Lakeland Industry & Community Association

NOVEMBER 2023

Monthly Ambient Air Quality Monitoring Integrated Sampling Report

LICA-202311-INTEGRATED

December 20, 2023

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December 20, 2023

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

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

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

NETWORK STATION SUMMARY

Listing of Air Monitoring Stations and Integrated Sampling Stations

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

Listing of Passive Sampling Stations

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

Listing of Passive Aromatic Compounds Stations

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

List of Contractors who performed the air monitoring activities

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

Monitoring Notes during the Month of November 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 November 2, 8, 14, 20 and 26.
- **Polycyclic Aromatic Hydrocarbons (PAHs)**
  - The PUF sampler is programed to collect a 24-hour sample of air every sixth day as per the North American Pollution Surveillance schedule (NAPS).
  - Five samples were collected this month: on November 2, 8, 14, 20 and 26.
- **Partisols**
  - Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) where applicable.
  - The Partisol sampler is programed to collect a 24-hour sample of air every sixth day as per the North American Pollution Surveillance schedule (NAPS).
  - Five samples were collected this month: on November 2, 8, 14, 20 and 26.

- **Passives**
    - There were no exceedances of the AAAQOs for all monitored parameters at any of the passive stations during this month.
    - The passive sample filters were installed at the stations between October 29 and November 3, and were removed between November 30 and December 2.
    - A total of 13 duplicate samples were collected: 2 for H2S, 3 for SO2, 2 for NO2, 2 for O3, 2 for NMH3 and 2 for HNO3.
    - A total of 6 blank samples were collected: 3 for NMH3 and 3 for HNO3.
    - Station 13: The O3 sample was damaged as the sample diffusion barrier was torn.

Lac La Biche Station

- **Non-methane Hydrocarbons (NMHC) Canisters**
    - The canister sampling program collects a 1-hour sample of air when the continuously measured non-methane hydrocarbon (NMHC) concentration reaches a specified trigger point. The current trigger point is 0.3 ppm, and is based on real-time monitoring data that are averaged over a 5-minute period.
    - No canister events were recorded this month.

Passive polycyclic aromatic compounds (PACs) Stations

- The PAC sampling program began in December 2019, and is designed to collect a 2-month integrated sample.
- The media for the November/December monitoring period were installed between October 29 and November 3. The media are scheduled to be removed by the end December.

Revisions to Alberta's Ambient Air Quality Data Warehouse

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

Deviations from Authorized Monitoring Methods

There were no deviations from authorized monitoring methods.

Certification

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

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

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

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

INTEGRATED SAMPLING RESULTS SUMMARY

COLD LAKE SOUTH STATION

- **VOCs analytical results**

Sample Date	2023-11-02	2023-11-08	2023-11-14	2023-11-20
Canister ID	32219	47977	32201	31825
Maximum Reading (ppbv)	1.2	0.8	0.8	1.05
Parameter	Acetone	Acetone	Acetone	n-Butane
Sample Date	2023-11-26			
Canister ID	32213			
Maximum Reading (ppbv)	0.8			
Parameter	Acetone			

- **PAHs analytical results**

Sample Date	2023-11-02		2023-11-08		2023-11-14		2023-11-20	
PUF S/N	TE-06		9801		A13-02		TE-10	
Volume (Vstd m^3)	330.40		330.43		330.41		330.43	
Maximum Reading	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3
	6.10	18.46	0.49	1.48	0.44	1.33	0.17	0.51
Parameter	Benzo(e)pyrene		Phenanthrene		2-Methylnaphthalene		2-Methylnaphthalene	
Sample Date	2023-11-26							
PUF S/N	TE-08							
Volume (Vstd m3)	330.41							
Maximum Reading	ug	ng/m3						
	0.57	1.73						
Parameter	Phenanthrene							

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

Sample Date	2023-11-02		2023-11-08		2023-11-14		2023-11-20	
Filter #	AT79044		AT79091		AT85575		AT79090	
Volume (Vstd m^3)	22.0		22.0		21.9		22.3	
Result	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)
Particulate Matter	0.129	0.006	0.011	0.001	0.026	0.001	<0.004	0.000

Sample Date	2023-11-26	
Filter #	AT85573	
Volume (Vstd m^3)	22.6	
Result	Result (mg)	Result (mg/m^3)
Particulate Matter	0.018	0.001

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

Sample Date	2023-11-02		2023-11-08		2023-11-14		2023-11-20	
Filter #	AT85160		AT79092		AT85576		AT79042	
Volume (Vstd m^3)	2.45		2.45		2.42		2.49	
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	0.078	0.032	<0.004	0.000	0.032	0.013	0.033	0.013

Sample Date	2023-11-26	
Filter #	AT85574	
Volume (Vstd m^3)	2.51	
Result	Result (mg)	Result (mg/m^3)
PM2.5-10 Mass	0.009	0.004

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- **Passive analytical results**

	H_2S		NO_2		O_3		SO_2		NMH3		HNO3	
	Unit (ppb)		Unit (ppb)		Unit (ppb)		Unit (ppb)		Unit (ppb)		Unit (ug/m3)	
Minimum	0.08	#16	0.3	#23	17.5	#16	0.2	#10	0.3	#13	0.53	#19
Maximum	0.22	#14	5.5	#10	29.3	#5	1.5	#14	10.0	#22	1.49	#42
Average	0.12	-	1.93	-	22.46	-	0.40	-	3.34	-	0.97	-

LAC LA BICHE STATION

- **NMHC canister sample analytical results**

No canister events were recorded this month.

ANALYTICAL SAMPLING RESULTS

COLD LAKE SOUTH STATION

VOCS

Sample Date		2023-11-02	2023-11-08	2023-11-14	2023-11-20	2023-11-26	
Canister ID		32219	47977	32201	31825	32213	
Method		AC-058	AC-058	AC-058	AC-058	AC-058	
Maximum Reading (ppbv)		1.2	0.8	0.8	1.05	0.8	
Parameter		Acetone	Acetone	Acetone	n-Butane	Acetone	
Parameter	**AAAQOs (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**RDL (ppbv)**
1,1,1-Trichloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1,2,2-Tetrachloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1,2-Trichloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1-Dichloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1-Dichloroethylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,2,3-Trimethylbenzene		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.05
1,2,4-Trichlorobenzene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
1,2,4-Trimethylbenzene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
1,2-Dibromoethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,2-Dichlorobenzene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
1,2-Dichloroethane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
1,2-Dichloropropane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
1,3,5-Trimethylbenzene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
1,3-Butadiene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
1,3-Dichlorobenzene		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	0.4
1,4-Dichlorobenzene		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	0.4
1,4-Dioxane		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.5
1-Butene		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.06
1-Hexene		< 0.07	< 0.07	< 0.07	< 0.07	< 0.07	0.07
1-Pentene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
2,2,4-Trimethylpentane		< 0.02	< 0.02	0.02	0.02	< 0.02	0.02
2,2-Dimethylbutane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
2,3,4-Trimethylpentane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
2,3-Dimethylbutane		< 0.09	< 0.09	< 0.09	< 0.09	< 0.09	0.09
2,3-Dimethylpentane		0.03	< 0.02	< 0.02	< 0.02	< 0.02	0.02
2,4-Dimethylpentane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
2-Methylheptane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
2-Methylhexane		< 0.03	< 0.03	< 0.03	0.05	< 0.03	0.03
2-Methylpentane		0.09	0.04	0.07	0.1	0.06	0.02
3-Methylheptane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
3-Methylhexane		0.03	< 0.02	0.03	0.06	0.03	0.02
3-Methylpentane		0.04	< 0.02	< 0.02	< 0.02	0.02	0.02
Acetone	2400	1.2	0.8	0.8	0.6	0.8	0.4
Acrolein	1.9	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Benzene	9.0	0.14	0.08	0.07	0.08	0.07	0.03
Benzyl chloride		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Bromodichloromethane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
Bromoform		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Bromomethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Carbon disulfide	10	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Carbon tetrachloride		0.06	0.06	0.06	0.06	0.05	0.02
Chlorobenzene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Chloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Chloroform		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Chloromethane		0.63	0.47	0.45	0.42	0.60	0.04
cis-1,2-Dichloroethene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
cis-1,3-Dichloropropene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
cis-2-Butene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
cis-2-Pentene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Cyclohexane		0.07	< 0.04	< 0.04	< 0.04	< 0.04	0.04
Cyclopentane		0.03	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Dibromochloromethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Ethanol		< 0.5	< 0.5	0.6	0.6	0.8	0.5
Ethyl acetate		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Ethylbenzene	460	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
Freon-11		0.22	0.22	0.23	0.24	0.22	0.02
Freon-113		0.06	0.06	0.06	0.06	0.05	0.02
Freon-114		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - November 2023

Volatile Organic Compounds (VOCs) Results

Sample Date		2023-11-02	2023-11-08	2023-11-14	2023-11-20	2023-11-26	
Canister ID		32219	47977	32201	31825	32213	
Method		AC-058	AC-058	AC-058	AC-058	AC-058	
Maximum Reading (ppbv)		1.2	0.8	0.8	1.05	0.8	
Parameter		Acetone	Acetone	Acetone	n-Butane	Acetone	
Parameter	**AAAQOs (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**RDL (ppbv)**
Freon-12		0.57	0.56	0.59	0.52	0.55	0.03
Hexachloro-1,3-butadiene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Isobutane		0.41	0.14	0.24	0.82	0.28	0.03
Isopentane		0.36	0.13	0.16	0.36	0.25	0.04
Isoprene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Isopropyl alcohol		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Isopropylbenzene		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.04
m,p-Xylene		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.04
m-Diethylbenzene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
m-Ethyltoluene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
Methyl butyl ketone		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	0.4
Methyl ethyl ketone		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Methyl isobutyl ketone		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Methyl methacrylate		< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	0.08
Methyl tert butyl ether		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
Methylcyclohexane		0.1	< 0.02	0.04	0.08	0.06	0.02
Methylcyclopentane		0.08	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Methylene chloride		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
n-Butane		0.64	0.24	0.38	1.05	0.49	0.02
n-Decane		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.06
n-Dodecane		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
n-Heptane		< 0.04	< 0.04	< 0.04	0.05	< 0.04	0.04
n-Hexane	5960	0.07	< 0.03	0.04	< 0.03	0.04	0.03
n-Nonane		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.04
n-Octane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
n-Pentane		0.25	0.08	0.1	0.29	0.16	0.04
n-Propylbenzene		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.06
n-Undecane		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.5
Naphthalene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
o-Ethyltoluene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
o-Xylene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
p-Diethylbenzene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
p-Ethyltoluene		< 0.04	0.05	0.05	0.05	< 0.04	0.04
Styrene	52.0	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.04
Tetrachloroethylene		< 0.02	0.03	0.04	0.04	< 0.02	0.02
Tetrahydrofuran		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Toluene	499	0.06	0.04	0.08	0.07	0.04	0.03
trans-1,2-Dichloroethylene		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.06
trans-1,3-Dichloropropylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
trans-2-Butene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
trans-2-Pentene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Trichloroethylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Vinyl acetate		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Vinyl chloride	51	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02

PAHS

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - November 2023

Polycyclic Aromatic Hydrocarbons (PAHs) Results

Sample Date	2023-11-02		2023-11-08		2023-11-14		2023-11-20		2023-11-26		
PUF S/N	TE-06		9801		A13-02		TE-10		TE-08		
Volume (Vstd m^3)	330.40		330.43		330.41		330.43		330.41		
Method	AC-066		AC-066		AC-066		AC-066		AC-066		
Maximum Reading	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3	
	6.10	18.46	0.49	1.48	0.44	1.33	0.17	0.51	0.57	1.73	
Parameter	Benzo(e)pyrene		Phenanthrene		2-Methylnaphthalene		2-Methylnaphthalene		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	0.06	0.18	0.08	0.24	0.24	0.73	0.07	0.21	0.07	0.21	0.01
2-Methylnaphthalene	0.08	0.24	0.10	0.30	0.44	1.33	0.17	0.51	0.12	0.36	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	0.07	0.21	0.01	0.03	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Acenaphthylene	0.20	0.61	0.03	0.09	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Acridine	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Anthracene	0.08	0.24	0.01	0.03	< 0.01	0.00	< 0.01	0.00	0.01	0.03	0.01
Benzo(a)anthracene	0.05	0.15	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Benzo(a)pyrene	0.03	0.09	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Benzo(b,j,k)fluoranthene	0.11	0.33	0.03	0.09	0.02	0.06	0.02	0.06	0.06	0.18	0.01
Benzo(c)phenanthrene	0.02	0.06	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Benzo(e)pyrene	6.10	18.46	< 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	0.09	0.27	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.02	0.06	0.01
Dibenzo(a,h)pyrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Dibenzo(a,i)pyrene	0.01	0.03	< 0.01	0.00	< 0.01	0.00	0.05	0.15	0.05	0.15	0.01
Dibenzo(a,l)pyrene	0.01	0.03	< 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	0.24	0.73	0.05	0.15	0.02	0.06	< 0.01	0.00	0.11	0.33	0.01
Fluorene	0.34	1.03	0.25	0.76	0.14	0.42	0.06	0.18	0.19	0.58	0.01
Indeno(1,2,3-cd)pyrene	0.03	0.09	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Naphthalene	0.11	0.33	0.18	0.54	0.38	1.15	0.15	0.45	0.13	0.39	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	0.74	2.24	0.49	1.48	0.24	0.73	0.13	0.39	0.57	1.73	0.01
Pyrene	0.18	0.54	0.03	0.09	< 0.01	0.00	< 0.01	0.00	0.08	0.24	0.01
Retene	0.09	0.27	0.15	0.45	0.03	0.09	0.02	0.06	0.06	0.18	0.01

PARTISOLS

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - November 2023

Partisol Results - $PM_{2.5}$

Sample Date		2023-11-02		2023-11-08		2023-11-14		2023-11-20		2023-11-26		
Filter #		AT79044		AT79091		AT85575		AT79090		AT85573		
Volume (Vstd m^3)		22.0		22.0		21.9		22.3		22.6		
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	**0.129**	**0.006**	**0.011**	**0.001**	**0.026**	**0.001**	**<0.004**	**0.000**	**0.018**	**0.001**	0.004
PM2.5 Mass in ug/m3			**5.864**		**0.500**		**1.187**		**0.179**		**0.796**	
RDL in ug/m3			**0.182**		**0.182**		**0.183**		**0.179**		**0.177**	

Sample Date	2023-11-02		2023-11-08		2023-11-14		2023-11-20		2023-11-26		
Filter #	AT85160		AT79092		AT85576		AT79042		AT85574		
Volume (Vstd m^3)	2.45		2.45		2.42		2.49		2.51		
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	0.078	0.032	<0.004	0.000	0.032	0.013	0.033	0.013	0.009	0.004	0.004

PM2.5-10 Mass in ug/m3	31.837	1.633	13.223	13.253	3.586
RDL in ug/m3	1.633	1.633	1.653	1.606	1.594

PASSIVE SAMPLES

		H_2S		NO_2		O_3		SO_2		NMH3		HNO3	
	Unit	**ppb**		**ppb**		**ppb**		**ppb**		**ppb**		**ug/m3**	
	Minimum (ppb)	0.08	#16	0.3	#23	17.5	#16	0.2	#10	0.3	#13	0.53	#19
	Maximum (ppb)	0.22	#14	5.5	#10	29.3	#5	1.5	#14	10.0	#22	1.49	#42
	Average (ppb)	0.12	-	1.93	-	22.46	-	0.40	-	3.34	-	0.97	-
No.	**Station**	**Sample**	**Duplicate**	**Sample**	**Duplicate**	**Sample**	**Duplicate**	**Sample**	**Duplicate**	**Sample**	**Duplicate**	**Sample**	**Duplicate**
3	Therien	0.10		1.1	1.8	26.2	24.4	0.3		1.9		0.69	
4	Flat Lake	-		1.6		26.2		0.4		2.6		1.27	
5	Lake Eliza	0.09		1.3		29.3		0.3		1.5		1.22	
6	Telegraph Creek	-		3.9		18.3		0.3		8.4		1.16	
8	Muriel-Kehewin	-		1.5		25.2		0.6		3.1		0.99	
9	Dupre	-		1.4		20.5		0.3		1.3		1.04	
10	La Corey	0.12		5.5		20.9		0.2		2.2		0.98	
11	Wolf Lake	0.11		0.9		19.6		0.3		1.0		1.03	
12	Foster Creek	0.15		0.6		20.2		0.3		0.5		1.16	
13	Primrose	0.14		0.8		Missing 2		0.4		0.3		0.79	
14	Tamarack	0.22		2.3		19.8		1.5		0.5		0.96	
15	Ardmore	-		2.0		22.1		0.2		0.9	0.8	1.13	1.05
16	Frog Lake	0.08		3.2		17.5		0.2		6.2	3.3	0.82	0.81
17	Clear Range	0.13		1.8		23.3		0.3		6.4		0.82	
18	Fishing Lake	0.12		1.2		23.5		0.2		6.8		0.95	
19	Beaverdam	-		0.9		24.1		0.3		8.9		0.53	
22	Cold Lake South (1)	0.12		1.9		19.8		0.3		10.0		1.13	
23	Medley-Martineau	-		0.3		17.8		0.2		0.5		0.57	
24	Fort George	0.10		2.4		22.5		0.2		4.1		0.75	
25	Burnt Lake	Missing 1		-		-		-		-		-	
26	Mahihkan	0.10		-		-		0.6		0.3		0.92	
27	Mahkeses	0.22		-		-		1.3	1.4	0.4		0.85	
28	Town of Bonnyville	0.09	0.09	4.1		18.5		0.4	0.2	2.2		0.91	
29	Cold Lake South (2)	0.09	0.08	2.1		24.9		0.2	0.2	10.0		1.10	
32	St. Lina	0.10		0.8		28.4		0.4		1.5		1.07	
42	Lac La Biche	0.12		2.8	3.0	25.6	31.1	0.2		1.9		1.49	
BLANK -1		-		-		-		-		0.5		0.47	
BLANK -2		-		-		-		-		0.5		0.41	
BLANK -3		-		-		-		-		0.4		0.70	
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.

4 Missing 2: Sample was damaged as the sample diffusion barrier was torn.

End of Report

Lakeland Industry & Community Association

NOVEMBER 2023

Ambient Air Monitoring

Certified Laboratory Analysis Report

LAB-LICA-202311

Operation and Maintenance:
Bureau Veritas Canada

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

December 20, 2023

Table of Contents

Cold Lake South Station

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

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

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

RECEIVED
NOV 08 2023

Bureau Veritas

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

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

Date and Time Information

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

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

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

Deployment/Collection and Maintenance Checklist

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

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

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

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

RECEIVED
NOV 08 2023

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	P13-01
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Oct 24, 2023 @ 10:03
Field Sample ID:	LICA/PUF/CLS/Oct 27, 2023	**Removal Date/Time:**	Oct 28, 2023 @ 13:30

Sample Data Collection Information

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

Sample Recovery Checklist

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

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

Sample ID: 23110086-003 Priority: Normal

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

RECEIVED
NOV 08 2023

Bureau Veritas

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

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

Date and Time Information

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

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

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

Deployment/Collection and Maintenance Checklist

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

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

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

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

RECEIVED
NOV 08 2023

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	TE-06
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Oct 28, 2023 @ 13:45
Field Sample ID:	LICA/PUF/CLS/Nov 2, 2023	**Removal Date/Time:**	Nov 04, 2023 @ 15:01

Sample Data Collection Information

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

Sample Recovery Checklist

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

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

InnoTech ALBERTA

Canister ID: 31818

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ on: AUG 2 5 2023

Evacuated: OCT 0 5 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

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

Sampled By: Alex Yakupov

Starting Vacuum:	End Vacuum:
-27.8 "Hg	<1 PS "Hg/psig

InnoTech ALBERTA

Canister ID: P 13-01

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: PUF on: _____

Evacuated: _____ Recertified: _____

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

Laboratory Contact Number: 780-632-8403

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

Sampled By: Alex Yakupov

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

InnoTech ALBERTA

Canister ID: 32219

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ on: SEP 2 1 2023

Evacuated: OCT 0 5 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

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

Sampled By: Alex Yakupov

Starting Vacuum:	End Vacuum:
~~-28~~ -27.8 "Hg	-19.1 "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/Nov 2, 2023

Sampled By: Alex Yakupov

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

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

Customer ID: LICA

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

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

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

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

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202311

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/Nov 02, 2023	TE-06	Air Filter	02-Nov-23 0:00

DESCRIPTION: Cold Lake South

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

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

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

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

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202311

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PO Bag 4000
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Canada T9C 1T4
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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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

DESCRIPTION: Cold Lake South

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

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

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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

DESCRIPTION: Cold Lake South

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

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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

DESCRIPTION: Cold Lake South

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

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

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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

DESCRIPTION: Cold Lake South

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

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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

DESCRIPTION: Cold Lake South

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

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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

DESCRIPTION: Cold Lake South

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

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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

DESCRIPTION: Cold Lake South

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

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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

DESCRIPTION: Cold Lake South

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

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

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

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

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202311

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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

DESCRIPTION: Cold Lake South

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

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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

DESCRIPTION: Cold Lake South

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

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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

DESCRIPTION: Cold Lake South

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

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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

DESCRIPTION: Cold Lake South

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

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

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Revision History

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

Methods

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

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

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

Qualifiers

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

Order Comments

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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.

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Nov 8. 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:**	47977
Station ID:	LICA 01	**Installation Date/Time (mst):**	Nov 04, 2023 @ 15:05
Sample ID:	LICA/VOC/CLS/Nov 8, 2023	**Removal Date/Time (mst):**	Nov 12, 2023 @ 18:31

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
November 8, 2023	0:00	23:59	24

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

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

Deployment/Collection and Maintenance Checklist

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

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

RECEIVED
NOV 2 2023
2

AIR FCD-01321/2

Sample ID: 23110181-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Nov 8. 2023

RECEIVED
NOV 21 2023
2

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	9801
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Nov 04, 2023 @ 15:06
Field Sample ID:	LICA/PUF/CLS/Nov 8, 2023	**Removal Date/Time:**	Nov 12, 2023 @ 18:33

Sample Data Collection Information

Sample Date:	8-Nov-23	**Average Pressure (mmHg)**	715
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	1.5
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.43

Sample Recovery Checklist

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

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

Sample ID: 23110181-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Nov 8. 2023

RECEIVED
NOV 22 2023

InnoTech ALBERTA

Canister ID: ~~X~~47977

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ on: SEP 0 5 2023

Evacuated: OCT 0 5 2023 Recertified:

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Nov 8, 2023

Sampled By: Alex Yakupov

Starting Vacuum: -27.8 "Hg

End Vacuum: +19.1 "Hg/psig

InnoTech ALBERTA

Canister ID: 9601

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/DUP/CLS/Nov 8, 2023

Sampled By: Alex Yakupov

Starting Vacuum: "Hg

End Vacuum: "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/Nov 8, 2023
Matrix: Air Filter
CANISTER ID: TE-10
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 08-Nov-23 0:00
DATE RECEIVED: 22-Nov-23
REPORT CREATED: 19-Dec-23
REPORT NUMBER: 23110181
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110181-002	1-Methylnaphthalene		0.08	ug/Filter	0.01	AC-066	13-Dec-23
23110181-002	2-Methylnaphthalene		0.10	ug/Filter	0.01	AC-066	13-Dec-23
23110181-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110181-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110181-002	Acenaphthene		0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110181-002	Acenaphthylene		0.03	ug/Filter	0.01	AC-066	13-Dec-23
23110181-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110181-002	Anthracene		0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110181-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110181-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110181-002	Benzo(b,j,k)fluoranthene		0.03	ug/Filter	0.01	AC-066	13-Dec-23
23110181-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110181-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110181-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110181-002	Chrysene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110181-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110181-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Nov 8, 2023	TE-10	Air Filter	08-Nov-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23110181 **REPORT CREATED:** 19-Dec-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110181-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110181-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110181-002	Fluoranthene		0.05	ug/Filter	0.01	AC-066	13-Dec-23
23110181-002	Fluorene		0.25	ug/Filter	0.01	AC-066	13-Dec-23
23110181-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110181-002	Naphthalene		0.18	ug/Filter	0.01	AC-066	13-Dec-23
23110181-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110181-002	Phenanthrene		0.49	ug/Filter	0.01	AC-066	13-Dec-23
23110181-002	Pyrene		0.03	ug/Filter	0.01	AC-066	13-Dec-23
23110181-002	Retene		0.15	ug/Filter	0.01	AC-066	13-Dec-23

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 8. 2023	47977	Ambient Air	08-Nov-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23110181 **REPORT CREATED:** 19-Dec-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110181-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110181-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110181-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110181-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110181-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110181-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	05-Dec-23
23110181-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Dec-23
23110181-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110181-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110181-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110181-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110181-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110181-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110181-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110181-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Dec-23
23110181-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Dec-23
23110181-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	05-Dec-23
23110181-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Dec-23
23110181-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	05-Dec-23
23110181-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110181-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110181-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110181-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110181-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	05-Dec-23
23110181-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23

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

Date: December 19, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202311

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 8. 2023	47977	Ambient Air	08-Nov-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23110181 **REPORT CREATED:** 19-Dec-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110181-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110181-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110181-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110181-001	2-Methylpentane	I	0.04	ppbv	0.02	AC-058	05-Dec-23
23110181-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110181-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110181-001	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110181-001	Acetone		0.8	ppbv	0.4	AC-058	05-Dec-23
23110181-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Dec-23
23110181-001	Benzene	I	0.08	ppbv	0.03	AC-058	05-Dec-23
23110181-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Dec-23
23110181-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110181-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110181-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110181-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110181-001	Carbon tetrachloride	I	0.06	ppbv	0.02	AC-058	05-Dec-23
23110181-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110181-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110181-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110181-001	Chloromethane		0.47	ppbv	0.04	AC-058	05-Dec-23
23110181-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110181-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110181-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110181-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110181-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Dec-23

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

Date: December 19, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 8. 2023	47977	Ambient Air	08-Nov-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23110181 **REPORT CREATED:** 19-Dec-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110181-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110181-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110181-001	Ethanol	K, T, U	< 0.5	ppbv	0.5	AC-058	05-Dec-23
23110181-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Dec-23
23110181-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110181-001	Freon-11		0.22	ppbv	0.02	AC-058	05-Dec-23
23110181-001	Freon-113	I	0.06	ppbv	0.02	AC-058	05-Dec-23
23110181-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110181-001	Freon-12		0.56	ppbv	0.03	AC-058	05-Dec-23
23110181-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Dec-23
23110181-001	Isobutane		0.14	ppbv	0.03	AC-058	05-Dec-23
23110181-001	Isopentane		0.13	ppbv	0.04	AC-058	05-Dec-23
23110181-001	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110181-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Dec-23
23110181-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Dec-23
23110181-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Dec-23
23110181-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110181-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110181-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Dec-23
23110181-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Dec-23
23110181-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Dec-23
23110181-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	05-Dec-23
23110181-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110181-001	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110181-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	05-Dec-23

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

Date: December 19, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 8. 2023	47977	Ambient Air	08-Nov-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23110181 **REPORT CREATED:** 19-Dec-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110181-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Dec-23
23110181-001	n-Butane		0.24	ppbv	0.02	AC-058	05-Dec-23
23110181-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Dec-23
23110181-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Dec-23
23110181-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Dec-23
23110181-001	n-Hexane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110181-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110181-001	n-Pentane	I	0.08	ppbv	0.04	AC-058	05-Dec-23
23110181-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Dec-23
23110181-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	05-Dec-23
23110181-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Dec-23
23110181-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Dec-23
23110181-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110181-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110181-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110181-001	p-Ethyltoluene	I	0.05	ppbv	0.04	AC-058	05-Dec-23
23110181-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Dec-23
23110181-001	Tetrachloroethylene	I	0.03	ppbv	0.02	AC-058	05-Dec-23
23110181-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Dec-23
23110181-001	Toluene	I	0.04	ppbv	0.03	AC-058	05-Dec-23
23110181-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Dec-23
23110181-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110181-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110181-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110181-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 8. 2023	47977	Ambient Air	08-Nov-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23110181 **REPORT CREATED:** 19-Dec-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110181-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Dec-23
23110181-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23

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

Date: December 19, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202311

Revision History

Order ID	Ver	Date	Reason
23110181	01	19-Dec-23	Report created

Methods

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

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

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

Qualifiers

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

Order Comments

Sample Comments

Result Comments

Note:

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

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

Sample ID: 23110182-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Nov 14. 2023

Bureau Veritas

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

Client:	LICA	**Sampler S/N:**	6167
Location:	Cold Lake South	**Canister ID:**	32201
Station ID:	LICA 01	**Installation Date/Time (mst):**	Nov 12, 2023 @ 18:47
Sample ID:	LICA/VOC/CLS/Nov 14, 2023	**Removal Date/Time (mst):**	Nov 18, 2023 @ 15:04

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
November 14, 2023	0:00	23:59	24

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.8	18.4

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

RECEIVED
NOV 22 2023

Sample ID: 23110182-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Nov 14. 2023

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:**	Nov 12, 2023 @ 18:48
Field Sample ID:	LICA/PUF/CLS/Nov 14, 2023	**Removal Date/Time:**	Nov 18, 2023 @ 15:12

Sample Data Collection Information

Sample Date:	14-Nov-23	**Average Pressure (mmHg)**	702
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	1.4
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.41

Sample Recovery Checklist

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

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

RECEIVED
NOV 22 2023

Sample ID: 23110182-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Nov 14. 2023

RECEIVED
NOV 22 2023

InnoTech ALBERTA

Canister ID: 32201

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ on: SEP 28 2023

Evacuated: OCT 05 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Nov 14, 2023

Sampled By: Alex Yakupov

Starting Vacuum:	End Vacuum: mm
-27.8 "Hg	+18.4 "Hg/psig

InnoTech ALBERTA

Canister ID: A13-02

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/Nov 14, 2022

Sampled By: Alex Yakupov

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID: LICA/PUF/CLS/Nov 14, 2023
Matrix: Air Filter
CANISTER ID: A13-02
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 14-Nov-23 0:00
DATE RECEIVED: 22-Nov-23
REPORT CREATED: 19-Dec-23
REPORT NUMBER: 23110182
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110182-002	1-Methylnaphthalene		0.24	ug/Filter	0.01	AC-066	13-Dec-23
23110182-002	2-Methylnaphthalene		0.44	ug/Filter	0.01	AC-066	13-Dec-23
23110182-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110182-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110182-002	Acenaphthene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110182-002	Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110182-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110182-002	Anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110182-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110182-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110182-002	Benzo(b,j,k)fluoranthene		0.02	ug/Filter	0.01	AC-066	13-Dec-23
23110182-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110182-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110182-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110182-002	Chrysene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110182-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110182-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: December 19, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202311

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Nov 14, 2023	A13-02	Air Filter	14-Nov-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23110182 **REPORT CREATED:** 19-Dec-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110182-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110182-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110182-002	Fluoranthene		0.02	ug/Filter	0.01	AC-066	13-Dec-23
23110182-002	Fluorene		0.14	ug/Filter	0.01	AC-066	13-Dec-23
23110182-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110182-002	Naphthalene		0.38	ug/Filter	0.01	AC-066	13-Dec-23
23110182-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110182-002	Phenanthrene		0.24	ug/Filter	0.01	AC-066	13-Dec-23
23110182-002	Pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110182-002	Retene		0.03	ug/Filter	0.01	AC-066	13-Dec-23

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 14, 2023	32201	Ambient Air	14-Nov-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23110182 **REPORT CREATED:** 19-Dec-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110182-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110182-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110182-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110182-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110182-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110182-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	05-Dec-23
23110182-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Dec-23
23110182-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110182-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110182-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110182-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110182-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110182-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110182-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110182-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Dec-23
23110182-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Dec-23
23110182-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	05-Dec-23
23110182-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Dec-23
23110182-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	05-Dec-23
23110182-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110182-001	2,2,4-Trimethylpentane	I	0.02	ppbv	0.02	AC-058	05-Dec-23
23110182-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110182-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110182-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	05-Dec-23
23110182-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23

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

Date: December 19, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 14, 2023	32201	Ambient Air	14-Nov-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23110182 **REPORT CREATED:** 19-Dec-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110182-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110182-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110182-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110182-001	2-Methylpentane	I	0.07	ppbv	0.02	AC-058	05-Dec-23
23110182-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110182-001	3-Methylhexane	I	0.03	ppbv	0.02	AC-058	05-Dec-23
23110182-001	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110182-001	Acetone		0.8	ppbv	0.4	AC-058	05-Dec-23
23110182-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Dec-23
23110182-001	Benzene	I	0.07	ppbv	0.03	AC-058	05-Dec-23
23110182-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Dec-23
23110182-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110182-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110182-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110182-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110182-001	Carbon tetrachloride	I	0.06	ppbv	0.02	AC-058	05-Dec-23
23110182-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110182-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110182-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110182-001	Chloromethane		0.45	ppbv	0.04	AC-058	05-Dec-23
23110182-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110182-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110182-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110182-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110182-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Dec-23

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 14, 2023	32201	Ambient Air	14-Nov-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23110182 **REPORT CREATED:** 19-Dec-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110182-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110182-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110182-001	Ethanol	I	0.6	ppbv	0.5	AC-058	05-Dec-23
23110182-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Dec-23
23110182-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110182-001	Freon-11		0.23	ppbv	0.02	AC-058	05-Dec-23
23110182-001	Freon-113	I	0.06	ppbv	0.02	AC-058	05-Dec-23
23110182-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110182-001	Freon-12		0.59	ppbv	0.03	AC-058	05-Dec-23
23110182-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Dec-23
23110182-001	Isobutane		0.24	ppbv	0.03	AC-058	05-Dec-23
23110182-001	Isopentane		0.16	ppbv	0.04	AC-058	05-Dec-23
23110182-001	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110182-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Dec-23
23110182-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Dec-23
23110182-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Dec-23
23110182-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110182-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110182-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Dec-23
23110182-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Dec-23
23110182-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Dec-23
23110182-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	05-Dec-23
23110182-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110182-001	Methylcyclohexane	I	0.04	ppbv	0.02	AC-058	05-Dec-23
23110182-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	05-Dec-23

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 14, 2023	32201	Ambient Air	14-Nov-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23110182 **REPORT CREATED:** 19-Dec-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110182-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Dec-23
23110182-001	n-Butane		0.38	ppbv	0.02	AC-058	05-Dec-23
23110182-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Dec-23
23110182-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Dec-23
23110182-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Dec-23
23110182-001	n-Hexane	I	0.04	ppbv	0.03	AC-058	05-Dec-23
23110182-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110182-001	n-Pentane	I	0.10	ppbv	0.04	AC-058	05-Dec-23
23110182-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Dec-23
23110182-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	05-Dec-23
23110182-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Dec-23
23110182-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Dec-23
23110182-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110182-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110182-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110182-001	p-Ethyltoluene	I	0.05	ppbv	0.04	AC-058	05-Dec-23
23110182-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Dec-23
23110182-001	Tetrachloroethylene	I	0.04	ppbv	0.02	AC-058	05-Dec-23
23110182-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Dec-23
23110182-001	Toluene	I	0.08	ppbv	0.03	AC-058	05-Dec-23
23110182-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Dec-23
23110182-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110182-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110182-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110182-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 14, 2023	32201	Ambient Air	14-Nov-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23110182 **REPORT CREATED:** 19-Dec-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110182-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Dec-23
23110182-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23

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

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Revision History

Order ID	Ver	Date	Reason
23110182	01	19-Dec-23	Report created

Methods

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

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

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

Qualifiers

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

Order Comments

Sample Comments

Result Comments

Note:

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

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

Sample ID: 23110224-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Nov 20, 2023

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Bureau Veritas

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

Client:	LICA	**Sampler S/N:**	6167
Location:	Cold Lake South	**Canister ID:**	31825
Station ID:	LICA 01	**Installation Date/Time (mst):**	Nov 18, 2023 @ 15:46
Sample ID:	LICA/VOC/CLS/Nov 20, 2023	**Removal Date/Time (mst):**	Nov 25, 2023 @ 19:00

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
November 20, 2023	0:00	23:59	24

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

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

Deployment/Collection and Maintenance Checklist

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

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 23110224-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Nov 20, 2023

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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:**	Nov 18, 2023 @ 15:48
Field Sample ID:	LICA/PUF/CLS/Nov 20, 2023	**Removal Date/Time:**	Nov 25, 2023 @ 19:02

Sample Data Collection Information

Sample Date:	20-Nov-23	**Average Pressure (mmHg)**	715
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	0.5
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.43

Sample Recovery Checklist

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

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

InnoTech ALBERTA

Canister ID: 31825

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ on: AUG 18 2023

Evacuated: OCT 05 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Nov 20, 2023

Sampled By: Alex Vaciupov

Starting Vacuum: -27.8 "Hg

End Vacuum: +19.1 "Hg/ psig

InnoTech ALBERTA

Canister ID: TE-10

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: PUF on: _____

Evacuated: _____ Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/PUF/CLS/Nov 20, 2023

Sampled By: Alex Vaciupov

Starting Vacuum: _____ "Hg

End Pressure: _____ "Hg/ psig

Sample ID: 23110224-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Nov 20, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID: LICA/PUF/CLS/Nov 20, 2023
Matrix: Air Filter
CANISTER ID: TE-10
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 20-Nov-23 0:00
DATE RECEIVED: 29-Nov-23
REPORT CREATED: 19-Dec-23
REPORT NUMBER: 23110224
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110224-002	1-Methylnaphthalene		0.07	ug/Filter	0.01	AC-066	13-Dec-23
23110224-002	2-Methylnaphthalene		0.17	ug/Filter	0.01	AC-066	13-Dec-23
23110224-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110224-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110224-002	Acenaphthene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110224-002	Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110224-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110224-002	Anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110224-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110224-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110224-002	Benzo(b,j,k)fluoranthene		0.02	ug/Filter	0.01	AC-066	13-Dec-23
23110224-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110224-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110224-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110224-002	Chrysene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110224-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110224-002	Dibenzo(a,i)pyrene		0.05	ug/Filter	0.01	AC-066	13-Dec-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: December 19, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202311

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Nov 20, 2023	TE-10	Air Filter	20-Nov-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23110224 **REPORT CREATED:** 19-Dec-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110224-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110224-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110224-002	Fluoranthene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110224-002	Fluorene		0.06	ug/Filter	0.01	AC-066	13-Dec-23
23110224-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110224-002	Naphthalene		0.15	ug/Filter	0.01	AC-066	13-Dec-23
23110224-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110224-002	Phenanthrene		0.13	ug/Filter	0.01	AC-066	13-Dec-23
23110224-002	Pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23110224-002	Retene		0.02	ug/Filter	0.01	AC-066	13-Dec-23

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

Date: December 19, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 20, 2023	31825	Ambient Air	20-Nov-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23110224 **REPORT CREATED:** 19-Dec-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110224-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110224-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110224-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110224-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110224-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110224-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	05-Dec-23
23110224-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Dec-23
23110224-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110224-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110224-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110224-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110224-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110224-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110224-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110224-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Dec-23
23110224-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Dec-23
23110224-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	05-Dec-23
23110224-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Dec-23
23110224-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	05-Dec-23
23110224-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110224-001	2,2,4-Trimethylpentane	I	0.02	ppbv	0.02	AC-058	05-Dec-23
23110224-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110224-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110224-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	05-Dec-23
23110224-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23

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

Date: December 19, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 20, 2023	31825	Ambient Air	20-Nov-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23110224 **REPORT CREATED:** 19-Dec-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110224-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110224-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110224-001	2-Methylhexane	I	0.05	ppbv	0.03	AC-058	05-Dec-23
23110224-001	2-Methylpentane		0.10	ppbv	0.02	AC-058	05-Dec-23
23110224-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110224-001	3-Methylhexane	I	0.06	ppbv	0.02	AC-058	05-Dec-23
23110224-001	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110224-001	Acetone		0.6	ppbv	0.4	AC-058	05-Dec-23
23110224-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Dec-23
23110224-001	Benzene	I	0.08	ppbv	0.03	AC-058	05-Dec-23
23110224-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Dec-23
23110224-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110224-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110224-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110224-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110224-001	Carbon tetrachloride	I	0.06	ppbv	0.02	AC-058	05-Dec-23
23110224-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110224-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110224-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110224-001	Chloromethane		0.42	ppbv	0.04	AC-058	05-Dec-23
23110224-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110224-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110224-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110224-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110224-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Dec-23

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

Date: December 19, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 20, 2023	31825	Ambient Air	20-Nov-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23110224 **REPORT CREATED:** 19-Dec-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110224-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110224-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110224-001	Ethanol	I	0.6	ppbv	0.5	AC-058	05-Dec-23
23110224-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Dec-23
23110224-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110224-001	Freon-11		0.24	ppbv	0.02	AC-058	05-Dec-23
23110224-001	Freon-113	I	0.06	ppbv	0.02	AC-058	05-Dec-23
23110224-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110224-001	Freon-12		0.52	ppbv	0.03	AC-058	05-Dec-23
23110224-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Dec-23
23110224-001	Isobutane		0.82	ppbv	0.03	AC-058	05-Dec-23
23110224-001	Isopentane		0.36	ppbv	0.04	AC-058	05-Dec-23
23110224-001	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110224-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Dec-23
23110224-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Dec-23
23110224-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Dec-23
23110224-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110224-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110224-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Dec-23
23110224-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Dec-23
23110224-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Dec-23
23110224-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	05-Dec-23
23110224-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110224-001	Methylcyclohexane	I	0.08	ppbv	0.02	AC-058	05-Dec-23
23110224-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	05-Dec-23

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

Date: December 19, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 20, 2023	31825	Ambient Air	20-Nov-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23110224 **REPORT CREATED:** 19-Dec-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110224-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Dec-23
23110224-001	n-Butane		1.05	ppbv	0.02	AC-058	05-Dec-23
23110224-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Dec-23
23110224-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Dec-23
23110224-001	n-Heptane	I	0.05	ppbv	0.04	AC-058	05-Dec-23
23110224-001	n-Hexane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110224-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110224-001	n-Pentane		0.29	ppbv	0.04	AC-058	05-Dec-23
23110224-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Dec-23
23110224-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	05-Dec-23
23110224-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Dec-23
23110224-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Dec-23
23110224-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110224-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110224-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110224-001	p-Ethyltoluene	I	0.05	ppbv	0.04	AC-058	05-Dec-23
23110224-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Dec-23
23110224-001	Tetrachloroethylene	I	0.04	ppbv	0.02	AC-058	05-Dec-23
23110224-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Dec-23
23110224-001	Toluene	I	0.07	ppbv	0.03	AC-058	05-Dec-23
23110224-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Dec-23
23110224-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110224-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Dec-23
23110224-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23
23110224-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 20, 2023	31825	Ambient Air	20-Nov-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23110224 **REPORT CREATED:** 19-Dec-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110224-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Dec-23
23110224-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Dec-23

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

Date: December 19, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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Revision History

Order ID	Ver	Date	Reason
23110224	01	19-Dec-23	Report created

Methods

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

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

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

Qualifiers

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

Order Comments

Sample Comments

Result Comments

Note:

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

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

Sample ID: 23120058-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Nov 26, 2023

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DEC 08 2023

Bureau Veritas

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

Client:	LICA	**Sampler S/N:**	6167
Location:	Cold Lake South	**Canister ID:**	32213
Station ID:	LICA 01	**Installation Date/Time (mst):**	Nov 25, 2023 @ 19:11
Sample ID:	LICA/VOC/CLS/Nov 26, 2023	**Removal Date/Time (mst):**	Nov 29, 2023 @ 17:13

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
November 26, 2023	0:00	23:59	24

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.1	19.7

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

Deployment/Collection and Maintenance Checklist

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

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 23120058-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Nov 26, 2023

RECEIVED
DEC 08 2023

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	TE-08
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Nov 25, 2023 @ 19:12
Field Sample ID:	LICA/PUF/CLS/Nov 26, 2023	**Removal Date/Time:**	Nov 29, 2023 @ 17:15

Sample Data Collection Information

Sample Date:	26-Nov-23	**Average Pressure (mmHg)**	715
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	-3.1
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.41

Sample Recovery Checklist

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

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

Sample ID: 23120058-003 Priority: Normal

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

RECEIVED
DEC 08 2023

Bureau Veritas

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

Client:	LICA	**Sampler S/N:**	6167
Location:	Cold Lake South	**Canister ID:**	28950
Station ID:	LICA 01	**Installation Date/Time (mst):**	Nov 29, 2023 @ 17:23
Sample ID:	LICA/VOC/CLS/Dec 02, 2023	**Removal Date/Time (mst):**	Dec 07, 2023 @ 09:55

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
December 2, 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: Chris Wesson

Sample ID: 23120058-004 **Priority:** Normal

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

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DEC 08 2023

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	TE-03
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Nov 29, 2023 @ 17:25
Field Sample ID:	LICA/PUF/CLS/Dec 2, 2023	**Removal Date/Time:**	Dec 07, 2023 @ 10:11

Sample Data Collection Information

Sample Date:	02-Dec-23	**Average Pressure (mmHg)**	700
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Temp (C)**	-7.7
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:	Chris Wesson

InnoTech ALBERTA

This cleaned canister meets or exceeds TO-15 Method Specifications

Canister ID: 32213

Proofed by: ISQ on: AUG 30 2023

Evacuated: OCT 10 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Nov 26, 2023

Sampled By: Alex Yakupov

Starting Vacuum: -27.1 "Hg

End Vacuum: +19.7 "Hg/psig

InnoTech ALBERTA

This cleaned canister meets or exceeds TO-15 Method Specifications

Canister ID: PUF - TE - 08

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/Nov 26 2023

Sampled By: Alex Yakupov

Starting Vacuum: _____ "Hg

End Vacuum: _____ "Hg/psig

InnoTech ALBERTA

This cleaned canister meets or exceeds TO-15 Method Specifications

Canister ID: 28950

Proofed by: ISQ on: OCT 24 2023

Evacuated: NOV 06 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/DEC 02, 2023

Sampled By: [signature]

Starting Vacuum: -27.1 "Hg

End Vacuum: 17 18.5 "Hg/psig

InnoTech ALBERTA

This cleaned canister meets or exceeds TO-15 Method Specifications

Canister ID: TE03

Proofed by: PUF on: _____

Evacuated: _____ Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/THF/CLS/DEC 2, 2023

Sampled By: [signature]

Starting Vacuum: _____ "Hg

End Vacuum: _____ "Hg/psig

Sample ID: 23120058-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Nov 26, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID: LICA/PUF/CLS/Dec 02, 2023
Matrix: Air Filter
CANISTER ID: TE-03
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 02-Dec-23 0:00
DATE RECEIVED: 08-Dec-23
REPORT CREATED: 19-Dec-23
REPORT NUMBER: 23120058
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23120058-004	1-Methylnaphthalene		0.13	ug/Filter	0.01	AC-066	13-Dec-23
23120058-004	2-Methylnaphthalene		0.21	ug/Filter	0.01	AC-066	13-Dec-23
23120058-004	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23120058-004	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23120058-004	Acenaphthene		0.03	ug/Filter	0.01	AC-066	13-Dec-23
23120058-004	Acenaphthylene		0.09	ug/Filter	0.01	AC-066	13-Dec-23
23120058-004	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23120058-004	Anthracene		0.01	ug/Filter	0.01	AC-066	13-Dec-23
23120058-004	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23120058-004	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23120058-004	Benzo(b,j,k)fluoranthene		0.05	ug/Filter	0.01	AC-066	13-Dec-23
23120058-004	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23120058-004	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23120058-004	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23120058-004	Chrysene		0.01	ug/Filter	0.01	AC-066	13-Dec-23
23120058-004	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23120058-004	Dibenzo(a,i)pyrene		0.05	ug/Filter	0.01	AC-066	13-Dec-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: December 19, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Dec 02, 2023	TE-03	Air Filter	02-Dec-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23120058 **REPORT CREATED:** 19-Dec-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23120058-004	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23120058-004	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23120058-004	Fluoranthene		0.09	ug/Filter	0.01	AC-066	13-Dec-23
23120058-004	Fluorene		0.23	ug/Filter	0.01	AC-066	13-Dec-23
23120058-004	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23120058-004	Naphthalene		0.23	ug/Filter	0.01	AC-066	13-Dec-23
23120058-004	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23120058-004	Phenanthrene		0.52	ug/Filter	0.01	AC-066	13-Dec-23
23120058-004	Pyrene		0.06	ug/Filter	0.01	AC-066	13-Dec-23
23120058-004	Retene		0.10	ug/Filter	0.01	AC-066	13-Dec-23

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

Date: December 19, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202311

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Nov 26, 2023	TE-08	Air Filter	26-Nov-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23120058 **REPORT CREATED:** 19-Dec-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23120058-002	1-Methylnaphthalene		0.07	ug/Filter	0.01	AC-066	13-Dec-23
23120058-002	2-Methylnaphthalene		0.12	ug/Filter	0.01	AC-066	13-Dec-23
23120058-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23120058-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23120058-002	Acenaphthene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23120058-002	Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23120058-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23120058-002	Anthracene		0.01	ug/Filter	0.01	AC-066	13-Dec-23
23120058-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23120058-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23120058-002	Benzo(b,j,k)fluoranthene		0.06	ug/Filter	0.01	AC-066	13-Dec-23
23120058-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23120058-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23120058-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23120058-002	Chrysene		0.02	ug/Filter	0.01	AC-066	13-Dec-23
23120058-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23120058-002	Dibenzo(a,i)pyrene		0.05	ug/Filter	0.01	AC-066	13-Dec-23
23120058-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23120058-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23120058-002	Fluoranthene		0.11	ug/Filter	0.01	AC-066	13-Dec-23
23120058-002	Fluorene		0.19	ug/Filter	0.01	AC-066	13-Dec-23
23120058-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23120058-002	Naphthalene		0.13	ug/Filter	0.01	AC-066	13-Dec-23
23120058-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	13-Dec-23
23120058-002	Phenanthrene		0.57	ug/Filter	0.01	AC-066	13-Dec-23

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

Date: December 19, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Nov 26, 2023	TE-08	Air Filter	26-Nov-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23120058 **REPORT CREATED:** 19-Dec-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23120058-002	Pyrene		0.08	ug/Filter	0.01	AC-066	13-Dec-23
23120058-002	Retene		0.06	ug/Filter	0.01	AC-066	13-Dec-23

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

Date: December 19, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202311

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 02, 2023	28950	Ambient Air	02-Dec-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23120058 **REPORT CREATED:** 19-Dec-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23120058-003	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-003	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-003	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-003	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-003	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-003	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	13-Dec-23
23120058-003	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	13-Dec-23
23120058-003	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Dec-23
23120058-003	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-003	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Dec-23
23120058-003	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Dec-23
23120058-003	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Dec-23
23120058-003	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Dec-23
23120058-003	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Dec-23
23120058-003	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	13-Dec-23
23120058-003	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	13-Dec-23
23120058-003	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	13-Dec-23
23120058-003	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	13-Dec-23
23120058-003	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	13-Dec-23
23120058-003	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Dec-23
23120058-003	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-003	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-003	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-003	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	13-Dec-23
23120058-003	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 02, 2023	28950	Ambient Air	02-Dec-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23120058 **REPORT CREATED:** 19-Dec-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23120058-003	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Dec-23
23120058-003	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-003	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Dec-23
23120058-003	2-Methylpentane		0.12	ppbv	0.02	AC-058	13-Dec-23
23120058-003	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Dec-23
23120058-003	3-Methylhexane	I	0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-003	3-Methylpentane	I	0.05	ppbv	0.02	AC-058	13-Dec-23
23120058-003	Acetone		0.5	ppbv	0.4	AC-058	13-Dec-23
23120058-003	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	13-Dec-23
23120058-003	Benzene	I	0.08	ppbv	0.03	AC-058	13-Dec-23
23120058-003	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	13-Dec-23
23120058-003	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Dec-23
23120058-003	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-003	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-003	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-003	Carbon tetrachloride	I	0.06	ppbv	0.02	AC-058	13-Dec-23
23120058-003	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-003	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-003	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-003	Chloromethane		0.60	ppbv	0.04	AC-058	13-Dec-23
23120058-003	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-003	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Dec-23
23120058-003	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Dec-23
23120058-003	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-003	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	13-Dec-23

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 02, 2023	28950	Ambient Air	02-Dec-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23120058 **REPORT CREATED:** 19-Dec-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23120058-003	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-003	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-003	Ethanol	K, T, U	< 0.5	ppbv	0.5	AC-058	13-Dec-23
23120058-003	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	13-Dec-23
23120058-003	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Dec-23
23120058-003	Freon-11		0.23	ppbv	0.02	AC-058	13-Dec-23
23120058-003	Freon-113	I	0.05	ppbv	0.02	AC-058	13-Dec-23
23120058-003	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Dec-23
23120058-003	Freon-12		0.58	ppbv	0.03	AC-058	13-Dec-23
23120058-003	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	13-Dec-23
23120058-003	Isobutane		0.80	ppbv	0.03	AC-058	13-Dec-23
23120058-003	Isopentane		0.49	ppbv	0.04	AC-058	13-Dec-23
23120058-003	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-003	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	13-Dec-23
23120058-003	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	13-Dec-23
23120058-003	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	13-Dec-23
23120058-003	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-003	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Dec-23
23120058-003	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	13-Dec-23
23120058-003	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	13-Dec-23
23120058-003	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	13-Dec-23
23120058-003	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	13-Dec-23
23120058-003	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Dec-23
23120058-003	Methylcyclohexane	I	0.06	ppbv	0.02	AC-058	13-Dec-23
23120058-003	Methylcyclopentane	I	0.06	ppbv	0.05	AC-058	13-Dec-23

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 02, 2023	28950	Ambient Air	02-Dec-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23120058 **REPORT CREATED:** 19-Dec-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23120058-003	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	13-Dec-23
23120058-003	n-Butane		1.40	ppbv	0.02	AC-058	13-Dec-23
23120058-003	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	13-Dec-23
23120058-003	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	13-Dec-23
23120058-003	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	13-Dec-23
23120058-003	n-Hexane	I	0.09	ppbv	0.03	AC-058	13-Dec-23
23120058-003	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-003	n-Pentane		0.34	ppbv	0.04	AC-058	13-Dec-23
23120058-003	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	13-Dec-23
23120058-003	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	13-Dec-23
23120058-003	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	13-Dec-23
23120058-003	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	13-Dec-23
23120058-003	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-003	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Dec-23
23120058-003	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-003	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	13-Dec-23
23120058-003	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	13-Dec-23
23120058-003	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-003	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	13-Dec-23
23120058-003	Toluene	I	0.03	ppbv	0.03	AC-058	13-Dec-23
23120058-003	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	13-Dec-23
23120058-003	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-003	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Dec-23
23120058-003	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-003	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 02, 2023	28950	Ambient Air	02-Dec-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23120058 **REPORT CREATED:** 19-Dec-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23120058-003	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	13-Dec-23
23120058-003	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23

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

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InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202311

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 26, 2023	32213	Ambient Air	26-Nov-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23120058 **REPORT CREATED:** 19-Dec-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23120058-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	13-Dec-23
23120058-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	13-Dec-23
23120058-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Dec-23
23120058-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Dec-23
23120058-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Dec-23
23120058-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Dec-23
23120058-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Dec-23
23120058-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Dec-23
23120058-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	13-Dec-23
23120058-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	13-Dec-23
23120058-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	13-Dec-23
23120058-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	13-Dec-23
23120058-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	13-Dec-23
23120058-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Dec-23
23120058-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	13-Dec-23
23120058-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 26, 2023	32213	Ambient Air	26-Nov-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23120058 **REPORT CREATED:** 19-Dec-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23120058-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Dec-23
23120058-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Dec-23
23120058-001	2-Methylpentane	I	0.06	ppbv	0.02	AC-058	13-Dec-23
23120058-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Dec-23
23120058-001	3-Methylhexane	I	0.03	ppbv	0.02	AC-058	13-Dec-23
23120058-001	3-Methylpentane	I	0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-001	Acetone		0.8	ppbv	0.4	AC-058	13-Dec-23
23120058-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	13-Dec-23
23120058-001	Benzene	I	0.07	ppbv	0.03	AC-058	13-Dec-23
23120058-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	13-Dec-23
23120058-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Dec-23
23120058-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-001	Carbon tetrachloride	I	0.05	ppbv	0.02	AC-058	13-Dec-23
23120058-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-001	Chloromethane		0.60	ppbv	0.04	AC-058	13-Dec-23
23120058-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Dec-23
23120058-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Dec-23
23120058-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	13-Dec-23

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 26, 2023	32213	Ambient Air	26-Nov-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23120058 **REPORT CREATED:** 19-Dec-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23120058-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-001	Ethanol	I	0.8	ppbv	0.5	AC-058	13-Dec-23
23120058-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	13-Dec-23
23120058-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Dec-23
23120058-001	Freon-11		0.22	ppbv	0.02	AC-058	13-Dec-23
23120058-001	Freon-113	I	0.05	ppbv	0.02	AC-058	13-Dec-23
23120058-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Dec-23
23120058-001	Freon-12		0.55	ppbv	0.03	AC-058	13-Dec-23
23120058-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	13-Dec-23
23120058-001	Isobutane		0.28	ppbv	0.03	AC-058	13-Dec-23
23120058-001	Isopentane		0.25	ppbv	0.04	AC-058	13-Dec-23
23120058-001	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	13-Dec-23
23120058-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	13-Dec-23
23120058-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	13-Dec-23
23120058-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Dec-23
23120058-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	13-Dec-23
23120058-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	13-Dec-23
23120058-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	13-Dec-23
23120058-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	13-Dec-23
23120058-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Dec-23
23120058-001	Methylcyclohexane	I	0.06	ppbv	0.02	AC-058	13-Dec-23
23120058-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	13-Dec-23

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 26, 2023	32213	Ambient Air	26-Nov-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23120058 **REPORT CREATED:** 19-Dec-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23120058-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	13-Dec-23
23120058-001	n-Butane		0.49	ppbv	0.02	AC-058	13-Dec-23
23120058-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	13-Dec-23
23120058-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	13-Dec-23
23120058-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	13-Dec-23
23120058-001	n-Hexane	I	0.04	ppbv	0.03	AC-058	13-Dec-23
23120058-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-001	n-Pentane		0.16	ppbv	0.04	AC-058	13-Dec-23
23120058-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	13-Dec-23
23120058-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	13-Dec-23
23120058-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	13-Dec-23
23120058-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	13-Dec-23
23120058-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Dec-23
23120058-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	13-Dec-23
23120058-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	13-Dec-23
23120058-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	13-Dec-23
23120058-001	Toluene	I	0.04	ppbv	0.03	AC-058	13-Dec-23
23120058-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	13-Dec-23
23120058-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	13-Dec-23
23120058-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23
23120058-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23

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(780) 632-8211

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 26, 2023	32213	Ambient Air	26-Nov-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23120058 **REPORT CREATED:** 19-Dec-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23120058-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	13-Dec-23
23120058-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	13-Dec-23

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

Date: December 19, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202311

Revision History

Order ID	Ver	Date	Reason
23120058	01	19-Dec-23	Report created

Methods

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

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

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

Qualifiers

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

Order Comments

Sample Comments

Result Comments

Note:

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

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

Partisol Samples

Sample ID: 23110085-001 Priority: Normal

Customer ID: LICA
Cust Samp ID: AT79088

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l 2000i-D Sample Data Sheet

Date Sampled:	27-Oct-23
Location:	Cold Lake South
Parameter:	PM 2.5 / PM 10
Start Time	0:00
End Time	23:59
Valid Time	24 hours
Total Time	24 hours
Status	Done

	FINE (1)	COURSE (2)
Filter Type:	47mm	47mm
Filter #:	AT79088	AT79089
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	-2.5	
Pressure	718	
Std Volume (Instrument)	22.2	2.47

Comments: Weather Conditions, etc.

n/a

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

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

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

Sample ID: 23110085-003 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: AT79044

RECEIVED
NOV 08 2023

ɔl 2000i-D Sample Data Sheet

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

	FINE (1)	COURSE (2)
Filter Type:	47mm	47mm
Filter #:	AT79044	AT85160
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	1.7	
Pressure	709	
Std Volume (Instrument)	22	2.45

Comments: Weather Conditions, etc.

n/a

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

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

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

Sample ID: 23110085-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: AT79089

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NOV 08 2023

Filter Shipping Record

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

Date: August 31 23

Project: LICA/Bureau Veritas Labs

Prepared by: J. Zelenka

For information contact:
EAS.Reception@albertainnovates.ca

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

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

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

Customer ID: LICA
Cust Samp ID: AT85160

RECEIVED
NOV 08 2023

Filter Shipping Record

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

Date: August 31/23

Project: LICA/Bureau Veritas Labs

Prepared by:

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	1	AT79044
	1	AT85160

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

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: AT79044

Matrix: Air Filter

CANISTER ID:

PRIORITY: Normal

DESCRIPTION: Cold Lake South - PM2.5 - Fine

DATE SAMPLED: 02-Nov-23 0:00

DATE RECEIVED: 08-Nov-23

REPORT CREATED: 21-Nov-23

REPORT NUMBER: 23110085

VERSION: Version 01

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

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

Date: November 21, 2023

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

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202311

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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

DESCRIPTION: Cold Lake South - PM2.5 - Fine

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

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

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

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

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202311

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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
AT79089		Air Filter	27-Oct-23 0:00

DESCRIPTION: Cold Lake South - PM10 - Coarse

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

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

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

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

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202311

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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

DESCRIPTION: Cold Lake South - PM10 - Coarse

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

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

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

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

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202311

Revision History

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

Methods

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

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

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

Qualifiers

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

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

Sample ID: 23110184-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: AT79091

	FINE (1)	COURSE (2)
Filter Type:	47mm	47mm
Filter #:	AT79091	AT79092
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	-0.2	
Pressure	714	
Std Volume (Instrument)	22	2.45

Comments: Weather Conditions, etc.

n/a

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

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

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

Sample ID: 23110184-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: AT79091

Filter Shipping Record

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

Date: August 31/23

Project: LICA/Bureau Veritas Labs

Prepared by: [signature]

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	AT79091 → AT79092

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

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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
AT79091	Air Filter

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

DATE SAMPLED: 14-Nov-23 0:00
DATE RECEIVED: 22-Nov-23
REPORT CREATED: 07-Dec-23
REPORT NUMBER: 23110184
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110184-001	Particulate Weight		0.011	mg	0.004	AC-029	24-Nov-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: December 7, 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-202311

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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
AT79092		Air Filter	14-Nov-23 0:00

DESCRIPTION: Cold Lake South - Coarse - PM 10

REPORT NUMBER: 23110184 **REPORT CREATED:** 07-Dec-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110184-002	Particulate Weight	K, T, U	< 0.004	mg	0.004	AC-029	24-Nov-23

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

Date: December 7, 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-202311

Revision History

Order ID	Ver	Date	Reason
23110184	01	07-Dec-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: 23110183-001 Priority: Normal

Customer ID: LICA
Cust Samp ID: AT85575

Partisol 2000i-D Sample Data Shee

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

	FINE (1)	COURSE (2)
Filter Type:	47mm	47mm
Filter #:	AT85575	AT85576
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	-0.1	
Pressure	702	
Std Volume (Instrument)	21.9	2.42

Comments: Weather Conditions, etc.

n/a

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

Removed by (Sign/Date) Alex Yakupov Date: 18-Nov-23

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

Sample ID: 23110183-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: AT85575

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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: OCTOBER 4/23

Project: LICA/Bureau Veritas Labs

Prepared by: S Melenka

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	AT85575 → AT85576

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID	Matrix
AT85575	Air Filter

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

DATE SAMPLED: 14-Nov-23 0:00
DATE RECEIVED: 22-Nov-23
REPORT CREATED: 30-Nov-23
REPORT NUMBER: 23110183
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110183-001	Particulate Weight		0.026	mg	0.004	AC-029	24-Nov-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: November 30, 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-202311

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
AT85576		Air Filter	14-Nov-23 0:00

DESCRIPTION: Cold Lake South - Coarse - PM 10

REPORT NUMBER: 23110183 **REPORT CREATED:** 30-Nov-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110183-002	Particulate Weight		0.032	mg	0.004	AC-029	24-Nov-23

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

Date: November 30, 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-202311

Revision History

Order ID	Ver	Date	Reason
23110183	01	30-Nov-23	Report created

Methods

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

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

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

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

Qualifiers

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

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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: 23110223-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: AT79090

l 2000i-D Sample Data Sheet

RECEIVED
NOV 29 2023

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

	FINE (1)	COURSE (2)
Filter Type:	47mm	47mm
Filter #:	AT79090	AT79042
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	-0.2	
Pressure	715	
Std Volume (Instrument)	22.3	2.49

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date):	Alex Yakupov	Date:	18-Nov-23
Removed by (Sign/Date)	Alex Yakupov	Date:	25-Nov-23

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

Sample ID: 23110223-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: AT79042

NOV 29 2023

Filter Shipping Record

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

Date: August 31/23

Project: LICA/Bureau Veritas Labs

Prepared by:

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	1	AT79042
	1	AT79090

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: AT79042
Matrix: Air Filter
CANISTER ID:
PRIORITY: Normal
DESCRIPTION: Cold Lake South - Coarse - PM 10
DATE SAMPLED: 20-Nov-23 0:00
DATE RECEIVED: 29-Nov-23
REPORT CREATED: 07-Dec-23
REPORT NUMBER: 23110223
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110223-002	Particulate Weight		0.033	mg	0.004	AC-029	01-Dec-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: December 7, 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-202311

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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
AT79090		Air Filter	20-Nov-23 0:00

DESCRIPTION: Cold Lake South - Fine - PM 2.5

REPORT NUMBER: 23110223 **REPORT CREATED:** 07-Dec-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23110223-001	Particulate Weight	K, T, U	< 0.004	mg	0.004	AC-029	01-Dec-23

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

Date: December 7, 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-202311

Revision History

Order ID	Ver	Date	Reason
23110223	01	07-Dec-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

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

Order Comments

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

Sample Comments

Result Comments

Note:

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

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

Sample ID: 23120057-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: AT85573

ol 2000i-D Sample Data Sheet

RECEIVED
DEC 08 2023

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

	FINE (1) 1	COURSE (2) 2
Filter Type:	47mm	47mm
Filter #:	AT85573	AT85574
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	-3.9	
Pressure	715	
Std Volume (Instrument)	22.6	2.51

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date): Alex Yakupov Date: 25-Nov-23

Removed by (Sign/Date) Alex Yakupov Date: 29-Nov-23

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

RECEIVED
DEC 08 2023

Sample ID: 23120057-003 Priority: Normal

Customer ID: LICA
Cust Samp ID: AT79026

Partisol 2000i-D Sample Dat

Date Sampled:	02-Dec-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) 3	COURSE (2) 4
Filter Type:	47mm	47mm
Filter #:	AT79026	AT79040
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	-10	
Pressure	697	
Std Volume (Instrument)	22.4	2.5

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date): Alex Yakupov Date: 25-Nov-23

Removed by (Sign/Date) Chris Wesson Date: 07-Dec-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: 23120057-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: AT85574

RECEIVED
DEC 08 2023

Filter Shipping Record

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

Date: OCTOBER 4/23

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	AT85573 → AT85574

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

Sample ID: 23120057-004 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: AT79040

RECEIVED
DEC 08 2023

Filter Shipping Record

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

Date: August 31/23

Project: LICA/Bureau Veritas Labs

Prepared by:

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	1	AT79026
	1	AT79040

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
AT79026	Air Filter

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

DATE SAMPLED: 02-Dec-23 0:00
DATE RECEIVED: 08-Dec-23
REPORT CREATED: 19-Dec-23
REPORT NUMBER: 23120057
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23120057-003	Particulate Weight		0.182	mg	0.004	AC-029	12-Dec-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: December 19, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202311

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
AT79040		Air Filter	02-Dec-23 0:00

DESCRIPTION: Cold Lake South - Coarse - PM 10

REPORT NUMBER: 23120057 **REPORT CREATED:** 19-Dec-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23120057-004	Particulate Weight		0.014	mg	0.004	AC-029	12-Dec-23

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

Date: December 19, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202311

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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
AT85573		Air Filter	26-Nov-23 0:00

DESCRIPTION: Cold Lake South - Fine - PM 2.5

REPORT NUMBER: 23120057 **REPORT CREATED:** 19-Dec-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23120057-001	Particulate Weight		0.018	mg	0.004	AC-029	12-Dec-23

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

Date: December 19, 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
AT85574		Air Filter	26-Nov-23 0:00

DESCRIPTION: Cold Lake South - Coarse - PM 10

REPORT NUMBER: 23120057 **REPORT CREATED:** 19-Dec-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23120057-002	Particulate Weight		0.009	mg	0.004	AC-029	12-Dec-23

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

Date: December 19, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202311

Revision History

Order ID	Ver	Date	Reason
23120057	01	19-Dec-23	Report created

Methods

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

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

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

Qualifiers

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J3	Reported value is estimated; The value failed to meet QC criteria for either precision or accuracy
J4	Reported value is estimated; The sample matrix interfered with the analysis
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:

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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, Nov 2023 sample period

ID	SAMPLER						START		END		NOTES
							DATE	TIME	DATE	TIME	
3	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Oct 29	16:50	Nov 30	18:10	
4	---	SO_2	NO_2	O_3	HNO3	NH3	Nov 2	11:55	Dec 1	17:24	
5	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Nov 2	12:45	Dec 1	18:34	
6	---	SO_2	NO_2	O_3	HNO3	NH3	Nov 2	14:16	Dec 2	14:40	
8	---	SO_2	NO_2	O_3	HNO3	NH3	Nov 2	10:55	Dec 1	19:48	
9	---	SO_2	NO_2	O_3	HNO3	NH3	Oct 29	18:55	Nov 30	12:54	
10	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Nov 3	16:54	Dec 1	13:39	
11	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Nov 3	16:15	Dec 1	13:20	
12	H2S	SO2	NO2	O3	HNO3	NH3	Nov 3	15:10	Dec 1	12:10	
13	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Oct 29	14:25	Nov 30	16:30	
14	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Oct 29	13:16	Nov 30	15:37	
15	---	SO_2	NO_2	O_3	HNO3	NH3	Oct 29	20:30	Nov 30	13:04	No water sample available due to extremely dry weather conditions of the month (Dec 1, 2023)
16	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Nov 2	17:29	Dec 2	11:09	
17	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Nov 2	15:29	Dec 2	13:40	
18	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Nov 2	16:45	Dec 2	12:03	
19	---	SO_2	NO_2	O_3	HNO3	NH3	Nov 2	19:47	Dec 2	10:19	
22	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Nov 3	18:21	Dec 2	17:47	
23	---	SO_2	NO_2	O_3	HNO3	NH3	Oct 29	11:06	Nov 30	13:55	
24	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Nov 2	13:30	Dec 2	15:16	
25	H2S	SO2	---	---							
26	H_2S	SO_2	---	---	HNO3	NH3	Oct 29	13:44	Nov 30	15:55	
27	H_2S	SO_2	---	---	HNO3	NH3	Oct 29	12:36	Nov 30	15:10	
28	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Oct 29	19:48	Nov 30	12:02	
29	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Nov 3	18:02	Dec 2	18:01	
32	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Oct 29	17:40	Nov 30	19:24	
42	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Nov 3	11:56	Dec 1	15:32	
							DUPLICATES				
28	H2S	---	---	---	---	---	Oct 29	19:48	Nov 30	12:02	
29	H2S	---	---	---	---	---	Nov 3	18:02	Dec 2	18:01	
27	---	SO2	---	---	---	---	Oct 29	12:36	Nov 30	15:10	
28		SO2	---	---	---	---	Oct 29	19:48	Nov 30	12:02	
29	---	SO2	---	---	---	---	Nov 3	18:02	Dec 2	18:01	
42	---	---	NO_2	O_3	---	---	Nov 3	11:56	Dec 1	15:32	
3	---	---	NO_2	O_3	---	---	Oct 29	16:50	Nov 30	18:10	
15	---	---	---	---	HNO3	NH3	Oct 29	20:30	Nov 30	13:04	
16	---	---	---	---	HNO3	NH3	Nov 2	17:29	Dec 2	11:09	

3 NH_3
28 NO_2
32 SO_2
3 NH_3
28 O_3
23 H_2S
30 HNO_3

DS 23-12-08
C12i00

Your Project #: NOVEMBER 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: 2023/12/19
Report #: R3442758
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C3A0573
Received: 2023/12/08, 12:00

Sample Matrix: Air
Samples Received: 60

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
H2S Passive Analysis	20	2023/12/14	2023/12/18	PTC SOP-00150	Passive H2S in ATM
HNO3 by Passive Sampler	30	2023/12/11	2023/12/15	PTC SOP-00288	Passive HNO3 in ATM
NH3 by Passive Sampler	30	2023/12/11	2023/12/12	PTC SOP-00157	ASTM D6919
NO2 Passive Analysis	25	2023/12/14	2023/12/18	PTC SOP-00148	Passive NO2 in ATM
O3 Passive Analysis	25	2023/12/13	2023/12/18	PTC SOP-00197	EPA 300 R2.1
SO2 Passive Analysis	28	2023/12/11	2023/12/18	PTC SOP-00149	Passive SO2 in ATM

This report shall not be reproduced except in full, without the written approval of the laboratory.
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
19 Dec 2023 09:29:37

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

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

Bureau Veritas Job #: C3A0573
Report Date: 2023/12/19

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		CGI398			CGI505			CGI399		
Sampling Date		2023/10/29 16:50			2023/10/29 16:50			2023/11/02 11:55		
	UNITS	3	RDL	QC Batch	3-DUP	RDL	QC Batch	4	RDL	QC Batch
Passive Monitoring										
Calculated H2S	ppb	0.10	0.02	B232864						
Calculated NO2	ppb	1.1	0.1	B233059	1.8	0.1	B233090	1.6	0.1	B233059
Calculated O3	ppb	26.2	0.1	B231812	24.4	0.1	B231818	26.2	0.1	B231812
Calculated SO2	ppb	0.3	0.1	B229690				0.4	0.1	B229690
RDL = Reportable Detection Limit										

Bureau Veritas ID		CGI400			CGI401	CGI402	CGI403		
Sampling Date		2023/11/02 12:45			2023/11/02 14:16	2023/11/02 10:55	2023/10/29 18:55		
	UNITS	5	RDL	QC Batch	6	8	9	RDL	QC Batch
Passive Monitoring									
Calculated H2S	ppb	0.09	0.02	B232864					
Calculated NO2	ppb	1.3	0.1	B233059	3.9	1.5	1.4	0.1	B233059
Calculated O3	ppb	29.3	0.1	B231812	18.3	25.2	20.5	0.1	B231812
Calculated SO2	ppb	0.3	0.1	B229690	0.3	0.6	0.3	0.1	B229690
RDL = Reportable Detection Limit									

Bureau Veritas ID		CGI404	CGI405	CGI406	CGI407	CGI408		
Sampling Date		2023/11/03 16:54	2023/11/03 16:15	2023/11/03 15:10	2023/10/29 14:25	2023/10/29 13:16		
	UNITS	10	11	12	13	14	RDL	QC Batch
Passive Monitoring								
Calculated H2S	ppb	0.12	0.11	0.15	0.14	0.22	0.02	B232864
Calculated NO2	ppb	5.5	0.9	0.6	0.8	2.3	0.1	B233059
Calculated O3	ppb	20.9	19.6	20.2	DAMAGED	19.8	0.1	B231812
Calculated SO2	ppb	0.2	0.3	0.3	0.4	1.5	0.1	B229690
RDL = Reportable Detection Limit								

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LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
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Site Location: BONNYVILLE, AB
Sampler Initials: AY

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		CGI409			CGI410	CGI411	CGI412			CGI413		
Sampling Date		2023/10/29 20:30			2023/11/02 17:29	2023/11/02 15:27	2023/11/02 16:45			2023/11/02 19:47		
	UNITS	15	RDL	QC Batch	16	17	18	RDL	QC Batch	19	RDL	QC Batch
Passive Monitoring												
Calculated H2S	ppb				0.08	0.13	0.12	0.02	B232864			
Calculated NO2	ppb	2.0	0.1	B233059	3.2	1.8	1.2	0.1	B233059	0.9	0.1	B233059
Calculated O3	ppb	22.1	0.1	B231812	17.5	23.3	23.5	0.1	B231812	24.1	0.1	B231818
Calculated SO2	ppb	0.2	0.1	B229690	0.2	0.3	0.2	0.1	B229690	0.3	0.1	B229690
RDL = Reportable Detection Limit												

Bureau Veritas ID		CGI414			CGI415			CGI416		
Sampling Date		2023/11/03 18:21			2023/10/29 11:06			2023/11/02 13:30		
	UNITS	22	RDL	QC Batch	23	RDL	QC Batch	24	RDL	QC Batch
Passive Monitoring										
Calculated H2S	ppb	0.12	0.02	B232864				0.10	0.02	B232864
Calculated NO2	ppb	1.9	0.1	B233059	0.3	0.1	B233059	2.4	0.1	B233059
Calculated O3	ppb	19.8	0.1	B231818	17.8	0.1	B231818	22.5	0.1	B231818
Calculated SO2	ppb	0.3	0.1	B229690	0.2	0.1	B229690	0.2	0.1	B229690
RDL = Reportable Detection Limit										

Bureau Veritas ID		CGI417		CGI418			CGI500			CGI419		
Sampling Date		2023/10/29 13:44		2023/10/29 12:36			2023/10/29 12:36			2023/10/29 19:48		
	UNITS	26	QC Batch	27	RDL	QC Batch	27-DUP	RDL	QC Batch	28	RDL	QC Batch
Passive Monitoring												
Calculated H2S	ppb	0.10	B232864	0.22	0.02	B232864				0.09	0.02	B232864
Calculated NO2	ppb									4.1	0.1	B233059
Calculated O3	ppb									18.5	0.1	B231818
Calculated SO2	ppb	0.6	B229690	1.3	0.1	B229692	1.4	0.1	B229692	0.4	0.1	B229692
RDL = Reportable Detection Limit												

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LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
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Sampler Initials: AY

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		CGI497			CGI420			CGI498		
Sampling Date		2023/10/29 19:48			2023/11/03 18:02			2023/11/03 18:02		
	UNITS	28-DUP	RDL	QC Batch	29	RDL	QC Batch	29-DUP	RDL	QC Batch
Passive Monitoring										
Calculated H2S	ppb	0.09	0.02	B232864	0.09	0.02	B232864	0.08	0.02	B232864
Calculated NO2	ppb				2.1	0.1	B233090			
Calculated O3	ppb				24.9	0.1	B231818			
Calculated SO2	ppb	0.2	0.1	B229692	0.2	0.1	B229692	0.2	0.1	B229692
RDL = Reportable Detection Limit										

Bureau Veritas ID		CGI421	CGI422			CGI503			CGI426		
Sampling Date		2023/10/29 17:40	2023/11/03 11:56			2023/11/03 11:56			2023/10/29 16:50		
	UNITS	32	42	RDL	QC Batch	42-DUP	RDL	QC Batch	3-NH3 HNO3	RDL	QC Batch
Passive Monitoring											
Ammonia by Passive Sampler	ppb								1.9	0.1	B229320
Calculated H2S	ppb	0.10	0.12	0.02	B232864						
HNO3 by Passive Sampler	ug/m3								0.69	0.04	B229628
Calculated NO2	ppb	0.8	2.8	0.1	B233090	3.0	0.1	B233090			
Calculated O3	ppb	28.4	25.6	0.1	B231818	31.1	0.1	B231818			
Calculated SO2	ppb	0.4	0.2	0.1	B229692						
RDL = Reportable Detection Limit											

Bureau Veritas ID		CGI427	CGI428	CGI429	CGI430	CGI431	CGI432		
Sampling Date		2023/11/02 11:55	2023/11/02 12:45	2023/11/02 14:16	2023/11/02 10:55	2023/10/29 18:55	2023/11/03 16:54		
	UNITS	4-NH3 HNO3	5-NH3 HNO3	6-NH3 HNO3	8-NH3 HNO3	9-NH3 HNO3	10-NH3 HNO3	RDL	QC Batch
Passive Monitoring									
Ammonia by Passive Sampler	ppb	2.6	1.5	8.4	3.1	1.3	2.2	0.1	B229320
HNO3 by Passive Sampler	ug/m3	1.27	1.22	1.16	0.99	1.04	0.98	0.04	B229628
RDL = Reportable Detection Limit									

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LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
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Sampler Initials: AY

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		CGI433	CGI434	CGI435	CGI436	CGI437		
Sampling Date		2023/11/03 16:15	2023/11/03 15:10	2023/10/29 14:25	2023/10/29 13:16	2023/10/29 20:30		
	UNITS	11-NH3 HNO3	12-NH3 HNO3	13-NH3 HNO3	14-NH3 HNO3	15-NH3 HNO3	RDL	QC Batch
Passive Monitoring								
Ammonia by Passive Sampler	ppb	1.0	0.5	0.3	0.5	0.9	0.1	B229320
HNO3 by Passive Sampler	ug/m3	1.03	1.16	0.79	0.96	1.13	0.04	B229628
RDL = Reportable Detection Limit								

Bureau Veritas ID		CGI507		CGI438		CGI508		
Sampling Date		2023/10/29 20:30		2023/11/02 17:29		2023/11/02 17:29		
	UNITS	15-NH3 HNO3-DUP	QC Batch	16-NH3 HNO3	QC Batch	16-NH3 HNO3-DUP	RDL	QC Batch
Passive Monitoring								
Ammonia by Passive Sampler	ppb	0.8	B229677	6.2	B229320	3.3	0.1	B229677
HNO3 by Passive Sampler	ug/m3	1.05	B229629	0.82	B229628	0.81	0.04	B229629
RDL = Reportable Detection Limit								

Bureau Veritas ID		CGI439	CGI440	CGI441		CGI442	CGI443		
Sampling Date		2023/11/02 15:27	2023/11/02 16:45	2023/11/02 19:47		2023/11/03 18:21	2023/10/29 11:06		
	UNITS	17-NH3 HNO3	18-NH3 HNO3	19-NH3 HNO3	QC Batch	22-NH3 HNO3	23-NH3 HNO3	RDL	QC Batch
Passive Monitoring									
Ammonia by Passive Sampler	ppb	6.4	6.8	8.9	B229320	10.0	0.5	0.1	B229320
HNO3 by Passive Sampler	ug/m3	0.82	0.95	0.53	B229628	1.13	0.57	0.04	B229629
RDL = Reportable Detection Limit									

Bureau Veritas ID		CGI444	CGI445		CGI446	CGI447	CGI448		
Sampling Date		2023/11/02 13:30	2023/10/29 13:44		2023/10/29 12:36	2023/10/29 19:48	2023/11/03 18:02		
	UNITS	24-NH3 HNO3	26-NH3 HNO3	QC Batch	27-NH3 HNO3	28-NH3 HNO3	29-NH3 HNO3	RDL	QC Batch
Passive Monitoring									
Ammonia by Passive Sampler	ppb	4.1	0.3	B229320	0.4	2.2	10.0	0.1	B229677
HNO3 by Passive Sampler	ug/m3	0.75	0.92	B229629	0.85	0.91	1.10	0.04	B229629
RDL = Reportable Detection Limit									

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LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: NOVEMBER 2023 PASSIVES
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Sampler Initials: AY

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		CGI449	CGI450	CGI451	CGI452	CGI453		
Sampling Date		2023/10/29 17:40	2023/11/03 11:56					
	UNITS	32-NH3 HNO3	42-NH3 HNO3	BLANK 1-NH3 HNO3	BLANK 2-NH3 HNO3	BLANK 3-NH3 HNO3	RDL	QC Batch
Passive Monitoring								
Ammonia by Passive Sampler	ppb	1.5	1.9	0.5	0.5	0.4	0.1	B229677
HNO3 by Passive Sampler	ug/m3	1.07	1.49	0.47	0.41	0.70	0.04	B229629
RDL = Reportable Detection Limit								

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GENERAL COMMENTS

Sample CGI407 [13] : O3 Sampler Diffusion Barrier Torn. Sample damaged. 2023/12/15 SDK

Sample CGI426 [3-NH3 HNO3] : HNO3 sample CG1426 (#3 - ?) was returned to the lab without label. -OZ 2023/12/15

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
B229320	SDK	Spiked Blank	Ammonia by Passive Sampler			99	%	90 - 110
B229320	SDK	Method Blank	Ammonia by Passive Sampler		<0.1		ppb	
B229320	SDK	RPD [CGI426-01]	Ammonia by Passive Sampler	2023/12/12	NC		%	N/A
B229628	OZ	Method Blank	HNO3 by Passive Sampler		<0.04		ug/m3	
B229628	OZ	RPD [CGI427-01]	HNO3 by Passive Sampler	2023/12/15	NC		%	N/A
B229629	OZ	Method Blank	HNO3 by Passive Sampler		<0.04		ug/m3	
B229629	OZ	RPD [CGI442-01]	HNO3 by Passive Sampler	2023/12/15	NC		%	N/A
B229677	SDK	Spiked Blank	Ammonia by Passive Sampler			97	%	90 - 110
B229677	SDK	Method Blank	Ammonia by Passive Sampler		<0.1		ppb	
B229677	SDK	RPD [CGI446-01]	Ammonia by Passive Sampler	2023/12/12	NC		%	N/A
B229690	OZ	Spiked Blank	Calculated SO2			99	%	90 - 110
B229690	OZ	Method Blank	Calculated SO2		<0.1		ppb	
B229692	OZ	Spiked Blank	Calculated SO2			100	%	90 - 110
B229692	OZ	Method Blank	Calculated SO2		<0.1		ppb	
B231812	S1T	Spiked Blank	Calculated O3			100	%	90 - 110
B231812	S1T	Method Blank	Calculated O3		<0.1		ppb	
B231818	S1T	Spiked Blank	Calculated O3			100	%	90 - 110
B231818	S1T	Method Blank	Calculated O3		<0.1		ppb	
B232864	YYA	Spiked Blank	Calculated H2S			102	%	90 - 110
B233059	S1T	Spiked Blank	Calculated NO2			100	%	90 - 110
B233059	S1T	Method Blank	Calculated NO2		<0.1		ppb	
B233090	S1T	Spiked Blank	Calculated NO2			100	%	90 - 110
B233090	S1T	Method Blank	Calculated NO2		<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).

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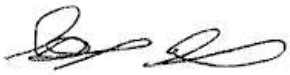
VALIDATION SIGNATURE PAGE

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



Steven Gloux, Senior Analyst

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End of Report