23
23090097-001	1,4-Dichlorobenzene		1.8	ppbv	0.4	AC-058	09-Sep-23
23090097-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	09-Sep-23
23090097-001	1-Butene/Isobutylene		0.80	ppbv	0.06	AC-058	09-Sep-23
23090097-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	09-Sep-23
23090097-001	1-Pentene		0.15	ppbv	0.03	AC-058	09-Sep-23
23090097-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090097-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090097-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090097-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	09-Sep-23
23090097-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23

Report certified by: Andrea Conner, Admin Assistant
Date: September 22, 2023

On behalf of: Adam Malcolm, Manager, Chemical Testing

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/Sep 03, 2023	32187	Ambient Air	03-Sep-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23090097 **REPORT CREATED:** 22-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23090097-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	09-Sep-23
23090097-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090097-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	09-Sep-23
23090097-001	2-Methylpentane	I	0.06	ppbv	0.02	AC-058	09-Sep-23
23090097-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	09-Sep-23
23090097-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090097-001	3-Methylpentane	I	0.02	ppbv	0.02	AC-058	09-Sep-23
23090097-001	Acetone		5.1	ppbv	0.4	AC-058	09-Sep-23
23090097-001	Acrolein		0.6	ppbv	0.3	AC-058	09-Sep-23
23090097-001	Benzene		2.05	ppbv	0.03	AC-058	09-Sep-23
23090097-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	09-Sep-23
23090097-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	09-Sep-23
23090097-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090097-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090097-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090097-001	Carbon tetrachloride	I	0.04	ppbv	0.02	AC-058	09-Sep-23
23090097-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090097-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090097-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090097-001	Chloromethane		0.70	ppbv	0.04	AC-058	09-Sep-23
23090097-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090097-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	09-Sep-23
23090097-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	09-Sep-23
23090097-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090097-001	Cyclohexane	I	0.04	ppbv	0.04	AC-058	09-Sep-23

Report certified by: Andrea Conner, Admin Assistant
Date: September 22, 2023

On behalf of: Adam Malcolm, Manager, Chemical Testing

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/Sep 03, 2023	32187	Ambient Air	03-Sep-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23090097 **REPORT CREATED:** 22-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23090097-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090097-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090097-001	Ethanol		1.1	ppbv	0.5	AC-058	09-Sep-23
23090097-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	09-Sep-23
23090097-001	Ethylbenzene	I	0.16	ppbv	0.03	AC-058	09-Sep-23
23090097-001	Freon-11		0.22	ppbv	0.02	AC-058	09-Sep-23
23090097-001	Freon-113	I	0.04	ppbv	0.02	AC-058	09-Sep-23
23090097-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	09-Sep-23
23090097-001	Freon-12		0.65	ppbv	0.03	AC-058	09-Sep-23
23090097-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	09-Sep-23
23090097-001	Isobutane		0.36	ppbv	0.03	AC-058	09-Sep-23
23090097-001	Isopentane		0.45	ppbv	0.04	AC-058	09-Sep-23
23090097-001	Isoprene		0.54	ppbv	0.02	AC-058	09-Sep-23
23090097-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	09-Sep-23
23090097-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	09-Sep-23
23090097-001	m,p-Xylene		0.41	ppbv	0.04	AC-058	09-Sep-23
23090097-001	m-Diethylbenzene		1.41	ppbv	0.02	AC-058	09-Sep-23
23090097-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	09-Sep-23
23090097-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	09-Sep-23
23090097-001	Methyl ethyl ketone	I	0.4	ppbv	0.3	AC-058	09-Sep-23
23090097-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	09-Sep-23
23090097-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	09-Sep-23
23090097-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	09-Sep-23
23090097-001	Methylcyclohexane	I	0.05	ppbv	0.02	AC-058	09-Sep-23
23090097-001	Methylcyclopentane	I	0.07	ppbv	0.05	AC-058	09-Sep-23

Report certified by: Andrea Conner, Admin Assistant
Date: September 22, 2023

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/Sep 03, 2023	32187	Ambient Air	03-Sep-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23090097 **REPORT CREATED:** 22-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23090097-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	09-Sep-23
23090097-001	n-Butane		1.12	ppbv	0.02	AC-058	09-Sep-23
23090097-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	09-Sep-23
23090097-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	09-Sep-23
23090097-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	09-Sep-23
23090097-001	n-Hexane	I	0.12	ppbv	0.03	AC-058	09-Sep-23
23090097-001	n-Octane	I	0.03	ppbv	0.02	AC-058	09-Sep-23
23090097-001	n-Pentane		0.37	ppbv	0.04	AC-058	09-Sep-23
23090097-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	09-Sep-23
23090097-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	09-Sep-23
23090097-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	09-Sep-23
23090097-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	09-Sep-23
23090097-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090097-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	09-Sep-23
23090097-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090097-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	09-Sep-23
23090097-001	Styrene	I	0.05	ppbv	0.04	AC-058	09-Sep-23
23090097-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090097-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	09-Sep-23
23090097-001	Toluene		1.09	ppbv	0.03	AC-058	09-Sep-23
23090097-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	09-Sep-23
23090097-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090097-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	09-Sep-23
23090097-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090097-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23

Report certified by: Andrea Conner, Admin Assistant
Date: September 22, 2023

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/Sep 03, 2023	32187	Ambient Air	03-Sep-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23090097 **REPORT CREATED:** 22-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23090097-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	09-Sep-23
23090097-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23

Report certified by: Andrea Conner, Admin Assistant
Date: September 22, 2023

On behalf of: Adam Malcolm, Manager, Chemical Testing

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

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Revision History

Order ID	Ver	Date	Reason
23090097	01	22-Sep-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
AC-061	Spectrometry (ICP-MS)
AC-065	Trace Metal Analysis for Biological Samples by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)
AC-074	Analysis of Naphthenic Acids in Water by HPLC-Orbitrap-MS analysis
AC-079	Pesticides in Water
AC-080	Alkylated PAH in Soil and Sediment
NA-006	Alkylated PAH in Water (SPE Extraction)
NA-024	Determination of BTEX, F1 Hydrocarbons and F2, F3 and F4 Hydrocarbons in Water

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Qualifiers

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

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Order Comments

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Sample Comments

23090097-002

Client Notes: Sampling was conducted during an extremely intense smoke event in the area. The filter was severely clogged.

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: 23090142-001 **Priority:** Normal

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

RECEIVED
SEP 13 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:**	29028
Station ID:	LICA 01	**Installation Date/Time (mst):**	Sep 06, 2023 @ 19:31
Sample ID:	LICA/VOC/CLS/Sep 09, 2023	**Removal Date/Time (mst):**	Sep 11, 2023 @ 19:35

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
September 9, 2023	0:00	23:59	24

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.1	19.2

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: 23090142-001 **Priority:** Normal

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

RECEIVED
SEP 13 2023

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	9802
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Sep 06, 2023 @ 19:32
Field Sample ID:	LICA/PUF/CLS/Sep 09, 2023	**Removal Date/Time:**	Sep 11, 2023 @ 19:37

Sample Data Collection Information

Sample Date:	9-Sep-23	**Average Pressure (mmHg)**	719
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	17.1
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.39

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: 23090142-001 **Priority:** Normal

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

InnoTech ALBERTA

Canister ID: 9802

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/Sep 9, 20

Sampled By: Alex Yakupov

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

InnoTech ALBERTA

Canister ID: 29028

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ on: JUN 2 2 2023

Evacuated: AUG 0 1 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Sep 09, 2023

Sampled By: Alex Yakupov

Starting Vacuum:	End Pressure:
-27.1 "Hg	+19.2 "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/Sep 09, 2023
Matrix: Air Filter
CANISTER ID: 9802
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 09-Sep-23 0:00
DATE RECEIVED: 13-Sep-23
REPORT CREATED: 19-Oct-23
REPORT NUMBER: 23090142
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23090142-002	1-Methylnaphthalene		0.11	ug/Filter	0.01	AC-066	17-Oct-23
23090142-002	2-Methylnaphthalene		0.09	ug/Filter	0.01	AC-066	17-Oct-23
23090142-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090142-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090142-002	Acenaphthene		0.03	ug/Filter	0.01	AC-066	17-Oct-23
23090142-002	Acenaphthylene		0.07	ug/Filter	0.01	AC-066	17-Oct-23
23090142-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090142-002	Anthracene		0.04	ug/Filter	0.01	AC-066	17-Oct-23
23090142-002	Benzo(a)anthracene		0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090142-002	Benzo(a)pyrene		0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090142-002	Benzo(b,j,k)fluoranthene		0.04	ug/Filter	0.01	AC-066	17-Oct-23
23090142-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090142-002	Benzo(e)pyrene		0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090142-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090142-002	Chrysene		0.02	ug/Filter	0.01	AC-066	17-Oct-23
23090142-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090142-002	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: October 19, 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-202309

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Sep 09, 2023	9802	Air Filter	09-Sep-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23090142 **REPORT CREATED:** 19-Oct-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23090142-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090142-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090142-002	Fluoranthene		0.12	ug/Filter	0.01	AC-066	17-Oct-23
23090142-002	Fluorene		0.13	ug/Filter	0.01	AC-066	17-Oct-23
23090142-002	Indeno(1,2,3-cd)pyrene		0.02	ug/Filter	0.01	AC-066	17-Oct-23
23090142-002	Naphthalene		0.06	ug/Filter	0.01	AC-066	17-Oct-23
23090142-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090142-002	Phenanthrene		0.84	ug/Filter	0.01	AC-066	17-Oct-23
23090142-002	Pyrene		0.09	ug/Filter	0.01	AC-066	17-Oct-23
23090142-002	Retene		0.40	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: October 19, 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/Sep 09, 2023	29028	Ambient Air	09-Sep-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23090142 **REPORT CREATED:** 19-Oct-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23090142-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Sep-23
23090142-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Sep-23
23090142-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Sep-23
23090142-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Sep-23
23090142-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Sep-23
23090142-001	1,2,3-Trimethylbenzene	I	0.06	ppbv	0.05	AC-058	15-Sep-23
23090142-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Sep-23
23090142-001	1,2,4-Trimethylbenzene	I	0.04	ppbv	0.03	AC-058	15-Sep-23
23090142-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Sep-23
23090142-001	1,2-Dichlorobenzene	I	0.04	ppbv	0.03	AC-058	15-Sep-23
23090142-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090142-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090142-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090142-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090142-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	15-Sep-23
23090142-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	15-Sep-23
23090142-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	15-Sep-23
23090142-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	15-Sep-23
23090142-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	15-Sep-23
23090142-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090142-001	2,2,4-Trimethylpentane	I	0.04	ppbv	0.02	AC-058	15-Sep-23
23090142-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Sep-23
23090142-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Sep-23
23090142-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	15-Sep-23
23090142-001	2,3-Dimethylpentane	I	0.04	ppbv	0.02	AC-058	15-Sep-23

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

Date: October 19, 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-202309

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Sep 09, 2023	29028	Ambient Air	09-Sep-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23090142 **REPORT CREATED:** 19-Oct-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23090142-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090142-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Sep-23
23090142-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090142-001	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Sep-23
23090142-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090142-001	3-Methylhexane	I	0.03	ppbv	0.02	AC-058	15-Sep-23
23090142-001	3-Methylpentane	I	0.04	ppbv	0.02	AC-058	15-Sep-23
23090142-001	Acetone		2.4	ppbv	0.4	AC-058	15-Sep-23
23090142-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Sep-23
23090142-001	Benzene	I	0.12	ppbv	0.03	AC-058	15-Sep-23
23090142-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Sep-23
23090142-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090142-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Sep-23
23090142-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Sep-23
23090142-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Sep-23
23090142-001	Carbon tetrachloride	I	0.07	ppbv	0.02	AC-058	15-Sep-23
23090142-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Sep-23
23090142-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Sep-23
23090142-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Sep-23
23090142-001	Chloromethane		0.61	ppbv	0.04	AC-058	15-Sep-23
23090142-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Sep-23
23090142-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090142-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090142-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Sep-23
23090142-001	Cyclohexane	I	0.04	ppbv	0.04	AC-058	15-Sep-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/Sep 09, 2023	29028	Ambient Air	09-Sep-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23090142 **REPORT CREATED:** 19-Oct-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23090142-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Sep-23
23090142-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Sep-23
23090142-001	Ethanol	K, T, U	< 0.5	ppbv	0.5	AC-058	15-Sep-23
23090142-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Sep-23
23090142-001	Ethylbenzene	I	0.04	ppbv	0.03	AC-058	15-Sep-23
23090142-001	Freon-11		0.24	ppbv	0.02	AC-058	15-Sep-23
23090142-001	Freon-113	I	0.06	ppbv	0.02	AC-058	15-Sep-23
23090142-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090142-001	Freon-12		0.22	ppbv	0.03	AC-058	15-Sep-23
23090142-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Sep-23
23090142-001	Isobutane		0.25	ppbv	0.03	AC-058	15-Sep-23
23090142-001	Isopentane		0.52	ppbv	0.04	AC-058	15-Sep-23
23090142-001	Isoprene		0.55	ppbv	0.02	AC-058	15-Sep-23
23090142-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Sep-23
23090142-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	15-Sep-23
23090142-001	m,p-Xylene	I	0.07	ppbv	0.04	AC-058	15-Sep-23
23090142-001	m-Diethylbenzene	I	0.07	ppbv	0.02	AC-058	15-Sep-23
23090142-001	m-Ethyltoluene	I	0.06	ppbv	0.03	AC-058	15-Sep-23
23090142-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	15-Sep-23
23090142-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Sep-23
23090142-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Sep-23
23090142-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	15-Sep-23
23090142-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090142-001	Methylcyclohexane	I	0.03	ppbv	0.02	AC-058	15-Sep-23
23090142-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	15-Sep-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/Sep 09, 2023	29028	Ambient Air	09-Sep-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23090142 **REPORT CREATED:** 19-Oct-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23090142-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Sep-23
23090142-001	n-Butane		0.85	ppbv	0.02	AC-058	15-Sep-23
23090142-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	15-Sep-23
23090142-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Sep-23
23090142-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	15-Sep-23
23090142-001	n-Hexane	I	0.06	ppbv	0.03	AC-058	15-Sep-23
23090142-001	n-Octane	I	0.02	ppbv	0.02	AC-058	15-Sep-23
23090142-001	n-Pentane		0.22	ppbv	0.04	AC-058	15-Sep-23
23090142-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	15-Sep-23
23090142-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	15-Sep-23
23090142-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Sep-23
23090142-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	15-Sep-23
23090142-001	o-Ethyltoluene	I	0.05	ppbv	0.02	AC-058	15-Sep-23
23090142-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090142-001	p-Diethylbenzene	I	0.03	ppbv	0.02	AC-058	15-Sep-23
23090142-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	15-Sep-23
23090142-001	Styrene	I	0.05	ppbv	0.04	AC-058	15-Sep-23
23090142-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Sep-23
23090142-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Sep-23
23090142-001	Toluene	I	0.09	ppbv	0.03	AC-058	15-Sep-23
23090142-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	15-Sep-23
23090142-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Sep-23
23090142-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090142-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Sep-23
23090142-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Sep-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/Sep 09, 2023	29028	Ambient Air	09-Sep-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23090142 **REPORT CREATED:** 19-Oct-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23090142-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Sep-23
23090142-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Sep-23

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

Date: October 19, 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-202309

Revision History

Order ID	Ver	Date	Reason
23090142	01	19-Oct-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: 23090256-001 Priority: Normal

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

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SEP 21 2023
6167

Bureau Veritas

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

Client:	LICA	**Sampler S/N:**	
Location:	Cold Lake South	**Canister ID:**	28912
Station ID:	LICA 01	**Installation Date/Time (mst):**	Sep 11, 2023 @ 19:46
Sample ID:	LICA/VOC/CLS/Sep 15, 2023	**Removal Date/Time (mst):**	Sep 20, 2023 @ 10:03

Date and Time Information

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

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	**Final Pressure (psi)**
-27.1	18.1

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: 23090256-002 **Priority:** Normal

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

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TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	TE-01
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Sep 11, 2023 @ 19:47
Field Sample ID:	LICA/PUF/CLS/Sep 15, 2023	**Removal Date/Time:**	Sep 20, 2023 @ 10:05

Sample Data Collection Information

Sample Date:	15-Sep-23	**Average Pressure (mmHg)**	713
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	14.7
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.4

Sample Recovery Checklist

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

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

Sample ID: 23090256-001 **Priority:** Normal

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

InnoTech ALBERTA

Canister ID: TE-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/Sep 15, 202.

Sampled By: Alex Yakupov

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

InnoTech ALBERTA

Canister ID: 28912

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: CSQ on: JUN 28 2023

Evacuated: AUG 01 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

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

Sampled By: Alex Yakupov

Starting Vacuum:	End Vacuum:
-27.1 "Hg	-18.1 "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/Sep 15, 2023
Matrix: Air Filter
CANISTER ID: TE-01
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 15-Sep-23 0:00
DATE RECEIVED: 21-Sep-23
REPORT CREATED: 19-Oct-23
REPORT NUMBER: 23090256
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23090256-002	1-Methylnaphthalene		0.04	ug/Filter	0.01	AC-066	17-Oct-23
23090256-002	2-Methylnaphthalene		0.02	ug/Filter	0.01	AC-066	17-Oct-23
23090256-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090256-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090256-002	Acenaphthene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090256-002	Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090256-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090256-002	Anthracene		0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090256-002	Benzo(a)anthracene		0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090256-002	Benzo(a)pyrene		0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090256-002	Benzo(b,j,k)fluoranthene		0.12	ug/Filter	0.01	AC-066	17-Oct-23
23090256-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090256-002	Benzo(e)pyrene		0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090256-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090256-002	Chrysene		0.03	ug/Filter	0.01	AC-066	17-Oct-23
23090256-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090256-002	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: October 19, 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-202309

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Sep 15, 2023	TE-01	Air Filter	15-Sep-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23090256 **REPORT CREATED:** 19-Oct-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23090256-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090256-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090256-002	Fluoranthene		0.06	ug/Filter	0.01	AC-066	17-Oct-23
23090256-002	Fluorene		0.05	ug/Filter	0.01	AC-066	17-Oct-23
23090256-002	Indeno(1,2,3-cd)pyrene		0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090256-002	Naphthalene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090256-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090256-002	Phenanthrene		0.36	ug/Filter	0.01	AC-066	17-Oct-23
23090256-002	Pyrene		0.05	ug/Filter	0.01	AC-066	17-Oct-23
23090256-002	Retene		0.21	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: October 19, 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/Sep 15, 2023	28912	Ambient Air	15-Sep-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23090256 **REPORT CREATED:** 19-Oct-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23090256-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	23-Sep-23
23090256-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	23-Sep-23
23090256-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	23-Sep-23
23090256-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	23-Sep-23
23090256-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	23-Sep-23
23090256-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	23-Sep-23
23090256-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	23-Sep-23
23090256-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	23-Sep-23
23090256-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	23-Sep-23
23090256-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	23-Sep-23
23090256-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	23-Sep-23
23090256-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	23-Sep-23
23090256-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	23-Sep-23
23090256-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	23-Sep-23
23090256-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	23-Sep-23
23090256-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	23-Sep-23
23090256-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	23-Sep-23
23090256-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	23-Sep-23
23090256-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	23-Sep-23
23090256-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	23-Sep-23
23090256-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	23-Sep-23
23090256-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	23-Sep-23
23090256-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	23-Sep-23
23090256-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	23-Sep-23
23090256-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	23-Sep-23

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

Date: October 19, 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-202309

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Sep 15, 2023	28912	Ambient Air	15-Sep-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23090256 **REPORT CREATED:** 19-Oct-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23090256-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	23-Sep-23
23090256-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	23-Sep-23
23090256-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	23-Sep-23
23090256-001	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	23-Sep-23
23090256-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	23-Sep-23
23090256-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	23-Sep-23
23090256-001	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	23-Sep-23
23090256-001	Acetone		1.6	ppbv	0.4	AC-058	23-Sep-23
23090256-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	23-Sep-23
23090256-001	Benzene	K, T, U	< 0.03	ppbv	0.03	AC-058	23-Sep-23
23090256-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	23-Sep-23
23090256-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	23-Sep-23
23090256-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	23-Sep-23
23090256-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	23-Sep-23
23090256-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	23-Sep-23
23090256-001	Carbon tetrachloride	I	0.04	ppbv	0.02	AC-058	23-Sep-23
23090256-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	23-Sep-23
23090256-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	23-Sep-23
23090256-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	23-Sep-23
23090256-001	Chloromethane		0.44	ppbv	0.04	AC-058	23-Sep-23
23090256-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	23-Sep-23
23090256-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	23-Sep-23
23090256-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	23-Sep-23
23090256-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	23-Sep-23
23090256-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	23-Sep-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/Sep 15, 2023	28912	Ambient Air	15-Sep-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23090256 **REPORT CREATED:** 19-Oct-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23090256-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	23-Sep-23
23090256-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	23-Sep-23
23090256-001	Ethanol	I	0.6	ppbv	0.5	AC-058	23-Sep-23
23090256-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	23-Sep-23
23090256-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	23-Sep-23
23090256-001	Freon-11		0.20	ppbv	0.02	AC-058	23-Sep-23
23090256-001	Freon-113	I	0.04	ppbv	0.02	AC-058	23-Sep-23
23090256-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	23-Sep-23
23090256-001	Freon-12		0.36	ppbv	0.03	AC-058	23-Sep-23
23090256-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	23-Sep-23
23090256-001	Isobutane	I	0.09	ppbv	0.03	AC-058	23-Sep-23
23090256-001	Isopentane		0.19	ppbv	0.04	AC-058	23-Sep-23
23090256-001	Isoprene		0.32	ppbv	0.02	AC-058	23-Sep-23
23090256-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	23-Sep-23
23090256-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	23-Sep-23
23090256-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	23-Sep-23
23090256-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	23-Sep-23
23090256-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	23-Sep-23
23090256-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	23-Sep-23
23090256-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	23-Sep-23
23090256-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	23-Sep-23
23090256-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	23-Sep-23
23090256-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	23-Sep-23
23090256-001	Methylcyclohexane	I	0.08	ppbv	0.02	AC-058	23-Sep-23
23090256-001	Methylcyclopentane	I	0.06	ppbv	0.05	AC-058	23-Sep-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/Sep 15, 2023	28912	Ambient Air	15-Sep-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23090256 **REPORT CREATED:** 19-Oct-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23090256-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	23-Sep-23
23090256-001	n-Butane		0.32	ppbv	0.02	AC-058	23-Sep-23
23090256-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	23-Sep-23
23090256-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	23-Sep-23
23090256-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	23-Sep-23
23090256-001	n-Hexane	K, T, U	< 0.03	ppbv	0.03	AC-058	23-Sep-23
23090256-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	23-Sep-23
23090256-001	n-Pentane		0.11	ppbv	0.04	AC-058	23-Sep-23
23090256-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	23-Sep-23
23090256-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	23-Sep-23
23090256-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	23-Sep-23
23090256-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	23-Sep-23
23090256-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	23-Sep-23
23090256-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	23-Sep-23
23090256-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	23-Sep-23
23090256-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	23-Sep-23
23090256-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	23-Sep-23
23090256-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	23-Sep-23
23090256-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	23-Sep-23
23090256-001	Toluene	K, T, U	< 0.03	ppbv	0.03	AC-058	23-Sep-23
23090256-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	23-Sep-23
23090256-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	23-Sep-23
23090256-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	23-Sep-23
23090256-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	23-Sep-23
23090256-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	23-Sep-23

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

Date: October 19, 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/Sep 15, 2023	28912	Ambient Air	15-Sep-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23090256 **REPORT CREATED:** 19-Oct-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23090256-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	23-Sep-23
23090256-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	23-Sep-23

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

Date: October 19, 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-202309

Revision History

Order ID	Ver	Date	Reason
23090256	01	19-Oct-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

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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: 23090311-001 Priority: Normal

AIR FCD-01321/2

RECEIVED
SEP 27 2023

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

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	TE-09
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Sep 20, 2023 @ 10:17
Field Sample ID:	LICA/PUF/CLS/Sep 21, 2023	**Removal Date/Time:**	Sep 25, 2023 @ 18:55

Sample Data Collection Information

Sample Date:	21-Sep-23	**Average Pressure (mmHg)**	716
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	13.2
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.39

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

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:**	28942
Station ID:	LICA 01	**Installation Date/Time (mst):**	Sep 20, 2023 @ 10:16
Sample ID:	LICA/VOC/CLS/Sep 21, 2023	**Removal Date/Time (mst):**	Sep 25, 2023 @ 18:52

Date and Time Information

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

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.1	18.2

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: 23090311-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Sep 21, 2023

RECEIVED
SEP 27 2023

InnoTech ALBERTA

Canister ID: TE-09

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/Sep 21, 202

Sampled By: Alex Yakupov

Starting Vacuum: _____ "Hg

End Vacuum: _____ "Hg/ psig

InnoTech ALBERTA

Canister ID: 28942

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: 152 on: JUL 2 8 2023

Evacuated: AUG 0 8 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

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

Sampled By: Alex Yakupov

Starting Vacuum: -27.1 "Hg

End Vacuum: MW +18.2 "Hg/psig

Sample ID: 23090311-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Sep 21, 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/Sep 21, 2023
Matrix: Air Filter
CANISTER ID: TE-09
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 21-Sep-23 0:00
DATE RECEIVED: 27-Sep-23
REPORT CREATED: 19-Oct-23
REPORT NUMBER: 23090311
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23090311-002	1-Methylnaphthalene		0.02	ug/Filter	0.01	AC-066	17-Oct-23
23090311-002	2-Methylnaphthalene		0.02	ug/Filter	0.01	AC-066	17-Oct-23
23090311-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090311-002	7,12-Dimethylbenz(a)anthracene		0.02	ug/Filter	0.01	AC-066	17-Oct-23
23090311-002	Acenaphthene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090311-002	Acenaphthylene		0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090311-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090311-002	Anthracene		0.04	ug/Filter	0.01	AC-066	17-Oct-23
23090311-002	Benzo(a)anthracene		0.08	ug/Filter	0.01	AC-066	17-Oct-23
23090311-002	Benzo(a)pyrene		0.02	ug/Filter	0.01	AC-066	17-Oct-23
23090311-002	Benzo(b,j,k)fluoranthene		0.10	ug/Filter	0.01	AC-066	17-Oct-23
23090311-002	Benzo(c)phenanthrene		0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090311-002	Benzo(e)pyrene		0.04	ug/Filter	0.01	AC-066	17-Oct-23
23090311-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090311-002	Chrysene		0.14	ug/Filter	0.01	AC-066	17-Oct-23
23090311-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090311-002	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: October 19, 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-202309

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Sep 21, 2023	TE-09	Air Filter	21-Sep-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23090311 **REPORT CREATED:** 19-Oct-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23090311-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090311-002	Dibenzo(ah)anthracene		0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090311-002	Fluoranthene		0.36	ug/Filter	0.01	AC-066	17-Oct-23
23090311-002	Fluorene		0.10	ug/Filter	0.01	AC-066	17-Oct-23
23090311-002	Indeno(1,2,3-cd)pyrene		0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090311-002	Naphthalene		0.02	ug/Filter	0.01	AC-066	17-Oct-23
23090311-002	Perylene		0.01	ug/Filter	0.01	AC-066	17-Oct-23
23090311-002	Phenanthrene		0.59	ug/Filter	0.01	AC-066	17-Oct-23
23090311-002	Pyrene		0.25	ug/Filter	0.01	AC-066	17-Oct-23
23090311-002	Retene		0.14	ug/Filter	0.01	AC-066	17-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/Sep 21, 2023	28942	Ambient Air	21-Sep-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23090311 **REPORT CREATED:** 19-Oct-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23090311-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Sep-23
23090311-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Sep-23
23090311-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Sep-23
23090311-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Sep-23
23090311-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Sep-23
23090311-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	29-Sep-23
23090311-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Sep-23
23090311-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Sep-23
23090311-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Sep-23
23090311-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Sep-23
23090311-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Sep-23
23090311-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Sep-23
23090311-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Sep-23
23090311-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Sep-23
23090311-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Sep-23
23090311-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Sep-23
23090311-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	29-Sep-23
23090311-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	29-Sep-23
23090311-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	29-Sep-23
23090311-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Sep-23
23090311-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Sep-23
23090311-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Sep-23
23090311-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Sep-23
23090311-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	29-Sep-23
23090311-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Sep-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/Sep 21, 2023	28942	Ambient Air	21-Sep-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23090311 **REPORT CREATED:** 19-Oct-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23090311-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Sep-23
23090311-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Sep-23
23090311-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Sep-23
23090311-001	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Sep-23
23090311-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Sep-23
23090311-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Sep-23
23090311-001	3-Methylpentane	I	0.02	ppbv	0.02	AC-058	29-Sep-23
23090311-001	Acetone		1.7	ppbv	0.4	AC-058	29-Sep-23
23090311-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Sep-23
23090311-001	Benzene		0.25	ppbv	0.03	AC-058	29-Sep-23
23090311-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Sep-23
23090311-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Sep-23
23090311-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Sep-23
23090311-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Sep-23
23090311-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Sep-23
23090311-001	Carbon tetrachloride	I	0.03	ppbv	0.02	AC-058	29-Sep-23
23090311-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Sep-23
23090311-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Sep-23
23090311-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Sep-23
23090311-001	Chloromethane		0.36	ppbv	0.04	AC-058	29-Sep-23
23090311-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Sep-23
23090311-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Sep-23
23090311-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Sep-23
23090311-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Sep-23
23090311-001	Cyclohexane	I	0.07	ppbv	0.04	AC-058	29-Sep-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/Sep 21, 2023	28942	Ambient Air	21-Sep-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23090311 **REPORT CREATED:** 19-Oct-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23090311-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Sep-23
23090311-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Sep-23
23090311-001	Ethanol	I	0.5	ppbv	0.5	AC-058	29-Sep-23
23090311-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Sep-23
23090311-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Sep-23
23090311-001	Freon-11		0.19	ppbv	0.02	AC-058	29-Sep-23
23090311-001	Freon-113	I	0.04	ppbv	0.02	AC-058	29-Sep-23
23090311-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Sep-23
23090311-001	Freon-12		0.35	ppbv	0.03	AC-058	29-Sep-23
23090311-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Sep-23
23090311-001	Isobutane	I	0.04	ppbv	0.03	AC-058	29-Sep-23
23090311-001	Isopentane		0.22	ppbv	0.04	AC-058	29-Sep-23
23090311-001	Isoprene		0.17	ppbv	0.02	AC-058	29-Sep-23
23090311-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Sep-23
23090311-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Sep-23
23090311-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Sep-23
23090311-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Sep-23
23090311-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Sep-23
23090311-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Sep-23
23090311-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Sep-23
23090311-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Sep-23
23090311-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	29-Sep-23
23090311-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Sep-23
23090311-001	Methylcyclohexane		0.11	ppbv	0.02	AC-058	29-Sep-23
23090311-001	Methylcyclopentane	I	0.10	ppbv	0.05	AC-058	29-Sep-23

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

Date: October 19, 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/Sep 21, 2023	28942	Ambient Air	21-Sep-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23090311 **REPORT CREATED:** 19-Oct-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23090311-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Sep-23
23090311-001	n-Butane		0.28	ppbv	0.02	AC-058	29-Sep-23
23090311-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	29-Sep-23
23090311-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Sep-23
23090311-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Sep-23
23090311-001	n-Hexane	I	0.06	ppbv	0.03	AC-058	29-Sep-23
23090311-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Sep-23
23090311-001	n-Pentane		0.17	ppbv	0.04	AC-058	29-Sep-23
23090311-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	29-Sep-23
23090311-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	29-Sep-23
23090311-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Sep-23
23090311-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Sep-23
23090311-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Sep-23
23090311-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Sep-23
23090311-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Sep-23
23090311-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Sep-23
23090311-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Sep-23
23090311-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Sep-23
23090311-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Sep-23
23090311-001	Toluene	I	0.11	ppbv	0.03	AC-058	29-Sep-23
23090311-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	29-Sep-23
23090311-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Sep-23
23090311-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Sep-23
23090311-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Sep-23
23090311-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Sep-23

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

Date: October 19, 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/Sep 21, 2023	28942	Ambient Air	21-Sep-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23090311 **REPORT CREATED:** 19-Oct-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23090311-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Sep-23
23090311-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Sep-23

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

Date: October 19, 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-202309

Revision History

Order ID	Ver	Date	Reason
23090311	01	19-Oct-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: 23100029-001 **Priority:** Normal

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

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OCT 04 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:**	32241
Station ID:	LICA 01	**Installation Date/Time (mst):**	Sep 25, 2023 @ 19:11
Sample ID:	LICA/VOC/CLS/Sep 27, 2023	**Removal Date/Time (mst):**	Sep 29, 2023 @ 09:51

Date and Time Information

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

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.5	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: 23100029-002 **Priority:** Normal

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

RECEIVED
OCT 04 2023

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	TE-12
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Sep 25, 2023 @ 19:13
Field Sample ID:	LICA/PUF/CLS/Sep 27, 2023	**Removal Date/Time:**	Sep 29, 2023 @ 10:03

Sample Data Collection Information

Sample Date:	27-Sep-23	**Average Pressure (mmHg)**	706
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	14.5
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: 23100029-002 **Priority:** Normal

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

InnoTech ALBERTA

Canister ID: 32241

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ on: AUG 18 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/Sep 27, 2023

Sampled By: Alex Yakupov

Starting Vacuum:	End Vacuum:
-27.5 "Hg	+19.1 "Hg/psig

SMF

InnoTech ALBERTA

Canister ID: TE-12

This cleaned canister meets or exceeds TO-15 Method Specifications

PUF

Proofed by: _____ on: _____

Evacuated: _____ Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/PUF/CLS/Sep 27, 2023

Sampled By: Alex Yakupov

Starting Vacuum:	End Pressure:
— "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/Sep 27, 2023
Matrix: Air Filter
CANISTER ID: TE-12
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 27-Sep-23 0:00
DATE RECEIVED: 05-Oct-23
REPORT CREATED: 23-Oct-23
REPORT NUMBER: 23100029
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100029-002	1-Methylnaphthalene		0.32	ug/Filter	0.01	AC-066	17-Oct-23
23100029-002	2-Methylnaphthalene		0.53	ug/Filter	0.01	AC-066	17-Oct-23
23100029-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23100029-002	7,12-Dimethylbenz(a)anthracene		0.01	ug/Filter	0.01	AC-066	17-Oct-23
23100029-002	Acenaphthene		0.04	ug/Filter	0.01	AC-066	17-Oct-23
23100029-002	Acenaphthylene		0.05	ug/Filter	0.01	AC-066	17-Oct-23
23100029-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23100029-002	Anthracene		0.01	ug/Filter	0.01	AC-066	17-Oct-23
23100029-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23100029-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23100029-002	Benzo(b,j,k)fluoranthene		0.01	ug/Filter	0.01	AC-066	17-Oct-23
23100029-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23100029-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23100029-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23100029-002	Chrysene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23100029-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23100029-002	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: October 23, 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-202309

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Sep 27, 2023	TE-12	Air Filter	27-Sep-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23100029 **REPORT CREATED:** 23-Oct-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100029-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23100029-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23100029-002	Fluoranthene		0.05	ug/Filter	0.01	AC-066	17-Oct-23
23100029-002	Fluorene		0.10	ug/Filter	0.01	AC-066	17-Oct-23
23100029-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23100029-002	Naphthalene		0.23	ug/Filter	0.01	AC-066	17-Oct-23
23100029-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	17-Oct-23
23100029-002	Phenanthrene		0.40	ug/Filter	0.01	AC-066	17-Oct-23
23100029-002	Pyrene		0.04	ug/Filter	0.01	AC-066	17-Oct-23
23100029-002	Retene		0.07	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: October 23, 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-202309

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Sep 27, 2023	32241	Ambient Air	27-Sep-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23100029 **REPORT CREATED:** 23-Oct-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100029-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-23
23100029-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-23
23100029-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-23
23100029-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-23
23100029-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-23
23100029-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Oct-23
23100029-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Oct-23
23100029-001	1,2,4-Trimethylbenzene	I	0.08	ppbv	0.03	AC-058	07-Oct-23
23100029-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-23
23100029-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Oct-23
23100029-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Oct-23
23100029-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Oct-23
23100029-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Oct-23
23100029-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Oct-23
23100029-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	07-Oct-23
23100029-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	07-Oct-23
23100029-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	07-Oct-23
23100029-001	1-Butene/Isobutylene	I	0.07	ppbv	0.06	AC-058	07-Oct-23
23100029-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	07-Oct-23
23100029-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Oct-23
23100029-001	2,2,4-Trimethylpentane		0.15	ppbv	0.02	AC-058	07-Oct-23
23100029-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-23
23100029-001	2,3,4-Trimethylpentane	I	0.05	ppbv	0.02	AC-058	07-Oct-23
23100029-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	07-Oct-23
23100029-001	2,3-Dimethylpentane		0.10	ppbv	0.02	AC-058	07-Oct-23

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

Date: October 23, 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-202309

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Sep 27, 2023	32241	Ambient Air	27-Sep-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23100029 **REPORT CREATED:** 23-Oct-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100029-001	2,4-Dimethylpentane	I	0.04	ppbv	0.03	AC-058	07-Oct-23
23100029-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-23
23100029-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Oct-23
23100029-001	2-Methylpentane	I	0.07	ppbv	0.02	AC-058	07-Oct-23
23100029-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Oct-23
23100029-001	3-Methylhexane	I	0.03	ppbv	0.02	AC-058	07-Oct-23
23100029-001	3-Methylpentane	I	0.04	ppbv	0.02	AC-058	07-Oct-23
23100029-001	Acetone		2.0	ppbv	0.4	AC-058	07-Oct-23
23100029-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Oct-23
23100029-001	Benzene	I	0.07	ppbv	0.03	AC-058	07-Oct-23
23100029-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Oct-23
23100029-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Oct-23
23100029-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-23
23100029-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-23
23100029-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-23
23100029-001	Carbon tetrachloride	I	0.05	ppbv	0.02	AC-058	07-Oct-23
23100029-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-23
23100029-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-23
23100029-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-23
23100029-001	Chloromethane		0.59	ppbv	0.04	AC-058	07-Oct-23
23100029-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-23
23100029-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Oct-23
23100029-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Oct-23
23100029-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-23
23100029-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	07-Oct-23

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

Date: October 23, 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/Sep 27, 2023	32241	Ambient Air	27-Sep-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23100029 **REPORT CREATED:** 23-Oct-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100029-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-23
23100029-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-23
23100029-001	Ethanol		1.4	ppbv	0.5	AC-058	07-Oct-23
23100029-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Oct-23
23100029-001	Ethylbenzene	I	0.07	ppbv	0.03	AC-058	07-Oct-23
23100029-001	Freon-11		0.21	ppbv	0.02	AC-058	07-Oct-23
23100029-001	Freon-113	I	0.05	ppbv	0.02	AC-058	07-Oct-23
23100029-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Oct-23
23100029-001	Freon-12		0.28	ppbv	0.03	AC-058	07-Oct-23
23100029-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Oct-23
23100029-001	Isobutane		0.25	ppbv	0.03	AC-058	07-Oct-23
23100029-001	Isopentane		0.32	ppbv	0.04	AC-058	07-Oct-23
23100029-001	Isoprene	I	0.07	ppbv	0.02	AC-058	07-Oct-23
23100029-001	Isopropyl alcohol	I	0.3	ppbv	0.3	AC-058	07-Oct-23
23100029-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	07-Oct-23
23100029-001	m,p-Xylene	I	0.05	ppbv	0.04	AC-058	07-Oct-23
23100029-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-23
23100029-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Oct-23
23100029-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	07-Oct-23
23100029-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Oct-23
23100029-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Oct-23
23100029-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	07-Oct-23
23100029-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Oct-23
23100029-001	Methylcyclohexane	I	0.06	ppbv	0.02	AC-058	07-Oct-23
23100029-001	Methylcyclopentane	I	0.05	ppbv	0.05	AC-058	07-Oct-23

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

Date: October 23, 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/Sep 27, 2023	32241	Ambient Air	27-Sep-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23100029 **REPORT CREATED:** 23-Oct-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100029-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Oct-23
23100029-001	n-Butane		0.76	ppbv	0.02	AC-058	07-Oct-23
23100029-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	07-Oct-23
23100029-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Oct-23
23100029-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	07-Oct-23
23100029-001	n-Hexane	I	0.05	ppbv	0.03	AC-058	07-Oct-23
23100029-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-23
23100029-001	n-Pentane		0.19	ppbv	0.04	AC-058	07-Oct-23
23100029-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	07-Oct-23
23100029-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	07-Oct-23
23100029-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Oct-23
23100029-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	07-Oct-23
23100029-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-23
23100029-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Oct-23
23100029-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-23
23100029-001	p-Ethyltoluene	I	0.05	ppbv	0.04	AC-058	07-Oct-23
23100029-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	07-Oct-23
23100029-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-23
23100029-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Oct-23
23100029-001	Toluene	I	0.11	ppbv	0.03	AC-058	07-Oct-23
23100029-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	07-Oct-23
23100029-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-23
23100029-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Oct-23
23100029-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-23
23100029-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-23

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

Date: October 23, 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/Sep 27, 2023	32241	Ambient Air	27-Sep-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23100029 **REPORT CREATED:** 23-Oct-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100029-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Oct-23
23100029-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Oct-23

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

Date: October 23, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

Revision History

Order ID	Ver	Date	Reason
23100029	01	23-Oct-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: 23090096-001 Priority: Normal

Customer ID: LICA
Cust Samp ID: C9700145

RECEIVED
SEP 08 2023

ol 2000i-D Sample Data Sheet

Date Sampled:	3-Sep-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 #:	C9700145	C9700146
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	12.1	
Pressure	705	
Std Volume (Instrument)	16.6	1.85

Comments: Weather Conditions, etc.

Sampling was conducted during an extremely intense smoke event in the area
The filters were found severely clogged.

Install by (Sign/Date):	Alex Yakupov	Date:	31-Aug-23
Removed by (Sign/Date)	Alex Yakupov	Date:	6-Sep-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: 23090096-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9700146

RECEIVED
SEP 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: June 28/23

Project: LICA/Bureau Veritas Labs

Prepared by:

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	C9700145 → C9700146

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
C9700145	Air Filter

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

DATE SAMPLED: 03-Sep-23 0:00
DATE RECEIVED: 08-Sep-23
REPORT CREATED: 21-Sep-23
REPORT NUMBER: 23090096
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23090096-001	Particulate Weight		2.96	mg	0.004	AC-029	14-Sep-23

Report certified by: Andrea Conner, Admin Assistant
On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: September 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-202309

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
C9700146		Air Filter	03-Sep-23 0:00

DESCRIPTION: Cold Lake South - Coarse - PM10

REPORT NUMBER: 23090096 **REPORT CREATED:** 21-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23090096-002	Particulate Weight		0.242	mg	0.004	AC-029	14-Sep-23

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

Date: September 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-202309

Revision History

Order ID	Ver	Date	Reason
23090096	01	21-Sep-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: 23090138-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: AT78793

›l 2000i-D Sample Data Sheet

RECEIVED
SEP 13 2023

Date Sampled:	9-Sep-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 #:	AT78793	AT78794
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	15.2	
Pressure	719	
Std Volume (Instrument)	21.2	2.37

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date):	Alex Yakupov	Date:	6-Sep-23
Removed by (Sign/Date)	Alex Yakupov	Date:	11-Sep-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: 23090138-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: AT78793

RECEIVED
SEP 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:

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	AT78793 → AT78794

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: AT78793

Matrix: Air Filter

CANISTER ID:

PRIORITY: Normal

DESCRIPTION: PM 2.5

DATE SAMPLED: 09-Sep-23 0:00

DATE RECEIVED: 13-Sep-23

REPORT CREATED: 05-Oct-23

REPORT NUMBER: 23090138

VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23090138-001	Particulate Weight		0.179	mg	0.004	AC-029	22-Sep-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: October 5, 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-202309

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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
AT78794		Air Filter	09-Sep-23 0:00

DESCRIPTION: PM 10

REPORT NUMBER: 23090138 **REPORT CREATED:** 05-Oct-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23090138-002	Particulate Weight		0.125	mg	0.004	AC-029	22-Sep-23

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

Date: October 5, 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-202309

Revision History

Order ID	Ver	Date	Reason
23090138	01	05-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

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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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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: 23090255-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: AT78797

›l 2000i-D Sample Data Sheet

RECEIVED
SEP 21 2023

Date Sampled:	15-Sep-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 #:	AT78797	AT78798
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	13.9	
Pressure	712	
Std Volume (Instrument)	21.2	2.36

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date): Alex Yakupov Date: 11-Sep-23

Removed by (Sign/Date) Alex Yakupov Date: 20-Sep-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: 23090255-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: AT78798

Filter Shipping Record

RECEIVED
SEP 21 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: SMulenla

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	AT78797 → AT78798

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: AT78797

Matrix: Air Filter

CANISTER ID:

PRIORITY: Normal

DESCRIPTION: Cold Lake South - PM 2.5

DATE SAMPLED: 15-Sep-23 0:00

DATE RECEIVED: 21-Sep-23

REPORT CREATED: 05-Oct-23

REPORT NUMBER: 23090255

VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23090255-001	Particulate Weight		0.119	mg	0.004	AC-029	26-Sep-23

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

Date: October 5, 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-202309

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
AT78798		Air Filter	15-Sep-23 0:00

DESCRIPTION: Cold Lake South - PM 10

REPORT NUMBER: 23090255 **REPORT CREATED:** 05-Oct-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23090255-002	Particulate Weight		0.155	mg	0.004	AC-029	26-Sep-23

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

Date: October 5, 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-202309

Revision History

Order ID	Ver	Date	Reason
23090255	01	05-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

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: 23090309-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: AT78795

2000i-D Sample Data Sheet

RECEIVED
SEP 27 2023

Date Sampled:	21-Sep-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 #:	AT78795	AT78796
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	11.7	
Pressure	716	
Std Volume (Instrument)	21.4	2.39

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date): Alex Yakupov Date: 20-Sep-23

Removed by (Sign/Date) Alex Yakupov Date: 25-Sep-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: 23090309-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: AT78795

ilter 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:

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	AT78795 → AT78796

RECEIVED
SEP 27 2023

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: AT78795

Matrix: Air Filter

CANISTER ID:

PRIORITY: Normal

DESCRIPTION: PM 2.5 - Cold Lake South

DATE SAMPLED: 21-Sep-23 0:00

DATE RECEIVED: 27-Sep-23

REPORT CREATED: 05-Oct-23

REPORT NUMBER: 23090309

VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23090309-001	Particulate Weight		0.436	mg	0.004	AC-029	29-Sep-23

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

Date: October 5, 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-202309

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
AT78796		Air Filter	21-Sep-23 0:00

DESCRIPTION: PM 10 - Cold Lake South

REPORT NUMBER: 23090309 **REPORT CREATED:** 05-Oct-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23090309-002	Particulate Weight		0.089	mg	0.004	AC-029	29-Sep-23

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

Date: October 5, 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-202309

Revision History

Order ID	Ver	Date	Reason
23090309	01	05-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

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

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

Order Comments

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

Sample Comments

Result Comments

Note:

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

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

Partisol 2000i-D Sample Data Sheet

Date Sampled:	27-Sep-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: 23100028-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: AT78791

	FINE (1)	COURSE (2)
Filter Type:	47mm	47mm
Filter #:	AT78791	AT78792
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	12.5	
Pressure	706	
Std Volume (Instrument)	21.1	2.35

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date):	Alex Yakupov	Date:	25-Sep-23
Removed by (Sign/Date)	Alex Yakupov	Date:	29-Sep-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

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

Sample ID: 23100028-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: AT78792

ate: August 2/23

oject: LICA/Bureau Veritas Labs

repared by:

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	AT78791 → AT78792

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: AT78791

Matrix: Air Filter

CANISTER ID:

PRIORITY: Normal

DESCRIPTION: PM 2.5 Cold Lake South

DATE SAMPLED: 27-Sep-23 0:00

DATE RECEIVED: 05-Oct-23

REPORT CREATED: 10-Oct-23

REPORT NUMBER: 23100028

VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100028-001	Particulate Weight		0.134	mg	0.004	AC-029	05-Oct-23

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

Date: October 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-202309

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
AT78792		Air Filter	27-Sep-23 0:00

DESCRIPTION: PM 10 Cold Lake South

REPORT NUMBER: 23100028 **REPORT CREATED:** 10-Oct-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23100028-002	Particulate Weight		0.254	mg	0.004	AC-029	05-Oct-23

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

Date: October 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-202309

Revision History

Order ID	Ver	Date	Reason
23100028	01	10-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

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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
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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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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.

Passive Samples

Passive Sampler Field Sheet for LICA, Sep 2023 sample period

ID	SAMPLER						START		END		NOTES
							DATE	TIME	DATE	TIME	
3	H2S	SO2	NO2	O3	HNO3	NH3	Aug 31	14:34	Sep 28	16:55	
4	---	SO2	NO2	O3	HNO3	NH3	Sep 2	12:30	Sep 29	13:05	
5	H2S	SO2	NO2	O3	HNO3	NH3	Sep 2	14:04	Sep 29	14:02	
6	---	SO2	NO2	O3	HNO3	NH3	Sep 2	16:25	Sep 29	15:40	
8	---	SO2	NO2	O3	HNO3	NH3	Sep 2	10:40	Sep 28	19:16	
9	---	SO2	NO2	O3	HNO3	NH3	Sep 1	13:58	Sep 28	16:11	
10	H2S	SO2	NO2	O3	HNO3	NH3	Sep 1	19:10	Oct 2	18:35	
11	H2S	SO2	NO2	O3	HNO3	NH3	Sep 1	20:24	Sep 28	18:28	
12	H2S	SO2	NO2	O3	HNO3	NH3	Sep 3	19:20	Oct 2	16:43	
13	H2S	SO2	NO2	O3	HNO3	NH3	Sep 1	16:01	Sep 28	13:40	
14	H2S	SO2	NO2	O3	HNO3	NH3	Sep 1	15:23	Sep 28	12:37	water isotope sample taken
15	---	SO2	NO2	O3	HNO3	NH3	Sep 1	12:46	Sep 28	15:15	
16	H2S	SO2	NO2	O3	HNO3	NH3	Sep 2	11:30	Sep 29	17:55	
17	H2S	SO2	NO2	O3	HNO3	NH3	Sep 2	17:27	Sep 29	16:55	
18	H2S	SO2	NO2	O3	HNO3	NH3	Sep 2	13:02	Sep 29	11:35	NH3 - was not found
19	---	SO2	NO2	O3	HNO3	NH3	Sep 3	10:45	Oct 2	10:58	
22	H2S	SO2	NO2	O3	HNO3	NH3	Sep 3	21:10	Oct 2	19:35	
23	---	SO2	NO2	O3	HNO3	NH3	Sep 2	09:16	Sep 28	10:47	
24	H2S	SO2	NO2	O3	HNO3	NH3	Sep 2	15:22	Sep 29	15:02	
25	H2S	SO2	---	---							
26	H2S	SO2	---	---	HNO3	NH3	Sep 1	15:43	Sep 28	13:02	
27	H2S	SO2	---	---	HNO3	NH3	Sep 1	15:03	Sep 28	12:10	
28	H2S	SO2	NO2	O3	HNO3	NH3	Sep 1	13:40	Sep 28	15:50	
29	H2S	SO2	NO2	O3	HNO3	NH3	Sep 3	21:42	Oct 2	19:46	
32	H2S	SO2	NO2	O3	HNO3	NH3	Aug 31	16:56	Sep 28	17:46	
42	H2S	SO2	NO2	O3	HNO3	NH3	Sep 2	14:55	Oct 2	13:39	
								DUPLICATES			
22	H2S	---	---	---	---	---	Sep 3	21:10	Oct 2	19:35	~~NS 23-10-04~~ @10:00
24	H2S	---	---	---	---	---	Sep 2	15:22	Sep 29	15:02	
18	---	SO2	---	---	---	---	Sep 2	13:02	Sep 29	11:35	32 SO2
19		SO2	---	---	---	---	Sep 3	10:45	Oct 2	10:58	33 HNO3
22	---	SO2	---	---	---	---	Sep 3	21:10	Oct 2	19:35	30 NH3
24	---	---	NO2	O3	---	---	Sep 2	15:22	Sep 29	15:02	28 NO2
28	---	---	NO2	O3	---	---	Sep 1	13:40	Sep 28	15:50	23 H2S
11	---	---	---	---	HNO3	NH3	Sep 1	20:24	Sep 28	18:28	
12	---	---	---	---	HNO3	NH3	Sep 3	19:20	Oct 2	16:43	

28 O3

Your Project #: SEPTEMBER 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: 2023/10/16
Report #: R3411160
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C380742
Received: 2023/10/04, 10:00

Sample Matrix: Air
Samples Received: 62

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
H2S Passive Analysis	20	2023/10/11	2023/10/13	PTC SOP-00150	Passive H2S in ATM
HNO3 by Passive Sampler	30	2023/10/10	2023/10/13	PTC SOP-00288	Passive HNO3 in ATM
NH3 by Passive Sampler	30	2023/10/10	2023/10/13	PTC SOP-00157	ASTM D6919
NO2 Passive Analysis	25	2023/10/10	2023/10/13	PTC SOP-00148	Passive NO2 in ATM
O3 Passive Analysis	25	2023/10/11	2023/10/13	PTC SOP-00197	EPA 300 R2.1
SO2 Passive Analysis	28	2023/10/06	2023/10/13	PTC SOP-00149	Passive SO2 in ATM

Results relate only to the items tested.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Belma Elefante
Customer Service Associate
17 Oct 2023 09:00:55

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

==========

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

Bureau Veritas Job #: C380742
Report Date: 2023/10/16

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		CBF355			CBF356			CBF357		
Sampling Date		2023/08/31 14:34			2023/09/02 12:30			2023/09/02 14:04		
	UNITS	3	RDL	QC Batch	4	RDL	QC Batch	5	RDL	QC Batch
Passive Monitoring										
Calculated H2S	ppb	0.26	0.02	B147163				0.64	0.02	B147163
Calculated NO2	ppb	0.8	0.1	B145751	0.7	0.1	B145751	0.6	0.1	B145751
Calculated O3	ppb	23.2	0.1	B147238	31.5	0.1	B147238	23.1	0.1	B147238
Calculated SO2	ppb	0.3	0.1	B143183	0.4	0.1	B143183	0.6	0.1	B143183
RDL = Reportable Detection Limit										

Bureau Veritas ID		CBF358	CBF359	CBF360			CBF361	CBF362	CBF363		
Sampling Date		2023/09/02 16:25	2023/09/01 10:40	2023/09/01 13:58			2023/09/01 19:10	2023/09/01 20:24	2023/09/03 19:20		
	UNITS	6	8	9	RDL	QC Batch	10	11	12	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb						0.32	0.23	0.17	0.02	B147163
Calculated NO2	ppb	4.1	0.5	1.2	0.1	B145751	4.5	0.4	0.4	0.1	B145751
Calculated O3	ppb	23.5	25.3	26.1	0.1	B147238	16.6	16.6	20.8	0.1	B147238
Calculated SO2	ppb	0.5	0.3	0.4	0.1	B143183	0.3	0.4	0.6	0.1	B143183
RDL = Reportable Detection Limit											

Bureau Veritas ID		CBF364	CBF365			CBF366			CBF367		
Sampling Date		2023/09/01 16:01	2023/09/01 15:23			2023/09/01 12:46			2023/09/01 11:30		
	UNITS	13	14	RDL	QC Batch	15	RDL	QC Batch	16	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb	0.15	0.68	0.02	B147163				0.28	0.02	B147163
Calculated NO2	ppb	0.6	1.8	0.1	B145751	<0.1	0.1	B145751	1.0	0.1	B145751
Calculated O3	ppb	17.0	39.5	0.1	B147238	<0.1	0.1	B147238	24.1	0.1	B147238
Calculated SO2	ppb	0.5	1.6	0.1	B143183	<0.1	0.1	B143183	0.3	0.1	B143183
RDL = Reportable Detection Limit											

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Bureau Veritas Job #: C380742
Report Date: 2023/10/16

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		CBF368	CBF369			CBF370			CBF371		
Sampling Date		2023/09/01 17:27	2023/09/01 19:02			2023/09/03 10:45			2023/09/03 21:10		
	UNITS	17	18	RDL	QC Batch	19	RDL	QC Batch	22	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb	0.44	0.16	0.02	B147163				0.26	0.02	B147163
Calculated NO2	ppb	0.9	0.6	0.1	B145751	0.7	0.1	B145751	1.0	0.1	B145751
Calculated O3	ppb	29.3	15.9	0.1	B147238	30.8	0.1	B147238	19.7	0.1	B147238
Calculated SO2	ppb	0.6	0.3	0.1	B143183	0.4	0.1	B143183	0.3	0.1	B143185
RDL = Reportable Detection Limit											

Bureau Veritas ID		CBF372			CBF373			CBF374	CBF375		
Sampling Date		2023/09/01 09:16			2023/09/01 15:22			2023/09/01 15:43	2023/09/01 15:03		
	UNITS	23	RDL	QC Batch	24	RDL	QC Batch	26	27	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb				0.32	0.02	B147163	0.38	2.19	0.02	B147163
Calculated NO2	ppb	0.2	0.1	B145751	2.0	0.1	B145751				
Calculated O3	ppb	14.1	0.1	B147238	30.6	0.1	B147238				
Calculated SO2	ppb	0.4	0.1	B143185	0.3	0.1	B143185	0.8	1.5	0.1	B143185
RDL = Reportable Detection Limit											

Bureau Veritas ID		CBF376		CBF377	CBF378	CBF379			CBF383		
Sampling Date		2023/09/01 13:40		2023/09/03 14:25	2023/08/31 16:56	2023/09/01 14:55			2023/09/02 13:02		
	UNITS	28	QC Batch	29	32	42	RDL	QC Batch	18 DUP	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb	1.26	B147163	0.32	0.35	0.28	0.02	B147163			
Calculated NO2	ppb	3.0	B145751	0.9	0.5	1.6	0.1	B145757			
Calculated O3	ppb	26.0	B147238	22.5	32.2	29.7	0.1	B147239			
Calculated SO2	ppb	0.6	B143185	0.3	0.3	0.2	0.1	B143185	0.4	0.1	B143185
RDL = Reportable Detection Limit											

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Bureau Veritas Job #: C380742
Report Date: 2023/10/16

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		CBF384	CBF385			CBF386	CBF387			CBF388		
Sampling Date		2023/09/03 10:45	2023/09/03 21:10			2023/09/02 15:22	2023/09/01 13:40			2023/09/03 21:10		
	UNITS	19 DUP	22 DUP	RDL	QC Batch	24 DUP	28 DUP	RDL	QC Batch	22 DUP	RDL	QC Batch
Passive Monitoring												
Calculated H2S	ppb									0.26	0.02	B147163
Calculated NO2	ppb					1.9	2.6	0.1	B145757			
Calculated O3	ppb					27.6	25.8	0.1	B147239			
Calculated SO2	ppb	0.3	0.3	0.1	B143185							
RDL = Reportable Detection Limit												

Bureau Veritas ID		CBF419			CBF389	CBF390	CBF391	CBF392		
Sampling Date		2023/09/02 18:22			2023/08/31 14:34	2023/09/02 12:30	2023/09/02 14:04	2023/09/02 16:25		
	UNITS	24 DUP	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				4.4	2.6	9.1	11.5	0.1	B145620
Calculated H2S	ppb	0.37	0.02	B147163						
HNO3 by Passive Sampler	ug/m3				1.00	0.84	0.61	1.11	0.04	B146398
RDL = Reportable Detection Limit										

Bureau Veritas ID		CBF393	CBF394	CBF395	CBF396	CBF397	CBF398		
Sampling Date		2023/09/01 10:40	2023/09/01 13:58	2023/09/01 19:10	2023/09/01 20:24	2023/09/03 19:20	2023/09/01 16:01		
	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	3.6	2.7	3.9	0.8	0.4	0.8	0.1	B145620
HNO3 by Passive Sampler	ug/m3	0.17	0.35	0.91	0.41	0.60	0.16	0.04	B146398
RDL = Reportable Detection Limit									

Bureau Veritas ID		CBF399	CBF400	CBF401	CBF402	CBF403	CBF404		
Sampling Date		2023/09/01 15:23	2023/09/01 12:46	2023/09/01 11:30	2023/09/01 17:27	2023/09/01 19:02	2023/09/03 10:45		
	UNITS	14-NH3 HNO3	15-NH3 HNO3	16-NH3 HNO3	17-NH3 HNO3	18-NH3 HNO3	19-NH3 HNO3	RDL	QC Batch
Passive Monitoring									
Ammonia by Passive Sampler	ppb	1.3	2.5	1.5	13.4	NA	1.4	0.1	B145620
HNO3 by Passive Sampler	ug/m3	0.49	0.90	0.07	1.14	0.80	0.35	0.04	B146398
RDL = Reportable Detection Limit									

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Bureau Veritas Job #: C380742
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LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: SEPTEMBER 2023 PASSIVES
Site Location: BONNYVILLE, AB
Sampler Initials: AY

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		CBF405	CBF406	CBF407	CBF408		CBF409		
Sampling Date		2023/09/03 21:10	2023/09/01 09:16	2023/09/01 15:22	2023/09/01 15:43		2023/09/01 15:03		
	UNITS	22-NH3 HNO3	23-NH3 HNO3	24-NH3 HNO3	26-NH3 HNO3	QC Batch	27-NH3 HNO3	RDL	QC Batch
Passive Monitoring									
Ammonia by Passive Sampler	ppb	1.0	3.2	2.4	1.2	B145620	2.0	0.1	B145624
HNO3 by Passive Sampler	ug/m3	0.84	<0.04	1.44	0.67	B146399	1.20	0.04	B146399
RDL = Reportable Detection Limit									

Bureau Veritas ID		CBF410	CBF411	CBF412	CBF413	CBF414		
Sampling Date		2023/09/01 13:40	2023/09/03 14:25	2023/08/31 16:56	2023/09/01 14:55	2023/09/01 20:24		
	UNITS	28-NH3 HNO3	29-NH3 HNO3	32-NH3 HNO3	42-NH3 HNO3	11-NH3 HNO3 DUP	RDL	QC Batch
Passive Monitoring								
Ammonia by Passive Sampler	ppb	4.0	1.4	2.4	1.8	1.0	0.1	B145624
HNO3 by Passive Sampler	ug/m3	1.29	0.79	0.78	0.57	0.63	0.04	B146399
RDL = Reportable Detection Limit								

Bureau Veritas ID		CBF415	CBF416	CBF417	CBF418		
Sampling Date		2023/09/03 19:20					
	UNITS	12-NH3 HNO3 DUP	BLANK 1-NH3 HNO3	BLANK 2-NH3 HNO3	BLANK 3-NH3 HNO3	RDL	QC Batch
Passive Monitoring							
Ammonia by Passive Sampler	ppb	1.0	0.3	0.6	0.4	0.1	B145624
HNO3 by Passive Sampler	ug/m3	0.73	<0.04	0.70	<0.04	0.04	B146399
RDL = Reportable Detection Limit							

GENERAL COMMENTS

Sample CBF403 [18-NH3 HNO3] : cbf403 18-nh3 Sample Missing as per CoC 2023/10/13 sdk

Results relate only to the items tested.

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Bureau Veritas Job #: C380742
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LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: SEPTEMBER 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
B143183	OZ	Spiked Blank	Calculated SO2			98	%	90 - 110
B143183	OZ	Method Blank	Calculated SO2		<0.1		ppb	
B143185	OZ	Spiked Blank	Calculated SO2			98	%	90 - 110
B143185	OZ	Method Blank	Calculated SO2		<0.1		ppb	
B145620	SDK	Spiked Blank	Ammonia by Passive Sampler			96	%	90 - 110
B145620	SDK	Method Blank	Ammonia by Passive Sampler		<0.1		ppb	
B145620	SDK	RPD [CBF389-01]	Ammonia by Passive Sampler	2023/10/13	NC		%	N/A
B145624	SDK	Spiked Blank	Ammonia by Passive Sampler			95	%	90 - 110
B145624	SDK	Method Blank	Ammonia by Passive Sampler		<0.1		ppb	
B145624	SDK	RPD [CBF409-01]	Ammonia by Passive Sampler	2023/10/13	NC		%	N/A
B145751	S1T	Spiked Blank	Calculated NO2			97	%	90 - 110
B145751	S1T	Method Blank	Calculated NO2		<0.1		ppb	
B145757	S1T	Spiked Blank	Calculated NO2			98	%	90 - 110
B145757	S1T	Method Blank	Calculated NO2		<0.1		ppb	
B146398	OZ	Method Blank	HNO3 by Passive Sampler		<0.04		ug/m3	
B146398	OZ	RPD [CBF389-01]	HNO3 by Passive Sampler	2023/10/13	NC		%	N/A
B146399	OZ	Method Blank	HNO3 by Passive Sampler		<0.04		ug/m3	
B146399	OZ	RPD [CBF405-01]	HNO3 by Passive Sampler	2023/10/13	NC		%	N/A
B147163	YYA	Spiked Blank	Calculated H2S			101	%	90 - 110
B147238	S1T	Spiked Blank	Calculated O3			102	%	90 - 110
B147238	S1T	Method Blank	Calculated O3		<0.1		ppb	
B147239	S1T	Spiked Blank	Calculated O3			101	%	90 - 110
B147239	S1T	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.

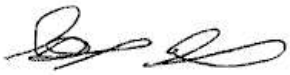
NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

Bureau Veritas Job #: C380742
Report Date: 2023/10/16

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: SEPTEMBER 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

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

Lac La Biche Station

Non- Methane Hydrocarbons (NMHCs) Canister Samples

Sample ID: 23090144-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/NMHC/LLB/Sep 05, 2023

RECEIVED
SEP 13 2023

Bureau Veritas

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

Client:	LICA	**Sampler S/N:**	n/a
Location:	Lac La Biche	**Canister ID:**	32219
Station ID:	LICA 41	**Installation Date/Time (mst):**	Sep 03, 2023 @ 15:34
Sample ID:	LICA/NMHC/LLB/Sep 05, 2023	**Removal Date/Time (mst):**	Sep 07, 2023 @ 16:42

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
September 5, 2023	15:00	n/a	n/a

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Vacuum (in. Hg)
-27.1	-2.0

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 1, 2023

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 23090144-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/NMHC/LLB/Sep 05, 2023

InnoTech ALBERTA

Canister ID: ~~28966~~ 32219

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ on: JUN 28 2023

Evacuated: AUG 0 1 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/NMHC/LLB/Sep 5, 2023

Sampled By: Alex Yakupov

Starting Vacuum:	End Vacuum: MW
-27.1 "Hg	-2.0 "Hg/psig

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/Sep 05, 2023
Matrix: Ambient Air
CANISTER ID: 32219
PRIORITY: Normal
DESCRIPTION: Lac LA Biche
DATE SAMPLED: 05-Sep-23 15:00
DATE RECEIVED: 13-Sep-23
REPORT CREATED: 18-Sep-23
REPORT NUMBER: 23090144
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23090144-001	1,1,1-Trichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090144-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090144-001	1,1,2-Trichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090144-001	1,1-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090144-001	1,1-Dichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090144-001	1,2,3-Trimethylbenzene	I	0.09	ppbv	0.08	AC-058	15-Sep-23
23090144-001	1,2,4-Trichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	15-Sep-23
23090144-001	1,2,4-Trimethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	15-Sep-23
23090144-001	1,2-Dibromoethane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090144-001	1,2-Dichlorobenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	15-Sep-23
23090144-001	1,2-Dichloroethane	K, T, U	< 0.04	ppbv	0.04	AC-058	15-Sep-23
23090144-001	1,2-Dichloropropane	K, T, U	< 0.04	ppbv	0.04	AC-058	15-Sep-23
23090144-001	1,3,5-Trimethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	15-Sep-23
23090144-001	1,3-Butadiene	K, T, U	< 0.04	ppbv	0.04	AC-058	15-Sep-23
23090144-001	1,3-Dichlorobenzene	K, T, U	< 0.6	ppbv	0.6	AC-058	15-Sep-23
23090144-001	1,4-Dichlorobenzene	K, T, U	< 0.6	ppbv	0.6	AC-058	15-Sep-23
23090144-001	1,4-Dioxane	K, T, U	< 0.8	ppbv	0.8	AC-058	15-Sep-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: September 18, 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/NMHC/LLB/Sep 05, 2023	32219	Ambient Air	05-Sep-23 15:00

DESCRIPTION: Lac LA Biche

REPORT NUMBER: 23090144 **REPORT CREATED:** 18-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23090144-001	1-Butene/Isobutylene	K, T, U	< 0.09	ppbv	0.09	AC-058	15-Sep-23
23090144-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.10	ppbv	0.10	AC-058	15-Sep-23
23090144-001	1-Pentene	I	0.05	ppbv	0.04	AC-058	15-Sep-23
23090144-001	2,2,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090144-001	2,2-Dimethylbutane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090144-001	2,3,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090144-001	2,3-Dimethylbutane	K, T, U	< 0.14	ppbv	0.14	AC-058	15-Sep-23
23090144-001	2,3-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090144-001	2,4-Dimethylpentane	K, T, U	< 0.04	ppbv	0.04	AC-058	15-Sep-23
23090144-001	2-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090144-001	2-Methylhexane	K, T, U	< 0.04	ppbv	0.04	AC-058	15-Sep-23
23090144-001	2-Methylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090144-001	3-Methylheptane	K, T, U	< 0.04	ppbv	0.04	AC-058	15-Sep-23
23090144-001	3-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090144-001	3-Methylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090144-001	Acetone		5.8	ppbv	0.6	AC-058	15-Sep-23
23090144-001	Acrolein	K, T, U	< 0.4	ppbv	0.4	AC-058	15-Sep-23
23090144-001	Benzene	I	0.20	ppbv	0.04	AC-058	15-Sep-23
23090144-001	Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	15-Sep-23
23090144-001	Bromodichloromethane	K, T, U	< 0.04	ppbv	0.04	AC-058	15-Sep-23
23090144-001	Bromoform	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090144-001	Bromomethane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090144-001	Carbon disulfide	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090144-001	Carbon tetrachloride	I	0.07	ppbv	0.03	AC-058	15-Sep-23
23090144-001	Chlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23

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

Date: September 18, 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/NMHC/LLB/Sep 05, 2023	32219	Ambient Air	05-Sep-23 15:00

DESCRIPTION: Lac LA Biche

REPORT NUMBER: 23090144 **REPORT CREATED:** 18-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23090144-001	Chloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090144-001	Chloroform	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090144-001	Chloromethane		0.65	ppbv	0.06	AC-058	15-Sep-23
23090144-001	cis-1,2-Dichloroethene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090144-001	cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	15-Sep-23
23090144-001	cis-2-Butene	K, T, U	< 0.04	ppbv	0.04	AC-058	15-Sep-23
23090144-001	cis-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090144-001	Cyclohexane	K, T, U	< 0.06	ppbv	0.06	AC-058	15-Sep-23
23090144-001	Cyclopentane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090144-001	Dibromochloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090144-001	Ethanol	I	0.8	ppbv	0.8	AC-058	15-Sep-23
23090144-001	Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	15-Sep-23
23090144-001	Ethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	15-Sep-23
23090144-001	Freon-11		0.30	ppbv	0.03	AC-058	15-Sep-23
23090144-001	Freon-113	I	0.06	ppbv	0.03	AC-058	15-Sep-23
23090144-001	Freon-114	K, T, U	< 0.04	ppbv	0.04	AC-058	15-Sep-23
23090144-001	Freon-12	I	0.14	ppbv	0.04	AC-058	15-Sep-23
23090144-001	Hexachloro-1,3-butadiene	K, T, U	< 0.4	ppbv	0.4	AC-058	15-Sep-23
23090144-001	Isobutane	K, T, U	< 0.04	ppbv	0.04	AC-058	15-Sep-23
23090144-001	Isopentane		0.16	ppbv	0.06	AC-058	15-Sep-23
23090144-001	Isoprene	I	0.13	ppbv	0.03	AC-058	15-Sep-23
23090144-001	Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	15-Sep-23
23090144-001	Isopropylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	15-Sep-23
23090144-001	m,p-Xylene	K, T, U	< 0.06	ppbv	0.06	AC-058	15-Sep-23
23090144-001	m-Diethylbenzene	I	0.10	ppbv	0.03	AC-058	15-Sep-23

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LICA/NMHC/LLB/Sep 05, 2023	32219	Ambient Air	05-Sep-23 15:00

DESCRIPTION: Lac LA Biche

REPORT NUMBER: 23090144 **REPORT CREATED:** 18-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23090144-001	m-Ethyltoluene	I	0.08	ppbv	0.04	AC-058	15-Sep-23
23090144-001	Methyl butyl ketone	K, T, U	< 0.6	ppbv	0.6	AC-058	15-Sep-23
23090144-001	Methyl ethyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	15-Sep-23
23090144-001	Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	15-Sep-23
23090144-001	Methyl methacrylate	K, T, U	< 0.12	ppbv	0.12	AC-058	15-Sep-23
23090144-001	Methyl tert butyl ether	K, T, U	< 0.04	ppbv	0.04	AC-058	15-Sep-23
23090144-001	Methylcyclohexane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090144-001	Methylcyclopentane	K, T, U	< 0.08	ppbv	0.08	AC-058	15-Sep-23
23090144-001	Methylene chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	15-Sep-23
23090144-001	n-Butane		0.32	ppbv	0.03	AC-058	15-Sep-23
23090144-001	n-Decane	K, T, U	< 0.09	ppbv	0.09	AC-058	15-Sep-23
23090144-001	n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	15-Sep-23
23090144-001	n-Heptane	K, T, U	< 0.06	ppbv	0.06	AC-058	15-Sep-23
23090144-001	n-Hexane	I	0.05	ppbv	0.04	AC-058	15-Sep-23
23090144-001	n-Octane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090144-001	n-Pentane	I	0.10	ppbv	0.06	AC-058	15-Sep-23
23090144-001	n-Propylbenzene	K, T, U	< 0.09	ppbv	0.09	AC-058	15-Sep-23
23090144-001	n-Undecane	K, T, U	< 0.8	ppbv	0.8	AC-058	15-Sep-23
23090144-001	Naphthalene	K, T, U	< 0.4	ppbv	0.4	AC-058	15-Sep-23
23090144-001	n-Nonane	K, T, U	< 0.06	ppbv	0.06	AC-058	15-Sep-23
23090144-001	o-Ethyltoluene	I	0.07	ppbv	0.03	AC-058	15-Sep-23
23090144-001	o-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	15-Sep-23
23090144-001	p-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090144-001	p-Ethyltoluene	K, T, U	< 0.06	ppbv	0.06	AC-058	15-Sep-23
23090144-001	Styrene	K, T, U	< 0.06	ppbv	0.06	AC-058	15-Sep-23

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CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/NMHC/LLB/Sep 05, 2023	32219	Ambient Air	05-Sep-23 15:00

DESCRIPTION: Lac LA Biche

REPORT NUMBER: 23090144 **REPORT CREATED:** 18-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23090144-001	Tetrachloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090144-001	Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	15-Sep-23
23090144-001	Toluene	I	0.07	ppbv	0.04	AC-058	15-Sep-23
23090144-001	trans-1,2-Dichloroethylene	K, T, U	< 0.09	ppbv	0.09	AC-058	15-Sep-23
23090144-001	trans-1,3-Dichloropropylene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090144-001	trans-2-Butene	K, T, U	< 0.04	ppbv	0.04	AC-058	15-Sep-23
23090144-001	trans-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090144-001	Trichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-23
23090144-001	Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	15-Sep-23
23090144-001	Vinyl chloride	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Sep-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-202309

Revision History

Order ID	Ver	Date	Reason
23090144	01	18-Sep-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

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