Lakeland Industry & Community Association

AUGUST 2023

Monthly Ambient Air Quality Monitoring Integrated Sampling Report

LICA-202308-INTEGRATED

September 22, 2023

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Lakeland Industry & Community Association
5107 50 St
Bonnyville, AB, T9N 2J7
Phone #: 780-226-7068
E-mail: monitoring@lica.ca
www.lica.ca

September 22, 2023

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

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

Enclosed is the August 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
Bonnyville, AB, T9N 2J7
Phone #: 780-226-7068
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 August 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 August 4, 10, 16, 22 and 28.
- **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 August 4, 10, 16, 22 and 28.
  - The sample volume value written on the TISCH PUF PLUS Sample Collection Data Sheet for the August 4 sample collected was corrected from 20.2 Vstd m^3 to 330.43 Vstd m^3 by the field operator Alex Yakupov on September 22.
- **Partisols**
  - Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) where applicable, except the August 28's sample, concentration of 0.036 mg/m3**. AEPA**

reference #: 419814. 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 August 4, 10, 16, 22 and 28.
- **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 July 29 and July 31, and were removed between August 31 and September 3.
    - A total of 13 duplicate samples were collected: 2 for H2S, 3 for SO2, 2 for NO2, 2 for O3, 2 for NMH3 and 2 for HNO3.
    - A total of 6 blank samples were collected: 3 for NMH3 and 3 for HNO3.
    - No samples were collected at station 25. The field technician has not completed the necessary safety orientation for the CNRL Primrose/Burnt Lake site and access is not permitted at this time.
    - Station 28: To address access issues and restrictions experienced over the past three months, the samplers were moved to the opposite side of the fence by LICA staff on August 25. The samplers are still mounted on the sample post at the same location, but instead of accessing to the fenced parking lot, they can be accessed from outside the compound. The sample media collected on September 1 contained samples collected from May 28 to September 1.

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.
    - Four canister events were recorded this month. However, due to field operator errors, two canisters were not collected. To improve the reliability of the canister system, an automatic alarming system will be installed. When the NMHC concentration reaches to the triggered point, an automatic alarm notification will be generated and sent out.

Date	Time	Concentration (ppm)	Valid Sample Collection
02-Aug	10:25	0.65	Yes
05-Aug	6:50	0.44	Yes
12-Aug	13:55	0.75	No
30-Aug	8:35	0.37	No

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 July/August monitoring period were collected between August 31 and September 3. The media for the September/October monitoring period were installed during the time the media for the July/August monitoring period were collected.

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
587-225-2248
monitoring@lica.ca

The report was reviewed by Mike Bisaga in accordance with Chapter 9 of the Air Monitoring Directive (AMD 2016).

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

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

INTEGRATED SAMPLING RESULTS SUMMARY

COLD LAKE SOUTH STATION

- **VOCs analytical results**

Sample Date	2023-08-04	2023-08-10	2023-08-16	2023-08-22
Canister ID	31818	32254	28896	32274
Maximum Reading (ppbv)	3.7	2.0	2.5	5.6
Parameter	Acetone	Acetone	Acetone	Acetone

Sample Date	2023-08-28
Canister ID	32199
Maximum Reading (ppbv)	4.3
Parameter	Acetone

- **PAHs analytical results**

Sample Date	2023-08-04		2023-08-10		2023-08-16		2023-08-22	
PUF S/N	TE-02		P13-041		A13-02		TE-06	
Volume (Vstd m^3)	330.43		330.40		330.40		330.40	
Maximum Reading	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3
	0.22	0.67	0.15	0.45	0.32	0.97	0.47	1.42
Parameter	Phenanthrene		Phenanthrene		Phenanthrene		Phenanthrene	

Sample Date	2023-08-28	
PUF S/N	TE-10	
Volume (Vstd m3)	330.42	
Maximum Reading	ug	ng/m3
	0.46	1.39
Parameter	Phenanthrene	

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

Sample Date	2023-08-04		2023-08-10		2023-08-16		2023-08-22	
Filter #	C9700147		C1168577		C9700143		C9700141	
Volume (Vstd m^3)	20.9		20.7		21.6		21.6	
Result	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)
Particulate Matter	0.229	0.011	0.031	0.001	0.217	0.010	0.330	0.015

Sample Date	2023-08-28	
Filter #	C9700139	
Volume (Vstd m^3)	21.6	
Result	Result (mg)	Result (mg/m^3)
Particulate Matter	0.768	0.036

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

Sample Date	2023-08-04		2023-08-10		2023-08-16		2023-08-22	
Filter #	C9700148		C1168578		C9700144		C9700142	
Volume (Vstd m^3)	2.33		2.30		2.32		2.32	
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	0.075	0.032	0.059	0.026	0.111	0.048	0.239	0.103

Sample Date	2023-08-28	
Filter #	C9700140	
Volume (Vstd m^3)	2.31	
Result	Result (mg)	Result (mg/m^3)
PM2.5-10 Mass	0.323	0.140

- **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	0.12	#13	0.1	#23	13.6	#11	0.1	#18	0.5	#11	<0.04	#11
Maximum	1.53	#27	2.6	#10	38.5	#29	1.3	#14	5.2	#42	1.53	#10
Average	0.36	-	0.70	-	21.42	-	0.40	-	1.75	-	0.57	-

LAC LA BICHE STATION

- **NMHC canister sample analytical results**

Sample Date / Time	**2023-08-02 @10:20**	**2023-08-05 @06:45**
Canister Triggered Conc.	**0.65**	**0.44**
Canister ID	32207	32188
Maximum Reading (ppbv)	5.8	10.6
Parameter	Acetone	n-Butane

ANALYTICAL SAMPLING RESULTS

COLD LAKE SOUTH STATION

VOCS

Sample Date		2023-08-04	2023-08-10	2023-08-16	2023-08-22	2023-08-28	
Canister ID		31818	32254	28896	32274	32199	
Method		AC-058	AC-058	AC-058	AC-058	AC-058	
Maximum Reading (ppbv)		3.7	2.0	2.5	5.6	4.3	
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	0.08	< 0.05	< 0.05	< 0.05	0.05
1,2,4-Trichlorobenzene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.8
1,2,4-Trimethylbenzene		0.08	0.05	0.13	< 0.03	< 0.03	0.05
1,2-Dibromoethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,2-Dichlorobenzene		0.04	0.06	0.06	0.03	< 0.03	0.03
1,2-Dichloroethane		< 0.03	< 0.03	< 0.03	< 0.03	3.08	0.01
1,2-Dichloropropane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
1,3,5-Trimethylbenzene		< 0.03	0.04	< 0.03	< 0.03	< 0.03	0.02
1,3-Butadiene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02
1,3-Dichlorobenzene		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	0.3
1,4-Dichlorobenzene		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	0.4
1,4-Dioxane		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.4
1-Butene		0.12	< 0.06	< 0.06	< 0.06	< 0.06	0.02
1-Hexene		< 0.07	< 0.07	< 0.07	< 0.07	< 0.07	0.02
1-Pentene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
2,2,4-Trimethylpentane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
2,2-Dimethylbutane		< 0.02	0.03	< 0.02	< 0.02	< 0.02	0.01
2,3,4-Trimethylpentane		< 0.02	< 0.02	< 0.02	< 0.02	0.19	0.01
2,3-Dimethylbutane		< 0.09	< 0.09	< 0.09	< 0.09	< 0.09	0.02
2,3-Dimethylpentane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
2,4-Dimethylpentane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
2-Methylheptane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
2-Methylhexane		< 0.03	0.04	< 0.03	< 0.03	< 0.03	0.01
2-Methylpentane		0.02	0.12	< 0.02	< 0.02	< 0.02	0.01
3-Methylheptane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02
3-Methylhexane		< 0.02	0.05	< 0.02	< 0.02	< 0.02	0.02
3-Methylpentane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
Acetone	2400	3.7	2.0	2.5	5.6	4.3	0.4
Acrolein	1.9	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Benzene	9.0	0.12	0.05	0.11	0.16	0.38	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		0.07	0.07	0.07	0.06	0.02	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		0.68	0.64	0.66	0.66	0.48	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		0.05	< 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	< 0.04	< 0.04	0.02
Cyclopentane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
Dibromochloromethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
Ethanol		1.1	1.0	0.7	1.8	1.3	0.3
Ethyl acetate		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Ethylbenzene	460	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
Freon-11		0.26	0.19	0.23	0.21	0.15	0.02
Freon-113		0.06	0.07	0.07	0.06	0.02	0.01
Freon-114		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02

Sample Date		2023-08-04	2023-08-10	2023-08-16	2023-08-22	2023-08-28
Canister ID		31818	32254	28896	32274	32199
Method		AC-058	AC-058	AC-058	AC-058	AC-058
Maximum Reading (ppbv)		3.7	2.0	2.5	5.6	4.3
Parameter		Acetone	Acetone	Acetone	Acetone	Acetone

Parameter	AAAQOs (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	RDL (ppbv)
Freon-12		0.54	0.54	0.58	0.55	0.48	0.02
Hexachloro-1,3-butadiene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.5
Isobutane		0.24	0.23	0.11	0.32	0.24	0.02
Isopentane		0.17	0.11	< 0.04	0.2	0.33	0.03
Isoprene		0.6	0.2	0.51	0.28	2.77	0.01
Isopropyl alcohol		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Isopropylbenzene		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.01
m,p-Xylene		< 0.04	0.05	< 0.04	< 0.04	< 0.04	0.03
m-Diethylbenzene		< 0.02	0.08	< 0.02	< 0.02	< 0.02	0.04
m-Ethyltoluene		< 0.03	< 0.03	< 0.03	0.05	< 0.03	0.08
Methyl butyl ketone		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	0.5
Methyl ethyl ketone		< 0.3	< 0.3	< 0.3	0.3	0.40	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	0.04	< 0.03	< 0.03	< 0.03	0.03
Methylcyclohexane		0.05	< 0.02	< 0.02	< 0.02	0.02	0.01
Methylcyclopentane		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.02
Methylene chloride		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
n-Butane		0.26	0.22	0.17	0.67	0.60	0.03
n-Decane		< 0.06	0.07	< 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	< 0.03	0.03	0.03	< 0.03	0.03	0.01
n-Nonane		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.01
n-Octane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
n-Pentane		0.09	0.06	0.08	0.13	0.22	0.1
n-Propylbenzene		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.05
n-Undecane		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.5
Naphthalene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.5
o-Ethyltoluene		< 0.02	0.02	< 0.02	0.05	< 0.02	0.01
o-Xylene		< 0.03	0.04	< 0.03	< 0.03	< 0.03	0.01
p-Diethylbenzene		< 0.02	0.07	< 0.02	< 0.02	< 0.02	0.04
p-Ethyltoluene		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.07
Styrene	52.0	< 0.04	0.05	< 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	< 0.03	0.05	0.04	0.05	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		0.04	< 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	0.03	< 0.02	< 0.02	< 0.02	< 0.02	0.02

PAHS

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - August 2023

Polycyclic Aromatic Hydrocarbons (PAHs) Results

Sample Date	2023-08-04		2023-08-10		2023-08-16		2023-08-22		2023-08-28	
PUF S/N	TE-02		P13-041		A13-02		TE-06		TE-10	
Volume (Vstd m^3)	330.43*		330.40		330.40		330.40		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
	0.22	0.67	0.15	0.45	0.32	0.97	0.47	1.42	0.46	1.39
Parameter	Phenanthrene		Phenanthrene		Phenanthrene		Phenanthrene		Phenanthrene	

Parameter	Result (ug)	Result (ng/m^3)	Result (ug)	Result (ng/m^3)	Result (ug)	Result (ng/m^3)	Result (ug)	Result (ng/m^3)	Result (ug)	Result (ng/m^3)	RDL (ug)
1-Methylnaphthalene	0.02	0.06	0.03	0.09	0.08	0.24	0.15	0.45	0.14	0.42	0.01
2-Methylnaphthalene	0.04	0.12	0.05	0.15	0.08	0.24	0.16	0.48	0.16	0.48	0.01
3-Methylcholanthrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
7,12-Dimethylbenz(a)anthracene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Acenaphthene	< 0.01	0.00	< 0.01	0.00	0.01	0.03	0.03	0.09	0.03	0.09	0.01
Acenaphthylene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01	0.03	0.01	0.03	0.01
Acridine	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Anthracene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Benzo(a)anthracene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Benzo(a)pyrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Benzo(b,j,k)fluoranthene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Benzo(c)phenanthrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Benzo(e)pyrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Benzo(ghi)perylene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Chrysene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Dibenzo(a,h)pyrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Dibenzo(a,i)pyrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Dibenzo(a,l)pyrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Dibenzo(ah)anthracene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Fluoranthene	0.02	0.06	0.02	0.06	0.03	0.09	0.05	0.15	0.04	0.12	0.01
Fluorene	0.03	0.09	0.02	0.06	0.08	0.24	0.08	0.24	0.08	0.24	0.01
Indeno(1,2,3-cd)pyrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Naphthalene	0.02	0.06	0.02	0.06	0.05	0.15	0.05	0.15	0.05	0.15	0.01
Perylene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Phenanthrene	0.22	0.67	0.15	0.45	0.32	0.97	0.47	1.42	0.46	1.39	0.01
Pyrene	0.02	0.06	0.02	0.06	0.02	0.06	0.04	0.12	0.04	0.12	0.01
Retene	0.06	0.18	0.03	0.09	0.11	0.33	0.17	0.51	0.16	0.48	0.01

*: Volume value was corrected from 20.2 Vstd m3 to 330.43 Vstd m3 on Sept 22, 2023 by Alex Y.

PARTISOLS

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - August 2023

Partisol Results - $PM_{2.5}$

Sample Date		2023-08-04		2023-08-10		2023-08-16		2023-08-22		2023-08-28		
Filter #		C9700147		C1168577		C9700143		C9700141		C9700139		
Volume (Vstd m^3)		20.9		20.7		21.6		21.6		21.6		
Method		AC-029		AC-029		AC-029		AC-029		AC-029		
Parameter	**AAAQO (mg/m3)**	**Result (mg)**	**Result (mg/m^3)**	**Result (mg)**	**Result (mg/m^3)**	**Result (mg)**	**Result (mg/m^3)**	**Result (mg)**	**Result (mg/m^3)**	**Result (mg)**	**Result (mg/m^3)**	**RDL (mg)**
Particulate Matter	0.029	**0.229**	**0.011**	**0.031**	**0.001**	**0.219**	**0.010**	**0.330**	**0.015**	**0.768**	**0.036***	0.004
PM2.5 Mass in ug/m3			**10.957**		**1.498**		**10.139**		**15.278**		**35.556**	
RDL in ug/m3			**0.191**		**0.193**		**0.185**		**0.185**		**0.185**	

** Analytical result exceeded the AAAQO limit. AEPA reference #: 419814*

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - August 2023

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

Sample Date	**2023-08-04**	**2023-08-10**	**2023-08-16**	**2023-08-22**	**2023-08-28**
Filter #	**C9700148**	**C1168578**	**C9700144**	**C9700142**	**C9700140**
Volume (Vstd m^3)	**2.33**	**2.30**	**2.32**	**2.32**	**2.31**
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	**0.075**	**0.032**	**0.059**	**0.026**	**0.111**	**0.048**	**0.239**	**0.103**	**0.323**	**0.140**	0.004

PM2.5-10 Mass in ug/m3	**32.189**	**25.652**	**47.845**	**103.017**	**139.827**
RDL in ug/m3	**1.717**	**1.739**	**1.724**	**1.724**	**1.732**

PASSIVE SAMPLES

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

August 2023

Passive Results

	H_2S		NO_2		O_3		SO_2		NMH3		HNO3	
Unit	**ppb**		**ppb**		**ppb**		**ppb**		**ppb**		**ug/m3**	
Minimum (ppb)	0.12	#13	0.1	#23	13.6	#11	0.1	#18	0.5	#11	<0.04	#11
Maximum (ppb)	1.53	#27	2.6	#10	38.5	#29	1.3	#14	5.2	#42	1.53	#10
Average (ppb)	0.36	-	0.70	-	21.42	-	0.40	-	1.75	-	0.57	-

No.	Station	Sample	Duplicate	Sample	Duplicate	Sample	Duplicate	Sample	Duplicate	Sample	Duplicate	Sample	Duplicate
3	Therien	0.25		0.8		21.6		0.3		2.9		0.80	
4	Flat Lake	-		0.4		26.2		0.5		2.0		0.90	
5	Lake Eliza	0.79		0.5		24.1		0.6		1.8		0.37	
6	Telegraph Creek	-		2.0		23.9		0.6		3.2		0.31	
8	Muriel-Kehewin	-		0.4		23.7		0.4		2.4		0.15	
9	Dupre	-		0.7		16.7		0.3		1.4	1.2	0.76	0.29
10	La Corey	0.14		2.6		16.8		0.3		1.1	1.1	1.53	0.99
11	Wolf Lake	0.25		0.2		13.6		0.2		0.5		<0.04	
12	Foster Creek	0.14		0.3		20.9		0.2		2.6		0.38	
13	Primrose	0.12		0.3		14.3		0.2		0.7		0.24	
14	Tamarack	0.45		1.1		19.5		1.3		0.7		0.14	
15	Ardmore	-		0.7		16.1		0.2	0.2	1.3		0.26	
16	Frog Lake	0.21		0.7		17.6		0.2	0.3	1.5		0.48	
17	Clear Range	0.39	0.55	0.6		34.7		0.3	0.4	1.2		0.61	
18	Fishing Lake	0.16	0.14	0.3		16.8		0.1		1.4		0.84	
19	Beaverdam	-		0.4		20.6		0.3		2.7		<0.04	
22	Cold Lake South (1)	0.26		0.7	0.6	17.4	17.6	0.3		1.4		1.15	
23	Medley-Martineau	-		0.1	0.1	13.8	12.4	0.2		0.8		0.28	
24	Fort George	0.31		0.9		22.2		0.4		2.1		0.41	
25	Burnt Lake	Missing 1		-		-		Missing 1		-		-	
26	Mahihkan	0.17		-		-		0.4		0.9		0.62	
27	Mahkeses	1.53		-		-		1.3		1.0		0.33	
28	Town of Bonnyville	0.91*		1.2*		24.3*		0.5*		2.9*		1.02*	
29	Cold Lake South (2)	0.30		0.6		38.5		0.3		1.8		0.49	
32	St. Lina	0.27		0.3		29.4		0.3		1.4		1.03	
42	Lac La Biche	0.31		0.7		22.9		0.3		5.2		0.41	
BLANK -1		-		-		-		-		0.7		0.33	
BLANK -2		-		-		-		-		1.1		0.20	
BLANK -3		-		-		-		-		0.8		0.32	
Reportable Detection Limit (RDL)		**0.02**		**0.1**		**0.1**		**0.1**		**0.1**		**0.04**	

Note:

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

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

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

* Due to access restrictions, sample filters were not replaced in June and July. Sample collection period: May 29, 2023 @12:52 - September 1, 2023 @13:40.

LAC LA BICHE STATION

NMHC CANISTER SAMPLES

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Lac La Biche Site - August 2023

Volatile Organic Compounds (VOCs) Results

Sample Date/Time		2023-08-02 @10:20		2023-08-05 @06:45	
Canister Triggered Conc.		0.65		0.44	
Canister ID		32207		32188	
Method		AC-058		AC-058	
Maximum Reading		5.8		10.6	
Parameter		Acetone		n-Butane	
Parameter	**AAAQOs**	**Result (ppbv)**	**RDL (ppbv)**	**Result (ppbv)**	**RDL (ppbv)**
1,1,1-Trichloroethane		< 0.03	0.03	< 0.03	0.03
1,1,2,2-Tetrachloroethane		< 0.03	0.03	< 0.03	0.03
1,1,2-Trichloroethane		< 0.03	0.03	< 0.03	0.03
1,1-Dichloroethane		< 0.03	0.03	< 0.03	0.03
1,1-Dichloroethylene		< 0.03	0.03	< 0.03	0.03
1,2,3-Trimethylbenzene		< 0.08	0.08	< 0.07	0.07
1,2,4-Trichlorobenzene		< 0.5	0.5	< 0.4	0.4
1,2,4-Trimethylbenzene		< 0.05	0.05	0.15	0.04
1,2-Dibromoethane		< 0.03	0.03	< 0.03	0.03
1,2-Dichlorobenzene		< 0.05	0.05	0.05	0.04
1,2-Dichloroethane		< 0.05	0.05	< 0.04	0.04
1,2-Dichloropropane		< 0.05	0.05	< 0.04	0.04
1,3,5-Trimethylbenzene		< 0.05	0.05	< 0.04	0.04
1,3-Butadiene		< 0.05	0.05	< 0.04	0.04
1,3-Dichlorobenzene		< 0.7	0.7	< 0.6	0.6
1,4-Dichlorobenzene		< 0.7	0.7	< 0.6	0.6
1,4-Dioxane		< 0.8	0.8	< 0.7	0.7
1-Butene		< 0.10	0.10	0.18	0.08
1-Hexene		< 0.12	0.12	< 0.10	0.10
1-Pentene		< 0.05	0.05	0.05	0.04
2,2,4-Trimethylpentane		< 0.03	0.03	< 0.03	0.03
2,2-Dimethylbutane		< 0.03	0.03	0.09	0.03
2,3,4-Trimethylpentane		< 0.03	0.03	< 0.03	0.03
2,3-Dimethylbutane		< 0.15	0.15	0.17	0.12
2,3-Dimethylpentane		< 0.03	0.03	0.04	0.03
2,4-Dimethylpentane		< 0.05	0.05	< 0.04	0.04
2-Methylheptane		< 0.03	0.03	< 0.03	0.03
2-Methylhexane		< 0.05	0.05	0.11	0.04
2-Methylpentane		0.14	0.03	0.92	0.03
3-Methylheptane		< 0.05	0.05	< 0.04	0.04
3-Methylhexane		< 0.03	0.03	0.12	0.03
3-Methylpentane		0.16	0.03	0.43	0.03
Acetone	2400	5.8	0.7	3.6	0.6
Acrolein	1.9	< 0.5	0.5	< 0.4	0.4
Benzene	9.0	0.28	0.05	0.17	0.04
Benzyl chloride		< 0.5	0.5	< 0.4	0.4
Bromodichloromethane		< 0.05	0.05	< 0.04	0.04
Bromoform		< 0.03	0.03	< 0.03	0.03
Bromomethane		< 0.03	0.03	< 0.03	0.03
Carbon disulfide	10	< 0.03	0.03	< 0.03	0.03
Carbon tetrachloride		< 0.03	0.03	0.07	0.03
Chlorobenzene		< 0.03	0.03	< 0.03	0.03
Chloroethane		< 0.03	0.03	< 0.03	0.03
Chloroform		< 0.03	0.03	< 0.03	0.03
Chloromethane		0.44	0.07	0.59	0.06
cis-1,2-Dichloroethene		< 0.03	0.03	< 0.03	0.03
cis-1,3-Dichloropropene		< 0.05	0.05	< 0.04	0.04
cis-2-Butene		< 0.05	0.05	0.09	0.04
cis-2-Pentene		< 0.03	0.03	< 0.03	0.03
Cyclohexane		< 0.07	0.07	< 0.06	0.06
Cyclopentane		< 0.03	0.03	0.15	0.03
Dibromochloromethane		< 0.03	0.03	< 0.03	0.03
Ethanol		< 0.8	0.8	4.6	0.7
Ethyl acetate		< 0.5	0.5	< 0.4	0.4
Ethylbenzene	460	< 0.05	0.05	< 0.04	0.04
Freon-11		0.15	0.03	0.21	0.03
Freon-113		< 0.03	0.03	0.06	0.03

Sample Date/Time		2023-08-02 @10:20		2023-08-05 @06:45	
Canister Triggered Conc.		0.65		0.44	
Canister ID		32207		32188	
Method		AC-058		AC-058	
Maximum Reading		5.8		10.6	
Parameter		Acetone		n-Butane	
Parameter	**AAAQOs**	**Result (ppbv)**	**RDL (ppbv)**	**Result (ppbv)**	**RDL (ppbv)**
Freon-114		< 0.05	0.05	< 0.04	0.04
Freon-12		0.43	0.05	0.49	0.04
Hexachloro-1,3-butadiene		< 0.5	0.50	< 0.4	0.4
Isobutane		0.11	0.05	5.72	0.04
Isopentane		0.35	0.07	9.42	0.06
Isoprene		0.66	0.03	0.76	0.03
Isopropyl alcohol		0.5	0.5	< 0.4	0.4
Isopropylbenzene		< 0.07	0.07	< 0.06	0.06
m,p-Xylene		0.07	0.07	0.09	0.06
m-Diethylbenzene		< 0.03	0.03	< 0.03	0.03
m-Ethyltoluene		< 0.05	0.05	< 0.04	0.04
Methyl butyl ketone		< 0.7	0.7	< 0.6	0.6
Methyl ethyl ketone		< 0.5	0.5	< 0.4	0.4
Methyl isobutyl ketone		< 0.5	0.5	< 0.4	0.4
Methyl methacrylate		< 0.13	0.13	< 0.11	0.11
Methyl tert butyl ether		< 0.05	0.05	< 0.04	0.04
Methylcyclohexane		< 0.03	0.03	0.06	0.03
Methylcyclopentane		0.33	0.08	0.29	0.07
Methylene chloride		< 0.5	0.5	< 0.4	0.4
n-Butane		0.64	0.03	10.6	0.03
n-Decane		< 0.10	0.10	< 0.08	0.08
n-Dodecane		< 0.5	0.5	< 0.4	0.4
n-Heptane		< 0.07	0.07	0.07	0.06
n-Hexane	5960	0.55	0.05	0.32	0.04
n-Nonane		< 0.07	0.07	< 0.06	0.06
n-Octane		< 0.03	0.03	< 0.03	0.03
n-Pentane		0.16	0.07	3.18	0.06
n-Propylbenzene		< 0.10	0.10	< 0.08	0.08
n-Undecane		< 0.8	0.8	< 0.7	0.7
Naphthalene		< 0.5	0.5	< 0.4	0.4
o-Ethyltoluene		< 0.03	0.03	< 0.03	0.03
o-Xylene		< 0.05	0.05	0.04	0.04
p-Diethylbenzene		< 0.03	0.03	< 0.03	0.03
p-Ethyltoluene		< 0.07	0.07	< 0.06	0.06
Styrene	52.0	< 0.07	0.07	< 0.06	0.06
Tetrachloroethylene		< 0.03	0.03	< 0.03	0.03
Tetrahydrofuran		< 0.5	0.5	< 0.4	0.4
Toluene	499	0.1	0.0	0.24	0.04
trans-1,2-Dichloroethylene		< 0.10	0.10	< 0.08	0.08
trans-1,3-Dichloropropylene		< 0.03	0.03	< 0.03	0.03
trans-2-Butene		< 0.05	0.05	0.09	0.04
trans-2-Pentene		< 0.03	0.03	0.03	0.03
Trichloroethylene		< 0.03	0.03	< 0.03	0.03
Vinyl acetate		< 0.5	0.5	< 0.4	0.4
Vinyl chloride	51	< 0.03	0.03	0.04	0.03

End of Report

Lakeland Industry & Community Association

AUGUST 2023

Ambient Air Monitoring

Certified Laboratory Analysis Report

LAB-LICA-202308

Operation and Maintenance:
Bureau Veritas Canada

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

September 18, 2023

Table of Contents

Cold Lake South Station

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

Sample ID: 23080113-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Aug 4, 2023

Bureau Veritas

...llection Data Sheet Alberta Air FCD AIR FCD-01320 / 2

RECEIVED
AUG 10 2023

Client:	LICA	**Sampler S/N:**	6167
Location:	Cold Lake South	**Canister ID:**	31818
Station ID:	LICA 01	**Installation Date/Time (mst):**	Aug 01, 2023 @ 17:38
Sample ID:	LICA/VOC/CLS/Aug 04, 2023	**Removal Date/Time (mst):**	Aug 08, 2023 @ 16:34

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
August 4, 2023	0:00	23:59	24

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

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

Deployment/Collection and Maintenance Checklist

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

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

AIR FCD-01331/2

Sample ID: 23080113-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Aug 4, 2023

TISCH PUF PLUS Sample Collection Data Sheet

	LICA	**Puf+ S/N:**	TE-02
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Aug 01, 2023 @ 17:39
Field Sample ID:	LICA/PUF/CLS/Aug 04, 2023	**Removal Date/Time:**	Aug 08, 2023 @ 16:37

Sample Data Collection Information

Sample Date:	4-Aug-23	**Average Pressure (mmHg)**	715
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	18.4
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	20.2

Sample Recovery Checklist

Correct volume was 330.43 Vstd m3.
Confirmed by Alex Y. on Sept 22. -Lily L.

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

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

InnoTech ALBERTA

Canister ID: 3818

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ on: JUN 2 8 2023

Evacuated: JUL 1 3 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Aug 04, 2023

Sampled By: Alex Yakupov

20psi JMP

Starting Vacuum: -27.1 "Hg

End Vacuum: + 19.0 "Hg/psig

InnoTech ALBERTA

Canister ID: TE-02

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/Aug 04, 2023

Sampled By: Alex Yakupov

Starting Vacuum: _____ "Hg

End Vacuum: _____ "Hg/ psig

Sample ID: 23080113-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Aug 4, 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/Aug 4, 2023
Matrix: Air Filter
CANISTER ID: TE-02
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 04-Aug-23 0:00
DATE RECEIVED: 10-Aug-23
REPORT CREATED: 22-Sep-23
REPORT NUMBER: 23080113
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23080113-002	1-Methylnaphthalene		0.02	ug/Filter	0.01	AC-066	18-Sep-23
23080113-002	2-Methylnaphthalene		0.04	ug/Filter	0.01	AC-066	18-Sep-23
23080113-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080113-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080113-002	Acenaphthene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080113-002	Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080113-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080113-002	Anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080113-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080113-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080113-002	Benzo(b,j,k)fluoranthene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080113-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080113-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080113-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080113-002	Chrysene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080113-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080113-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-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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InnoTech ALBERTA
PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Aug 4, 2023	TE-02	Air Filter	04-Aug-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23080113 **REPORT CREATED:** 22-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23080113-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080113-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080113-002	Fluoranthene		0.02	ug/Filter	0.01	AC-066	18-Sep-23
23080113-002	Fluorene		0.03	ug/Filter	0.01	AC-066	18-Sep-23
23080113-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080113-002	Naphthalene		0.02	ug/Filter	0.01	AC-066	18-Sep-23
23080113-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080113-002	Phenanthrene		0.22	ug/Filter	0.01	AC-066	18-Sep-23
23080113-002	Pyrene		0.02	ug/Filter	0.01	AC-066	18-Sep-23
23080113-002	Retene		0.06	ug/Filter	0.01	AC-066	18-Sep-23

Report certified by: Graham Knox, Admin. & Ops. Supervisor On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: September 22, 2023

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Aug 4, 2023	31818	Ambient Air	04-Aug-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23080113 **REPORT CREATED:** 22-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23080113-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Aug-23
23080113-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Aug-23
23080113-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Aug-23
23080113-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Aug-23
23080113-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Aug-23
23080113-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	12-Aug-23
23080113-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Aug-23
23080113-001	1,2,4-Trimethylbenzene	I	0.08	ppbv	0.03	AC-058	12-Aug-23
23080113-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Aug-23
23080113-001	1,2-Dichlorobenzene	I	0.04	ppbv	0.03	AC-058	12-Aug-23
23080113-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080113-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080113-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080113-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080113-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Aug-23
23080113-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Aug-23
23080113-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	12-Aug-23
23080113-001	1-Butene/Isobutylene	I	0.12	ppbv	0.06	AC-058	12-Aug-23
23080113-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	12-Aug-23
23080113-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080113-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Aug-23
23080113-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Aug-23
23080113-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Aug-23
23080113-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	12-Aug-23
23080113-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Aug-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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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/Aug 4, 2023	31818	Ambient Air	04-Aug-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23080113 **REPORT CREATED:** 22-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23080113-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080113-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Aug-23
23080113-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080113-001	2-Methylpentane	I	0.02	ppbv	0.02	AC-058	12-Aug-23
23080113-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080113-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Aug-23
23080113-001	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Aug-23
23080113-001	Acetone		3.7	ppbv	0.4	AC-058	12-Aug-23
23080113-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Aug-23
23080113-001	Benzene	I	0.12	ppbv	0.03	AC-058	12-Aug-23
23080113-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Aug-23
23080113-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080113-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Aug-23
23080113-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Aug-23
23080113-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Aug-23
23080113-001	Carbon tetrachloride	I	0.07	ppbv	0.02	AC-058	12-Aug-23
23080113-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Aug-23
23080113-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Aug-23
23080113-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Aug-23
23080113-001	Chloromethane		0.68	ppbv	0.04	AC-058	12-Aug-23
23080113-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Aug-23
23080113-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080113-001	cis-2-Butene	I	0.05	ppbv	0.03	AC-058	12-Aug-23
23080113-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Aug-23
23080113-001	Cyclohexane	I	0.04	ppbv	0.04	AC-058	12-Aug-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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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/Aug 4, 2023	31818	Ambient Air	04-Aug-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23080113 **REPORT CREATED:** 22-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23080113-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Aug-23
23080113-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Aug-23
23080113-001	Ethanol		1.1	ppbv	0.5	AC-058	12-Aug-23
23080113-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Aug-23
23080113-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080113-001	Freon-11		0.26	ppbv	0.02	AC-058	12-Aug-23
23080113-001	Freon-113	I	0.06	ppbv	0.02	AC-058	12-Aug-23
23080113-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080113-001	Freon-12		0.54	ppbv	0.03	AC-058	12-Aug-23
23080113-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Aug-23
23080113-001	Isobutane		0.24	ppbv	0.03	AC-058	12-Aug-23
23080113-001	Isopentane		0.17	ppbv	0.04	AC-058	12-Aug-23
23080113-001	Isoprene		0.60	ppbv	0.02	AC-058	12-Aug-23
23080113-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Aug-23
23080113-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Aug-23
23080113-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Aug-23
23080113-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Aug-23
23080113-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080113-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Aug-23
23080113-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Aug-23
23080113-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Aug-23
23080113-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	12-Aug-23
23080113-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080113-001	Methylcyclohexane	I	0.05	ppbv	0.02	AC-058	12-Aug-23
23080113-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	12-Aug-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/Aug 4, 2023	31818	Ambient Air	04-Aug-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23080113 **REPORT CREATED:** 22-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23080113-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Aug-23
23080113-001	n-Butane		0.26	ppbv	0.02	AC-058	12-Aug-23
23080113-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	12-Aug-23
23080113-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Aug-23
23080113-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Aug-23
23080113-001	n-Hexane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080113-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Aug-23
23080113-001	n-Pentane	I	0.09	ppbv	0.04	AC-058	12-Aug-23
23080113-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	12-Aug-23
23080113-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	12-Aug-23
23080113-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Aug-23
23080113-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Aug-23
23080113-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Aug-23
23080113-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080113-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Aug-23
23080113-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Aug-23
23080113-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Aug-23
23080113-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Aug-23
23080113-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Aug-23
23080113-001	Toluene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080113-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	12-Aug-23
23080113-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Aug-23
23080113-001	trans-2-Butene	I	0.04	ppbv	0.03	AC-058	12-Aug-23
23080113-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Aug-23
23080113-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Aug-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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PO Bag 4000
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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Aug 4, 2023	31818	Ambient Air	04-Aug-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23080113 **REPORT CREATED:** 22-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23080113-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Aug-23
23080113-001	Vinyl chloride	I	0.03	ppbv	0.02	AC-058	12-Aug-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
23080113	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

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Result Comments

Note:

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

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

Sample ID: 23080239-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Aug 10, 2023

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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:**	32254
Station ID:	LICA 01	**Installation Date/Time (mst):**	Aug 08, 2023 @ 16:40
Sample ID:	LICA/VOC/CLS/Aug 10, 2023	**Removal Date/Time (mst):**	Aug 11, 2023 @ 17:08

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
August 10, 2023	0:00	23:59	24

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

Flow Settings		
Flow Reading (sccm)	Pot Set Point	Pump Set (psi)
10.00	4.89	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: 23080239-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Aug 10, 2023

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TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	P13-01
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Aug 08, 2023 @ 16:42
Field Sample ID:	LICA/PUF/CLS/Aug 10, 2023	**Removal Date/Time:**	Aug 11, 2023 @ 18:29

Sample Data Collection Information

Sample Date:	10-Aug-23	**Average Pressure (mmHg)**	701
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	16.3
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.4

Sample Recovery Checklist

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

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

Sample ID: 23080239-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Aug 10, 2023

InnoTech ALBERTA

Canister ID: P13-01

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: _____ on: _____

Evacuated: _____ Recertified: _____

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

Laboratory Contact Number: 780-632-8403

PUF

Sample ID: LICA/PUF/CLS/Aug 10, 2023

Sampled By: Alex Yampolsky

Starting Vacuum: _____ "Hg

End Vacuum: _____ "Hg/ psig

InnoTech ALBERTA

Canister ID: 32254

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: FEB 07 2023

Evacuated: JUN 28 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Aug 10, 2023

Sampled By: Alex Yampolsky

Starting Vacuum: -27.1 "Hg

End Vacuum: MW + 20.1 "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/Aug 10, 2023
Matrix: Air Filter
CANISTER ID: P13-01
PRIORITY: Normal
DESCRIPTION:
DATE SAMPLED 10-Aug-23 0:00
DATE RECEIVED 17-Aug-23
REPORT CREATED: 22-Sep-23
REPORT NUMBER: 23080239
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23080239-002	1-Methylnaphthalene		0.03	ug/Filter	0.01	AC-066	18-Sep-23
23080239-002	2-Methylnaphthalene		0.05	ug/Filter	0.01	AC-066	18-Sep-23
23080239-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080239-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080239-002	Acenaphthene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080239-002	Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080239-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080239-002	Anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080239-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080239-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080239-002	Benzo(b,j,k)fluoranthene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080239-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080239-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080239-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080239-002	Chrysene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080239-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080239-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-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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PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Aug 10, 2023	P13-01	Air Filter	10-Aug-23 0:00

DESCRIPTION:

REPORT NUMBER: 23080239 **REPORT CREATED:** 22-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23080239-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080239-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080239-002	Fluoranthene		0.02	ug/Filter	0.01	AC-066	18-Sep-23
23080239-002	Fluorene		0.02	ug/Filter	0.01	AC-066	18-Sep-23
23080239-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080239-002	Naphthalene		0.02	ug/Filter	0.01	AC-066	18-Sep-23
23080239-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080239-002	Phenanthrene		0.15	ug/Filter	0.01	AC-066	18-Sep-23
23080239-002	Pyrene		0.02	ug/Filter	0.01	AC-066	18-Sep-23
23080239-002	Retene		0.03	ug/Filter	0.01	AC-066	18-Sep-23

Report certified by: Graham Knox, Admin. & Ops. Supervisor On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: September 22, 2023

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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/Aug 10, 2023	32254	Ambient Air	10-Aug-23 0:00

DESCRIPTION:

REPORT NUMBER: 23080239 **REPORT CREATED:** 22-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23080239-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-23
23080239-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-23
23080239-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-23
23080239-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-23
23080239-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-23
23080239-001	1,2,3-Trimethylbenzene	I	0.08	ppbv	0.05	AC-058	22-Aug-23
23080239-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Aug-23
23080239-001	1,2,4-Trimethylbenzene	I	0.05	ppbv	0.03	AC-058	22-Aug-23
23080239-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-23
23080239-001	1,2-Dichlorobenzene	I	0.06	ppbv	0.03	AC-058	22-Aug-23
23080239-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Aug-23
23080239-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Aug-23
23080239-001	1,3,5-Trimethylbenzene	I	0.04	ppbv	0.03	AC-058	22-Aug-23
23080239-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Aug-23
23080239-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Aug-23
23080239-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Aug-23
23080239-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	22-Aug-23
23080239-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	22-Aug-23
23080239-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	22-Aug-23
23080239-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Aug-23
23080239-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-23
23080239-001	2,2-Dimethylbutane	I	0.03	ppbv	0.02	AC-058	22-Aug-23
23080239-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-23
23080239-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	22-Aug-23
23080239-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-23

Report certified by: Andrea Conner, Admin Assistant
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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PO Bag 4000
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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Aug 10, 2023	32254	Ambient Air	10-Aug-23 0:00

DESCRIPTION:

REPORT NUMBER: 23080239 **REPORT CREATED:** 22-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23080239-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Aug-23
23080239-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-23
23080239-001	2-Methylhexane	I	0.04	ppbv	0.03	AC-058	22-Aug-23
23080239-001	2-Methylpentane		0.12	ppbv	0.02	AC-058	22-Aug-23
23080239-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Aug-23
23080239-001	3-Methylhexane	I	0.05	ppbv	0.02	AC-058	22-Aug-23
23080239-001	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-23
23080239-001	Acetone		2.0	ppbv	0.4	AC-058	22-Aug-23
23080239-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Aug-23
23080239-001	Benzene	I	0.05	ppbv	0.03	AC-058	22-Aug-23
23080239-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Aug-23
23080239-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Aug-23
23080239-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-23
23080239-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-23
23080239-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-23
23080239-001	Carbon tetrachloride	I	0.07	ppbv	0.02	AC-058	22-Aug-23
23080239-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-23
23080239-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-23
23080239-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-23
23080239-001	Chloromethane		0.64	ppbv	0.04	AC-058	22-Aug-23
23080239-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-23
23080239-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Aug-23
23080239-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Aug-23
23080239-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-23
23080239-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Aug-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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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/Aug 10, 2023	32254	Ambient Air	10-Aug-23 0:00

DESCRIPTION:

REPORT NUMBER: 23080239 **REPORT CREATED:** 22-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23080239-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-23
23080239-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-23
23080239-001	Ethanol		1.0	ppbv	0.5	AC-058	22-Aug-23
23080239-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Aug-23
23080239-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Aug-23
23080239-001	Freon-11		0.19	ppbv	0.02	AC-058	22-Aug-23
23080239-001	Freon-113	I	0.07	ppbv	0.02	AC-058	22-Aug-23
23080239-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Aug-23
23080239-001	Freon-12		0.54	ppbv	0.03	AC-058	22-Aug-23
23080239-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Aug-23
23080239-001	Isobutane		0.23	ppbv	0.03	AC-058	22-Aug-23
23080239-001	Isopentane		0.11	ppbv	0.04	AC-058	22-Aug-23
23080239-001	Isoprene		0.20	ppbv	0.02	AC-058	22-Aug-23
23080239-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Aug-23
23080239-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Aug-23
23080239-001	m,p-Xylene	I	0.05	ppbv	0.04	AC-058	22-Aug-23
23080239-001	m-Diethylbenzene	I	0.08	ppbv	0.02	AC-058	22-Aug-23
23080239-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Aug-23
23080239-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Aug-23
23080239-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Aug-23
23080239-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Aug-23
23080239-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	22-Aug-23
23080239-001	Methyl tert butyl ether	I	0.04	ppbv	0.03	AC-058	22-Aug-23
23080239-001	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-23
23080239-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	22-Aug-23

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

On behalf of: Adam Malcolm, Manager, Chemical Testing

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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/Aug 10, 2023	32254	Ambient Air	10-Aug-23 0:00

DESCRIPTION:

REPORT NUMBER: 23080239 **REPORT CREATED:** 22-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23080239-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Aug-23
23080239-001	n-Butane		0.22	ppbv	0.02	AC-058	22-Aug-23
23080239-001	n-Decane	I	0.07	ppbv	0.06	AC-058	22-Aug-23
23080239-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Aug-23
23080239-001	n-Heptane	I	0.04	ppbv	0.04	AC-058	22-Aug-23
23080239-001	n-Hexane	I	0.03	ppbv	0.03	AC-058	22-Aug-23
23080239-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-23
23080239-001	n-Pentane	I	0.06	ppbv	0.04	AC-058	22-Aug-23
23080239-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	22-Aug-23
23080239-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	22-Aug-23
23080239-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Aug-23
23080239-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Aug-23
23080239-001	o-Ethyltoluene	I	0.02	ppbv	0.02	AC-058	22-Aug-23
23080239-001	o-Xylene	I	0.04	ppbv	0.03	AC-058	22-Aug-23
23080239-001	p-Diethylbenzene	I	0.07	ppbv	0.02	AC-058	22-Aug-23
23080239-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Aug-23
23080239-001	Styrene	I	0.05	ppbv	0.04	AC-058	22-Aug-23
23080239-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-23
23080239-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Aug-23
23080239-001	Toluene	I	0.05	ppbv	0.03	AC-058	22-Aug-23
23080239-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	22-Aug-23
23080239-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-23
23080239-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Aug-23
23080239-001	trans-2-Pentene	I	0.02	ppbv	0.02	AC-058	22-Aug-23
23080239-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-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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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/Aug 10, 2023	32254	Ambient Air	10-Aug-23 0:00

DESCRIPTION:

REPORT NUMBER: 23080239 **REPORT CREATED:** 22-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23080239-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Aug-23
23080239-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Aug-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
23080239	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

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: 23080304-001 Priority: Normal

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Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Aug 16, 2023

Bureau Veritas

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

	LICA	Sampler S/N:	6167
Location:	Cold Lake South	Canister ID:	28896
Station ID:	LICA 01	Installation Date/Time (mst):	Aug 11, 2023 @ 18:34
Sample ID:	LICA/VOC/CLS/Aug 16, 2023	Removal Date/Time (mst):	Aug 19, 2023 @ 18:50

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
August 16, 2023	0:00	23:59	24

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.1	17.9

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: 23080304-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Aug 16, 2023

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AUG 22 2023

This is the correct COC

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	A13-02
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Aug 11, 2023 @ 18:36
Field Sample ID:	LICA/PUF/CLS/Aug 16, 2023	**Removal Date/Time:**	Aug 19, 2023 @ 18:52

Sample Data Collection Information

Sample Date:	16-Aug-23	**Average Pressure (mmHg)**	710
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	18.4
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: 23080304-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Aug 16, 2023

2nd Morning Jessica ;)
you please remove the incorrect COC for PUF on Jun 11, and replace it with the correct form ? (The volume is wrong)

This is the Incorrect COC.

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AUG 22 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:**	Jul 07, 2023 @ 17:10
Field Sample ID:	LICA/PUF/CLS/Jul 11, 2023	**Removal Date/Time:**	Jul 13, 2023 @ 17:48

Sample Data Collection Information

Sample Date:	11-Jul-23	**Average Pressure (mmHg)**	710
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	19
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	17.6

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

wrong!

330.41 is correct.

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

I attached the correct form behind.
Thank you so much!
Kindly, Alex. ;)

InnoTech ALBERTA

Canister ID: 28896

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ on: JUN 0 8 2023

Evacuated: JUL 1 3 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Aug 16, 2023

Sampled By: Alex Yakupov

Starting Vacuum:	End Vacuum:
-27.1 "Hg	+17.9 "Hg/psig

InnoTech ALBERTA

Canister ID: A13-02

This cleaned canister meets or exceeds TO-15 Method Specifications

PUF

Proofed by: _____ on: _____

Evacuated: _____ Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/PUF/CLS/Aug 16, 2023

Sampled By: Alex Yakupov

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

Sample ID: 23080304-002 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/PUF/CLS/Aug 16, 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/Aug 16, 2023
Matrix: Air Filter
CANISTER ID: A13-02
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 16-Aug-23 0:00
DATE RECEIVED: 22-Aug-23
REPORT CREATED: 22-Sep-23
REPORT NUMBER: 23080304
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23080304-002	1-Methylnaphthalene		0.08	ug/Filter	0.01	AC-066	18-Sep-23
23080304-002	2-Methylnaphthalene		0.08	ug/Filter	0.01	AC-066	18-Sep-23
23080304-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080304-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080304-002	Acenaphthene		0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080304-002	Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080304-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080304-002	Anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080304-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080304-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080304-002	Benzo(b,j,k)fluoranthene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080304-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080304-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080304-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080304-002	Chrysene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080304-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080304-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-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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PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Aug 16, 2023	A13-02	Air Filter	16-Aug-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23080304 **REPORT CREATED:** 22-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23080304-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080304-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080304-002	Fluoranthene		0.03	ug/Filter	0.01	AC-066	18-Sep-23
23080304-002	Fluorene		0.08	ug/Filter	0.01	AC-066	18-Sep-23
23080304-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080304-002	Naphthalene		0.05	ug/Filter	0.01	AC-066	18-Sep-23
23080304-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080304-002	Phenanthrene		0.32	ug/Filter	0.01	AC-066	18-Sep-23
23080304-002	Pyrene		0.02	ug/Filter	0.01	AC-066	18-Sep-23
23080304-002	Retene		0.11	ug/Filter	0.01	AC-066	18-Sep-23

Report certified by: Graham Knox, Admin. & Ops. Supervisor On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: September 22, 2023

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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
LICAVOC/CLS/Aug 16, 2023	28896	Ambient Air	16-Aug-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23080304 **REPORT CREATED:** 22-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23080304-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Aug-23
23080304-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Aug-23
23080304-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Aug-23
23080304-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Aug-23
23080304-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Aug-23
23080304-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	25-Aug-23
23080304-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Aug-23
23080304-001	1,2,4-Trimethylbenzene	I	0.13	ppbv	0.03	AC-058	25-Aug-23
23080304-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Aug-23
23080304-001	1,2-Dichlorobenzene	I	0.06	ppbv	0.03	AC-058	25-Aug-23
23080304-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Aug-23
23080304-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Aug-23
23080304-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Aug-23
23080304-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Aug-23
23080304-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	25-Aug-23
23080304-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	25-Aug-23
23080304-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	25-Aug-23
23080304-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	25-Aug-23
23080304-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	25-Aug-23
23080304-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Aug-23
23080304-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Aug-23
23080304-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Aug-23
23080304-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Aug-23
23080304-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	25-Aug-23
23080304-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Aug-23

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICAVOC/CLS/Aug 16, 2023	28896	Ambient Air	16-Aug-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23080304 **REPORT CREATED:** 22-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23080304-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Aug-23
23080304-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Aug-23
23080304-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Aug-23
23080304-001	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Aug-23
23080304-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Aug-23
23080304-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Aug-23
23080304-001	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Aug-23
23080304-001	Acetone		2.5	ppbv	0.4	AC-058	25-Aug-23
23080304-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Aug-23
23080304-001	Benzene	I	0.11	ppbv	0.03	AC-058	25-Aug-23
23080304-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Aug-23
23080304-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Aug-23
23080304-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Aug-23
23080304-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Aug-23
23080304-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Aug-23
23080304-001	Carbon tetrachloride	I	0.07	ppbv	0.02	AC-058	25-Aug-23
23080304-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Aug-23
23080304-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Aug-23
23080304-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Aug-23
23080304-001	Chloromethane		0.66	ppbv	0.04	AC-058	25-Aug-23
23080304-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Aug-23
23080304-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Aug-23
23080304-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Aug-23
23080304-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Aug-23
23080304-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	25-Aug-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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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
LICAVOC/CLS/Aug 16, 2023	28896	Ambient Air	16-Aug-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23080304 **REPORT CREATED:** 22-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23080304-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Aug-23
23080304-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Aug-23
23080304-001	Ethanol	I	0.7	ppbv	0.5	AC-058	25-Aug-23
23080304-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Aug-23
23080304-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Aug-23
23080304-001	Freon-11		0.23	ppbv	0.02	AC-058	25-Aug-23
23080304-001	Freon-113	I	0.07	ppbv	0.02	AC-058	25-Aug-23
23080304-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Aug-23
23080304-001	Freon-12		0.58	ppbv	0.03	AC-058	25-Aug-23
23080304-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Aug-23
23080304-001	Isobutane		0.11	ppbv	0.03	AC-058	25-Aug-23
23080304-001	Isopentane	K, T, U	< 0.04	ppbv	0.04	AC-058	25-Aug-23
23080304-001	Isoprene		0.51	ppbv	0.02	AC-058	25-Aug-23
23080304-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Aug-23
23080304-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	25-Aug-23
23080304-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	25-Aug-23
23080304-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Aug-23
23080304-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Aug-23
23080304-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	25-Aug-23
23080304-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Aug-23
23080304-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Aug-23
23080304-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	25-Aug-23
23080304-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Aug-23
23080304-001	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Aug-23
23080304-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	25-Aug-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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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
LICAVOC/CLS/Aug 16, 2023	28896	Ambient Air	16-Aug-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23080304 **REPORT CREATED:** 22-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23080304-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Aug-23
23080304-001	n-Butane		0.17	ppbv	0.02	AC-058	25-Aug-23
23080304-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	25-Aug-23
23080304-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Aug-23
23080304-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	25-Aug-23
23080304-001	n-Hexane	I	0.03	ppbv	0.03	AC-058	25-Aug-23
23080304-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Aug-23
23080304-001	n-Pentane	I	0.08	ppbv	0.04	AC-058	25-Aug-23
23080304-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	25-Aug-23
23080304-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	25-Aug-23
23080304-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Aug-23
23080304-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	25-Aug-23
23080304-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Aug-23
23080304-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Aug-23
23080304-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Aug-23
23080304-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	25-Aug-23
23080304-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	25-Aug-23
23080304-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Aug-23
23080304-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Aug-23
23080304-001	Toluene	I	0.04	ppbv	0.03	AC-058	25-Aug-23
23080304-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	25-Aug-23
23080304-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Aug-23
23080304-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-Aug-23
23080304-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Aug-23
23080304-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Aug-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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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
LICAVOC/CLS/Aug 16, 2023	28896	Ambient Air	16-Aug-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23080304 **REPORT CREATED:** 22-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23080304-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	25-Aug-23
23080304-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	25-Aug-23

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

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Revision History

Order ID	Ver	Date	Reason
23080304	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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(780) 632-8211

Qualifiers

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

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

Order Comments

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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: 23080392-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Aug 22, 2023

RECEIVED
AUG 2 8 2023

Bureau Veritas

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

Client:	LICA	**Sampler S/N:**	6167
Location:	Cold Lake South	**Canister ID:**	32274
Station ID:	LICA 01	**Installation Date/Time (mst):**	Aug 19, 2023 @ 19:00
Sample ID:	LICA/VOC/CLS/Aug 22, 2023	**Removal Date/Time (mst):**	Aug 23, 2023 @ 16:27

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
August 22, 2023	0:00	23:59	24

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

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

Deployment/Collection and Maintenance Checklist

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

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 23080392-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Aug 22, 2023

RECEIVED
AUG 2 8 2023

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	TE-06
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Aug 19, 2023 @ 19:03
Field Sample ID:	LICA/PUF/CLS/Aug 22, 2023	**Removal Date/Time:**	Aug 23, 2023 @ 16:29

Sample Data Collection Information

Sample Date:	22-Aug-23	**Average Pressure (mmHg)**	712
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	19.8
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.4

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: 23080392-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Aug 22, 2023

InnoTech ALBERTA

Canister ID: 32274

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: MAY 0 4 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/Aug 22, 2023

Sampled By: Alex Yakupov

Starting Vacuum: -27.1 "Hg

End Pressure: MW +18.5 "Hg/psig

InnoTech ALBERTA

Canister ID: TE-06

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: PUF on: _____

Evacuated: _____ Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/PUF/CLS/Aug 22, 20

Sampled By: Alex Yakupov

Starting Vacuum: _____ "Hg

End Vacuum: _____ "Hg/psig

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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/Aug 22, 2023
Matrix: Air Filter
CANISTER ID:
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 22-Aug-23 0:00
DATE RECEIVED: 28-Aug-23
REPORT CREATED: 22-Sep-23
REPORT NUMBER: 23080392
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23080392-002	1-Methylnaphthalene		0.15	ug/Filter	0.01	AC-066	18-Sep-23
23080392-002	2-Methylnaphthalene		0.16	ug/Filter	0.01	AC-066	18-Sep-23
23080392-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080392-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080392-002	Acenaphthene		0.03	ug/Filter	0.01	AC-066	18-Sep-23
23080392-002	Acenaphthylene		0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080392-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080392-002	Anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080392-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080392-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080392-002	Benzo(b,j,k)fluoranthene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080392-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080392-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080392-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080392-002	Chrysene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080392-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080392-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-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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PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Aug 22, 2023		Air Filter	22-Aug-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23080392 **REPORT CREATED:** 22-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23080392-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080392-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080392-002	Fluoranthene		0.05	ug/Filter	0.01	AC-066	18-Sep-23
23080392-002	Fluorene		0.08	ug/Filter	0.01	AC-066	18-Sep-23
23080392-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080392-002	Naphthalene		0.05	ug/Filter	0.01	AC-066	18-Sep-23
23080392-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23080392-002	Phenanthrene		0.47	ug/Filter	0.01	AC-066	18-Sep-23
23080392-002	Pyrene		0.04	ug/Filter	0.01	AC-066	18-Sep-23
23080392-002	Retene		0.17	ug/Filter	0.01	AC-066	18-Sep-23

Report certified by: Graham Knox, Admin. & Ops. Supervisor On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: September 22, 2023

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PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Aug 22, 2023		Ambient Air	22-Aug-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23080392 **REPORT CREATED:** 22-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23080392-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-23
23080392-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-23
23080392-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-23
23080392-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-23
23080392-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-23
23080392-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	02-Sep-23
23080392-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	02-Sep-23
23080392-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Sep-23
23080392-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-23
23080392-001	1,2-Dichlorobenzene	I	0.03	ppbv	0.03	AC-058	02-Sep-23
23080392-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Sep-23
23080392-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Sep-23
23080392-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Sep-23
23080392-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Sep-23
23080392-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	02-Sep-23
23080392-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	02-Sep-23
23080392-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	02-Sep-23
23080392-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	02-Sep-23
23080392-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	02-Sep-23
23080392-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Sep-23
23080392-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-23
23080392-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-23
23080392-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-23
23080392-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	02-Sep-23
23080392-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-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/Aug 22, 2023		Ambient Air	22-Aug-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23080392 **REPORT CREATED:** 22-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23080392-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Sep-23
23080392-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-23
23080392-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Sep-23
23080392-001	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-23
23080392-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Sep-23
23080392-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-23
23080392-001	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-23
23080392-001	Acetone		5.6	ppbv	0.4	AC-058	02-Sep-23
23080392-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	02-Sep-23
23080392-001	Benzene	I	0.16	ppbv	0.03	AC-058	02-Sep-23
23080392-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	02-Sep-23
23080392-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Sep-23
23080392-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-23
23080392-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-23
23080392-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-23
23080392-001	Carbon tetrachloride	I	0.06	ppbv	0.02	AC-058	02-Sep-23
23080392-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-23
23080392-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-23
23080392-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-23
23080392-001	Chloromethane		0.66	ppbv	0.04	AC-058	02-Sep-23
23080392-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-23
23080392-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Sep-23
23080392-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Sep-23
23080392-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-23
23080392-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	02-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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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/Aug 22, 2023		Ambient Air	22-Aug-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23080392 **REPORT CREATED:** 22-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23080392-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-23
23080392-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-23
23080392-001	Ethanol		1.8	ppbv	0.5	AC-058	02-Sep-23
23080392-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	02-Sep-23
23080392-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Sep-23
23080392-001	Freon-11		0.21	ppbv	0.02	AC-058	02-Sep-23
23080392-001	Freon-113	I	0.06	ppbv	0.02	AC-058	02-Sep-23
23080392-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Sep-23
23080392-001	Freon-12		0.55	ppbv	0.03	AC-058	02-Sep-23
23080392-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	02-Sep-23
23080392-001	Isobutane		0.32	ppbv	0.03	AC-058	02-Sep-23
23080392-001	Isopentane		0.20	ppbv	0.04	AC-058	02-Sep-23
23080392-001	Isoprene		0.28	ppbv	0.02	AC-058	02-Sep-23
23080392-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	02-Sep-23
23080392-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	02-Sep-23
23080392-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	02-Sep-23
23080392-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-23
23080392-001	m-Ethyltoluene	I	0.05	ppbv	0.03	AC-058	02-Sep-23
23080392-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	02-Sep-23
23080392-001	Methyl ethyl ketone	I	0.3	ppbv	0.3	AC-058	02-Sep-23
23080392-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	02-Sep-23
23080392-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	02-Sep-23
23080392-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Sep-23
23080392-001	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-23
23080392-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	02-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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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/Aug 22, 2023		Ambient Air	22-Aug-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23080392 **REPORT CREATED:** 22-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23080392-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	02-Sep-23
23080392-001	n-Butane		0.67	ppbv	0.02	AC-058	02-Sep-23
23080392-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	02-Sep-23
23080392-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	02-Sep-23
23080392-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	02-Sep-23
23080392-001	n-Hexane	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Sep-23
23080392-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-23
23080392-001	n-Pentane		0.13	ppbv	0.04	AC-058	02-Sep-23
23080392-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	02-Sep-23
23080392-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	02-Sep-23
23080392-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	02-Sep-23
23080392-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	02-Sep-23
23080392-001	o-Ethyltoluene	I	0.05	ppbv	0.02	AC-058	02-Sep-23
23080392-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Sep-23
23080392-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-23
23080392-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	02-Sep-23
23080392-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	02-Sep-23
23080392-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-23
23080392-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	02-Sep-23
23080392-001	Toluene	I	0.05	ppbv	0.03	AC-058	02-Sep-23
23080392-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	02-Sep-23
23080392-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-23
23080392-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Sep-23
23080392-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Sep-23
23080392-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-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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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/Aug 22, 2023		Ambient Air	22-Aug-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23080392 **REPORT CREATED:** 22-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23080392-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	02-Sep-23
23080392-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	02-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
23080392	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

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Result Comments

Note:

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

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

Sample ID: 23090008-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Aug 28, 2023

RECEIVED
SEP 01 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:**	32199
Station ID:	LICA 01	**Installation Date/Time (mst):**	Aug 23, 2023 @ 16:39
Sample ID:	LICA/VOC/CLS/Aug 28, 2023	**Removal Date/Time (mst):**	Aug 31, 2023 @ 12:20

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
August 28, 2023	0:00	23:59	24

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

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

Deployment/Collection and Maintenance Checklist

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

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 23090008-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Aug 28, 2023

RECEIVED
SEP 01 2023

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	TE-10
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Aug 23, 2023 @ 16:40
Field Sample ID:	LICA/PUF/CLS/Aug 28, 2023	**Removal Date/Time:**	Aug 31, 2023 @ 12:24

Sample Data Collection Information

Sample Date:	28-Aug-23	**Average Pressure (mmHg)**	713
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	22.3
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.42

Sample Recovery Checklist

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

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

InnoTech ALBERTA

Canister ID: 32199

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: 1523 on: MAY 16 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/Aug 28, 2023

Sampled By: Alex Yakupov

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

InnoTech ALBERTA

Canister ID: TE-10

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: _____ on: _____

Evacuated: _____ Recertified: _____

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

Laboratory Contact Number: 780-632-8403

PUF

Sample ID: LICA/PUF/CLS/Aug 28, ...

Sampled By: Alex Yakupov

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

Sample ID: 23090008-002 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/PUF/CLS/Aug 28, 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/Aug 28, 2023
Matrix: Air Filter
CANISTER ID: TE-10
PRIORITY: Normal
DESCRIPTION:
DATE SAMPLED: 28-Aug-23 0:00
DATE RECEIVED: 01-Sep-23
REPORT CREATED: 22-Sep-23
REPORT NUMBER: 23090008
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23090008-002	1-Methylnaphthalene		0.14	ug/Filter	0.01	AC-066	18-Sep-23
23090008-002	2-Methylnaphthalene		0.16	ug/Filter	0.01	AC-066	18-Sep-23
23090008-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23090008-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23090008-002	Acenaphthene		0.03	ug/Filter	0.01	AC-066	18-Sep-23
23090008-002	Acenaphthylene		0.01	ug/Filter	0.01	AC-066	18-Sep-23
23090008-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23090008-002	Anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23090008-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23090008-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23090008-002	Benzo(b,j,k)fluoranthene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23090008-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23090008-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23090008-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23090008-002	Chrysene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23090008-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23090008-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-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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InnoTech ALBERTA
PO Bag 4000
Vegreville, Alberta
Canada T9C 1T4
(780) 632-8211

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Aug 28, 2023	TE-10	Air Filter	28-Aug-23 0:00

DESCRIPTION:

REPORT NUMBER: 23090008 **REPORT CREATED:** 22-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23090008-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23090008-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23090008-002	Fluoranthene		0.04	ug/Filter	0.01	AC-066	18-Sep-23
23090008-002	Fluorene		0.08	ug/Filter	0.01	AC-066	18-Sep-23
23090008-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23090008-002	Naphthalene		0.05	ug/Filter	0.01	AC-066	18-Sep-23
23090008-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	18-Sep-23
23090008-002	Phenanthrene		0.46	ug/Filter	0.01	AC-066	18-Sep-23
23090008-002	Pyrene		0.04	ug/Filter	0.01	AC-066	18-Sep-23
23090008-002	Retene		0.16	ug/Filter	0.01	AC-066	18-Sep-23

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Canada T9C 1T4
(780) 632-8211

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Aug 28. 2023	32199	Ambient Air	28-Aug-23 0:00

DESCRIPTION:

REPORT NUMBER: 23090008 **REPORT CREATED:** 22-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23090008-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090008-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090008-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090008-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090008-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090008-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	09-Sep-23
23090008-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	09-Sep-23
23090008-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	09-Sep-23
23090008-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090008-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	09-Sep-23
23090008-001	1,2-Dichloroethane		3.08	ppbv	0.03	AC-058	09-Sep-23
23090008-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	09-Sep-23
23090008-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	09-Sep-23
23090008-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	09-Sep-23
23090008-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	09-Sep-23
23090008-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	09-Sep-23
23090008-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	09-Sep-23
23090008-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	09-Sep-23
23090008-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	09-Sep-23
23090008-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	09-Sep-23
23090008-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090008-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090008-001	2,3,4-Trimethylpentane		0.19	ppbv	0.02	AC-058	09-Sep-23
23090008-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	09-Sep-23
23090008-001	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

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.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/Aug 28. 2023	32199	Ambient Air	28-Aug-23 0:00

DESCRIPTION:

REPORT NUMBER: 23090008 **REPORT CREATED:** 22-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23090008-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	09-Sep-23
23090008-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090008-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	09-Sep-23
23090008-001	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090008-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	09-Sep-23
23090008-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090008-001	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090008-001	Acetone		4.3	ppbv	0.4	AC-058	09-Sep-23
23090008-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	09-Sep-23
23090008-001	Benzene		0.38	ppbv	0.03	AC-058	09-Sep-23
23090008-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	09-Sep-23
23090008-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	09-Sep-23
23090008-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090008-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090008-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090008-001	Carbon tetrachloride	I	0.02	ppbv	0.02	AC-058	09-Sep-23
23090008-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090008-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090008-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090008-001	Chloromethane		0.48	ppbv	0.04	AC-058	09-Sep-23
23090008-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090008-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	09-Sep-23
23090008-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	09-Sep-23
23090008-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090008-001	Cyclohexane	K, T, U	< 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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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/Aug 28. 2023	32199	Ambient Air	28-Aug-23 0:00

DESCRIPTION:

REPORT NUMBER: 23090008 **REPORT CREATED:** 22-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23090008-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090008-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090008-001	Ethanol		1.3	ppbv	0.5	AC-058	09-Sep-23
23090008-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	09-Sep-23
23090008-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	09-Sep-23
23090008-001	Freon-11		0.15	ppbv	0.02	AC-058	09-Sep-23
23090008-001	Freon-113	I	0.02	ppbv	0.02	AC-058	09-Sep-23
23090008-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	09-Sep-23
23090008-001	Freon-12		0.48	ppbv	0.03	AC-058	09-Sep-23
23090008-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	09-Sep-23
23090008-001	Isobutane		0.24	ppbv	0.03	AC-058	09-Sep-23
23090008-001	Isopentane		0.33	ppbv	0.04	AC-058	09-Sep-23
23090008-001	Isoprene		2.77	ppbv	0.02	AC-058	09-Sep-23
23090008-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	09-Sep-23
23090008-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	09-Sep-23
23090008-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	09-Sep-23
23090008-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090008-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	09-Sep-23
23090008-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	09-Sep-23
23090008-001	Methyl ethyl ketone	I	0.4	ppbv	0.3	AC-058	09-Sep-23
23090008-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	09-Sep-23
23090008-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	09-Sep-23
23090008-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	09-Sep-23
23090008-001	Methylcyclohexane	I	0.02	ppbv	0.02	AC-058	09-Sep-23
23090008-001	Methylcyclopentane	K, T, U	< 0.05	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

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

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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/Aug 28. 2023	32199	Ambient Air	28-Aug-23 0:00

DESCRIPTION:

REPORT NUMBER: 23090008 **REPORT CREATED:** 22-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23090008-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	09-Sep-23
23090008-001	n-Butane		0.60	ppbv	0.02	AC-058	09-Sep-23
23090008-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	09-Sep-23
23090008-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	09-Sep-23
23090008-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	09-Sep-23
23090008-001	n-Hexane	I	0.03	ppbv	0.03	AC-058	09-Sep-23
23090008-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090008-001	n-Pentane		0.22	ppbv	0.04	AC-058	09-Sep-23
23090008-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	09-Sep-23
23090008-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	09-Sep-23
23090008-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	09-Sep-23
23090008-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	09-Sep-23
23090008-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090008-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	09-Sep-23
23090008-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090008-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	09-Sep-23
23090008-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	09-Sep-23
23090008-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090008-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	09-Sep-23
23090008-001	Toluene	I	0.11	ppbv	0.03	AC-058	09-Sep-23
23090008-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	09-Sep-23
23090008-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090008-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	09-Sep-23
23090008-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23
23090008-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	09-Sep-23

Report certified by: Andrea Conner, Admin Assistant
On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: September 22, 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//

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/Aug 28. 2023	32199	Ambient Air	28-Aug-23 0:00

DESCRIPTION:

REPORT NUMBER: 23090008 **REPORT CREATED:** 22-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Dat
23090008-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	09-Sep-23
23090008-001	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

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

Revision History

Order ID	Ver	Date	Reason
23090008	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

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 Samples

Partisol 2000i-D Sample Data Sheet

Date Sampled:	4-Aug-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: 23080112-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9700147

	FINE (1)	COURSE (2)
Filter Type:	47mm	47mm
Filter #:	C9700147	C9700148
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	20.2	
Pressure	715	
Std Volume (Instrument)	20.9	2.33

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date):	Alex Yakupov	Date:	1-Aug-23
Removed by (Sign/Date)	Alex Yakupov	Date:	8-Aug-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: 23080112-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9700147

RECEIVED
AUG 10 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	C9700147 → C9700148

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
C9700147	Air Filter

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

DATE SAMPLED: 04-Aug-23 0:00
DATE RECEIVED: 10-Aug-23
REPORT CREATED: 25-Aug-23
REPORT NUMBER: 23080112
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23080112-001	Particulate Weight		0.229	mg	0.004	AC-029	15-Aug-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: August 25, 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-202308

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
C9700148		Air Filter	04-Aug-23 0:00

DESCRIPTION: Cold Lake South - Coarse - PM10

REPORT NUMBER: 23080112 **REPORT CREATED:** 25-Aug-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23080112-002	Particulate Weight		0.075	mg	0.004	AC-029	15-Aug-23

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

Date: August 25, 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-202308

Revision History

Order ID	Ver	Date	Reason
23080112	01	25-Aug-23	Report created

Methods

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

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

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

Qualifiers

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

Order Comments

Sample Comments

Result Comments

Note:

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

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

Sample ID: 23080238-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C1168577

;ol 2000i-D Sample Data Sheet

RECEIVED
AUG 17 2023

Date Sampled:	10-Aug-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 #:	C1168577	C1168578
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	14.9	
Pressure	701	
Std Volume (Instrument)	20.7	2.3

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date): Alex Yakupov Date: 8-Aug-23

Removed by (Sign/Date) Alex Yakupov Date: 11-Aug-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: 23080238-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C1168577

Filter Shipping Record

RECEIVED
AUG 17 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: ~~MAY 31/23~~

Project: LICA/Bureau Veritas Labs

Prepared by:

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	C1168577 → C1168578

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
C1168577	Air Filter

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

DATE SAMPLED: 10-Aug-23 0:00
DATE RECEIVED: 17-Aug-23
REPORT CREATED: 25-Aug-23
REPORT NUMBER: 23080238
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23080238-001	Particulate Weight		0.031	mg	0.004	AC-029	18-Aug-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: August 25, 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-202308

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
C1168578		Air Filter	10-Aug-23 0:00

DESCRIPTION: Cold Lake South - Coarse - PM10

REPORT NUMBER: 23080238 **REPORT CREATED:** 25-Aug-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23080238-002	Particulate Weight		0.059	mg	0.004	AC-029	18-Aug-23

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

Date: August 25, 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-202308

Revision History

Order ID	Ver	Date	Reason
23080238	01	25-Aug-23	Report created

Methods

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

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

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

Qualifiers

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

Order Comments

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: 23080303-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9700143

ol 2000i-D Sample Data Sheet

Date Sampled:	16-Aug-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 #:	C9700143	C9700144
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	16.4	
Pressure	709	
Std Volume (Instrument)	21.6	2.32

Comments: Weather Conditions, etc.

n/a

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

Removed by (Sign/Date) Alex Yakupov Date: 19-Aug-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: 23080303-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9700143

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: S Melenka

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	C9700143 → C9700144

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
C9700143	Air Filter

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

DATE SAMPLED: 16-Aug-23 0:00
DATE RECEIVED: 22-Aug-23
REPORT CREATED: 06-Sep-23
REPORT NUMBER: 23080303
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23080303-001	Particulate Weight		0.219	mg	0.004	AC-029	24-Aug-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: September 6, 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-202308

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
C9700144		Air Filter	16-Aug-23 0:00

DESCRIPTION: Cold Lake South - Coarse - PM 10

REPORT NUMBER: 23080303 **REPORT CREATED:** 06-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23080303-002	Particulate Weight		0.111	mg	0.004	AC-029	24-Aug-23

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

Date: September 6, 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-202308

Revision History

Order ID	Ver	Date	Reason
23080303	01	06-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.

Partisol 2000i-D Sample Data Sheet

Date Sampled:	22-Aug-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: 23080391-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9700141

	FINE (1)	COURSE (2)
Filter Type:	47mm	47mm
Filter #:	C9700141	C9700142
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	18.6	
Pressure	712	
Std Volume (Instrument)	21.6	2.32

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date): Alex Yakupov Date: 19-Aug-23

Removed by (Sign/Date) Alex Yakupov Date: 23-Aug-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: 23080391-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9700142

Filter Shipping Record

RECEIVED
AUG 28 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: 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	C9700141 → C9700142

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: C9700141

Matrix: Air Filter

CANISTER ID:

PRIORITY: Normal

DESCRIPTION: Cold Lake South

DATE SAMPLED: 22-Aug-23 0:00

DATE RECEIVED: 28-Aug-23

REPORT CREATED: 06-Sep-23

REPORT NUMBER: 23080391

VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23080391-001	Particulate Weight		0.330	mg	0.004	AC-029	31-Aug-23

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

Date: September 6, 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-202308

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
C9700142		Air Filter	22-Aug-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23080391 **REPORT CREATED:** 06-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23080391-002	Particulate Weight		0.239	mg	0.004	AC-029	31-Aug-23

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

Date: September 6, 2023

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

Revision History

Order ID	Ver	Date	Reason
23080391	01	06-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: 23090009-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9700139

2000i-D Sample Data Sheet

Date Sampled:	28-Aug-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 #:	C9700139	C9700140
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	20.2	
Pressure	713	
Std Volume (Instrument)	21.6	2.31

Comments: Weather Conditions, etc.

n/a

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

Removed by (Sign/Date) Alex Yakupov Date: 31-Aug-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: 23090009-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9700140

RECEIVED
SEP 01 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: S Mulcahy

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	C9700139 → C9700140

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: C9700139

Matrix: Air Filter

CANISTER ID:

PRIORITY: Normal

DESCRIPTION: PM 2.5

DATE SAMPLED: 28-Aug-23 0:00

DATE RECEIVED: 01-Sep-23

REPORT CREATED: 06-Sep-23

REPORT NUMBER: 23090009

VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23090009-001	Particulate Weight		0.768	mg	0.004	AC-029	05-Sep-23

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

Date: September 6, 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-202308

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
C9700140		Air Filter	28-Aug-23 0:00

DESCRIPTION: PM 10

REPORT NUMBER: 23090009 **REPORT CREATED:** 06-Sep-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23090009-002	Particulate Weight		0.323	mg	0.004	AC-029	05-Sep-23

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

Date: September 6, 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-202308

Revision History

Order ID	Ver	Date	Reason
23090009	01	06-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.

Passive Samples

Passive Sampler Field Sheet for LICA, Aug 2023 sample period

ID	SAMPLER						START		END		NOTES
							DATE	TIME	DATE	TIME	
3	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Jul 29	18:05	Aug 31	14:34	
4	---	SO_2	NO_2	O_3	HNO3	NH3	Jul 30	13:43	Sep 2	12:30	
5	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Jul 30	15:05	Sep 2	14:04	
6	---	SO_2	NO_2	O_3	HNO3	NH3	Jul 30	16:25	Sep 2	16:25	
8	---	SO_2	NO_2	O_3	HNO3	NH3	Jul 30	12:35	Sep 2	10:40	
9	---	SO_2	NO_2	O_3	HNO3	NH3	Jul 29	17:15	Sep 1	13:58	
10	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Jul 31	18:15	Sep 1	19:10	
11	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Jul 31	18:25	Sep 1	20:24	
12	H2S	SO2	NO2	O3	HNO3	NH3	Jul 31	17:02	Sep 3	19:20	
13	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Jul 29	15:44	Sep 1	16:01	
14	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Jul 29	14:20	Sep 1	15:23	water isotope sample taken
15	---	SO_2	NO_2	O_3	HNO3	NH3	Jul 30	10:56	Sep 1	12:46	
16	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Jul 31	11:46	Sep 2	11:30	
17	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Jul 30	17:45	Sep 2	17:27	
18	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Jul 30	19:40	Sep 2	19:02	
19	---	SO_2	NO_2	O_3	HNO3	NH3	Jul 30	21:15	Sep 3	10:45	
22	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Jul 31	20:10	Sep 3	21:10	
23	---	SO_2	NO_2	O_3	HNO3	NH3	Jul 29	12:01	Sep 2	09:16	
24	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Jul 30	15:50	Sep 2	15:22	
25	H2S	SO2	---	---							
26	H_2S	SO_2	---	---	HNO3	NH3	Jul 29	14:45	Sep 1	15:43	
27	H_2S	SO_2	---	---	HNO3	NH3	Jul 29	13:58	Sep 1	15:03	
28	H_2S	SO_2	NO_2	O_3	HNO3	NH3	No access — u —		Sep 1	13:40	
29	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Jul 31	20:25	Sep 3	21:42	
32	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Jul 29	20:05	Aug 31	16:56	
42	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Jul 31	14:21	Sep 2	14:55	
							DUPLICATES				
17	H2S	---	---	---	---	---	Jul 30	17:45	Sep 2	17:27	
18	H2S	---	---	---	---	---	Jul 30	19:40	Sep 2	19:02	
15	---	SO2	---	---	---	---	Jul 30	10:56	Sep 1	12:46	
16		SO2	---	---	---	---	Jul 31	11:46	Sep 2	11:30	
17	---	SO2	---	---	---	---	Jul 30	17:45	Sep 2	17:27	
22	---	---	NO_2	O_3	---	---	Jul 30	20:10	Sep 3	21:10	
23	---	---	NO_2	O_3	---	---	Jul 29	12:01	Sep 2	09:16	
9	---	---	---	---	HNO3	NH3	Jul 29	17:15	Sep 1	13:58	
10	---	---	---	---	HNO3	NH3	Jul 31	19:15	Sep 1	19:10	

28 SO_2 30 HNO_3 BB 23-09-06
23 H_2S 28 NO_2 @07:30
33 NH_3 33 SO_2

Your Project #: AUGUST 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: 2023/09/21
Report #: R3398587
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C370583
Received: 2023/09/08, 08:03

Sample Matrix: Air
Samples Received: 62

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
H2S Passive Analysis	20	2023/09/18	2023/09/20	PTC SOP-00150	Passive H2S in ATM
HNO3 by Passive Sampler	30	2023/09/12	2023/09/20	PTC SOP-00288	Passive HNO3 in ATM
NH3 by Passive Sampler	30	2023/09/12	2023/09/19	PTC SOP-00157	ASTM D6919
NO2 Passive Analysis	25	2023/09/12	2023/09/20	PTC SOP-00148	Passive NO2 in ATM
O3 Passive Analysis	25	2023/09/12	2023/09/20	PTC SOP-00197	EPA 300 R2.1
SO2 Passive Analysis	28	2023/09/12	2023/09/20	PTC SOP-00149	Passive SO2 in ATM

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

Encryption Key

Rowena Geron
Project Manager Assistant
21 Sep 2023 13:45:53

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

==========

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

Bureau Veritas Job #: C370583
Report Date: 2023/09/21

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BYM884			BYM885			BYM886		
Sampling Date		2023/07/29 18:05			2023/07/30 13:43			2023/07/30 15:05		
	UNITS	3	RDL	QC Batch	4	RDL	QC Batch	5	RDL	QC Batch
Passive Monitoring										
Calculated H2S	ppb	0.25	0.02	B111567				0.79	0.02	B111567
Calculated NO2	ppb	0.8	0.1	B110035	0.4	0.1	B110035	0.5	0.1	B110035
Calculated O3	ppb	21.6	0.1	B115809	26.2	0.1	B115809	24.1	0.1	B115809
Calculated SO2	ppb	0.3	0.1	B104399	0.5	0.1	B104399	0.6	0.1	B104399
RDL = Reportable Detection Limit										

Bureau Veritas ID		BYM887	BYM888	BYM889			BYM890	BYM891	BYM892		
Sampling Date		2023/07/30 16:25	2023/07/30 12:35	2023/07/29 17:15			2023/07/31 19:15	2023/07/31 18:25	2023/07/31 17:02		
	UNITS	6	8	9	RDL	QC Batch	10	11	12	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb						0.14	0.25	0.14	0.02	B111567
Calculated NO2	ppb	2.0	0.4	0.7	0.1	B110035	2.6	0.2	0.3	0.1	B110035
Calculated O3	ppb	23.9	23.7	16.7	0.1	B115809	16.8	13.6	20.9	0.1	B115809
Calculated SO2	ppb	0.6	0.4	0.3	0.1	B104399	0.3	0.2	0.2	0.1	B104399
RDL = Reportable Detection Limit											

Bureau Veritas ID		BYM893	BYM894			BYM895			BYM896		
Sampling Date		2023/07/29 15:44	2023/07/29 14:20			2023/07/30 10:56			2023/07/31 11:46		
	UNITS	13	14	RDL	QC Batch	15	RDL	QC Batch	16	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb	0.12	0.45	0.02	B111567				0.21	0.02	B111567
Calculated NO2	ppb	0.3	1.1	0.1	B110035	0.7	0.1	B110035	0.7	0.1	B110035
Calculated O3	ppb	14.3	19.5	0.1	B115809	16.1	0.1	B115809	17.6	0.1	B115809
Calculated SO2	ppb	0.2	1.3	0.1	B104399	0.2	0.1	B104399	0.2	0.1	B104399
RDL = Reportable Detection Limit											

Bureau Veritas Job #: C370583
Report Date: 2023/09/21

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BYM897	BYM898			BYM899			BYM900		
Sampling Date		2023/07/30 17:45	2023/07/30 19:40			2023/07/30 21:15			2023/07/31 20:10		
	UNITS	17	18	RDL	QC Batch	19	RDL	QC Batch	22	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb	0.39	0.16	0.02	B111567				0.26	0.02	B111567
Calculated NO2	ppb	0.6	0.3	0.1	B110035	0.4	0.1	B110035	0.7	0.1	B110035
Calculated O3	ppb	34.7	16.8	0.1	B115809	20.6	0.1	B115809	17.4	0.1	B115809
Calculated SO2	ppb	0.3	0.1	0.1	B104399	0.3	0.1	B104399	0.3	0.1	B104399
RDL = Reportable Detection Limit											

Bureau Veritas ID		BYM901			BYM902			BYM903	BYM904		
Sampling Date		2023/07/29 12:01			2023/07/30 15:50			2023/07/29 14:45	2023/07/29 13:58		
	UNITS	23	RDL	QC Batch	24	RDL	QC Batch	26	27	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb				0.31	0.02	B111567	0.17	1.53	0.02	B111567
Calculated NO2	ppb	0.1	0.1	B110035	0.9	0.1	B110035				
Calculated O3	ppb	13.8	0.1	B115809	22.2	0.1	B115809				
Calculated SO2	ppb	0.2	0.1	B104399	0.4	0.1	B104399	0.4	1.3	0.1	B104401
RDL = Reportable Detection Limit											

Bureau Veritas ID		BYM905		BYM906	BYM907	BYM908			BYM912		
Sampling Date		2023/05/29 12:51		2023/07/31 20:25	2023/07/29 20:05	2023/07/29 14:21			2023/07/30 10:56		
	UNITS	28	QC Batch	29	32	42	RDL	QC Batch	15 DUP	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb	0.91	B111567	0.30	0.27	0.31	0.02	B111567			
Calculated NO2	ppb	1.2	B110035	0.6	0.3	0.7	0.1	B110036			
Calculated O3	ppb	24.3	B115809	38.5	29.4	22.9	0.1	B114365			
Calculated SO2	ppb	0.5	B104401	0.3	0.3	0.3	0.1	B104401	0.2	0.1	B104401
RDL = Reportable Detection Limit											

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

Bureau Veritas Job #: C370583
Report Date: 2023/09/21

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BYM913	BYM914			BYM915	BYM916			BYM917		
Sampling Date		2023/07/31 11:46	2023/07/30 17:45			2023/07/30 20:10	2023/07/29 12:01			2023/07/30 17:45		
	UNITS	16 DUP	17 DUP	RDL	QC Batch	22 DUP	23 DUP	RDL	QC Batch	17 DUP	RDL	QC Batch
Passive Monitoring												
Calculated H2S	ppb									0.55	0.02	B111567
Calculated NO2	ppb					0.6	0.1	0.1	B110036			
Calculated O3	ppb					17.6	12.4	0.1	B114365			
Calculated SO2	ppb	0.3	0.4	0.1	B104401							
RDL = Reportable Detection Limit												

Bureau Veritas ID		BYM948			BYM918	BYM919	BYM920	BYM921		
Sampling Date		2023/07/29 18:05			2023/07/29 18:05	2023/07/30 13:43	2023/07/30 15:05	2023/07/30 16:25		
	UNITS	18 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				2.9	2.0	1.8	3.2	0.1	B103615
Calculated H2S	ppb	0.14	0.02	B111567						
HNO3 by Passive Sampler	ug/m3				0.80	0.90	0.37	0.31	0.04	B104393
RDL = Reportable Detection Limit										

Bureau Veritas ID		BYM922	BYM923	BYM924	BYM925	BYM926	BYM927		
Sampling Date		2023/07/30 12:35	2023/07/29 17:15	2023/07/31 19:15	2023/07/31 18:25	2023/07/31 17:02	2023/07/29 15:44		
	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	2.4	1.4	1.1	0.5	2.6	0.7	0.1	B103615
HNO3 by Passive Sampler	ug/m3	0.15	0.76	1.53	<0.04	0.38	0.24	0.04	B104393
RDL = Reportable Detection Limit									

Bureau Veritas ID		BYM928	BYM929	BYM930	BYM931	BYM932	BYM933		
Sampling Date		2023/07/29 14:20	2023/07/30 10:56	2023/07/31 11:46	2023/07/30 17:45	2023/07/30 19:40	2023/07/30 21:15		
	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	0.7	1.3	1.5	1.2	1.4	2.7	0.1	B103615
HNO3 by Passive Sampler	ug/m3	0.14	0.26	0.48	0.61	0.84	<0.04	0.04	B104393
RDL = Reportable Detection Limit									

Bureau Veritas Job #: C370583
Report Date: 2023/09/21

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BYM934	BYM935	BYM936	BYM937		BYM938		
Sampling Date		2023/07/31 20:10	2023/07/29 12:01	2023/07/30 15:50	2023/07/29 14:45		2023/07/29 13:58		
	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	1.4	0.8	2.1	0.9	B103615	1.0	0.1	B103616
HNO3 by Passive Sampler	ug/m3	1.15	0.28	0.41	0.62	B104396	0.33	0.04	B104396
RDL = Reportable Detection Limit									

Bureau Veritas ID		BYM939	BYM940	BYM941	BYM942	BYM943		
Sampling Date		2023/05/29 12:51	2023/07/31 20:25	2023/07/29 20:05	2023/07/31 14:21	2023/07/29 17:15		
	UNITS	28-NH3 HNO3	29-NH3 HNO3	32-NH3 HNO3	42-NH3 HNO3	9-NH3 HNO3 DUP	RDL	QC Batch
Passive Monitoring								
Ammonia by Passive Sampler	ppb	2.9	1.8	1.4	5.2	1.2	0.1	B103616
HNO3 by Passive Sampler	ug/m3	1.02	0.49	1.03	0.41	0.29	0.04	B104396
RDL = Reportable Detection Limit								

Bureau Veritas ID		BYM944	BYM945	BYM946	BYM947		
Sampling Date		2023/07/31 19:15					
	UNITS	10-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	1.1	0.7	1.1	0.8	0.1	B103616
HNO3 by Passive Sampler	ug/m3	0.99	0.33	0.20	0.32	0.04	B104396
RDL = Reportable Detection Limit							

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

GENERAL COMMENTS

Results relate only to the items tested.

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

Bureau Veritas Job #: C370583
Report Date: 2023/09/21

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: AUGUST 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
B103615	SDK	Spiked Blank	Ammonia by Passive Sampler			98	%	90 - 110
B103615	SDK	Method Blank	Ammonia by Passive Sampler		<0.1		ppb	
B103615	SDK	RPD [BYM918-01]	Ammonia by Passive Sampler	2023/09/19	NC		%	N/A
B103616	SDK	Spiked Blank	Ammonia by Passive Sampler			97	%	90 - 110
B103616	SDK	Method Blank	Ammonia by Passive Sampler		<0.1		ppb	
B103616	SDK	RPD [BYM938-01]	Ammonia by Passive Sampler	2023/09/19	0		%	N/A
B104393	OZ	Method Blank	HNO3 by Passive Sampler		<0.04		ug/m3	
B104393	OZ	RPD [BYM918-01]	HNO3 by Passive Sampler	2023/09/20	NC		%	N/A
B104396	OZ	Method Blank	HNO3 by Passive Sampler		<0.04		ug/m3	
B104396	OZ	RPD [BYM934-01]	HNO3 by Passive Sampler	2023/09/20	NC		%	N/A
B104399	OZ	Spiked Blank	Calculated SO2			99	%	90 - 110
B104399	OZ	Method Blank	Calculated SO2		<0.1		ppb	
B104401	OZ	Spiked Blank	Calculated SO2			98	%	90 - 110
B104401	OZ	Method Blank	Calculated SO2		<0.1		ppb	
B110035	SDK	Spiked Blank	Calculated NO2			98	%	90 - 110
B110035	SDK	Method Blank	Calculated NO2		<0.1		ppb	
B110036	SDK	Spiked Blank	Calculated NO2			99	%	90 - 110
B110036	SDK	Method Blank	Calculated NO2		<0.1		ppb	
B111567	YYA	Spiked Blank	Calculated H2S			98	%	90 - 110
B114365	SDK	Spiked Blank	Calculated O3			101	%	90 - 110
B114365	SDK	Method Blank	Calculated O3		<0.1		ppb	
B115809	SDK	Spiked Blank	Calculated O3			99	%	90 - 110
B115809	SDK	Method Blank	Calculated O3		<0.1		ppb	

N/A = Not Applicable

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

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

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

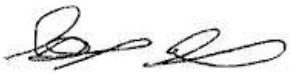
NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

Bureau Veritas Job #: C370583
Report Date: 2023/09/21

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

VALIDATION SIGNATURE PAGE

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



Steven Gloux, Senior Analyst

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

Lac La Biche Station

Non- Methane Hydrocarbons (NMHCs) Canister Samples

Sample ID: 23080076-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/NMHC/LLB/Aug 2, 2023

RECEIVED
AUG 08 2023
JMP

Bureau Veritas

...llection Data Sheet Alberta Air FCD AIR FCD-01320 / 2

Client:	LICA	**Sampler S/N:**	n/a
Location:	Lac La Biche	**Canister ID:**	32207
Station ID:	LICA 41	**Installation Date/Time (mst):**	Jul 06, 2023 @ 10:58
Sample ID:	LICA/NMHC/LLB/Aug 02, 2023	**Removal Date/Time (mst):**	Aug 03, 2023 @ 18:33

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
August 2, 2023	10:25	n/a	n/a

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Vacuum (in. Hg)
-27.1	-3.0

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:

NMHC Canister # **32207** (exp. Date: **Sep 28, 2023**)

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

InnoTech ALBERTA

Canister ID: 32207

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: APR 17 2023

Evacuated: JUN 28 2023 Recertified:

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/NMHC/LLB/Aug 2, 2023

Sampled By: Alex Yakupov

Starting Vacuum: -27.1 "Hg

End Pressure: -3.0 "Hg psig

JMP

Sample ID: 23080076-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/NMHC/LLB/Aug 2, 2023

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID: LICA/NMHC/LLB/Aug 2, 2023
Matrix: Ambient Air
CANISTER ID: 32207
PRIORITY: Normal
DESCRIPTION: Lac La Biche
DATE SAMPLED: 02-Aug-23 10:25
DATE RECEIVED: 08-Aug-23
REPORT CREATED: 21-Aug-23
REPORT NUMBER: 23080076
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23080076-001	1,1,1-Trichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080076-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080076-001	1,1,2-Trichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080076-001	1,1-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080076-001	1,1-Dichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080076-001	1,2,3-Trimethylbenzene	K, T, U	< 0.08	ppbv	0.08	AC-058	08-Aug-23
23080076-001	1,2,4-Trichlorobenzene	K, T, U	< 0.5	ppbv	0.5	AC-058	08-Aug-23
23080076-001	1,2,4-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	08-Aug-23
23080076-001	1,2-Dibromoethane	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080076-001	1,2-Dichlorobenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	08-Aug-23
23080076-001	1,2-Dichloroethane	K, T, U	< 0.05	ppbv	0.05	AC-058	08-Aug-23
23080076-001	1,2-Dichloropropane	K, T, U	< 0.05	ppbv	0.05	AC-058	08-Aug-23
23080076-001	1,3,5-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	08-Aug-23
23080076-001	1,3-Butadiene	K, T, U	< 0.05	ppbv	0.05	AC-058	08-Aug-23
23080076-001	1,3-Dichlorobenzene	K, T, U	< 0.7	ppbv	0.7	AC-058	08-Aug-23
23080076-001	1,4-Dichlorobenzene	K, T, U	< 0.7	ppbv	0.7	AC-058	08-Aug-23
23080076-001	1,4-Dioxane	K, T, U	< 0.8	ppbv	0.8	AC-058	08-Aug-23

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/NMHC/LLB/Aug 2, 2023	32207	Ambient Air	02-Aug-23 10:25

DESCRIPTION: Lac La Biche

REPORT NUMBER: 23080076 **REPORT CREATED:** 21-Aug-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23080076-001	1-Butene/Isobutylene	K, T, U	< 0.10	ppbv	0.10	AC-058	08-Aug-23
23080076-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.12	ppbv	0.12	AC-058	08-Aug-23
23080076-001	1-Pentene	K, T, U	< 0.05	ppbv	0.05	AC-058	08-Aug-23
23080076-001	2,2,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080076-001	2,2-Dimethylbutane	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080076-001	2,3,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080076-001	2,3-Dimethylbutane	K, T, U	< 0.15	ppbv	0.15	AC-058	08-Aug-23
23080076-001	2,3-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080076-001	2,4-Dimethylpentane	K, T, U	< 0.05	ppbv	0.05	AC-058	08-Aug-23
23080076-001	2-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080076-001	2-Methylhexane	K, T, U	< 0.05	ppbv	0.05	AC-058	08-Aug-23
23080076-001	2-Methylpentane	I	0.14	ppbv	0.03	AC-058	08-Aug-23
23080076-001	3-Methylheptane	K, T, U	< 0.05	ppbv	0.05	AC-058	08-Aug-23
23080076-001	3-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080076-001	3-Methylpentane	I	0.16	ppbv	0.03	AC-058	08-Aug-23
23080076-001	Acetone		5.8	ppbv	0.7	AC-058	08-Aug-23
23080076-001	Acrolein	K, T, U	< 0.5	ppbv	0.5	AC-058	08-Aug-23
23080076-001	Benzene	I	0.28	ppbv	0.05	AC-058	08-Aug-23
23080076-001	Benzyl chloride	K, T, U	< 0.5	ppbv	0.5	AC-058	08-Aug-23
23080076-001	Bromodichloromethane	K, T, U	< 0.05	ppbv	0.05	AC-058	08-Aug-23
23080076-001	Bromoform	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080076-001	Bromomethane	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080076-001	Carbon disulfide	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080076-001	Carbon tetrachloride	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080076-001	Chlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23

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

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/NMHC/LLB/Aug 2, 2023	32207	Ambient Air	02-Aug-23 10:25

DESCRIPTION: Lac La Biche

REPORT NUMBER: 23080076 **REPORT CREATED:** 21-Aug-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23080076-001	Chloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080076-001	Chloroform	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080076-001	Chloromethane		0.44	ppbv	0.07	AC-058	08-Aug-23
23080076-001	cis-1,2-Dichloroethene	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080076-001	cis-1,3-Dichloropropene	K, T, U	< 0.05	ppbv	0.05	AC-058	08-Aug-23
23080076-001	cis-2-Butene	K, T, U	< 0.05	ppbv	0.05	AC-058	08-Aug-23
23080076-001	cis-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080076-001	Cyclohexane	K, T, U	< 0.07	ppbv	0.07	AC-058	08-Aug-23
23080076-001	Cyclopentane	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080076-001	Dibromochloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080076-001	Ethanol	K, T, U	< 0.8	ppbv	0.8	AC-058	08-Aug-23
23080076-001	Ethyl acetate	K, T, U	< 0.5	ppbv	0.5	AC-058	08-Aug-23
23080076-001	Ethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	08-Aug-23
23080076-001	Freon-11	I	0.15	ppbv	0.03	AC-058	08-Aug-23
23080076-001	Freon-113	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080076-001	Freon-114	K, T, U	< 0.05	ppbv	0.05	AC-058	08-Aug-23
23080076-001	Freon-12		0.43	ppbv	0.05	AC-058	08-Aug-23
23080076-001	Hexachloro-1,3-butadiene	K, T, U	< 0.5	ppbv	0.5	AC-058	08-Aug-23
23080076-001	Isobutane	I	0.11	ppbv	0.05	AC-058	08-Aug-23
23080076-001	Isopentane		0.35	ppbv	0.07	AC-058	08-Aug-23
23080076-001	Isoprene		0.66	ppbv	0.03	AC-058	08-Aug-23
23080076-001	Isopropyl alcohol	I	0.5	ppbv	0.5	AC-058	08-Aug-23
23080076-001	Isopropylbenzene	K, T, U	< 0.07	ppbv	0.07	AC-058	08-Aug-23
23080076-001	m,p-Xylene	I	0.07	ppbv	0.07	AC-058	08-Aug-23
23080076-001	m-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23

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

Date: August 21, 2023

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/NMHC/LLB/Aug 2, 2023	32207	Ambient Air	02-Aug-23 10:25

DESCRIPTION: Lac La Biche

REPORT NUMBER: 23080076 **REPORT CREATED:** 21-Aug-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23080076-001	m-Ethyltoluene	K, T, U	< 0.05	ppbv	0.05	AC-058	08-Aug-23
23080076-001	Methyl butyl ketone	K, T, U	< 0.7	ppbv	0.7	AC-058	08-Aug-23
23080076-001	Methyl ethyl ketone	K, T, U	< 0.5	ppbv	0.5	AC-058	08-Aug-23
23080076-001	Methyl isobutyl ketone	K, T, U	< 0.5	ppbv	0.5	AC-058	08-Aug-23
23080076-001	Methyl methacrylate	K, T, U	< 0.13	ppbv	0.13	AC-058	08-Aug-23
23080076-001	Methyl tert butyl ether	K, T, U	< 0.05	ppbv	0.05	AC-058	08-Aug-23
23080076-001	Methylcyclohexane	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080076-001	Methylcyclopentane		0.33	ppbv	0.08	AC-058	08-Aug-23
23080076-001	Methylene chloride	K, T, U	< 0.5	ppbv	0.5	AC-058	08-Aug-23
23080076-001	n-Butane		0.64	ppbv	0.03	AC-058	08-Aug-23
23080076-001	n-Decane	K, T, U	< 0.10	ppbv	0.10	AC-058	08-Aug-23
23080076-001	n-Dodecane	K, T, U	< 0.5	ppbv	0.5	AC-058	08-Aug-23
23080076-001	n-Heptane	K, T, U	< 0.07	ppbv	0.07	AC-058	08-Aug-23
23080076-001	n-Hexane		0.55	ppbv	0.05	AC-058	08-Aug-23
23080076-001	n-Octane	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080076-001	n-Pentane	I	0.16	ppbv	0.07	AC-058	08-Aug-23
23080076-001	n-Propylbenzene	K, T, U	< 0.10	ppbv	0.10	AC-058	08-Aug-23
23080076-001	n-Undecane	K, T, U	< 0.8	ppbv	0.8	AC-058	08-Aug-23
23080076-001	Naphthalene	K, T, U	< 0.5	ppbv	0.5	AC-058	08-Aug-23
23080076-001	n-Nonane	K, T, U	< 0.07	ppbv	0.07	AC-058	08-Aug-23
23080076-001	o-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080076-001	o-Xylene	K, T, U	< 0.05	ppbv	0.05	AC-058	08-Aug-23
23080076-001	p-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080076-001	p-Ethyltoluene	K, T, U	< 0.07	ppbv	0.07	AC-058	08-Aug-23
23080076-001	Styrene	K, T, U	< 0.07	ppbv	0.07	AC-058	08-Aug-23

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

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/NMHC/LLB/Aug 2, 2023	32207	Ambient Air	02-Aug-23 10:25

DESCRIPTION: Lac La Biche

REPORT NUMBER: 23080076 **REPORT CREATED:** 21-Aug-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23080076-001	Tetrachloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080076-001	Tetrahydrofuran	K, T, U	< 0.5	ppbv	0.5	AC-058	08-Aug-23
23080076-001	Toluene	I	0.10	ppbv	0.05	AC-058	08-Aug-23
23080076-001	trans-1,2-Dichloroethylene	K, T, U	< 0.10	ppbv	0.10	AC-058	08-Aug-23
23080076-001	trans-1,3-Dichloropropylene	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080076-001	trans-2-Butene	K, T, U	< 0.05	ppbv	0.05	AC-058	08-Aug-23
23080076-001	trans-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080076-001	Trichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080076-001	Vinyl acetate	K, T, U	< 0.5	ppbv	0.5	AC-058	08-Aug-23
23080076-001	Vinyl chloride	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23

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

Date: August 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-202308

Revision History

Order ID	Ver	Date	Reason
23080076	01	21-Aug-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

23080076

NMHC Can.

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: 23080111-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/NMHC/LLB/Aug 5, 2023

RECEIVED
AUG 10 2023

Bureau Veritas

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

Client:	LICA	**Sampler S/N:**	n/a
Location:	Lac La Biche	**Canister ID:**	32188
Station ID:	LICA 41	**Installation Date/Time (mst):**	Aug 03, 2023 @ 18:39
Sample ID:	LICA/NMHC/LLB/Aug 5, 2023	**Removal Date/Time (mst):**	Aug 08, 2023 @ 13:41

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
August 5, 2023	6:50	n/a	n/a

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	**Final Vacuum (in. Hg)**
-27.1	-1.3

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: Oct 13, 2023

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

InnoTech ALBERTA

Canister ID: 32188

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ on: JUN 0 8 2023

Evacuated: JUL 1 3 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

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

Sampled By: Alla Yakupov

-2 "Hg JVS

Starting Vacuum:	End Vacuum:
-27.1 "Hg	-1.3 "Hg/psig

Sample ID: 23080111-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/NMHC/LLB/Aug 5, 2023

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID: LICA/NMHC/LLB/Aug 5, 2023
Matrix: Ambient Air
CANISTER ID: 32188
PRIORITY: Normal
DESCRIPTION: Lac La Biche
DATE SAMPLED: 05-Aug-23 6:50
DATE RECEIVED: 10-Aug-23
REPORT CREATED: 21-Aug-23
REPORT NUMBER: 23080111
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23080111-001	1,1,1-Trichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080111-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080111-001	1,1,2-Trichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080111-001	1,1-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080111-001	1,1-Dichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080111-001	1,2,3-Trimethylbenzene	K, T, U	< 0.07	ppbv	0.07	AC-058	12-Aug-23
23080111-001	1,2,4-Trichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Aug-23
23080111-001	1,2,4-Trimethylbenzene	I	0.15	ppbv	0.04	AC-058	12-Aug-23
23080111-001	1,2-Dibromoethane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080111-001	1,2-Dichlorobenzene	I	0.05	ppbv	0.04	AC-058	12-Aug-23
23080111-001	1,2-Dichloroethane	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Aug-23
23080111-001	1,2-Dichloropropane	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Aug-23
23080111-001	1,3,5-Trimethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Aug-23
23080111-001	1,3-Butadiene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Aug-23
23080111-001	1,3-Dichlorobenzene	K, T, U	< 0.6	ppbv	0.6	AC-058	12-Aug-23
23080111-001	1,4-Dichlorobenzene	K, T, U	< 0.6	ppbv	0.6	AC-058	12-Aug-23
23080111-001	1,4-Dioxane	K, T, U	< 0.7	ppbv	0.7	AC-058	12-Aug-23

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/NMHC/LLB/Aug 5, 2023	32188	Ambient Air	05-Aug-23 6:50

DESCRIPTION: Lac La Biche

REPORT NUMBER: 23080111 **REPORT CREATED:** 21-Aug-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23080111-001	1-Butene/Isobutylene	I	0.18	ppbv	0.08	AC-058	12-Aug-23
23080111-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.10	ppbv	0.10	AC-058	12-Aug-23
23080111-001	1-Pentene	I	0.05	ppbv	0.04	AC-058	12-Aug-23
23080111-001	2,2,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080111-001	2,2-Dimethylbutane	I	0.09	ppbv	0.03	AC-058	12-Aug-23
23080111-001	2,3,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080111-001	2,3-Dimethylbutane		0.17	ppbv	0.12	AC-058	12-Aug-23
23080111-001	2,3-Dimethylpentane	I	0.04	ppbv	0.03	AC-058	12-Aug-23
23080111-001	2,4-Dimethylpentane	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Aug-23
23080111-001	2-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080111-001	2-Methylhexane	I	0.11	ppbv	0.04	AC-058	12-Aug-23
23080111-001	2-Methylpentane		0.92	ppbv	0.03	AC-058	12-Aug-23
23080111-001	3-Methylheptane	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Aug-23
23080111-001	3-Methylhexane	I	0.12	ppbv	0.03	AC-058	12-Aug-23
23080111-001	3-Methylpentane		0.43	ppbv	0.03	AC-058	12-Aug-23
23080111-001	Acetone		3.6	ppbv	0.6	AC-058	12-Aug-23
23080111-001	Acrolein	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Aug-23
23080111-001	Benzene	I	0.17	ppbv	0.04	AC-058	12-Aug-23
23080111-001	Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Aug-23
23080111-001	Bromodichloromethane	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Aug-23
23080111-001	Bromoform	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080111-001	Bromomethane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080111-001	Carbon disulfide	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080111-001	Carbon tetrachloride	I	0.07	ppbv	0.03	AC-058	12-Aug-23
23080111-001	Chlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23

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

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/NMHC/LLB/Aug 5, 2023	32188	Ambient Air	05-Aug-23 6:50

DESCRIPTION: Lac La Biche

REPORT NUMBER: 23080111 **REPORT CREATED:** 21-Aug-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23080111-001	Chloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080111-001	Chloroform	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080111-001	Chloromethane		0.59	ppbv	0.06	AC-058	12-Aug-23
23080111-001	cis-1,2-Dichloroethene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080111-001	cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Aug-23
23080111-001	cis-2-Butene	I	0.09	ppbv	0.04	AC-058	12-Aug-23
23080111-001	cis-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080111-001	Cyclohexane	K, T, U	< 0.06	ppbv	0.06	AC-058	12-Aug-23
23080111-001	Cyclopentane		0.15	ppbv	0.03	AC-058	12-Aug-23
23080111-001	Dibromochloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080111-001	Ethanol		4.6	ppbv	0.7	AC-058	12-Aug-23
23080111-001	Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Aug-23
23080111-001	Ethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Aug-23
23080111-001	Freon-11		0.21	ppbv	0.03	AC-058	12-Aug-23
23080111-001	Freon-113	I	0.06	ppbv	0.03	AC-058	12-Aug-23
23080111-001	Freon-114	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Aug-23
23080111-001	Freon-12		0.49	ppbv	0.04	AC-058	12-Aug-23
23080111-001	Hexachloro-1,3-butadiene	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Aug-23
23080111-001	Isobutane		5.72	ppbv	0.04	AC-058	12-Aug-23
23080111-001	Isopentane		9.42	ppbv	0.06	AC-058	12-Aug-23
23080111-001	Isoprene		0.76	ppbv	0.03	AC-058	12-Aug-23
23080111-001	Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Aug-23
23080111-001	Isopropylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	12-Aug-23
23080111-001	m,p-Xylene	I	0.09	ppbv	0.06	AC-058	12-Aug-23
23080111-001	m-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23

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PO Bag 4000
Vegreville, Alberta
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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/NMHC/LLB/Aug 5, 2023	32188	Ambient Air	05-Aug-23 6:50

DESCRIPTION: Lac La Biche

REPORT NUMBER: 23080111 **REPORT CREATED:** 21-Aug-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23080111-001	m-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Aug-23
23080111-001	Methyl butyl ketone	K, T, U	< 0.6	ppbv	0.6	AC-058	12-Aug-23
23080111-001	Methyl ethyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Aug-23
23080111-001	Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Aug-23
23080111-001	Methyl methacrylate	K, T, U	< 0.11	ppbv	0.11	AC-058	12-Aug-23
23080111-001	Methyl tert butyl ether	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Aug-23
23080111-001	Methylcyclohexane	I	0.06	ppbv	0.03	AC-058	12-Aug-23
23080111-001	Methylcyclopentane		0.29	ppbv	0.07	AC-058	12-Aug-23
23080111-001	Methylene chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Aug-23
23080111-001	n-Butane		10.6	ppbv	0.03	AC-058	12-Aug-23
23080111-001	n-Decane	K, T, U	< 0.08	ppbv	0.08	AC-058	12-Aug-23
23080111-001	n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Aug-23
23080111-001	n-Heptane	I	0.07	ppbv	0.06	AC-058	12-Aug-23
23080111-001	n-Hexane		0.32	ppbv	0.04	AC-058	12-Aug-23
23080111-001	n-Octane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080111-001	n-Pentane		3.18	ppbv	0.06	AC-058	12-Aug-23
23080111-001	n-Propylbenzene	K, T, U	< 0.08	ppbv	0.08	AC-058	12-Aug-23
23080111-001	n-Undecane	K, T, U	< 0.7	ppbv	0.7	AC-058	12-Aug-23
23080111-001	Naphthalene	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Aug-23
23080111-001	n-Nonane	K, T, U	< 0.06	ppbv	0.06	AC-058	12-Aug-23
23080111-001	o-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080111-001	o-Xylene	I	0.04	ppbv	0.04	AC-058	12-Aug-23
23080111-001	p-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080111-001	p-Ethyltoluene	K, T, U	< 0.06	ppbv	0.06	AC-058	12-Aug-23
23080111-001	Styrene	K, T, U	< 0.06	ppbv	0.06	AC-058	12-Aug-23

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

Date: August 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-202308

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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LICA/NMHC/LLB/Aug 5, 2023	32188	Ambient Air	05-Aug-23 6:50

DESCRIPTION: Lac La Biche

REPORT NUMBER: 23080111 **REPORT CREATED:** 21-Aug-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23080111-001	Tetrachloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080111-001	Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Aug-23
23080111-001	Toluene	I	0.24	ppbv	0.04	AC-058	12-Aug-23
23080111-001	trans-1,2-Dichloroethylene	K, T, U	< 0.08	ppbv	0.08	AC-058	12-Aug-23
23080111-001	trans-1,3-Dichloropropylene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080111-001	trans-2-Butene	I	0.09	ppbv	0.04	AC-058	12-Aug-23
23080111-001	trans-2-Pentene	I	0.03	ppbv	0.03	AC-058	12-Aug-23
23080111-001	Trichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Aug-23
23080111-001	Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Aug-23
23080111-001	Vinyl chloride	I	0.04	ppbv	0.03	AC-058	12-Aug-23

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

Date: August 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-202308

Revision History

Order ID	Ver	Date	Reason
23080111	01	21-Aug-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