Lakeland Industry & Community Association

APRIL 2023

Monthly Ambient Air Quality Monitoring Integrated Sampling Report

LICA-202304-INTEGRATED

May 26, 2023

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May 26, 2023

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

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

Enclosed is the April 2023 Monthly Ambient Air Quality Monitoring Integrated Sampling Report for the Lakeland Industry and Community Association's (LICA) regional air quality monitoring network. This report summarizes monitoring data for samples collected using integrated methods including volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), polycyclic aromatic compounds (PAHs), particulate matter ($PM_{2.5}$ and $PM_{2.5-10}$), ozone (O_3), hydrogen sulphide (H_2S), sulphur dioxide (SO_2), nitrogen dioxide (NO_2), ammonia (NH_3) and nitric acid (HNO_3).

The representative of the Person Responsible for this monitoring program is

LICA Airshed
Michael Bisaga, Monitoring Programs Manager
5107 50 Street
Bonnyville, AB, T9N 2J7
Phone #: 780-226-7068
E-mail: monitoring@lica.ca

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

NETWORK STATION SUMMARY

Listing of Air Monitoring Stations and Integrated Sampling Stations

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

Listing of Passive Sampling Stations

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

Listing of Passive Aromatic Compounds Stations

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

List of Contractors who performed the air monitoring activities

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

Monitoring Notes during the Month of April 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 April 6, 12, 18, 24 and 30.
- **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 April 6, 12, 18, 24 and 30.
- **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 April 6, 12, 18, 24 and 30.

- **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 March 30 and April 1, and were removed between April 28 and April 30.
    - A total of 13 duplicate samples were collected: 2 for H2S, 3 for SO2, 2 for NO2, 2 for O3, 2 for NMH3 and 2 for HNO3.
    - A total of 6 blank samples were collected: 3 for NMH3 and 3 for HNO3.
    - No samples were collected at station 25. The field technician has not completed the necessary safety orientation for the CNRL Primrose/Burnt Lake site and access is not permitted at this time.

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.
    - There were no canisters collected 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 March/April monitoring period were installed between March 30 and April 1, and were removed between April 28 and April 30. The media for the May/June monitoring period were installed at the time the media for March/April were removed.

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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monitoring@lica.ca

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

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

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

INTEGRATED SAMPLING RESULTS SUMMARY

COLD LAKE SOUTH STATION

- **VOCs analytical results**

Sample Date	2023-04-06	2023-04-12	2023-04-18	2023-04-24
Canister ID	32265	28896	28888	31821
Maximum Reading (ppbv)	2.1	2.3	2.7	3.0
Parameter	Acetone	Acetone	Acetone	Acetone

Sample Date	2023-04-30
Canister ID	32211
Maximum Reading (ppbv)	2.6
Parameter	Acetone

- **PAHs analytical results**

Sample Date	2023-04-06		2023-04-12		2023-04-18		2023-04-24	
PUF S/N	TE-07		P13-01		TE-03		TE-08	
Volume (Vstd m^3)	330.42		330.40		330.41		330.38	
Maximum Reading	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3
	0.16	0.48	0.35	1.06	0.22	0.67	0.15	0.45
Parameter	Phenanthrene		2-Methylnaphthalene		Phenanthrene		Phenanthrene	

Sample Date	2023-04-30	
PUF S/N	TE-09	
Volume (Vstd m3)	330.41	
Maximum Reading	ug	ng/m3
	0.42	1.27
Parameter	Phenanthrene	

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

Sample Date	2023-04-06		2023-04-12		2023-04-18		2023-04-24	
Filter #	C1165519		C1169948		C1165509		C1165524	
Volume (Vstd m^3)	22.5		21.7		21.5		21.6	
Result	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)
Particulate Matter	0.029	0.001	0.036	0.002	<0.004	0.000	0.057	0.003

Sample Date	2023-04-30	
Filter #	C9700059	
Volume (Vstd m^3)	21.3	
Result	Result (mg)	Result (mg/m^3)
Particulate Matter	0.048	0.002

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

Sample Date	2023-04-06		2023-04-12		2023-04-18		2023-04-24	
Filter #	C1165520		C1169949		C1165510		C1165525	
Volume (Vstd m^3)	2.51		2.42		2.39		2.41	
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	0.082	0.033	0.029	0.012	0.014	0.006	0.052	0.022

Sample Date	2023-04-30	
Filter #	C9700060	
Volume (Vstd m^3)	2.37	
Result	Result (mg)	Result (mg/m^3)
PM2.5-10 Mass	0.061	0.026

- **Passive analytical results**

	H_2S		NO_2		O_3		SO_2		NM3		HNO3	
	Unit (ppb)		Unit (ppb)		Unit (ppb)		Unit (ppb)		Unit (ppb)		Unit (ug/m3)	
Minimum	0.10	#10	<0.1	#23	30.2	#23	0.2	#22	0.5	#11	<0.04	#9
Maximum	0.22	#28	2.1	#6	50.6	#5	1.3	#14	5.1	#3	2.02	#32 (DUP)
Average	0.15	-	0.68	-	40.83	-	0.40	-	1.65	-	0.67	-

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		2023-04-06	2023-04-12	2023-04-18	2023-04-24	2023-04-30	
Canister ID		32265	28896	28888	31821	32211	
Method		AC-058	AC-058	AC-058	AC-058	AC-058	
Maximum Reading (ppbv)		2.1	2.3	2.7	3.0	2.6	
Parameter		Acetone	Acetone	Acetone	Acetone	Acetone	
Parameter	**AAAQOs (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**RDL (ppbv)**
1,1,1-Trichloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1,2,2-Tetrachloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1,2-Trichloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1-Dichloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1-Dichloroethylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
1,2,3-Trimethylbenzene		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.05
1,2,4-Trichlorobenzene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.8
1,2,4-Trimethylbenzene		0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.05
1,2-Dibromoethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,2-Dichlorobenzene		0.06	< 0.03	< 0.03	< 0.03	< 0.03	0.03
1,2-Dichloroethane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
1,2-Dichloropropane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
1,3,5-Trimethylbenzene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02
1,3-Butadiene		< 0.03	< 0.03	0.09	0.09	< 0.03	0.02
1,3-Dichlorobenzene		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	0.3
1,4-Dichlorobenzene		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	0.4
1,4-Dioxane		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.4
1-Butene		< 0.06	< 0.06	0.16	0.17	< 0.06	0.02
1-Hexene		< 0.07	< 0.07	< 0.07	< 0.07	< 0.07	0.02
1-Pentene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
2,2,4-Trimethylpentane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
2,2-Dimethylbutane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
2,3,4-Trimethylpentane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
2,3-Dimethylbutane		< 0.09	< 0.09	< 0.09	< 0.09	< 0.09	0.02
2,3-Dimethylpentane		0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
2,4-Dimethylpentane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
2-Methylheptane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
2-Methylhexane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
2-Methylpentane		0.05	< 0.02	< 0.02	0.03	0.02	0.01
3-Methylheptane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02
3-Methylhexane		0.04	< 0.02	< 0.02	< 0.02	< 0.02	0.02
3-Methylpentane		0.05	< 0.02	< 0.02	< 0.02	< 0.02	0.01
Acetone	2400	2.1	2.3	2.7	3.0	2.6	0.4
Acrolein	1.9	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Benzene	9.0	0.08	0.06	< 0.03	< 0.03	< 0.03	0.01
Benzyl chloride		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Bromodichloromethane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02
Bromoform		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Bromomethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
Carbon disulfide	10	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
Carbon tetrachloride		0.07	0.07	0.08	0.1	0.09	0.01
Chlorobenzene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Chloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Chloroform		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Chloromethane		0.8	0.8	0.69	0.7	0.58	0.02
cis-1,2-Dichloroethene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
cis-1,3-Dichloropropene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.04
cis-2-Butene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02
cis-2-Pentene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Cyclohexane		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.02
Cyclopentane		< 0.02	< 0.02	< 0.02	< 0.02	0.02	0.01
Dibromochloromethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
Ethanol		1.5	0.8	1.8	0.9	0.6	0.3
Ethyl acetate		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Ethylbenzene	460	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
Freon-11		0.25	0.3	0.3	0.36	0.19	0.02
Freon-113		0.06	0.08	0.07	0.08	0.04	0.01
Freon-114		< 0.03	< 0.03	0.03	0.03	< 0.03	0.02

Sample Date		2023-04-06	2023-04-12	2023-04-18	2023-04-24	2023-04-30
Canister ID		32265	28896	28888	31821	32211
Method		AC-058	AC-058	AC-058	AC-058	AC-058
Maximum Reading (ppbv)		2.1	2.3	2.7	3.0	2.6
Parameter		Acetone	Acetone	Acetone	Acetone	Acetone

Parameter	AAAQOs (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	RDL (ppbv)
Freon-12		0.7	0.76	0.78	0.89	0.51	0.02
Hexachloro-1,3-butadiene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.5
Isobutane		0.61	0.28	0.38	0.21	0.20	0.02
Isopentane		0.37	0.16	0.29	0.16	0.08	0.03
Isoprene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
Isopropyl alcohol		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Isopropylbenzene		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.01
m,p-Xylene		0.06	< 0.04	< 0.04	< 0.04	< 0.04	0.03
m-Diethylbenzene		0.06	< 0.02	< 0.02	0.06	< 0.02	0.04
m-Ethyltoluene		0.05	0.03	< 0.03	0.04	< 0.03	0.08
Methyl butyl ketone		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	0.5
Methyl ethyl ketone		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Methyl isobutyl ketone		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Methyl methacrylate		< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	0.07
Methyl tert butyl ether		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
Methylcyclohexane		0.06	0.02	< 0.02	< 0.02	< 0.02	0.01
Methylcyclopentane		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.02
Methylene chloride		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
n-Butane		1.08	0.4	0.7	0.29	0.12	0.03
n-Decane		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.06
n-Dodecane		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
n-Heptane		0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.01
n-Hexane	5960	0.08	< 0.03	< 0.03	< 0.03	< 0.03	0.01
n-Nonane		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.01
n-Octane		< 0.02	< 0.02	< 0.02	0.02	< 0.02	0.02
n-Pentane		0.28	0.11	0.24	0.12	< 0.04	0.1
n-Propylbenzene		0.08	< 0.06	< 0.06	< 0.06	< 0.06	0.05
n-Undecane		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.5
Naphthalene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.5
o-Ethyltoluene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
o-Xylene		0.04	< 0.03	< 0.03	< 0.03	< 0.03	0.01
p-Diethylbenzene		0.05	< 0.02	< 0.02	0.04	< 0.02	0.04
p-Ethyltoluene		0.13	< 0.04	< 0.04	< 0.04	< 0.04	0.07
Styrene	52.0	< 0.04	< 0.04	< 0.04	0.04	< 0.04	0.04
Tetrachloroethylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
Tetrahydrofuran		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Toluene	499	0.06	< 0.03	< 0.03	< 0.03	< 0.03	0.01
trans-1,2-Dichloroethylene		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.01
trans-1,3-Dichloropropylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
trans-2-Butene		< 0.03	< 0.03	0.08	0.08	< 0.03	0.01
trans-2-Pentene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Trichloroethylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
Vinyl acetate		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Vinyl chloride	51	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02

PAHS

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - April 2023

Polycyclic Aromatic Hydrocarbons (PAHs) Results

Sample Date	2023-04-06		2023-04-12		2023-04-18		2023-04-24		2023-04-30	
PUF S/N	TE-07		P13-01		TE-03		TE-08		TE-09	
Volume (Vstd m^3)	330.42		330.40		330.41		330.38		330.41	
Method	AC-066		AC-066		AC-066		AC-066		AC-066	
Maximum Reading	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3
	0.16	0.48	0.35	1.06	0.22	0.67	0.15	0.45	0.42	1.27
Parameter	Phenanthrene		2-Methylnaphthalene		Phenanthrene		Phenanthrene		Phenanthrene	

Parameter	Result (ug)	Result (ng/m^3)	Result (ug)	Result (ng/m^3)	Result (ug)	Result (ng/m^3)	Result (ug)	Result (ng/m^3)	Result (ug)	Result (ng/m^3)	RDL (ug)
1-Methylnaphthalene	0.14	0.42	0.29	0.88	0.08	0.24	0.08	0.24	0.05	0.15	0.01
2-Methylnaphthalene	0.14	0.42	0.35	1.06	0.07	0.21	0.07	0.21	0.03	0.09	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	0.02	0.06	0.07	0.21	0.01	0.03	< 0.01	0.00	< 0.01	0.00	0.01
Acenaphthylene	0.01	0.03	0.04	0.12	0.02	0.06	0.01	0.03	0.02	0.06	0.01
Acridine	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Anthracene	< 0.01	0.00	< 0.01	0.00	0.01	0.00	< 0.01	0.00	0.03	0.09	0.01
Benzo(a)anthracene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01	0.03	0.01
Benzo(a)pyrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Benzo(b,j,k)fluoranthene	0.02	0.06	0.03	0.09	0.01	0.03	0.02	0.06	0.03	0.09	0.01
Benzo(c)phenanthrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Benzo(e)pyrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01	0.03	0.01
Benzo(ghi)perylene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Chrysene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.02	0.06	0.01
Dibenzo(a,h)pyrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Dibenzo(a,i)pyrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Dibenzo(a,l)pyrene	< 0.01	0.00	< 0.01	0.00	< 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	0.05	0.15	0.05	0.15	0.04	0.12	0.04	0.12	0.12	0.36	0.01
Fluorene	0.07	0.21	0.18	0.54	0.07	0.21	0.05	0.15	0.04	0.12	0.01
Indeno(1,2,3-cd)pyrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Naphthalene	0.10	0.30	0.12	0.36	0.03	0.09	0.03	0.09	0.03	0.09	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	0.16	0.48	0.25	0.76	0.22	0.67	0.15	0.45	0.42	1.27	0.01
Pyrene	0.03	0.09	0.04	0.12	0.03	0.09	0.03	0.09	0.10	0.30	0.01
Retene	0.01	0.03	0.02	0.06	0.06	0.18	0.01	0.03	0.08	0.24	0.01

PARTISOLS

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - April 2023

Partisol Results - $PM_{2.5}$

Sample Date		2023-04-06		2023-04-12		2023-04-18		2023-04-24		2023-04-30		
Filter #		C1165519		C1169948		C1165509		C1165524		C9700059		
Volume (Vstd m^3)		22.5		21.7		21.5		21.6		21.3		
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	**0.029**	**0.001**	**0.036**	**0.002**	**<0.004**	**0.000**	**0.057**	**0.003**	**0.048**	**0.002**	0.004

PM2.5 Mass in ug/m3	**1.289**	**1.659**	**0.186**	**2.639**	**2.254**
RDL in ug/m3	**0.178**	**0.184**	**0.186**	**0.185**	**0.188**

Sample Date	2023-04-06		2023-04-12		2023-04-18		2023-04-24		2023-04-30		
Filter #	C1165520		C1169949		C1165510		C1165525		C9700060		
Volume (Vstd m^3)	2.51		2.42		2.39		2.41		2.37		
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	0.082	0.033	0.029	0.012	0.014	0.006	0.052	0.022	0.061	0.026	0.004

PM2.5-10 Mass in ug/m3	32.669	11.983	5.858	21.577	25.738
RDL in ug/m3	1.594	1.653	1.674	1.660	1.688

PASSIVE SAMPLES

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

April 2023

Passive Results

	H_2S		NO_2		O_3		SO_2		NMH3		HNO3	
Unit	ppb		ppb		ppb		ppb		ppb		ug/m3	
Minimum (ppb)	0.10	#10	<0.1	#23	30.2	#23	0.2	#22	0.5	#11	0.08	#9
Maximum (ppb)	0.22	#28	2.1	#6	50.6	#5	1.3	#14	5.1	#3	1.31	#32 (Dup)
Average (ppb)	0.15	-	0.68	-	40.83	-	0.40	-	1.65	-	0.67	-

No.	Station	Sample	Duplicate	Sample	Duplicate	Sample	Duplicate	Sample	Duplicate	Sample	Duplicate	Sample	Duplicate
3	Therien	0.18	0.13	0.5		39.4		0.3	0.3	5.1		0.80	
4	Flat Lake	-		0.3		45.8		0.3	0.2	1.6		1.17	
5	Lake Eliza	0.20	0.18	0.4		50.6		0.3		2.0		1.04	
6	Telegraph Creek	-		2.1		46.4		0.4		4.7		1.13	
8	Muriel-Kehewin	-		0.2		43.3		0.3		1.2		0.87	
9	Dupre	-		0.3		39.3		0.3		1.4		<0.04	
10	La Corey	0.10		1.8		39.8		0.3		0.9		0.08	
11	Wolf Lake	0.12		0.4		35.4		0.4		0.5		0.53	
12	Foster Creek	0.10		0.2	0.3	42.8	36.3	0.3		0.6		0.22	
13	Primrose	0.11		0.3	0.5	41.8	33.6	0.4		0.8		0.17	
14	Tamarack	0.15		1.5		42.1		1.3		0.7		1.02	
15	Ardmore	-		0.3		31.4		0.3		0.8		0.31	
16	Frog Lake	0.15		0.6		39.4		0.4		1.2		0.08	
17	Clear Range	0.20		0.4		45.0		0.4		2.0		0.54	
18	Fishing Lake	0.12		0.2		34.0		0.4		0.9		1.10	
19	Beaverdam	-		0.4		39.0		0.4		4.1		0.19	
22	Cold Lake South (1)	0.12		0.7		32.6		0.2		1.6		1.31	
23	Medley-Martineau	-		<0.1		30.2		0.2		0.8		1.14	
24	Fort George	0.18		0.9		46.6		0.3		2.0		0.80	
25	Burnt Lake	Missing 1		-		-		Missing 1		-		-	
26	Mahihkan	0.15		-		-		1.1		0.8		1.09	
27	Mahkeses	0.18		-		-		0.7		0.9		0.36	
28	Town of Bonnyville	0.22		1.7		39.6		0.3		2.3		1.19	
29	Cold Lake South (2)	0.11		0.7		50.3		0.3		1.0	1.6	0.61	1.14
32	St. Lina	0.13		0.2		40.7		0.3		1.5	1.6	0.18	2.02
42	Lac La Biche	0.12		0.8		43.5		0.2	0.2	1.9		0.16	
BLANK -1		-		-		-		-		0.8		0.09	
BLANK -2		-		-		-		-		1.3		0.29	
BLANK -3		-		-		-		-		1.1		0.52	
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.

End of Report

Lakeland Industry & Community Association

APRIL 2023

Ambient Air Monitoring

Certified Laboratory Analysis Report

LAB-LICA-202304

Operation and Maintenance:
Bureau Veritas Canada

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

May 25, 2023

Table of Contents

Cold Lake South Station

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

Sample ID: 23040090-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Apr 6, 2023

RECEIVED
APR 13 2023

Bureau Veritas

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

Client:	LICA	**Sampler S/N:**	6167
Location:	Cold Lake South	**Canister ID:**	32265
Station ID:	LICA 01	**Installation Date/Time (mst):**	Apr 05, 2023 @ 14:42
Sample ID:	LICA/VOC/CLS/Apr 6, 2023	**Removal Date/Time (mst):**	Apr 10, 2023 @ 18:30

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
April 6, 2023	0:00	23:59	24

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

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

Deployment/Collection and Maintenance Checklist

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

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 23040090-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Apr 6, 2023

RECEIVED
APR 13 2023

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	TE-07
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Apr 05, 2023 @ 14:44
Field Sample ID:	LICA/PUF/CLS/Apr 06, 2023	**Removal Date/Time:**	Apr 10, 2023 @ 18:43

Sample Data Collection Information

Sample Date:	6-Apr-23	**Average Pressure (mmHg)**	715
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	-1.9
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.42

Sample Recovery Checklist

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

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

InnoTech ALBERTA

Canister ID: 32265

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: FEB 0 2 2023

Evacuated: MAR 0 1 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Apr 6, 2023

Sampled By: Alex Yakupov

Starting Vacuum: -27.1 "Hg

End Vacuum: +18.7 "Hg/psig

InnoTech ALBERTA

Canister ID: TE-07

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/Apr 6, 2023

Sampled By: Alex Yakupov

Starting Vacuum: _____ "Hg

End Vacuum: _____ "Hg/psig

Sample ID: 23040090-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Apr 6, 2023

InnoTech ALBERTA
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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/Apr 6, 2023
Matrix: Air Filter
CANISTER ID: TE-07
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 06-Apr-23 0:00
DATE RECEIVED: 13-Apr-23
REPORT CREATED: 23-May-23
REPORT NUMBER: 23040090
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23040090-002	1-Methylnaphthalene		0.14	ug/Filter	0.01	AC-066	15-May-23
23040090-002	2-Methylnaphthalene		0.14	ug/Filter	0.01	AC-066	15-May-23
23040090-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23040090-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23040090-002	Acenaphthene		0.02	ug/Filter	0.01	AC-066	15-May-23
23040090-002	Acenaphthylene		0.01	ug/Filter	0.01	AC-066	15-May-23
23040090-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23040090-002	Anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23040090-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23040090-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23040090-002	Benzo(b,j,k)fluoranthene		0.02	ug/Filter	0.01	AC-066	15-May-23
23040090-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23040090-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23040090-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23040090-002	Chrysene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23040090-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23040090-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: May 23, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Apr 6, 2023	TE-07	Air Filter	06-Apr-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23040090 **REPORT CREATED:** 23-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23040090-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23040090-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23040090-002	Fluoranthene		0.05	ug/Filter	0.01	AC-066	15-May-23
23040090-002	Fluorene		0.07	ug/Filter	0.01	AC-066	15-May-23
23040090-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23040090-002	Naphthalene		0.10	ug/Filter	0.01	AC-066	15-May-23
23040090-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23040090-002	Phenanthrene		0.16	ug/Filter	0.01	AC-066	15-May-23
23040090-002	Pyrene		0.03	ug/Filter	0.01	AC-066	15-May-23
23040090-002	Retene		0.01	ug/Filter	0.01	AC-066	15-May-23

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

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

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202304

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Apr 6, 2023	32265	Ambient Air	06-Apr-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23040090 **REPORT CREATED:** 23-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23040090-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Apr-23
23040090-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Apr-23
23040090-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Apr-23
23040090-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Apr-23
23040090-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Apr-23
23040090-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	15-Apr-23
23040090-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Apr-23
23040090-001	1,2,4-Trimethylbenzene	I	0.03	ppbv	0.03	AC-058	15-Apr-23
23040090-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Apr-23
23040090-001	1,2-Dichlorobenzene	I	0.06	ppbv	0.03	AC-058	15-Apr-23
23040090-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Apr-23
23040090-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Apr-23
23040090-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Apr-23
23040090-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Apr-23
23040090-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	15-Apr-23
23040090-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	15-Apr-23
23040090-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	15-Apr-23
23040090-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	15-Apr-23
23040090-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	15-Apr-23
23040090-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Apr-23
23040090-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Apr-23
23040090-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Apr-23
23040090-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Apr-23
23040090-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	15-Apr-23
23040090-001	2,3-Dimethylpentane	I	0.02	ppbv	0.02	AC-058	15-Apr-23

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

Date: May 23, 2023

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

InnoTech ALBERTA
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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Apr 6, 2023	32265	Ambient Air	06-Apr-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23040090 **REPORT CREATED:** 23-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23040090-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Apr-23
23040090-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Apr-23
23040090-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Apr-23
23040090-001	2-Methylpentane	I	0.05	ppbv	0.02	AC-058	15-Apr-23
23040090-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Apr-23
23040090-001	3-Methylhexane	I	0.04	ppbv	0.02	AC-058	15-Apr-23
23040090-001	3-Methylpentane	I	0.05	ppbv	0.02	AC-058	15-Apr-23
23040090-001	Acetone		2.1	ppbv	0.4	AC-058	15-Apr-23
23040090-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Apr-23
23040090-001	Benzene	I	0.08	ppbv	0.03	AC-058	15-Apr-23
23040090-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Apr-23
23040090-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Apr-23
23040090-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Apr-23
23040090-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Apr-23
23040090-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Apr-23
23040090-001	Carbon tetrachloride	I	0.07	ppbv	0.02	AC-058	15-Apr-23
23040090-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Apr-23
23040090-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Apr-23
23040090-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Apr-23
23040090-001	Chloromethane		0.80	ppbv	0.04	AC-058	15-Apr-23
23040090-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Apr-23
23040090-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Apr-23
23040090-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Apr-23
23040090-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Apr-23
23040090-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	15-Apr-23

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

Date: May 23, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Apr 6, 2023	32265	Ambient Air	06-Apr-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23040090 **REPORT CREATED:** 23-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23040090-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Apr-23
23040090-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Apr-23
23040090-001	Ethanol		1.5	ppbv	0.5	AC-058	15-Apr-23
23040090-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Apr-23
23040090-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Apr-23
23040090-001	Freon-11		0.25	ppbv	0.02	AC-058	15-Apr-23
23040090-001	Freon-113	I	0.06	ppbv	0.02	AC-058	15-Apr-23
23040090-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Apr-23
23040090-001	Freon-12		0.70	ppbv	0.03	AC-058	15-Apr-23
23040090-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Apr-23
23040090-001	Isobutane		0.61	ppbv	0.03	AC-058	15-Apr-23
23040090-001	Isopentane		0.37	ppbv	0.04	AC-058	15-Apr-23
23040090-001	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Apr-23
23040090-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Apr-23
23040090-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	15-Apr-23
23040090-001	m,p-Xylene	I	0.06	ppbv	0.04	AC-058	15-Apr-23
23040090-001	m-Diethylbenzene	I	0.06	ppbv	0.02	AC-058	15-Apr-23
23040090-001	m-Ethyltoluene	I	0.05	ppbv	0.03	AC-058	15-Apr-23
23040090-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	15-Apr-23
23040090-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Apr-23
23040090-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Apr-23
23040090-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	15-Apr-23
23040090-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Apr-23
23040090-001	Methylcyclohexane	I	0.06	ppbv	0.02	AC-058	15-Apr-23
23040090-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	15-Apr-23

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Date: May 23, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Apr 6, 2023	32265	Ambient Air	06-Apr-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23040090 **REPORT CREATED:** 23-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23040090-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Apr-23
23040090-001	n-Butane		1.08	ppbv	0.02	AC-058	15-Apr-23
23040090-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	15-Apr-23
23040090-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Apr-23
23040090-001	n-Heptane	I	0.04	ppbv	0.04	AC-058	15-Apr-23
23040090-001	n-Hexane	I	0.08	ppbv	0.03	AC-058	15-Apr-23
23040090-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Apr-23
23040090-001	n-Pentane		0.28	ppbv	0.04	AC-058	15-Apr-23
23040090-001	n-Propylbenzene	I	0.08	ppbv	0.06	AC-058	15-Apr-23
23040090-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	15-Apr-23
23040090-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Apr-23
23040090-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	15-Apr-23
23040090-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Apr-23
23040090-001	o-Xylene	I	0.04	ppbv	0.03	AC-058	15-Apr-23
23040090-001	p-Diethylbenzene	I	0.05	ppbv	0.02	AC-058	15-Apr-23
23040090-001	p-Ethyltoluene	I	0.13	ppbv	0.04	AC-058	15-Apr-23
23040090-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	15-Apr-23
23040090-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Apr-23
23040090-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Apr-23
23040090-001	Toluene	I	0.06	ppbv	0.03	AC-058	15-Apr-23
23040090-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	15-Apr-23
23040090-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Apr-23
23040090-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Apr-23
23040090-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Apr-23
23040090-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Apr-23

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Apr 6, 2023	32265	Ambient Air	06-Apr-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23040090 **REPORT CREATED:** 23-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23040090-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Apr-23
23040090-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Apr-23

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

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

Revision History

Order ID	Ver	Date	Reason
23040090	01	23-May-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: 23040133-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/April 12, 2023

RECEIVED
APR 17 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:**	28896
Station ID:	LICA 01	**Installation Date/Time (mst):**	Apr 10, 2023 @ 19:09
Sample ID:	LICA/VOC/CLS/Apr 12, 2023	**Removal Date/Time (mst):**	Apr 13, 2023 @ 14:31

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
April 12, 2023	0:00	23:59	24

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.1	18.0

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

Deployment/Collection and Maintenance Checklist

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

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 23040133-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/April 12, 2023

RECEIVED
APR 17 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:**	Apr 10, 2023 @ 19:11
Field Sample ID:	LICA/PUF/CLS/Apr 12, 2023	**Removal Date/Time:**	Apr 13, 2023 @ 14:39

Sample Data Collection Information

Sample Date:	12-Apr-23	**Average Pressure (mmHg)**	707
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	6.1
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: 28896

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: FEB 16 2023

Evacuated: MAR 06 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/ Apr 12, 2023

Sampled By: Alex Yakupov

JWP

Starting Vacuum: -27.1 "Hg

End Vacuum: +18.0 "Hg/psig

InnoTech ALBERTA

Canister ID: P13-01

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: _____ on: _____

Evacuated: _____ Recertified: _____

PUF

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/PUF/CLS/ Apr 12, 2023

Sampled By: Alex Yakupov

Starting Vacuum: _____ "Hg

End Vacuum: _____ "Hg/psig

Sample ID: 23040133-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/April 12, 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/April 12, 2023
Matrix: Air Filter
CANISTER ID: P13-01
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 12-Apr-23 0:00
DATE RECEIVED: 17-Apr-23
REPORT CREATED: 23-May-23
REPORT NUMBER: 23040133
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23040133-002	1-Methylnaphthalene		0.29	ug/Filter	0.01	AC-066	15-May-23
23040133-002	2-Methylnaphthalene		0.35	ug/Filter	0.01	AC-066	15-May-23
23040133-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23040133-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23040133-002	Acenaphthene		0.07	ug/Filter	0.01	AC-066	15-May-23
23040133-002	Acenaphthylene		0.04	ug/Filter	0.01	AC-066	15-May-23
23040133-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23040133-002	Anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23040133-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23040133-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23040133-002	Benzo(b,j,k)fluoranthene		0.03	ug/Filter	0.01	AC-066	15-May-23
23040133-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23040133-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23040133-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23040133-002	Chrysene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23040133-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23040133-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: May 23, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/April 12, 2023	P13-01	Air Filter	12-Apr-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23040133 **REPORT CREATED:** 23-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23040133-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23040133-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23040133-002	Fluoranthene		0.05	ug/Filter	0.01	AC-066	15-May-23
23040133-002	Fluorene		0.18	ug/Filter	0.01	AC-066	15-May-23
23040133-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23040133-002	Naphthalene		0.12	ug/Filter	0.01	AC-066	15-May-23
23040133-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23040133-002	Phenanthrene		0.25	ug/Filter	0.01	AC-066	15-May-23
23040133-002	Pyrene		0.04	ug/Filter	0.01	AC-066	15-May-23
23040133-002	Retene		0.02	ug/Filter	0.01	AC-066	15-May-23

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

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

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202304

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/April 12, 2023	28896	Ambient Air	12-Apr-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23040133 **REPORT CREATED:** 23-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23040133-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Apr-23
23040133-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Apr-23
23040133-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Apr-23
23040133-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Apr-23
23040133-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Apr-23
23040133-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	18-Apr-23
23040133-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	18-Apr-23
23040133-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Apr-23
23040133-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Apr-23
23040133-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Apr-23
23040133-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Apr-23
23040133-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Apr-23
23040133-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Apr-23
23040133-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Apr-23
23040133-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	18-Apr-23
23040133-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	18-Apr-23
23040133-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	18-Apr-23
23040133-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	18-Apr-23
23040133-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	18-Apr-23
23040133-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Apr-23
23040133-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Apr-23
23040133-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Apr-23
23040133-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Apr-23
23040133-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	18-Apr-23
23040133-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Apr-23

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

Date: May 23, 2023

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/April 12, 2023	28896	Ambient Air	12-Apr-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23040133 **REPORT CREATED:** 23-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23040133-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Apr-23
23040133-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Apr-23
23040133-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Apr-23
23040133-001	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Apr-23
23040133-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Apr-23
23040133-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Apr-23
23040133-001	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Apr-23
23040133-001	Acetone		2.3	ppbv	0.4	AC-058	18-Apr-23
23040133-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	18-Apr-23
23040133-001	Benzene	I	0.06	ppbv	0.03	AC-058	18-Apr-23
23040133-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	18-Apr-23
23040133-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Apr-23
23040133-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Apr-23
23040133-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Apr-23
23040133-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Apr-23
23040133-001	Carbon tetrachloride	I	0.07	ppbv	0.02	AC-058	18-Apr-23
23040133-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Apr-23
23040133-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Apr-23
23040133-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Apr-23
23040133-001	Chloromethane		0.80	ppbv	0.04	AC-058	18-Apr-23
23040133-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Apr-23
23040133-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Apr-23
23040133-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Apr-23
23040133-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Apr-23
23040133-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	18-Apr-23

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

Date: May 23, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/April 12, 2023	28896	Ambient Air	12-Apr-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23040133 **REPORT CREATED:** 23-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23040133-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Apr-23
23040133-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Apr-23
23040133-001	Ethanol	I	0.8	ppbv	0.5	AC-058	18-Apr-23
23040133-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	18-Apr-23
23040133-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Apr-23
23040133-001	Freon-11		0.30	ppbv	0.02	AC-058	18-Apr-23
23040133-001	Freon-113	I	0.08	ppbv	0.02	AC-058	18-Apr-23
23040133-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Apr-23
23040133-001	Freon-12		0.76	ppbv	0.03	AC-058	18-Apr-23
23040133-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	18-Apr-23
23040133-001	Isobutane		0.28	ppbv	0.03	AC-058	18-Apr-23
23040133-001	Isopentane		0.16	ppbv	0.04	AC-058	18-Apr-23
23040133-001	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Apr-23
23040133-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	18-Apr-23
23040133-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	18-Apr-23
23040133-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	18-Apr-23
23040133-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Apr-23
23040133-001	m-Ethyltoluene	I	0.03	ppbv	0.03	AC-058	18-Apr-23
23040133-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	18-Apr-23
23040133-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	18-Apr-23
23040133-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	18-Apr-23
23040133-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	18-Apr-23
23040133-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Apr-23
23040133-001	Methylcyclohexane	I	0.02	ppbv	0.02	AC-058	18-Apr-23
23040133-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	18-Apr-23

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Date: May 23, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/April 12, 2023	28896	Ambient Air	12-Apr-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23040133 **REPORT CREATED:** 23-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23040133-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	18-Apr-23
23040133-001	n-Butane		0.40	ppbv	0.02	AC-058	18-Apr-23
23040133-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	18-Apr-23
23040133-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	18-Apr-23
23040133-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	18-Apr-23
23040133-001	n-Hexane	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Apr-23
23040133-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Apr-23
23040133-001	n-Pentane		0.11	ppbv	0.04	AC-058	18-Apr-23
23040133-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	18-Apr-23
23040133-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	18-Apr-23
23040133-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	18-Apr-23
23040133-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	18-Apr-23
23040133-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Apr-23
23040133-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Apr-23
23040133-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Apr-23
23040133-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	18-Apr-23
23040133-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	18-Apr-23
23040133-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Apr-23
23040133-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	18-Apr-23
23040133-001	Toluene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Apr-23
23040133-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	18-Apr-23
23040133-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Apr-23
23040133-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Apr-23
23040133-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Apr-23
23040133-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Apr-23

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

Date: May 23, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/April 12, 2023	28896	Ambient Air	12-Apr-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23040133 **REPORT CREATED:** 23-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23040133-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	18-Apr-23
23040133-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Apr-23

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

Date: May 23, 2023

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Revision History

Order ID	Ver	Date	Reason
23040133	01	23-May-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.

Sample ID: 23050005-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Apr 18, 2023

RECEIVED
MAY 01 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:**	28888
Station ID:	LICA 01	**Installation Date/Time (mst):**	Apr 13, 2023 @ 14:51
Sample ID:	LICA/VOC/CLS/Apr 18, 2023	**Removal Date/Time (mst):**	Apr 23, 2023 @ 15:31

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
April 18, 2023	0:00	23:59	24

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

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

Deployment/Collection and Maintenance Checklist

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

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

AIR FCD-01321/2

Sample ID: 23050005-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Apr 18, 2023

RECEIVED
MAY 01 2023

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:**	Apr 13, 2023 @ 14:48
Field Sample ID:	LICA/PUF/CLS/Apr 18, 2023	**Removal Date/Time:**	Apr 23, 2023 @ 15:32

Sample Data Collection Information

Sample Date:	18-Apr-23	**Average Pressure (mmHg)**	706
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	8.2
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.41

Sample Recovery Checklist

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

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

InnoTech ALBERTA

Canister ID: 28888

This cleaned canister meets or exceeds TO-15 Method Specifications

Sample ID: LICA/VOC/CLS/Apr 18, 2023

Sampled By: Alex Yakupov

Proofed by: 1524 on: NOV 21 2022

19 psi JMP

Evacuated: JAN 30 2023 Recertified: FEB 14 2023

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

Laboratory Contact Number: 780-632-8403

Starting Vacuum:	End Pressure:
-27.1 "Hg	+ 19.0 "Hg/ psig

Sample ID: 23050005-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Apr 18, 2023

InnoTech ALBERTA

Canister ID: TE-03 PUF

This cleaned canister meets or exceeds TO-15 Method Specifications

Sample ID: LICA/PUF/CLS/Apr 18, 2023

Sampled By: Alex Yakupov

Proofed by: _____ on: _____

Evacuated: _____ Recertified: _____

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

Laboratory Contact Number: 780-632-8403

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/Apr 18, 2023
Matrix: Air Filter
CANISTER ID: TE-03
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 18-Apr-23 0:00
DATE RECEIVED: 01-May-23
REPORT CREATED: 25-May-23
REPORT NUMBER: 23050005
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050005-002	1-Methylnaphthalene		0.08	ug/Filter	0.01	AC-066	15-May-23
23050005-002	2-Methylnaphthalene		0.07	ug/Filter	0.01	AC-066	15-May-23
23050005-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050005-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050005-002	Acenaphthene		0.01	ug/Filter	0.01	AC-066	15-May-23
23050005-002	Acenaphthylene		0.02	ug/Filter	0.01	AC-066	15-May-23
23050005-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050005-002	Anthracene		0.01	ug/Filter	0.01	AC-066	15-May-23
23050005-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050005-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050005-002	Benzo(b,j,k)fluoranthene		0.01	ug/Filter	0.01	AC-066	15-May-23
23050005-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050005-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050005-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050005-002	Chrysene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050005-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050005-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: May 25, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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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/Apr 18, 2023	TE-03	Air Filter	18-Apr-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050005 **REPORT CREATED:** 25-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050005-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050005-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050005-002	Fluoranthene		0.04	ug/Filter	0.01	AC-066	15-May-23
23050005-002	Fluorene		0.07	ug/Filter	0.01	AC-066	15-May-23
23050005-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050005-002	Naphthalene		0.03	ug/Filter	0.01	AC-066	15-May-23
23050005-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050005-002	Phenanthrene		0.22	ug/Filter	0.01	AC-066	15-May-23
23050005-002	Pyrene		0.03	ug/Filter	0.01	AC-066	15-May-23
23050005-002	Retene		0.06	ug/Filter	0.01	AC-066	15-May-23

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

Date: May 25, 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/Apr 18, 2023	28888	Ambient Air	18-Apr-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050005 **REPORT CREATED:** 25-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050005-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	03-May-23
23050005-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	03-May-23
23050005-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	03-May-23
23050005-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	03-May-23
23050005-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	03-May-23
23050005-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	03-May-23
23050005-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	03-May-23
23050005-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	03-May-23
23050005-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	03-May-23
23050005-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	03-May-23
23050005-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	03-May-23
23050005-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	03-May-23
23050005-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	03-May-23
23050005-001	1,3-Butadiene	I	0.09	ppbv	0.03	AC-058	03-May-23
23050005-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	03-May-23
23050005-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	03-May-23
23050005-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	03-May-23
23050005-001	1-Butene/Isobutylene	I	0.16	ppbv	0.06	AC-058	03-May-23
23050005-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	03-May-23
23050005-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	03-May-23
23050005-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	03-May-23
23050005-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	03-May-23
23050005-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	03-May-23
23050005-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	03-May-23
23050005-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	03-May-23

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

Date: May 25, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Apr 18, 2023	28888	Ambient Air	18-Apr-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050005 **REPORT CREATED:** 25-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050005-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	03-May-23
23050005-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	03-May-23
23050005-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	03-May-23
23050005-001	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	03-May-23
23050005-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	03-May-23
23050005-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	03-May-23
23050005-001	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	03-May-23
23050005-001	Acetone		2.7	ppbv	0.4	AC-058	03-May-23
23050005-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	03-May-23
23050005-001	Benzene	K, T, U	< 0.03	ppbv	0.03	AC-058	03-May-23
23050005-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	03-May-23
23050005-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	03-May-23
23050005-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	03-May-23
23050005-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	03-May-23
23050005-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	03-May-23
23050005-001	Carbon tetrachloride	I	0.08	ppbv	0.02	AC-058	03-May-23
23050005-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	03-May-23
23050005-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	03-May-23
23050005-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	03-May-23
23050005-001	Chloromethane		0.69	ppbv	0.04	AC-058	03-May-23
23050005-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	03-May-23
23050005-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	03-May-23
23050005-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	03-May-23
23050005-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	03-May-23
23050005-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	03-May-23

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Apr 18, 2023	28888	Ambient Air	18-Apr-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050005 **REPORT CREATED:** 25-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050005-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	03-May-23
23050005-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	03-May-23
23050005-001	Ethanol		1.8	ppbv	0.5	AC-058	03-May-23
23050005-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	03-May-23
23050005-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	03-May-23
23050005-001	Freon-11		0.30	ppbv	0.02	AC-058	03-May-23
23050005-001	Freon-113	I	0.07	ppbv	0.02	AC-058	03-May-23
23050005-001	Freon-114	I	0.03	ppbv	0.03	AC-058	03-May-23
23050005-001	Freon-12		0.78	ppbv	0.03	AC-058	03-May-23
23050005-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	03-May-23
23050005-001	Isobutane		0.38	ppbv	0.03	AC-058	03-May-23
23050005-001	Isopentane		0.29	ppbv	0.04	AC-058	03-May-23
23050005-001	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	03-May-23
23050005-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	03-May-23
23050005-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	03-May-23
23050005-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	03-May-23
23050005-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	03-May-23
23050005-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	03-May-23
23050005-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	03-May-23
23050005-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	03-May-23
23050005-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	03-May-23
23050005-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	03-May-23
23050005-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	03-May-23
23050005-001	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	03-May-23
23050005-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	03-May-23

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TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Apr 18, 2023	28888	Ambient Air	18-Apr-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050005 **REPORT CREATED:** 25-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050005-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	03-May-23
23050005-001	n-Butane		0.70	ppbv	0.02	AC-058	03-May-23
23050005-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	03-May-23
23050005-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	03-May-23
23050005-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	03-May-23
23050005-001	n-Hexane	K, T, U	< 0.03	ppbv	0.03	AC-058	03-May-23
23050005-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	03-May-23
23050005-001	n-Pentane		0.24	ppbv	0.04	AC-058	03-May-23
23050005-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	03-May-23
23050005-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	03-May-23
23050005-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	03-May-23
23050005-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	03-May-23
23050005-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	03-May-23
23050005-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	03-May-23
23050005-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	03-May-23
23050005-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	03-May-23
23050005-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	03-May-23
23050005-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	03-May-23
23050005-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	03-May-23
23050005-001	Toluene	K, T, U	< 0.03	ppbv	0.03	AC-058	03-May-23
23050005-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	03-May-23
23050005-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	03-May-23
23050005-001	trans-2-Butene	I	0.08	ppbv	0.03	AC-058	03-May-23
23050005-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	03-May-23
23050005-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	03-May-23

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Apr 18, 2023	28888	Ambient Air	18-Apr-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050005 **REPORT CREATED:** 25-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050005-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	03-May-23
23050005-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	03-May-23

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

Date: May 25, 2023

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

Revision History

Order ID	Ver	Date	Reason
23050005	01	25-May-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: 23050065-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Apr 24, 2023

RECEIVED
MAY 04 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:**	31821
Station ID:	LICA 01	**Installation Date/Time (mst):**	Apr 23, 2023 @ 15:40
Sample ID:	LICA/VOC/CLS/Apr 24, 2023	**Removal Date/Time (mst):**	Apr 29, 2023 @ 21:31

Date and Time Information

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

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

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

Deployment/Collection and Maintenance Checklist

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

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 23050065-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Apr 24, 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:**	Apr 23, 2023 @ 15:42
Field Sample ID:	LICA/PUF/CLS/Apr 24, 2023	**Removal Date/Time:**	Apr 29, 2023 @ 21:33

Sample Data Collection Information

Sample Date:	24-Apr-23	**Average Pressure (mmHg)**	710
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	7.1
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.38

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: 31821

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: FEB 13 2023

Evacuated: MAR 0 1 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Apr 24, 2023

Sampled By: Alex Yakupov

Starting Vacuum:	End Vacuum:
-27.1 "Hg	+18.1 "Hg/psig (19 KG)

InnoTech ALBERTA

Canister ID: TE-08

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: PUF on: _____

Evacuated: _____ Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/PUF/CLS/Apr 24, 20

Sampled By: Alex Yakupov

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

Sample ID: 23050065-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Apr 24, 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/Apr 24, 2023
Matrix: Air Filter
CANISTER ID: TE-08
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 24-Apr-23 0:00
DATE RECEIVED: 04-May-23
REPORT CREATED: 25-May-23
REPORT NUMBER: 23050065
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050065-002	1-Methylnaphthalene		0.08	ug/Filter	0.01	AC-066	15-May-23
23050065-002	2-Methylnaphthalene		0.07	ug/Filter	0.01	AC-066	15-May-23
23050065-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050065-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050065-002	Acenaphthene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050065-002	Acenaphthylene		0.01	ug/Filter	0.01	AC-066	15-May-23
23050065-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050065-002	Anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050065-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050065-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050065-002	Benzo(b,j,k)fluoranthene		0.02	ug/Filter	0.01	AC-066	15-May-23
23050065-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050065-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050065-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050065-002	Chrysene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050065-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050065-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: May 25, 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/Apr 24, 2023	TE-08	Air Filter	24-Apr-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050065 **REPORT CREATED:** 25-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050065-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050065-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050065-002	Fluoranthene		0.04	ug/Filter	0.01	AC-066	15-May-23
23050065-002	Fluorene		0.05	ug/Filter	0.01	AC-066	15-May-23
23050065-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050065-002	Naphthalene		0.03	ug/Filter	0.01	AC-066	15-May-23
23050065-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050065-002	Phenanthrene		0.15	ug/Filter	0.01	AC-066	15-May-23
23050065-002	Pyrene		0.03	ug/Filter	0.01	AC-066	15-May-23
23050065-002	Retene		0.01	ug/Filter	0.01	AC-066	15-May-23

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InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202304

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Apr 24, 2023	31821	Ambient Air	24-Apr-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050065 **REPORT CREATED:** 25-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050065-001	1,1,1-Trichloroethane		< 0.02	ppbv	0.02	AC-058	04-May-23
23050065-001	1,1,2,2-Tetrachloroethane		< 0.02	ppbv	0.02	AC-058	04-May-23
23050065-001	1,1,2-Trichloroethane		< 0.02	ppbv	0.02	AC-058	04-May-23
23050065-001	1,1-Dichloroethane		< 0.02	ppbv	0.02	AC-058	04-May-23
23050065-001	1,1-Dichloroethylene		< 0.02	ppbv	0.02	AC-058	04-May-23
23050065-001	1,2,3-Trimethylbenzene		< 0.05	ppbv	0.05	AC-058	04-May-23
23050065-001	1,2,4-Trichlorobenzene		< 0.3	ppbv	0.3	AC-058	04-May-23
23050065-001	1,2,4-Trimethylbenzene		< 0.03	ppbv	0.03	AC-058	04-May-23
23050065-001	1,2-Dibromoethane		< 0.02	ppbv	0.02	AC-058	04-May-23
23050065-001	1,2-Dichlorobenzene		< 0.03	ppbv	0.03	AC-058	04-May-23
23050065-001	1,2-Dichloroethane		< 0.03	ppbv	0.03	AC-058	04-May-23
23050065-001	1,2-Dichloropropane		< 0.03	ppbv	0.03	AC-058	04-May-23
23050065-001	1,3,5-Trimethylbenzene		< 0.03	ppbv	0.03	AC-058	04-May-23
23050065-001	1,3-Butadiene		0.09	ppbv	0.03	AC-058	04-May-23
23050065-001	1,3-Dichlorobenzene		< 0.4	ppbv	0.4	AC-058	04-May-23
23050065-001	1,4-Dichlorobenzene		< 0.4	ppbv	0.4	AC-058	04-May-23
23050065-001	1,4-Dioxane		< 0.5	ppbv	0.5	AC-058	04-May-23
23050065-001	1-Butene/Isobutylene		0.17	ppbv	0.06	AC-058	04-May-23
23050065-001	1-Hexene/2-Methyl-1-pentene		< 0.07	ppbv	0.07	AC-058	04-May-23
23050065-001	1-Pentene		< 0.03	ppbv	0.03	AC-058	04-May-23
23050065-001	2,2,4-Trimethylpentane		< 0.02	ppbv	0.02	AC-058	04-May-23
23050065-001	2,2-Dimethylbutane		< 0.02	ppbv	0.02	AC-058	04-May-23
23050065-001	2,3,4-Trimethylpentane		< 0.02	ppbv	0.02	AC-058	04-May-23
23050065-001	2,3-Dimethylbutane		< 0.09	ppbv	0.09	AC-058	04-May-23
23050065-001	2,3-Dimethylpentane		< 0.02	ppbv	0.02	AC-058	04-May-23

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

Date: May 25, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Apr 24, 2023	31821	Ambient Air	24-Apr-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050065 **REPORT CREATED:** 25-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050065-001	2,4-Dimethylpentane		< 0.03	ppbv	0.03	AC-058	04-May-23
23050065-001	2-Methylheptane		< 0.02	ppbv	0.02	AC-058	04-May-23
23050065-001	2-Methylhexane		< 0.03	ppbv	0.03	AC-058	04-May-23
23050065-001	2-Methylpentane		0.03	ppbv	0.02	AC-058	04-May-23
23050065-001	3-Methylheptane		< 0.03	ppbv	0.03	AC-058	04-May-23
23050065-001	3-Methylhexane		< 0.02	ppbv	0.02	AC-058	04-May-23
23050065-001	3-Methylpentane		< 0.02	ppbv	0.02	AC-058	04-May-23
23050065-001	Acetone		3.0	ppbv	0.4	AC-058	04-May-23
23050065-001	Acrolein		< 0.3	ppbv	0.3	AC-058	04-May-23
23050065-001	Benzene		< 0.03	ppbv	0.03	AC-058	04-May-23
23050065-001	Benzyl chloride		< 0.3	ppbv	0.3	AC-058	04-May-23
23050065-001	Bromodichloromethane		< 0.03	ppbv	0.03	AC-058	04-May-23
23050065-001	Bromoform		< 0.02	ppbv	0.02	AC-058	04-May-23
23050065-001	Bromomethane		< 0.02	ppbv	0.02	AC-058	04-May-23
23050065-001	Carbon disulfide		< 0.02	ppbv	0.02	AC-058	04-May-23
23050065-001	Carbon tetrachloride		0.10	ppbv	0.02	AC-058	04-May-23
23050065-001	Chlorobenzene		< 0.02	ppbv	0.02	AC-058	04-May-23
23050065-001	Chloroethane		< 0.02	ppbv	0.02	AC-058	04-May-23
23050065-001	Chloroform		< 0.02	ppbv	0.02	AC-058	04-May-23
23050065-001	Chloromethane		0.70	ppbv	0.04	AC-058	04-May-23
23050065-001	cis-1,2-Dichloroethene		< 0.02	ppbv	0.02	AC-058	04-May-23
23050065-001	cis-1,3-Dichloropropene		< 0.03	ppbv	0.03	AC-058	04-May-23
23050065-001	cis-2-Butene		< 0.03	ppbv	0.03	AC-058	04-May-23
23050065-001	cis-2-Pentene		< 0.02	ppbv	0.02	AC-058	04-May-23
23050065-001	Cyclohexane		< 0.04	ppbv	0.04	AC-058	04-May-23

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

Date: May 25, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Apr 24, 2023	31821	Ambient Air	24-Apr-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050065 **REPORT CREATED:** 25-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050065-001	Cyclopentane		< 0.02	ppbv	0.02	AC-058	04-May-23
23050065-001	Dibromochloromethane		< 0.02	ppbv	0.02	AC-058	04-May-23
23050065-001	Ethanol		0.9	ppbv	0.5	AC-058	04-May-23
23050065-001	Ethyl acetate		< 0.3	ppbv	0.3	AC-058	04-May-23
23050065-001	Ethylbenzene		< 0.03	ppbv	0.03	AC-058	04-May-23
23050065-001	Freon-11		0.36	ppbv	0.02	AC-058	04-May-23
23050065-001	Freon-113		0.08	ppbv	0.02	AC-058	04-May-23
23050065-001	Freon-114		0.03	ppbv	0.03	AC-058	04-May-23
23050065-001	Freon-12		0.89	ppbv	0.03	AC-058	04-May-23
23050065-001	Hexachloro-1,3-butadiene		< 0.3	ppbv	0.3	AC-058	04-May-23
23050065-001	Isobutane		0.21	ppbv	0.03	AC-058	04-May-23
23050065-001	Isopentane		0.16	ppbv	0.04	AC-058	04-May-23
23050065-001	Isoprene		< 0.02	ppbv	0.02	AC-058	04-May-23
23050065-001	Isopropyl alcohol		< 0.3	ppbv	0.3	AC-058	04-May-23
23050065-001	Isopropylbenzene		< 0.04	ppbv	0.04	AC-058	04-May-23
23050065-001	m,p-Xylene		< 0.04	ppbv	0.04	AC-058	04-May-23
23050065-001	m-Diethylbenzene		0.06	ppbv	0.02	AC-058	04-May-23
23050065-001	m-Ethyltoluene		0.04	ppbv	0.03	AC-058	04-May-23
23050065-001	Methyl butyl ketone		< 0.4	ppbv	0.4	AC-058	04-May-23
23050065-001	Methyl ethyl ketone		< 0.3	ppbv	0.3	AC-058	04-May-23
23050065-001	Methyl isobutyl ketone		< 0.3	ppbv	0.3	AC-058	04-May-23
23050065-001	Methyl methacrylate		< 0.08	ppbv	0.08	AC-058	04-May-23
23050065-001	Methyl tert butyl ether		< 0.03	ppbv	0.03	AC-058	04-May-23
23050065-001	Methylcyclohexane		< 0.02	ppbv	0.02	AC-058	04-May-23
23050065-001	Methylcyclopentane		< 0.05	ppbv	0.05	AC-058	04-May-23

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Apr 24, 2023	31821	Ambient Air	24-Apr-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050065 **REPORT CREATED:** 25-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050065-001	Methylene chloride		< 0.3	ppbv	0.3	AC-058	04-May-23
23050065-001	n-Butane		0.29	ppbv	0.02	AC-058	04-May-23
23050065-001	n-Decane		< 0.06	ppbv	0.06	AC-058	04-May-23
23050065-001	n-Dodecane		< 0.3	ppbv	0.3	AC-058	04-May-23
23050065-001	n-Heptane		< 0.04	ppbv	0.04	AC-058	04-May-23
23050065-001	n-Hexane		< 0.03	ppbv	0.03	AC-058	04-May-23
23050065-001	n-Octane		0.02	ppbv	0.02	AC-058	04-May-23
23050065-001	n-Pentane		0.12	ppbv	0.04	AC-058	04-May-23
23050065-001	n-Propylbenzene		< 0.06	ppbv	0.06	AC-058	04-May-23
23050065-001	n-Undecane		< 0.5	ppbv	0.5	AC-058	04-May-23
23050065-001	Naphthalene		< 0.3	ppbv	0.3	AC-058	04-May-23
23050065-001	n-Nonane		< 0.04	ppbv	0.04	AC-058	04-May-23
23050065-001	o-Ethyltoluene		< 0.02	ppbv	0.02	AC-058	04-May-23
23050065-001	o-Xylene		< 0.03	ppbv	0.03	AC-058	04-May-23
23050065-001	p-Diethylbenzene		0.04	ppbv	0.02	AC-058	04-May-23
23050065-001	p-Ethyltoluene		< 0.04	ppbv	0.04	AC-058	04-May-23
23050065-001	Styrene		0.04	ppbv	0.04	AC-058	04-May-23
23050065-001	Tetrachloroethylene		< 0.02	ppbv	0.02	AC-058	04-May-23
23050065-001	Tetrahydrofuran		< 0.3	ppbv	0.3	AC-058	04-May-23
23050065-001	Toluene		< 0.03	ppbv	0.03	AC-058	04-May-23
23050065-001	trans-1,2-Dichloroethylene		< 0.06	ppbv	0.06	AC-058	04-May-23
23050065-001	trans-1,3-Dichloropropylene		< 0.02	ppbv	0.02	AC-058	04-May-23
23050065-001	trans-2-Butene		0.08	ppbv	0.03	AC-058	04-May-23
23050065-001	trans-2-Pentene		< 0.02	ppbv	0.02	AC-058	04-May-23
23050065-001	Trichloroethylene		< 0.02	ppbv	0.02	AC-058	04-May-23

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Apr 24, 2023	31821	Ambient Air	24-Apr-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050065 **REPORT CREATED:** 25-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050065-001	Vinyl acetate		< 0.3	ppbv	0.3	AC-058	04-May-23
23050065-001	Vinyl chloride		< 0.02	ppbv	0.02	AC-058	04-May-23

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

Date: May 25, 2023

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Revision History

Order ID	Ver	Date	Reason
23050065	01	25-May-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: 23050124-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Apr 30, 2023

Bureau Veritas

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

RECEIVED
MAY 08 2023

Client:	LICA	**Sampler S/N:**	6167
Location:	Cold Lake South	**Canister ID:**	32211
Station ID:	LICA 01	**Installation Date/Time (mst):**	Apr 29, 2023 @ 21:41
Sample ID:	LICA/VOC/CLS/Apr 30, 2023	**Removal Date/Time (mst):**	May 03, 2023 @ 15:19

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
April 30, 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: 23050124-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Apr 30, 2023

RECEIVED
MAY 0 8 2023

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	TE-09
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Apr 29, 2023 @ 21:44
Field Sample ID:	LICA/PUF/CLS/Apr 30, 2023	**Removal Date/Time:**	May 03, 2023 @ 15:21

Sample Data Collection Information

Sample Date:	30-Apr-23	**Average Pressure (mmHg)**	713
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	13.5
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.41

Sample Recovery Checklist

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

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

InnoTech ALBERTA

Canister ID: 32211

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: FEB 16 2023

Evacuated: MAR 07 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Apr 30, 2023

Sampled By: Alex Yakupov

Starting Vacuum:	End Vacuum:
-27.1 "Hg	+18.5 "Hg/psig

JW

InnoTech ALBERTA

Canister ID: TE-09

This cleaned canister meets or exceeds TO-15 Method Specifications

PUF

Proofed by: _____ on: _____

Evacuated: _____ Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/PUF/CLS/Apr 30, 2023

Sampled By: Alex Yakupov

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

Sample ID: 23050124-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Apr 30, 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/Apr 30, 2023
Matrix: Air Filter
CANISTER ID: TE-09
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 30-Apr-23 0:00
DATE RECEIVED: 08-May-23
REPORT CREATED: 26-May-23
REPORT NUMBER: 23050124
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050124-002	1-Methylnaphthalene		0.05	ug/Filter	0.01	AC-066	15-May-23
23050124-002	2-Methylnaphthalene		0.03	ug/Filter	0.01	AC-066	15-May-23
23050124-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050124-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050124-002	Acenaphthene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050124-002	Acenaphthylene		0.02	ug/Filter	0.01	AC-066	15-May-23
23050124-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050124-002	Anthracene		0.03	ug/Filter	0.01	AC-066	15-May-23
23050124-002	Benzo(a)anthracene		0.01	ug/Filter	0.01	AC-066	15-May-23
23050124-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050124-002	Benzo(b,j,k)fluoranthene		0.03	ug/Filter	0.01	AC-066	15-May-23
23050124-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050124-002	Benzo(e)pyrene		0.01	ug/Filter	0.01	AC-066	15-May-23
23050124-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050124-002	Chrysene		0.02	ug/Filter	0.01	AC-066	15-May-23
23050124-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050124-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: May 26, 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-202304

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Apr 30, 2023	TE-09	Air Filter	30-Apr-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050124 **REPORT CREATED:** 26-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050124-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050124-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050124-002	Fluoranthene		0.12	ug/Filter	0.01	AC-066	15-May-23
23050124-002	Fluorene		0.04	ug/Filter	0.01	AC-066	15-May-23
23050124-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050124-002	Naphthalene		0.03	ug/Filter	0.01	AC-066	15-May-23
23050124-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050124-002	Phenanthrene		0.42	ug/Filter	0.01	AC-066	15-May-23
23050124-002	Pyrene		0.10	ug/Filter	0.01	AC-066	15-May-23
23050124-002	Retene		0.08	ug/Filter	0.01	AC-066	15-May-23

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

Date: May 26, 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/Apr 30, 2023	32211	Ambient Air	30-Apr-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050124 **REPORT CREATED:** 26-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050124-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-May-23
23050124-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-May-23
23050124-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-May-23
23050124-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-May-23
23050124-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	09-May-23
23050124-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	09-May-23
23050124-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	09-May-23
23050124-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	09-May-23
23050124-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-May-23
23050124-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	09-May-23
23050124-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	09-May-23
23050124-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	09-May-23
23050124-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	09-May-23
23050124-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	09-May-23
23050124-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	09-May-23
23050124-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	09-May-23
23050124-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	09-May-23
23050124-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	09-May-23
23050124-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	09-May-23
23050124-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	09-May-23
23050124-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-May-23
23050124-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-May-23
23050124-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-May-23
23050124-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	09-May-23
23050124-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-May-23

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

Date: May 26, 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/Apr 30, 2023	32211	Ambient Air	30-Apr-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050124 **REPORT CREATED:** 26-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050124-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	09-May-23
23050124-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-May-23
23050124-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	09-May-23
23050124-001	2-Methylpentane	I	0.02	ppbv	0.02	AC-058	09-May-23
23050124-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	09-May-23
23050124-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-May-23
23050124-001	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-May-23
23050124-001	Acetone		2.6	ppbv	0.4	AC-058	09-May-23
23050124-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	09-May-23
23050124-001	Benzene	K, T, U	< 0.03	ppbv	0.03	AC-058	09-May-23
23050124-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	09-May-23
23050124-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	09-May-23
23050124-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	09-May-23
23050124-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-May-23
23050124-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	09-May-23
23050124-001	Carbon tetrachloride	I	0.09	ppbv	0.02	AC-058	09-May-23
23050124-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	09-May-23
23050124-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-May-23
23050124-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	09-May-23
23050124-001	Chloromethane		0.58	ppbv	0.04	AC-058	09-May-23
23050124-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	09-May-23
23050124-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	09-May-23
23050124-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	09-May-23
23050124-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	09-May-23
23050124-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	09-May-23

Report certified by: Graham Knox, Admin. & Ops. Supervisor 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/Apr 30, 2023	32211	Ambient Air	30-Apr-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050124 **REPORT CREATED:** 26-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050124-001	Cyclopentane	I	0.02	ppbv	0.02	AC-058	09-May-23
23050124-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-May-23
23050124-001	Ethanol	I	0.6	ppbv	0.5	AC-058	09-May-23
23050124-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	09-May-23
23050124-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	09-May-23
23050124-001	Freon-11		0.19	ppbv	0.02	AC-058	09-May-23
23050124-001	Freon-113	I	0.04	ppbv	0.02	AC-058	09-May-23
23050124-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	09-May-23
23050124-001	Freon-12		0.51	ppbv	0.03	AC-058	09-May-23
23050124-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	09-May-23
23050124-001	Isobutane		0.20	ppbv	0.03	AC-058	09-May-23
23050124-001	Isopentane	I	0.08	ppbv	0.04	AC-058	09-May-23
23050124-001	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	09-May-23
23050124-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	09-May-23
23050124-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	09-May-23
23050124-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	09-May-23
23050124-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	09-May-23
23050124-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	09-May-23
23050124-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	09-May-23
23050124-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	09-May-23
23050124-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	09-May-23
23050124-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	09-May-23
23050124-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	09-May-23
23050124-001	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-May-23
23050124-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	09-May-23

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Apr 30, 2023	32211	Ambient Air	30-Apr-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050124 **REPORT CREATED:** 26-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050124-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	09-May-23
23050124-001	n-Butane		0.12	ppbv	0.02	AC-058	09-May-23
23050124-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	09-May-23
23050124-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	09-May-23
23050124-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	09-May-23
23050124-001	n-Hexane	K, T, U	< 0.03	ppbv	0.03	AC-058	09-May-23
23050124-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	09-May-23
23050124-001	n-Pentane	K, T, U	< 0.04	ppbv	0.04	AC-058	09-May-23
23050124-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	09-May-23
23050124-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	09-May-23
23050124-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	09-May-23
23050124-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	09-May-23
23050124-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	09-May-23
23050124-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	09-May-23
23050124-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	09-May-23
23050124-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	09-May-23
23050124-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	09-May-23
23050124-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	09-May-23
23050124-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	09-May-23
23050124-001	Toluene	K, T, U	< 0.03	ppbv	0.03	AC-058	09-May-23
23050124-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	09-May-23
23050124-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	09-May-23
23050124-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	09-May-23
23050124-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	09-May-23
23050124-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	09-May-23

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

Date: May 26, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Apr 30, 2023	32211	Ambient Air	30-Apr-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050124 **REPORT CREATED:** 26-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050124-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	09-May-23
23050124-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	09-May-23

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

Date: May 26, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

Revision History

Order ID	Ver	Date	Reason
23050124	01	26-May-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: 23040089-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C1165519

ol 2000i-D Sample Data Sheet

RECEIVED
APR 13 2023

Date Sampled:	6-Apr-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 #:	C1165519	C1165520
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	-2.9	
Pressure	714	
Std Volume (Instrument)	22.5	2.51

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date):	Alex Yakupov	Date:	5-Apr-23
Removed by (Sign/Date)	Alex Yakupov	Date:	10-Apr-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: 23040089-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C1165520

RECEIVED
APR 13 2023

Filter Shipping Record

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

Date: Jan 6/23

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	C1165519 → C1165520

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
C1165519	Air Filter

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

DATE SAMPLED: 06-Apr-23 0:00
DATE RECEIVED: 13-Apr-23
REPORT CREATED: 21-Apr-23
REPORT NUMBER: 23040089
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23040089-001	Particulate Weight		0.029	mg	0.004	AC-029	14-Apr-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: April 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-202304

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
C1165520		Air Filter	06-Apr-23 0:00

DESCRIPTION: Cold Lake South - Coarse - PM 10

REPORT NUMBER: 23040089 **REPORT CREATED:** 21-Apr-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23040089-002	Particulate Weight		0.082	mg	0.004	AC-029	14-Apr-23

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

Date: April 21, 2023

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

Revision History

Order ID	Ver	Date	Reason
23040089	01	21-Apr-23	Report created

Methods

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

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

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

Qualifiers

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

Order Comments

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

Sample Comments

Result Comments

Note:

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

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

Partisol 2000i-D Sample Data Sheet

Date Sampled:	12-Apr-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: 23040134-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C1169948

	FINE (1) (1)	COURSE (2) (2)
Filter Type:	47mm	47mm
Filter #:	C1169948	C1169949
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	4.3	
Pressure	707	
Std Volume (Instrument)	21.7	2.42

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date):	Alex Yakupov	Date:	10-Apr-23
Removed by (Sign/Date)	Alex Yakupov	Date:	13-Apr-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: 23040134-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C1169948

RECEIVED
APR 17 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: January 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	C1169948 → C1169949

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
C1169948	Air Filter

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

DATE SAMPLED: 12-Apr-23 0:00
DATE RECEIVED: 17-Apr-23
REPORT CREATED: 21-Apr-23
REPORT NUMBER: 23040134
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23040134-001	Particulate Weight		0.036	mg	0.004	AC-029	20-Apr-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: April 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-202304

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
C1169949		Air Filter	12-Apr-23 0:00

DESCRIPTION: Cold Lake South - Coarse - PM 10

REPORT NUMBER: 23040134 **REPORT CREATED:** 21-Apr-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23040134-002	Particulate Weight		0.029	mg	0.004	AC-029	20-Apr-23

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

Date: April 21, 2023

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

Revision History

Order ID	Ver	Date	Reason
23040134	01	21-Apr-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

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:	18-Apr-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: 23050011-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C1165509

	FINE (1)	COURSE (2)
Filter Type:	47mm	47mm
Filter #:	C1165509	C1165510
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	6.7	
Pressure	705	
Std Volume (Instrument)	21.5	2.39

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date): Alex Yakupov Date: 13-Apr-23

Removed by (Sign/Date) Alex Yakupov Date: 23-Apr-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: 23050011-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C1165509

Filter Shipping Record

RECEIVED
MAY 01 2023

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

Date: Jan 6/23

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	C1165509 → C1165510

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
C1165509	Air Filter

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

DATE SAMPLED: 18-Apr-23 0:00
DATE RECEIVED: 01-May-23
REPORT CREATED: 10-May-23
REPORT NUMBER: 23050011
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050011-001	Particulate Weight	K, T, U	< 0.004	mg	0.004	AC-029	09-May-23

Report certified by: Andrea Conner, Admin Assistant
On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: May 10, 2023
Inquiries: (780) 632 8403
E-mail: EAS.Results@innotechalberta.ca

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
C1165510		Air Filter	18-Apr-23 0:00

DESCRIPTION: Cold Lake South - Coarse - PM 10

REPORT NUMBER: 23050011 **REPORT CREATED:** 10-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050011-002	Particulate Weight		0.014	mg	0.004	AC-029	09-May-23

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

Date: May 10, 2023

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

Revision History

Order ID	Ver	Date	Reason
23050011	01	10-May-23	Report created

Methods

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

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

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

Qualifiers

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

Order Comments

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

Sample Comments

Result Comments

Note:

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

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

Sample ID: 23050064-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C1165524

RECEIVED
MAY 04 2023

...ol 2000i-D Sample Data Sheet

Date Sampled:	24-Apr-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 #:	C1165524	C1165525
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	7	
Pressure	709	
Std Volume (Instrument)	21.6	2.41

Comments: Weather Conditions, etc.

n/a

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

Removed by (Sign/Date) Alex Yakupov Date: 29-Apr-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: 23050064-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C1165525

RECEIVED
MAY 04 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: January 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	C1165524 → C1165525

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
C1165524	Air Filter

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

DATE SAMPLED: 24-Apr-23 0:00
DATE RECEIVED: 04-May-23
REPORT CREATED: 10-May-23
REPORT NUMBER: 23050064
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050064-001	Particulate Weight		0.057	mg	0.004	AC-029	09-May-23

Report certified by: Andrea Conner, Admin Assistant
On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: May 10, 2023
Inquiries: (780) 632 8403
E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202304

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
C1165525		Air Filter	24-Apr-23 0:00

DESCRIPTION: Cold Lake South - Coarse - PM 10

REPORT NUMBER: 23050064 **REPORT CREATED:** 10-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050064-002	Particulate Weight		0.052	mg	0.004	AC-029	09-May-23

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

Date: May 10, 2023

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

Revision History

Order ID	Ver	Date	Reason
23050064	01	10-May-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

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:	30-Apr-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: 23050125-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9700059

	FINE (1) (1)	COURSE (2) (2)
Filter Type:	47mm	47mm
Filter #:	C9700059	C9700060
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	12.7	
Pressure	713	
Std Volume (Instrument)	21.3	2.37

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date):	Alex Yakupov	Date:	29-Apr-23
Removed by (Sign/Date)	Alex Yakupov	Date:	3-May-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: 23050125-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9700060

RECEIVED
MAY 0 8 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: MARCH 16/23

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	C9700059 → C9700060

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
C9700059	Air Filter

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

DATE SAMPLED: 30-Apr-23 0:00
DATE RECEIVED: 08-May-23
REPORT CREATED: 10-May-23
REPORT NUMBER: 23050125
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050125-001	Particulate Weight		0.048	mg	0.004	AC-029	09-May-23

Report certified by: Andrea Conner, Admin Assistant
On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: May 10, 2023
Inquiries: (780) 632 8403
E-mail: EAS.Results@innotechalberta.ca

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

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
C9700060		Air Filter	30-Apr-23 0:00

DESCRIPTION: Cold Lake South - Coarse - PM 10

REPORT NUMBER: 23050125 **REPORT CREATED:** 10-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050125-002	Particulate Weight		0.061	mg	0.004	AC-029	09-May-23

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

Date: May 10, 2023

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

Revision History

Order ID	Ver	Date	Reason
23050125	01	10-May-23	Report created

Methods

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

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

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

Qualifiers

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L	Off-scale high. Actual value is known to be greater than value given
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T	Value reported is less than the laboratory method detection limit
U	Compound was analyzed for but not detected
V	Analyte was detected in both the sample and the associated method blank

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

Order Comments

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

Sample Comments

Result Comments

Note:

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

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

Passive Samples

Passive Sampler Field Sheet for LICA, Apr 2023 sample period

ID	SAMPLER						START		END		NOTES
							DATE	TIME	DATE	TIME	
3	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Mar 30	16:05	Apr 28	15:54	
4	---	SO_2	NO_2	O_3	HNO3	NH3	Mar 30	13:16	Apr 29	12:55	
5	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Mar 31	14:20	Apr 29	14:31	
6	---	SO_2	NO_2	O_3	HNO3	NH3	Mar 31	16:02	Apr 29	16:17	
8	---	SO_2	NO_2	O_3	HNO3	NH3	Mar 31	12:15	Apr 29	11:54	
9	---	SO_2	NO_2	O_3	HNO3	NH3	Mar 30	12:44	Apr 28	14:58	
10	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Apr 1	16:00	Apr 30	16:17	
11	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Apr 1	15:25	Apr 30	15:41	
12	H2S	SO2	NO2	O3	HNO3	NH3	Apr 1	14:01	Apr 30	14:22	
13	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Mar 30	19:26	Apr 28	19:44	
14	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Mar 30	18:10	Apr 28	21:11	water sample taken
15	---	SO_2	NO_2	O_3	HNO3	NH3	Mar 30	10:02	Apr 28	13:25	
16	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Mar 31	19:31	Apr 29	18:15	
17	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Mar 31	17:08	Apr 29	17:19	
18	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Mar 31	18:38	Apr 29	18:55	
19	---	SO_2	NO_2	O_3	HNO3	NH3	Mar 31	20:07	Apr 29	20:15	
22	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Apr 1	17:02	Apr 28	11:01	
23	---	SO_2	NO_2	O_3	HNO3	NH3	Mar 31	09:55	Apr 28	12:36	
24	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Mar 31	15:10	Apr 29	15:25	
25	H2S	SO2	---	---							
26	H_2S	SO_2	---	---	HNO3	NH3	Mar 30	18:44	Apr 28	20:49	
27	H_2S	SO_2	---	---	HNO3	NH3	Mar 30	17:35	Apr 30	17:22	
28	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Mar 30	12:01	Apr 28	14:35	
29	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Apr 1	17:10	Apr 28	10:45	
32	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Mar 30	14:12	Apr 28	17:10	
42	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Apr 1	11:15	Apr 30	11:35	
							DUPLICATES				
12	---	---	NO_2	O_3	---	---	Apr 1	14:01	Apr 30	14:22	
13	---	---	NO_2	O_3	---	---	Mar 30	19:26	Apr 28	19:44	
29	---	---	---	---	HNO3	NH3	Apr 1	17:45	Apr 28	10:45	
42	---	SO2	---	---	---	---	Apr 1	11:15	Apr 30	11:35	
3	H2S	SO2	---	---	---	---	Mar 30	16:05	Apr 28	15:54	
4	---	SO2	---	---	---	---	Mar 30	13:16	Apr 29	12:55	
5	H2S	---	---	---	---	---	Mar 31	14:20	Apr 29	14:31	
32	---	---	---	---	HNO3	NH3	Mar 30	14:12	Apr 28	17:10	

23 H_2S
32 HNO_3
28 O_3
32 NH_3
33 SO_2
28 NO_2

MB 23-05-04 0710

Your Project #: APRIL 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: 2023/05/15
Report #: R3335826
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C331608
Received: 2023/05/04, 07:30

Sample Matrix: Air
Samples Received: 61

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
H2S Passive Analysis	20	2023/05/09	2023/05/12	PTC SOP-00150	Passive H2S in ATM
HNO3 by Passive Sampler	30	2023/05/05	2023/05/12	PTC SOP-00288	Passive HNO3 in ATM
NH3 by Passive Sampler	30	2023/05/09	2023/05/12	PTC SOP-00157	ASTM D6919
NO2 Passive Analysis	25	2023/05/05	2023/05/12	PTC SOP-00148	Passive NO2 in ATM
O3 Passive Analysis	25	2023/05/05	2023/05/12	PTC SOP-00197	EPA 300 R2.1
SO2 Passive Analysis	28	2023/05/08	2023/05/12	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

Belma Elefante
Customer Service Associate
15 May 2023 12:02:23

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

==========

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

Bureau Veritas Job #: C331608
Report Date: 2023/05/15

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BPW607			BPW608			BPW609		
Sampling Date		2023/03/30 16:05			2023/03/30 13:16			2023/03/31 14:20		
	UNITS	3	RDL	QC Batch	4	RDL	QC Batch	5	RDL	QC Batch
Passive Monitoring										
Calculated H2S	ppb	0.18	0.02	A956224				0.20	0.02	A956224
Calculated NO2	ppb	0.5	0.1	A957019	0.3	0.1	A957019	0.4	0.1	A957019
Calculated O3	ppb	39.4	0.1	A956260	45.8	0.1	A956260	50.6	0.1	A956260
Calculated SO2	ppb	0.3	0.1	A955824	0.3	0.1	A955824	0.3	0.1	A955824
RDL = Reportable Detection Limit										

Bureau Veritas ID		BPW610	BPW611	BPW612			BPW613	BPW614	BPW615		
Sampling Date		2023/03/31 16:02	2023/03/31 12:15	2023/03/30 12:44			2023/04/01 16:00	2023/04/01 15:25	2023/04/01 14:01		
	UNITS	6	8	9	RDL	QC Batch	10	11	12	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb						0.10	0.12	0.10	0.02	A956224
Calculated NO2	ppb	2.1	0.2	0.3	0.1	A957019	1.8	0.4	0.2	0.1	A957019
Calculated O3	ppb	46.4	43.3	39.3	0.1	A956260	39.8	35.4	42.8	0.1	A956260
Calculated SO2	ppb	0.4	0.3	0.3	0.1	A955824	0.3	0.4	0.3	0.1	A955824
RDL = Reportable Detection Limit											

Bureau Veritas ID		BPW616	BPW617			BPW618			BPW619		
Sampling Date		2023/03/30 19:26	2023/03/30 18:10			2023/03/30 10:02			2023/03/31 19:31		
	UNITS	13	14	RDL	QC Batch	15	RDL	QC Batch	16	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb	0.11	0.15	0.02	A956224				0.15	0.02	A956224
Calculated NO2	ppb	0.3	1.5	0.1	A957019	0.3	0.1	A957019	0.6	0.1	A957019
Calculated O3	ppb	41.8	42.1	0.1	A956263	31.4	0.1	A956263	39.4	0.1	A956263
Calculated SO2	ppb	0.4	1.3	0.1	A955824	0.3	0.1	A955824	0.4	0.1	A955824
RDL = Reportable Detection Limit											

Bureau Veritas Job #: C331608
Report Date: 2023/05/15

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BPW620	BPW621			BPW622			BPW623		
Sampling Date		2023/03/31 17:05	2023/03/31 18:38			2023/03/31 20:07			2023/04/01 17:02		
	UNITS	17	18	RDL	QC Batch	19	RDL	QC Batch	22	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb	0.20	0.12	0.02	A956224				0.12	0.02	A956224
Calculated NO2	ppb	0.4	0.2	0.1	A957019	0.4	0.1	A957019	0.7	0.1	A957019
Calculated O3	ppb	45.0	34.0	0.1	A956263	39.0	0.1	A956263	32.6	0.1	A956263
Calculated SO2	ppb	0.4	0.4	0.1	A955824	0.4	0.1	A955824	0.2	0.1	A955824
RDL = Reportable Detection Limit											

Bureau Veritas ID		BPW624			BPW625			BPW626	BPW627		
Sampling Date		2023/03/31 09:55			2023/03/31 15:10			2023/03/30 18:44	2023/03/30 17:35		
	UNITS	23	RDL	QC Batch	24	RDL	QC Batch	26	27	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb				0.18	0.02	A956224	0.15	0.18	0.02	A956224
Calculated NO2	ppb	<0.1	0.1	A957019	0.9	0.1	A957019				
Calculated O3	ppb	30.2	0.1	A956263	46.6	0.1	A956263				
Calculated SO2	ppb	0.2	0.1	A955824	0.3	0.1	A955824	1.1	0.7	0.1	A955827
RDL = Reportable Detection Limit											

Bureau Veritas ID		BPW628		BPW629	BPW630	BPW631			BPW635		
Sampling Date		2023/03/30 12:01		2023/04/01 17:10	2023/03/30 14:12	2023/04/01 11:15			2023/04/01 11:15		
	UNITS	28	QC Batch	29	32	42	RDL	QC Batch	42 DUP	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb	0.22	A956224	0.11	0.13	0.12	0.02	A956224			
Calculated NO2	ppb	1.7	A957019	0.7	0.2	0.8	0.1	A957021			
Calculated O3	ppb	39.6	A956263	50.3	40.7	43.5	0.1	A956263			
Calculated SO2	ppb	0.3	A955827	0.3	0.3	0.2	0.1	A955827	0.2	0.1	A955827
RDL = Reportable Detection Limit											

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

Bureau Veritas Job #: C331608
Report Date: 2023/05/15

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BPW636			BPW637			BPW638	BPW639		
Sampling Date		2023/03/30 13:16			2023/03/30 16:05			2023/04/01 14:01	2023/03/30 19:26		
	UNITS	4 DUP	RDL	QC Batch	3 DUP	RDL	QC Batch	12 DUP	13 DUP	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb				0.13	0.02	A956224				
Calculated NO2	ppb							0.3	0.5	0.1	A957021
Calculated O3	ppb							36.3	33.6	0.1	A956263
Calculated SO2	ppb	0.2	0.1	A955827	0.3	0.1	A955827				
RDL = Reportable Detection Limit											

Bureau Veritas ID		BPW640			BPW641	BPW642	BPW643	BPW644		
Sampling Date		2023/03/31 14:20			2023/03/30 16:05	2023/03/30 13:16	2023/03/31 14:20	2023/03/31 16:02		
	UNITS	5 DUP	RDL	QC Batch	3-NH3 HNO3	4-NH3 HNO3	5-NH3 HNO3	6-NH3 HNO3	RDL	QC Batch
Passive Monitoring										
Ammonia by Passive Sampler	ppb				5.1	1.6	2.0	4.7	0.1	A956354
Calculated H2S	ppb	0.18	0.02	A956224						
HNO3 by Passive Sampler	ug/m3				0.80	1.17	1.04	1.13	0.04	A953558
RDL = Reportable Detection Limit										

Bureau Veritas ID		BPW645	BPW646	BPW647	BPW648	BPW649	BPW650		
Sampling Date		2023/03/31 12:15	2023/03/30 12:44	2023/04/01 16:00	2023/04/01 15:25	2023/04/01 14:01	2023/03/30 19:26		
	UNITS	8-NH3 HNO3	9-NH3 HNO3	10-NH3 HNO3	11-NH3 HNO3	12-NH3 HNO3	13-NH3 HNO3	RDL	QC Batch
Passive Monitoring									
Ammonia by Passive Sampler	ppb	1.2	1.4	0.9	0.5	0.6	0.8	0.1	A956354
HNO3 by Passive Sampler	ug/m3	0.87	<0.04	0.08	0.53	0.22	0.17	0.04	A953558
RDL = Reportable Detection Limit									

Bureau Veritas ID		BPW651	BPW652	BPW653	BPW654	BPW655	BPW656		
Sampling Date		2023/03/30 18:10	2023/03/30 10:02	2023/03/31 19:31	2023/03/31 17:05	2023/03/31 18:38	2023/03/31 20:07		
	UNITS	14-NH3 HNO3	15-NH3 HNO3	16-NH3 HNO3	17-NH3 HNO3	18-NH3 HNO3	19-NH3 HNO3	RDL	QC Batch
Passive Monitoring									
Ammonia by Passive Sampler	ppb	0.7	0.8	1.2	2.0	0.9	4.1	0.1	A956354
HNO3 by Passive Sampler	ug/m3	1.02	0.31	0.08	0.54	1.10	0.19	0.04	A953558
RDL = Reportable Detection Limit									

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

Bureau Veritas Job #: C331608
Report Date: 2023/05/15

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BPW657	BPW658	BPW659		BPW660	BPW661		
Sampling Date		2023/04/01 17:02	2023/03/31 09:55	2023/03/31 15:10		2023/03/30 18:44	2023/03/30 17:35		
	UNITS	22-NH3 HNO3	23-NH3 HNO3	24-NH3 HNO3	QC Batch	26-NH3 HNO3	27-NH3 HNO3	RDL	QC Batch
Passive Monitoring									
Ammonia by Passive Sampler	ppb	1.6	0.8	2.0	A956354	0.8	0.9	0.1	A956355
HNO3 by Passive Sampler	ug/m3	1.31	1.14	0.80	A953560	1.09	0.36	0.04	A953560
RDL = Reportable Detection Limit									

Bureau Veritas ID		BPW662	BPW663	BPW664	BPW665	BPW666		
Sampling Date		2023/03/30 12:01	2023/04/01 17:10	2023/03/30 14:12	2023/04/01 11:15	2023/04/01 17:15		
	UNITS	28-NH3 HNO3	29-NH3 HNO3	32-NH3 HNO3	42-NH3 HNO3	29-NH3 HNO3 DUP	RDL	QC Batch
Passive Monitoring								
Ammonia by Passive Sampler	ppb	2.3	1.0	1.5	1.9	1.6	0.1	A956355
HNO3 by Passive Sampler	ug/m3	1.19	0.61	0.18	0.16	1.14	0.04	A953560
RDL = Reportable Detection Limit								

Bureau Veritas ID		BPW667	BPW668	BPW669	BPW670		
Sampling Date		2023/03/30 14:12					
	UNITS	32-NH3 HNO3 DUP	BLANK 1-NH3 HNO3	BLANK 2-NH3 HNO3	BLANK 3-NH3 HNO3	RDL	QC Batch
Passive Monitoring							
Ammonia by Passive Sampler	ppb	1.6	0.8	1.3	1.1	0.1	A956355
HNO3 by Passive Sampler	ug/m3	2.02	0.09	0.29	0.52	0.04	A953560
RDL = Reportable Detection Limit							

GENERAL COMMENTS

Results relate only to the items tested.

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

Bureau Veritas Job #: C331608
Report Date: 2023/05/15

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

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A953558	OZ	Method Blank	HNO3 by Passive Sampler		<0.04		ug/m3	
A953558	OZ	RPD [BPW641-01]	HNO3 by Passive Sampler	2023/05/12	NC		%	N/A
A953560	OZ	Method Blank	HNO3 by Passive Sampler		<0.04		ug/m3	
A953560	OZ	RPD [BPW657-01]	HNO3 by Passive Sampler	2023/05/12	NC		%	N/A
A955824	OZ	Spiked Blank	Calculated SO2			100	%	90 - 110
A955824	OZ	Method Blank	Calculated SO2		<0.1		ppb	
A955827	OZ	Spiked Blank	Calculated SO2			96	%	90 - 110
A955827	OZ	Method Blank	Calculated SO2		<0.1		ppb	
A956224	YYA	Spiked Blank	Calculated H2S			101	%	90 - 110
A956260	SDK	Spiked Blank	Calculated O3			100	%	90 - 110
A956260	SDK	Method Blank	Calculated O3		<0.1		ppb	
A956263	SDK	Spiked Blank	Calculated O3			100	%	90 - 110
A956263	SDK	Method Blank	Calculated O3		<0.1		ppb	
A956354	YL6	Spiked Blank	Ammonia by Passive Sampler			96	%	90 - 110
A956354	YL6	Method Blank	Ammonia by Passive Sampler		<0.1		ppb	
A956354	YL6	RPD [BPW641-01]	Ammonia by Passive Sampler	2023/05/12	NC		%	N/A
A956355	YL6	Spiked Blank	Ammonia by Passive Sampler			95	%	90 - 110
A956355	YL6	Method Blank	Ammonia by Passive Sampler		<0.1		ppb	
A956355	YL6	RPD [BPW660-01]	Ammonia by Passive Sampler	2023/05/12	NC		%	N/A
A957019	SDK	Spiked Blank	Calculated NO2			97	%	90 - 110
A957019	SDK	Method Blank	Calculated NO2		<0.1		ppb	
A957021	SDK	Spiked Blank	Calculated NO2			98	%	90 - 110
A957021	SDK	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).

Bureau Veritas Job #: C331608
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LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: APRIL 2023 PASSIVES
Site Location: BONNYVILLE, AB
Sampler Initials: AY

VALIDATION SIGNATURE PAGE

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

Carmen Toker, CT, Manager Air Laboratory Services

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

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End of Report