Lakeland Industry & Community Association

DECEMBER 2022

Monthly Ambient Air Quality Monitoring Integrated Sampling Report

LICA-202212-INTEGRATED

January 20, 2023

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January 20, 2023

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

RE: LICA –December 2022 Monthly Ambient Air Quality Monitoring Integrated Sampling Report

Enclosed is the December 2022 Monthly Ambient Air Quality Monitoring Integrated Sampling Report for the Lakeland Industry and Community Association's (LICA) regional air quality monitoring network. This report summarizes monitoring data for samples collected using integrated methods including volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), polycyclic aromatic compounds (PAHs), particulate matter ($PM_{2.5}$ and $PM_{2.5-10}$), ozone (O_3), hydrogen sulphide (H_2S), sulphur dioxide (SO_2), nitrogen dioxide (NO_2), ammonia (NH_3) and nitric acid (HNO_3).

The representative of the Person Responsible for this monitoring program is

LICA Airshed
Michael Bisaga, Monitoring Programs Manager
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Phone #: 780-226-7068
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This report has been prepared, reviewed and submitted by Michael Bisaga & Lily Lin of the LICA Airshed.

NETWORK STATION SUMMARY

Listing of Air Monitoring Stations and Integrated Sampling Stations

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

Listing of Passive Sampling Stations

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

Listing of Passive Aromatic Compounds Stations

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

List of Contractors who performed the air monitoring activities

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

Monitoring Notes during the Month of December 2022

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).
  - Six samples were collected this month: on December 1, 7, 13, 19, 25 and 31.
- **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).
  - Six samples were collected this month: on December 1, 7, 13, 19, 25 and 31.
- **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).
  - Six samples were collected this month: on December 1, 7, 13, 19, 25 and 31.

- **Passives**
    - There were no exceedances of the AAAQOs for all monitored parameters at any of the passive stations during this month.
    - The passive sample filters were installed at the stations between November 30 and December 2, and were removed between December 29, 2022 and January 3, 2023.
    - 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.
    - No canister events were recorded this month.

Passive polycyclic aromatic compounds (PACs) Stations

- The PAC sampling program began in December 2019, and is designed to collect a 2-month integrated sample.
- The media for the November / December monitoring period were installed between November 2 and November 3 and were removed between December 29, 2022 and January 3, 2023. The media for the January/February 2023 monitoring period were installed when the media for the November / December monitoring period 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
587-225-2248
monitoring@lica.ca

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

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

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

INTEGRATED SAMPLING RESULTS SUMMARY

COLD LAKE SOUTH STATION

- **VOCs analytical results**

Sample Date	2022-12-01	2022-12-07	2022-12-13	2022-12-19	2022-12-25	2022-12-31
Canister ID	32245	31824	29024	28914	29023	322583
Maximum Reading (ppbv)	0.9	2.0	1.8	1.2	13.7	3.16
Parameter	Acetone	Acetone	Acetone	Acetone	Acetone	n-Butane

- **PAHs analytical results**

Sample Date	2022-12-01		2022-12-07		2022-12-13		2022-12-19		2022-12-25		2022-12-31	
PUF S/N	TE-11		TE-01		TE-07		TE-08		TE-05		P13-01	
Volume (Vstd m^3)	330.41		330.38		330.22		330.41		330.42		330.4	
Maximum Reading	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3
	0.78	2.36	0.69	2.09	0.32	0.97	0.97	2.94	0.44	1.33	0.66	2.00
Parameter	2-Methylnaphthalene		Naphthalene		Naphthalene		Naphthalene		Naphthalene		Naphthalene	

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

Sample Date	2022-12-01		2022-12-07		2022-12-13		2022-12-19		2022-12-25		2022-12-31	
Filter #	C9697001		C9697005		C1162118		C9697007		C9694349		C9694335	
Volume (Vstd m^3)	24.0		23.7		23.3		24.7		23.6		23.0	
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)	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)
Particulate Matter	0.019	0.001	0.104	0.004	0.134	0.006	0.048	0.002	<0.004	0.000	0.202	0.009

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

Sample Date	2022-12-01		2022-12-07		2022-12-13		2022-12-19		2022-12-25		2022-12-31	
Filter #	C9697002		C9697006		C1162119		C9697008		C9694350		C9694336	
Volume (Vstd m^3)	2.67		2.63		2.60		2.75		2.64		2.56	
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)	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)
PM2.5-10 Mass	<0.004	0.000	0.019	0.007	<0.004	0.000	<0.004	0.000	<0.004	0.000	0.009	0.004

- **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	#13	0.8	#23	24.5	#11	0.4	#15	0.2	#9	0.51	#6
Maximum	0.32	#27	6.7	#28	39.0	#17	1.5	#17	1.4	#10	3.71	#32
Average	0.23	-	3.05	-	29.98	-	0.77	-	0.77	-	1.07	-

LAC LA BICHE STATION

- **NMHC canister sample analytical results**

No canister samples were collected this month.

ANALYTICAL SAMPLING RESULTS

COLD LAKE SOUTH STATION

VOCS

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - December 2022

Volatile Organic Compounds (VOCs) Results

Sample Date		2022-12-01	2022-12-07	2022-12-13	2022-12-19	2022-12-25	2022-12-31	
Canister ID		32245	31824	29024	28914	29023	322583	
Method		AC-058	AC-058	AC-058	AC-058	AC-058	AC-058	
Maximum Reading (ppbv)		0.9	2.0	1.8	1.2	13.7	3.16	
Parameter		Acetone	Acetone	Acetone	Acetone	Acetone	n-Butane	
Parameter	**AAAQOs (ppbv)**	**Result (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	0.02
1,1,2,2-Tetrachloroethane		< 0.02	< 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	0.02
1,1-Dichloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1-Dichloroethylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
1,2,3-Trimethylbenzene		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.05
1,2,4-Trichlorobenzene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.8
1,2,4-Trimethylbenzene		< 0.03	< 0.03	< 0.03	< 0.03	0.04	< 0.03	0.05
1,2-Dibromoethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,2-Dichlorobenzene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
1,2-Dichloroethane		< 0.03	< 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	< 0.03	0.01
1,3,5-Trimethylbenzene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02
1,3-Butadiene		< 0.03	0.04	< 0.03	< 0.03	< 0.03	< 0.03	0.02
1,3-Dichlorobenzene		< 0.4	< 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	0.4
1,4-Dioxane		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.4
1-Butene		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.02
1-Hexene		< 0.07	< 0.07	< 0.07	< 0.07	< 0.07	< 0.07	0.02
1-Pentene		0.08	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
2,2,4-Trimethylpentane		0.09	< 0.02	< 0.02	< 0.02	< 0.02	0.05	0.01
2,2-Dimethylbutane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04	0.01
2,3,4-Trimethylpentane		< 0.02	< 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	< 0.09	0.02
2,3-Dimethylpentane		0.06	< 0.02	< 0.02	< 0.02	< 0.02	0.07	0.02
2,4-Dimethylpentane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.04	0.01
2-Methylheptane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
2-Methylhexane		0.05	< 0.03	< 0.03	< 0.03	< 0.03	0.09	0.01
2-Methylpentane		< 0.02	0.05	0.05	0.03	0.03	0.17	0.01
3-Methylheptane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02
3-Methylhexane		0.1	0.02	0.02	< 0.02	0.04	0.09	0.02
3-Methylpentane		0.09	0.03	0.04	< 0.02	< 0.02	0.18	0.01
Acetone	2400	0.9	2.0	1.8	1.2	13.7	1.1	0.4
Acrolein	1.9	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Benzene	9.0	0.15	0.1	0.1	0.09	0.08	0.19	0.01
Benzyl chloride		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Bromodichloromethane		< 0.03	< 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	0.02
Bromomethane		< 0.02	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	< 0.02	0.01
Carbon tetrachloride		0.07	0.07	0.09	0.06	0.06	0.08	0.01
Chlorobenzene		< 0.02	< 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	0.02
Chloroform		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Chloromethane		0.62	0.73	0.65	0.66	0.64	0.49	0.02
cis-1,2-Dichloroethene		< 0.02	< 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	< 0.03	0.04
cis-2-Butene		< 0.03	< 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	0.02
Cyclohexane		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.21	0.02
Cyclopentane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.09	0.01
Dibromochloromethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
Ethanol		< 0.5	1.5	1.4	0.6	6.3	1.40	0.3
Ethyl acetate		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Ethylbenzene	460	0.14	< 0.03	< 0.03	< 0.03	< 0.03	0.03	0.01
Freon-11		0.16	0.31	0.26	0.27	0.22	0.21	0.02
Freon-113		0.02	0.07	0.08	0.06	0.06	0.06	0.01
Freon-114		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - December 2022

Volatile Organic Compounds (VOCs) Results

Sample Date		2022-12-01	2022-12-07	2022-12-13	2022-12-19	2022-12-25	2022-12-31
Canister ID		32245	31824	29024	28914	29023	322583
Method		AC-058	AC-058	AC-058	AC-058	AC-058	AC-058
Maximum Reading (ppbv)		0.9	2.0	1.8	1.2	13.7	3.16
Parameter		Acetone	Acetone	Acetone	Acetone	Acetone	n-Butane

Parameter	AAAQOs (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	RDL (ppbv)
Freon-12		0.69	0.77	0.55	0.63	0.40	0.50	0.02
Hexachloro-1,3-butadiene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.5
Isobutane		0.27	0.76	0.71	0.22	0.27	2.02	0.02
Isopentane		0.18	0.72	0.8	0.24	1.46	1.18	0.03
Isoprene		< 0.02	< 0.02	< 0.02	< 0.02	0.17	< 0.02	0.01
Isopropyl alcohol		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Isopropylbenzene		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.01
m,p-Xylene		0.17	< 0.04	< 0.04	< 0.04	0.07	0.07	0.03
m-Diethylbenzene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
m-Ethyltoluene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.08
Methyl butyl ketone		< 0.4	< 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	0.3
Methyl isobutyl ketone		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Methyl methacrylate		< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	0.07
Methyl tert butyl ether		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
Methylcyclohexane		0.1	0.03	0.03	< 0.02	< 0.02	0.29	0.01
Methylcyclopentane		0.1	< 0.05	< 0.05	< 0.05	< 0.05	0.25	0.02
Methylene chloride		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
n-Butane		0.3	1.84	1.77	0.75	1.01	3.16	0.03
n-Decane		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.06
n-Dodecane		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
n-Heptane		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.12	0.01
n-Hexane	5960	0.14	0.06	0.07	0.03	0.04	0.35	0.01
n-Nonane		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.01
n-Octane		0.12	< 0.02	< 0.02	< 0.02	< 0.02	0.05	0.02
n-Pentane		0.21	0.29	0.33	0.13	0.21	1.01	0.1
n-Propylbenzene		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.05
n-Undecane		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.5
Naphthalene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.5
o-Ethyltoluene		< 0.02	< 0.02	< 0.02	0.09	0.09	< 0.02	0.01
o-Xylene		0.1	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
p-Diethylbenzene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
p-Ethyltoluene		< 0.04	< 0.04	< 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	0.04
Tetrachloroethylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
Tetrahydrofuran		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Toluene	499	0.13	0.03	0.03	0.04	0.10	0.17	0.01
trans-1,2-Dichloroethylene		< 0.06	< 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	< 0.02	0.04
trans-2-Butene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
trans-2-Pentene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Trichloroethylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
Vinyl acetate		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Vinyl chloride	51	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02

PAHS

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - December 2022

Polycyclic Aromatic Hydrocarbons (PAHs) Results

Sample Date	2022-12-01		2022-12-07		2022-12-13		2022-12-19		2022-12-25		2022-12-31		
PUF S/N	TE-11		TE-01		TE-07		TE-08		TE-05		P13-01		
Volume (Vstd m^3)	330.41		330.38		330.22		330.41		330.42		330.4		
Method	AC-066		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	ug	ng/m3	
	0.78	2.36	0.69	2.09	0.32	0.97	0.97	2.94	0.44	1.33	0.66	2.00	
Parameter	2-Methylnaphthalene		Naphthalene		Naphthalene		Naphthalene		Naphthalene		Naphthalene		

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)	Result (ug)	Result (ng/m^3)	RDL (ug)
1-Methylnaphthalene	0.61	1.85	0.52	1.57	0.20	0.61	0.44	1.33	0.22	0.67	0.42	1.27	0.01
2-Methylnaphthalene	0.78	2.36	0.66	2.00	0.29	0.88	0.68	2.06	0.33	1.00	0.55	1.66	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	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	0.00	0.01
Acenaphthene	0.08	0.24	0.11	0.33	0.05	0.15	0.10	0.30	0.04	0.12	0.06	0.18	0.01
Acenaphthylene	0.04	0.12	0.15	0.45	0.06	0.18	0.17	0.51	0.04	0.12	0.07	0.21	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	0.00	0.01
Anthracene	0.03	0.09	0.04	0.12	0.03	0.09	0.03	0.09	0.02	0.06	0.24	0.73	0.01
Benzo(a)anthracene	< 0.01	0.00	0.02	0.06	< 0.01	0.00	0.02	0.06	< 0.01	0.00	< 0.01	0.00	0.01
Benzo(a)pyrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Benzo(b,j,k)fluoranthene	0.06	0.18	0.10	0.30	0.02	0.06	0.14	0.42	0.05	0.15	0.04	0.12	0.01
Benzo(c)phenanthrene	0.02	0.06	0.02	0.06	0.01	0.03	0.02	0.06	0.02	0.06	0.05	0.15	0.01
Benzo(e)pyrene	0.02	0.06	0.03	0.09	< 0.01	0.00	0.03	0.09	0.01	0.03	< 0.01	0.00	0.01
Benzo(ghi)perylene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Chrysene	0.02	0.06	0.04	0.12	0.01	0.03	0.04	0.12	0.02	0.06	0.01	0.03	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	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	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	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	0.00	0.01
Fluoranthene	0.07	0.21	0.11	0.33	0.08	0.24	0.12	0.36	0.10	0.30	0.08	0.24	0.01
Fluorene	0.07	0.21	0.09	0.27	0.08	0.24	0.11	0.33	0.08	0.24	0.07	0.21	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	0.00	0.01
Naphthalene	0.56	1.69	0.69	2.09	0.32	0.97	0.97	2.94	0.44	1.33	0.66	2.00	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	0.00	0.01
Phenanthrene	0.21	0.64	0.29	0.88	0.21	0.64	0.31	0.94	0.21	0.64	0.24	0.73	0.01
Pyrene	0.06	0.18	0.08	0.24	0.06	0.18	0.07	0.21	0.06	0.18	0.05	0.15	0.01
Retene	0.22	0.67	0.14	0.42	0.06	0.18	0.02	0.06	0.02	0.06	0.03	0.09	0.01

PARTISOLS

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - December 2022

Partisol Results - $PM_{2.5}$

Sample Date		2022-12-01		2022-12-07		2022-12-13		2022-12-19		2022-12-25		2022-12-31		
Filter #		C9697001		C9697005		C1162118		C9697007		C9694349		C9694335		
Volume (Vstd m^3)		24.0		23.7		23.3		24.7		23.6		23.0		
Method		AC-029		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)**	**Result (mg)**	**Result (mg/m^3)**	**RDL (mg)**
Particulate Matter	0.029	**0.019**	**0.001**	**0.104**	**0.004**	**0.134**	**0.006**	**0.048**	**0.002**	**<0.004**	**0.000**	**0.202**	**0.009**	0.004
PM2.5 Mass in ug/m3			**0.792**		**4.388**		**5.751**		**1.943**		**0.169**		**8.783**	
RDL in ug/m3			**0.167**		**0.169**		**0.172**		**0.162**		**0.169**		**0.174**	

Sample Date	2022-12-01		2022-12-07		2022-12-13		2022-12-19		2022-12-25		2022-12-31		
Filter #	C9697002		C9697006		C1162119		C9697008		C9694350		C9694336		
Volume (Vstd m^3)	2.67		2.63		2.60		2.75		2.64		2.56		
Method	AC-029		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)	Result (mg)	Result (mg/m^3)	RDL (mg)
PM2.5-10 Mass	<0.004	0.000	0.019	0.007	<0.004	0.000	<0.004	0.000	<0.004	0.000	0.009	0.004	0.004

PM2.5-10 Mass in ug/m3	1.498	7.224	1.538	1.455	1.515	3.516
RDL in ug/m3	1.498	1.521	1.538	1.455	1.515	1.563

PASSIVE SAMPLES

Passive Results

		H_2S		NO_2		O_3		SO_2		NMH3		HNO3	
	Unit	**ppb**		**ppb**		**ppb**		**ppb**		**ppb**		**ug/m3**	
	Minimum	0.10	#13	0.8	#23	24.5	#11	0.4	#15	0.2	#9	0.51	#6
	Maximum	0.32	#27	6.7	#28	39.0	#17	1.5	#17	1.4	#10	3.71	#32
	Average	0.23	-	3.05	-	29.98	-	0.77	-	0.77	-	1.07	-
No.	**Station**	**Sample**	**Duplicate**	**Sample**	**Duplicate**	**Sample**	**Duplicate**	**Sample**	**Duplicate**	**Sample**	**Duplicate**	**Sample**	**Duplicate**
3	Therien	0.20		2.6	2.6	32.9	34.2	0.6		0.8		0.92	
4	Flat Lake	-		2.1	2.1	33.8	30.3	0.9		1.2		0.62	
5	Lake Eliza	0.29		2.6		29.4		0.9		0.9		0.98	
6	Telegraph Creek	-		4.5		30.1		1.1		1.1		0.51	
8	Muriel-Kehewin	-		1.7		31.8		0.7		0.3		1.01	
9	Dupre	-		3.9		28.4		0.6		0.2		0.89	
10	La Corey	0.23		6.1		27.8		0.9		1.4		0.91	
11	Wolf Lake	0.24		2.2		24.5		0.9		0.4		2.06	
12	Foster Creek	0.19		1.5		27.4		0.7		0.5		0.65	
13	Primrose	0.10		1.1		25.3		0.5		0.9		0.74	
14	Tamarack	0.25		2.9		28.2		1.4		0.3		0.78	
15	Ardmore	-		3.3		33.4		0.4		0.6		0.64	
16	Frog Lake	0.23		3.2		24.9		0.7	0.7	0.4	1.6	0.75	1.87
17	Clear Range	0.27		2.3		39.0		1.5	1.2	0.9	1.0	0.84	0.81
18	Fishing Lake	0.20		2.7		33.3		0.7	0.7	0.9		1.50	
19	Beaverdam	-		2.5		32.2		0.7		0.8		0.95	
22	Cold Lake South (1)	0.19	0.21	3.3		34.9		0.4		0.6		0.81	
23	Medley-Martineau	-	0.27	0.8		25.8		0.5		0.4		0.76	
24	Fort George	0.23		4.1		31.9		0.9		0.7		1.24	
25	Burnt Lake	Missing 1		-		-		Missing 1		-		-	
26	Mahihkan	0.27		-		-		0.8		0.9		1.16	
27	Mahkeses	0.32		-		-		1.1		0.7		0.72	
28	Town of Bonnyville	0.21		6.7		25.7		0.6		1.4		1.10	
29	Cold Lake South (2)	0.22		3.9		28.4		0.4		1.0		1.16	
32	St. Lina	0.22		1.8		33.5		0.7		0.6		3.71	
42	Lac La Biche	0.21		4.3		26.9		0.6		1.3		1.22	
BLANK -1		**-**		**-**		**-**		**-**		0.4		0.72	
BLANK -2		**-**		**-**		**-**		**-**		0.4		0.56	
BLANK -3		**-**		**-**		**-**		**-**		0.4		0.60	
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

DECEMBER 2022

Ambient Air Monitoring

Certified Laboratory Analysis Report

LAB-LICA-202212

Operation and Maintenance:
Bureau Veritas Canada

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

January 19, 2023

Table of Contents

Cold Lake South Station

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

Sample ID: 22120045-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Dec 01, 2022

RECEIVED
DEC 07 2022

Bureau Veritas

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

Client:	LICA	**Sampler S/N:**	6200
Location:	Cold Lake South	**Canister ID:**	32245
Station ID:	LICA 01	**Installation Date/Time (mst):**	Nov 29, 2022 @ 10:29
Sample ID:	LICA/VOC/CLS/Dec 01, 2022	**Removal Date/Time (mst):**	Dec 05, 2022@ 15:32

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
December 1, 2022	0:00	23:59	24

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

Flow Settings		
Flow Reading (sccm)	Pot Set Point	Pump Set (psi)
10.00	4.98	24.0

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: 22120045-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Dec 01, 2022

RECEIVED
DEC 07 2022

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	TE-11
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Nov 29, 2022 @ 10:32
Field Sample ID:	LICA/PUF/CLS/Dec 01, 2022	**Removal Date/Time:**	Dec 05, 2022 @ 15:35

Sample Data Collection Information

Sample Date:	1-Dec-22	**Average Pressure (mmHg)**	712
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	-19.2
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: 32245

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: SEP 16 2022

Evacuated: _____ Recertified: OCT 19 2022

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Dec 01, 2022

Sampled By: Alex Vakulov

Starting Vacuum: -27.1 "Hg

End Vacuum: KG +19.7 "Hg/psig

InnoTech ALBERTA

Canister ID: TE-11

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/Dec 01, 2022

Sampled By: _____

Starting Vacuum: _____ "Hg

End Vacuum: _____ "Hg/psig

Sample ID: 22120045-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Dec 01, 2022

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID: LICA/PUF/CLS/Dec 01, 2022
Matrix: Air Filter
CANISTER ID: TE-11
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 01-Dec-22 0:00
DATE RECEIVED: 07-Dec-22
REPORT CREATED: 17-Jan-23
REPORT NUMBER: 22120045
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22120045-002	1-Methylnaphthalene		0.61	ug/Filter	0.01	AC-066	11-Jan-23
22120045-002	2-Methylnaphthalene		0.78	ug/Filter	0.01	AC-066	11-Jan-23
22120045-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
22120045-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
22120045-002	Acenaphthene		0.08	ug/Filter	0.01	AC-066	11-Jan-23
22120045-002	Acenaphthylene		0.04	ug/Filter	0.01	AC-066	11-Jan-23
22120045-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
22120045-002	Anthracene		0.03	ug/Filter	0.01	AC-066	11-Jan-23
22120045-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
22120045-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
22120045-002	Benzo(b,j,k)fluoranthene		0.06	ug/Filter	0.01	AC-066	11-Jan-23
22120045-002	Benzo(c)phenanthrene		0.02	ug/Filter	0.01	AC-066	11-Jan-23
22120045-002	Benzo(e)pyrene		0.02	ug/Filter	0.01	AC-066	11-Jan-23
22120045-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
22120045-002	Chrysene		0.02	ug/Filter	0.01	AC-066	11-Jan-23
22120045-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
22120045-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: January 17, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202212

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Dec 01, 2022	TE-11	Air Filter	01-Dec-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22120045 **REPORT CREATED:** 17-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22120045-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
22120045-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
22120045-002	Fluoranthene		0.07	ug/Filter	0.01	AC-066	11-Jan-23
22120045-002	Fluorene		0.07	ug/Filter	0.01	AC-066	11-Jan-23
22120045-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
22120045-002	Naphthalene		0.56	ug/Filter	0.01	AC-066	11-Jan-23
22120045-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
22120045-002	Phenanthrene		0.21	ug/Filter	0.01	AC-066	11-Jan-23
22120045-002	Pyrene		0.06	ug/Filter	0.01	AC-066	11-Jan-23
22120045-002	Retene		0.22	ug/Filter	0.01	AC-066	11-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

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

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202212

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 01, 2022	32245	Ambient Air	01-Dec-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22120045 **REPORT CREATED:** 17-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22120045-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Dec-22
22120045-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Dec-22
22120045-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Dec-22
22120045-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Dec-22
22120045-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Dec-22
22120045-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	12-Dec-22
22120045-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Dec-22
22120045-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Dec-22
22120045-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Dec-22
22120045-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Dec-22
22120045-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Dec-22
22120045-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Dec-22
22120045-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Dec-22
22120045-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Dec-22
22120045-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Dec-22
22120045-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Dec-22
22120045-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	12-Dec-22
22120045-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	12-Dec-22
22120045-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	12-Dec-22
22120045-001	1-Pentene	I	0.08	ppbv	0.03	AC-058	12-Dec-22
22120045-001	2,2,4-Trimethylpentane	I	0.09	ppbv	0.02	AC-058	12-Dec-22
22120045-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Dec-22
22120045-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Dec-22
22120045-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	12-Dec-22
22120045-001	2,3-Dimethylpentane	I	0.06	ppbv	0.02	AC-058	12-Dec-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

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

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202212

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 01, 2022	32245	Ambient Air	01-Dec-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22120045 **REPORT CREATED:** 17-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22120045-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Dec-22
22120045-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Dec-22
22120045-001	2-Methylhexane	I	0.05	ppbv	0.03	AC-058	12-Dec-22
22120045-001	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Dec-22
22120045-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Dec-22
22120045-001	3-Methylhexane		0.10	ppbv	0.02	AC-058	12-Dec-22
22120045-001	3-Methylpentane	I	0.09	ppbv	0.02	AC-058	12-Dec-22
22120045-001	Acetone		0.9	ppbv	0.4	AC-058	12-Dec-22
22120045-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Dec-22
22120045-001	Benzene	I	0.15	ppbv	0.03	AC-058	12-Dec-22
22120045-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Dec-22
22120045-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Dec-22
22120045-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Dec-22
22120045-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Dec-22
22120045-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Dec-22
22120045-001	Carbon tetrachloride	I	0.07	ppbv	0.02	AC-058	12-Dec-22
22120045-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Dec-22
22120045-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Dec-22
22120045-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Dec-22
22120045-001	Chloromethane		0.62	ppbv	0.04	AC-058	12-Dec-22
22120045-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Dec-22
22120045-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Dec-22
22120045-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Dec-22
22120045-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Dec-22
22120045-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Dec-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

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

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202212

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 01, 2022	32245	Ambient Air	01-Dec-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22120045 **REPORT CREATED:** 17-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22120045-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Dec-22
22120045-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Dec-22
22120045-001	Ethanol	K, T, U	< 0.5	ppbv	0.5	AC-058	12-Dec-22
22120045-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Dec-22
22120045-001	Ethylbenzene	I	0.14	ppbv	0.03	AC-058	12-Dec-22
22120045-001	Freon-11		0.16	ppbv	0.02	AC-058	12-Dec-22
22120045-001	Freon-113	I	0.02	ppbv	0.02	AC-058	12-Dec-22
22120045-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Dec-22
22120045-001	Freon-12		0.69	ppbv	0.03	AC-058	12-Dec-22
22120045-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Dec-22
22120045-001	Isobutane		0.27	ppbv	0.03	AC-058	12-Dec-22
22120045-001	Isopentane		0.18	ppbv	0.04	AC-058	12-Dec-22
22120045-001	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Dec-22
22120045-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Dec-22
22120045-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Dec-22
22120045-001	m,p-Xylene	I	0.17	ppbv	0.04	AC-058	12-Dec-22
22120045-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Dec-22
22120045-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Dec-22
22120045-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Dec-22
22120045-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Dec-22
22120045-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Dec-22
22120045-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	12-Dec-22
22120045-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Dec-22
22120045-001	Methylcyclohexane		0.10	ppbv	0.02	AC-058	12-Dec-22
22120045-001	Methylcyclopentane		0.10	ppbv	0.05	AC-058	12-Dec-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: January 17, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 01, 2022	32245	Ambient Air	01-Dec-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22120045 **REPORT CREATED:** 17-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22120045-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Dec-22
22120045-001	n-Butane		0.30	ppbv	0.02	AC-058	12-Dec-22
22120045-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	12-Dec-22
22120045-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Dec-22
22120045-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Dec-22
22120045-001	n-Hexane	I	0.14	ppbv	0.03	AC-058	12-Dec-22
22120045-001	n-Octane		0.12	ppbv	0.02	AC-058	12-Dec-22
22120045-001	n-Pentane		0.21	ppbv	0.04	AC-058	12-Dec-22
22120045-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	12-Dec-22
22120045-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	12-Dec-22
22120045-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Dec-22
22120045-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Dec-22
22120045-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Dec-22
22120045-001	o-Xylene	I	0.10	ppbv	0.03	AC-058	12-Dec-22
22120045-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Dec-22
22120045-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Dec-22
22120045-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Dec-22
22120045-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Dec-22
22120045-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Dec-22
22120045-001	Toluene	I	0.13	ppbv	0.03	AC-058	12-Dec-22
22120045-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	12-Dec-22
22120045-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Dec-22
22120045-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Dec-22
22120045-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Dec-22
22120045-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Dec-22

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Date: January 17, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 01, 2022	32245	Ambient Air	01-Dec-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22120045 **REPORT CREATED:** 17-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22120045-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Dec-22
22120045-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Dec-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: January 17, 2023

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

Revision History

Order ID	Ver	Date	Reason
22120045	01	17-Jan-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: 22120181-001 Priority: Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Dec 07, 2022

RECEIVED
DEC 20 2022

Bureau Veritas

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

Client:	LICA	**Sampler S/N:**	6200
Location:	Cold Lake South	**Canister ID:**	31824
Station ID:	LICA 01	**Installation Date/Time (mst):**	Dec 05, 2022 @ 15:42
Sample ID:	LICA/VOC/CLS/Dec 07, 2022	**Removal Date/Time (mst):**	Dec 12, 2022@ 17:35

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
December 7, 2022	0:00	23:59	24

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

Flow Settings		
Flow Reading (sccm)	Pot Set Point	Pump Set (psi)
10.00	4.98	24.0

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: 22120181-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Dec 07, 2022

RECEIVED
DEC 20 2022

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	TE-01
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Dec 05, 2022 @ 15:43
Field Sample ID:	LICA/PUF/CLS/Dec 07, 2022	**Removal Date/Time:**	Dec 12, 2022 @ 17:38

Sample Data Collection Information

Sample Date:	7-Dec-22	**Average Pressure (mmHg)**	711
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	-16.7
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

Sample ID: 22120181-003 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Dec 13, 2022

RECEIVED
DEC 20 2022

Bureau Veritas

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

Client:	LICA	**Sampler S/N:**	6200
Location:	Cold Lake South	**Canister ID:**	29024
Station ID:	LICA 01	**Installation Date/Time (mst):**	Dec 09, 2022 @ 17:47
Sample ID:	LICA/VOC/CLS/Dec 13, 2022	**Removal Date/Time (mst):**	Dec 18, 2022@ 14:44

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
December 13, 2022	0:00	23:59	24

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.1	19.3

Flow Settings		
Flow Reading (sccm)	Pot Set Point	Pump Set (psi)
10.00	4.98	24.0

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: 22120181-004 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Dec 13, 2022

RECEIVED
DEC 20 2022

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:**	Dec 09, 2022 @ 17:48
Field Sample ID:	LICA/PUF/CLS/Dec 13, 2022	**Removal Date/Time:**	Dec 18, 2022 @ 14:19

Sample Data Collection Information

Sample Date:	13-Dec-22	**Average Pressure (mmHg)**	716
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	-11.1
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.22

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: 31824

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: JKO4 on: SEP 2 8 2022

Evacuated: SEP 2 8 2022 Recertified: NOV 0 7 2022

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Dec 07, 2022

Sampled By: Alex Yakupov

Starting Vacuum: -27.1 "Hg

End Vacuum: KG +19.4 "Hg/psig

InnoTech ALBERTA

Canister ID: TE-01

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/Dec 7, 202

Sampled By: Alex Yakupov

Starting Vacuum: "Hg

End Pressure: "Hg/ psig

InnoTech ALBERTA

Canister ID: 29024

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: JKO4 on: SEP 0 7 2022

Evacuated: SEP 0 7 2022 Recertified: NOV 0 7 2022

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Dec 13, 2022

Sampled By: Alex Yakupov

Starting Vacuum: -27.1 "Hg

End Vacuum: KG 18 +19.3 "Hg/psig

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Canister ID: TE-07

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/Dec 13, 2022

Sampled By: Alex Yakupov

Starting Vacuum: "Hg

End Pressure: "Hg/ psig

Sample ID: 22120181-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Dec 07, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID: LICA/PUF/CLS/Dec 07, 2022
Matrix: Air Filter
CANISTER ID: TE-01
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 07-Dec-22 0:00
DATE RECEIVED: 20-Dec-22
REPORT CREATED: 17-Jan-23
REPORT NUMBER: 22120181
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22120181-002	1-Methylnaphthalene		0.52	ug/Filter	0.01	AC-066	11-Jan-23
22120181-002	2-Methylnaphthalene		0.66	ug/Filter	0.01	AC-066	11-Jan-23
22120181-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
22120181-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
22120181-002	Acenaphthene		0.11	ug/Filter	0.01	AC-066	11-Jan-23
22120181-002	Acenaphthylene		0.15	ug/Filter	0.01	AC-066	11-Jan-23
22120181-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
22120181-002	Anthracene		0.04	ug/Filter	0.01	AC-066	11-Jan-23
22120181-002	Benzo(a)anthracene		0.02	ug/Filter	0.01	AC-066	11-Jan-23
22120181-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
22120181-002	Benzo(b,j,k)fluoranthene		0.10	ug/Filter	0.01	AC-066	11-Jan-23
22120181-002	Benzo(c)phenanthrene		0.02	ug/Filter	0.01	AC-066	11-Jan-23
22120181-002	Benzo(e)pyrene		0.03	ug/Filter	0.01	AC-066	11-Jan-23
22120181-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
22120181-002	Chrysene		0.04	ug/Filter	0.01	AC-066	11-Jan-23
22120181-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
22120181-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: January 17, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Dec 07, 2022	TE-01	Air Filter	07-Dec-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22120181 **REPORT CREATED:** 17-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22120181-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
22120181-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
22120181-002	Fluoranthene		0.11	ug/Filter	0.01	AC-066	11-Jan-23
22120181-002	Fluorene		0.09	ug/Filter	0.01	AC-066	11-Jan-23
22120181-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
22120181-002	Naphthalene		0.69	ug/Filter	0.01	AC-066	11-Jan-23
22120181-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
22120181-002	Phenanthrene		0.29	ug/Filter	0.01	AC-066	11-Jan-23
22120181-002	Pyrene		0.08	ug/Filter	0.01	AC-066	11-Jan-23
22120181-002	Retene		0.14	ug/Filter	0.01	AC-066	11-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

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

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202212

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Dec 13, 2022	TE-07	Air Filter	13-Dec-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22120181 **REPORT CREATED:** 17-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22120181-004	1-Methylnaphthalene		0.20	ug/Filter	0.01	AC-066	11-Jan-23
22120181-004	2-Methylnaphthalene		0.29	ug/Filter	0.01	AC-066	11-Jan-23
22120181-004	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
22120181-004	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
22120181-004	Acenaphthene		0.05	ug/Filter	0.01	AC-066	11-Jan-23
22120181-004	Acenaphthylene		0.06	ug/Filter	0.01	AC-066	11-Jan-23
22120181-004	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
22120181-004	Anthracene		0.03	ug/Filter	0.01	AC-066	11-Jan-23
22120181-004	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
22120181-004	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
22120181-004	Benzo(b,j,k)fluoranthene		0.02	ug/Filter	0.01	AC-066	11-Jan-23
22120181-004	Benzo(c)phenanthrene		0.01	ug/Filter	0.01	AC-066	11-Jan-23
22120181-004	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
22120181-004	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
22120181-004	Chrysene		0.01	ug/Filter	0.01	AC-066	11-Jan-23
22120181-004	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
22120181-004	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
22120181-004	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
22120181-004	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
22120181-004	Fluoranthene		0.08	ug/Filter	0.01	AC-066	11-Jan-23
22120181-004	Fluorene		0.08	ug/Filter	0.01	AC-066	11-Jan-23
22120181-004	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
22120181-004	Naphthalene		0.32	ug/Filter	0.01	AC-066	11-Jan-23
22120181-004	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
22120181-004	Phenanthrene		0.21	ug/Filter	0.01	AC-066	11-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Dec 13, 2022	TE-07	Air Filter	13-Dec-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22120181 **REPORT CREATED:** 17-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22120181-004	Pyrene		0.06	ug/Filter	0.01	AC-066	11-Jan-23
22120181-004	Retene		0.06	ug/Filter	0.01	AC-066	11-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

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

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202212

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 07, 2022	31824	Ambient Air	07-Dec-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22120181 **REPORT CREATED:** 17-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22120181-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	05-Jan-23
22120181-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
22120181-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
22120181-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
22120181-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
22120181-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
22120181-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
22120181-001	1,3-Butadiene	I	0.04	ppbv	0.03	AC-058	05-Jan-23
22120181-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Jan-23
22120181-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Jan-23
22120181-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	05-Jan-23
22120181-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Jan-23
22120181-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	05-Jan-23
22120181-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
22120181-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	05-Jan-23
22120181-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: January 17, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 07, 2022	31824	Ambient Air	07-Dec-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22120181 **REPORT CREATED:** 17-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22120181-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
22120181-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
22120181-001	2-Methylpentane	I	0.05	ppbv	0.02	AC-058	05-Jan-23
22120181-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
22120181-001	3-Methylhexane	I	0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-001	3-Methylpentane	I	0.03	ppbv	0.02	AC-058	05-Jan-23
22120181-001	Acetone		2.0	ppbv	0.4	AC-058	05-Jan-23
22120181-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
22120181-001	Benzene	I	0.10	ppbv	0.03	AC-058	05-Jan-23
22120181-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
22120181-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
22120181-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-001	Bromomethane	I	0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-001	Carbon tetrachloride	I	0.07	ppbv	0.02	AC-058	05-Jan-23
22120181-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-001	Chloromethane		0.73	ppbv	0.04	AC-058	05-Jan-23
22120181-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
22120181-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
22120181-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: January 17, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 07, 2022	31824	Ambient Air	07-Dec-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22120181 **REPORT CREATED:** 17-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22120181-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-001	Ethanol		1.5	ppbv	0.5	AC-058	05-Jan-23
22120181-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
22120181-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
22120181-001	Freon-11		0.31	ppbv	0.02	AC-058	05-Jan-23
22120181-001	Freon-113	I	0.07	ppbv	0.02	AC-058	05-Jan-23
22120181-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
22120181-001	Freon-12		0.77	ppbv	0.03	AC-058	05-Jan-23
22120181-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
22120181-001	Isobutane		0.76	ppbv	0.03	AC-058	05-Jan-23
22120181-001	Isopentane		0.72	ppbv	0.04	AC-058	05-Jan-23
22120181-001	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
22120181-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jan-23
22120181-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jan-23
22120181-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
22120181-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Jan-23
22120181-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
22120181-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
22120181-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	05-Jan-23
22120181-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
22120181-001	Methylcyclohexane	I	0.03	ppbv	0.02	AC-058	05-Jan-23
22120181-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	05-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: January 17, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 07, 2022	31824	Ambient Air	07-Dec-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22120181 **REPORT CREATED:** 17-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22120181-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
22120181-001	n-Butane		1.84	ppbv	0.02	AC-058	05-Jan-23
22120181-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Jan-23
22120181-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
22120181-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jan-23
22120181-001	n-Hexane	I	0.06	ppbv	0.03	AC-058	05-Jan-23
22120181-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-001	n-Pentane		0.29	ppbv	0.04	AC-058	05-Jan-23
22120181-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Jan-23
22120181-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	05-Jan-23
22120181-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
22120181-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jan-23
22120181-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
22120181-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jan-23
22120181-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jan-23
22120181-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
22120181-001	Toluene	I	0.03	ppbv	0.03	AC-058	05-Jan-23
22120181-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Jan-23
22120181-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
22120181-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: January 17, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 07, 2022	31824	Ambient Air	07-Dec-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22120181 **REPORT CREATED:** 17-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22120181-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
22120181-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23

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Date: January 17, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 13, 2022	29024	Ambient Air	13-Dec-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22120181 **REPORT CREATED:** 17-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22120181-003	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-003	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-003	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-003	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-003	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-003	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	05-Jan-23
22120181-003	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
22120181-003	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
22120181-003	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-003	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
22120181-003	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
22120181-003	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
22120181-003	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
22120181-003	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
22120181-003	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Jan-23
22120181-003	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Jan-23
22120181-003	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	05-Jan-23
22120181-003	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Jan-23
22120181-003	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	05-Jan-23
22120181-003	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
22120181-003	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-003	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-003	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-003	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	05-Jan-23
22120181-003	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: January 17, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 13, 2022	29024	Ambient Air	13-Dec-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22120181 **REPORT CREATED:** 17-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22120181-003	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
22120181-003	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-003	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
22120181-003	2-Methylpentane	I	0.05	ppbv	0.02	AC-058	05-Jan-23
22120181-003	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
22120181-003	3-Methylhexane	I	0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-003	3-Methylpentane	I	0.04	ppbv	0.02	AC-058	05-Jan-23
22120181-003	Acetone		1.8	ppbv	0.4	AC-058	05-Jan-23
22120181-003	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
22120181-003	Benzene	I	0.10	ppbv	0.03	AC-058	05-Jan-23
22120181-003	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
22120181-003	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
22120181-003	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-003	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-003	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-003	Carbon tetrachloride	I	0.09	ppbv	0.02	AC-058	05-Jan-23
22120181-003	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-003	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-003	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-003	Chloromethane		0.65	ppbv	0.04	AC-058	05-Jan-23
22120181-003	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-003	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
22120181-003	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
22120181-003	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-003	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jan-23

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 13, 2022	29024	Ambient Air	13-Dec-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22120181 **REPORT CREATED:** 17-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22120181-003	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-003	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-003	Ethanol		1.4	ppbv	0.5	AC-058	05-Jan-23
22120181-003	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
22120181-003	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
22120181-003	Freon-11		0.26	ppbv	0.02	AC-058	05-Jan-23
22120181-003	Freon-113	I	0.08	ppbv	0.02	AC-058	05-Jan-23
22120181-003	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
22120181-003	Freon-12		0.55	ppbv	0.03	AC-058	05-Jan-23
22120181-003	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
22120181-003	Isobutane		0.71	ppbv	0.03	AC-058	05-Jan-23
22120181-003	Isopentane		0.80	ppbv	0.04	AC-058	05-Jan-23
22120181-003	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-003	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
22120181-003	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jan-23
22120181-003	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jan-23
22120181-003	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-003	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
22120181-003	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Jan-23
22120181-003	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
22120181-003	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
22120181-003	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	05-Jan-23
22120181-003	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
22120181-003	Methylcyclohexane	I	0.03	ppbv	0.02	AC-058	05-Jan-23
22120181-003	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	05-Jan-23

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 13, 2022	29024	Ambient Air	13-Dec-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22120181 **REPORT CREATED:** 17-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22120181-003	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
22120181-003	n-Butane		1.77	ppbv	0.02	AC-058	05-Jan-23
22120181-003	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Jan-23
22120181-003	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
22120181-003	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jan-23
22120181-003	n-Hexane	I	0.07	ppbv	0.03	AC-058	05-Jan-23
22120181-003	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-003	n-Pentane		0.33	ppbv	0.04	AC-058	05-Jan-23
22120181-003	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Jan-23
22120181-003	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	05-Jan-23
22120181-003	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
22120181-003	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jan-23
22120181-003	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-003	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
22120181-003	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-003	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jan-23
22120181-003	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jan-23
22120181-003	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-003	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
22120181-003	Toluene	I	0.03	ppbv	0.03	AC-058	05-Jan-23
22120181-003	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Jan-23
22120181-003	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-003	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
22120181-003	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
22120181-003	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 13, 2022	29024	Ambient Air	13-Dec-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22120181 **REPORT CREATED:** 17-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22120181-003	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
22120181-003	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: January 17, 2023

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Revision History

Order ID	Ver	Date	Reason
22120181	01	17-Jan-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: 23010006-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Dec 19, 2022

RECEIVED
JAN 03 2023

Bureau Veritas

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

Client:	LICA	**Sampler S/N:**	6200
Location:	Cold Lake South	**Canister ID:**	28914
Station ID:	LICA 01	**Installation Date/Time (mst):**	Dec 18, 2022 @ 15:13
Sample ID:	LICA/VOC/CLS/Dec 19, 2022	**Removal Date/Time (mst):**	Dec 23, 2022@ 12:19

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
December 19, 2022	0:00	23:59	24

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

Flow Settings		
Flow Reading (sccm)	Pot Set Point	Pump Set (psi)
10.00	4.98	24.0

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: 23010006-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Dec 19, 2022

RECEIVED
JAN 03 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:**	Dec 18, 2022 @ 15:16
Field Sample ID:	LICA/PUF/CLS/Dec 19, 2022	**Removal Date/Time:**	Dec 23, 2022 @ 12:24

Sample Data Collection Information

Sample Date:	19-Dec-22	**Average Pressure (mmHg)**	728
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	-22.3
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.41

Sample Recovery Checklist

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

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

Sample ID: 23010006-003 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Dec 25, 2022

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Bureau Veritas

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

Client:	LICA	**Sampler S/N:**	6200
Location:	Cold Lake South	**Canister ID:**	29023
Station ID:	LICA 01	**Installation Date/Time (mst):**	Dec 23, 2022 @ 12:42
Sample ID:	LICA/VOC/CLS/Dec 25, 2022	**Removal Date/Time (mst):**	Dec 28, 2022@ 10:45

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
December 25, 2022	0:00	23:59	24

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

Flow Settings		
Flow Reading (sccm)	Pot Set Point	Pump Set (psi)
10.00	4.98	24.0

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: 23010006-004 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Dec 25, 2022

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TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	TE-05
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Dec 23, 2022 @ 12:45
Field Sample ID:	LICA/PUF/CLS/Dec 25, 2022	**Removal Date/Time:**	Dec 28, 2022 @ 10:47

Sample Data Collection Information

Sample Date:	25-Dec-22	**Average Pressure (mmHg)**	713
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	-14.3
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.42

Sample Recovery Checklist

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

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

InnoTech ALBERTA

Canister ID: 28914

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: OCT 13 2022

Evacuated: NOV 08 2022 Recertified:

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Dec 19, 2022

Sampled By: Alex Yakupov

Starting Vacuum: -27.1 "Hg

End Pressure: KG +17.9 "Hg/ psig

InnoTech ALBERTA

Canister ID: TE-08

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/Dec 19, 2022

Sampled By: Alex Yakupor

Starting Vacuum: "Hg

End Vacuum: "Hg/psig

InnoTech ALBERTA

Canister ID: 29023

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: OCT 26 2022

Evacuated: NOV 08 2022 Recertified:

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Dec 25, 202

Sampled By: Alex Yakupor

Starting Vacuum: -27.1 "Hg

End Vacuum: KG +19.2 "Hg/psig

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Canister ID: TE-05

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/Dec 25, 202

Sampled By: Alex Yakupor

Starting Vacuum: "Hg

End Vacuum: "Hg/psig

Sample ID: 23010006-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Dec 19, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID: LICA/PUF/CLS/Dec 19, 2022
Matrix: Air Filter
CANISTER ID: TE-08
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 19-Dec-22 0:00
DATE RECEIVED: 03-Jan-23
REPORT CREATED: 17-Jan-23
REPORT NUMBER: 23010006
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010006-002	1-Methylnaphthalene		0.44	ug/Filter	0.01	AC-066	11-Jan-23
23010006-002	2-Methylnaphthalene		0.68	ug/Filter	0.01	AC-066	11-Jan-23
23010006-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
23010006-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
23010006-002	Acenaphthene		0.10	ug/Filter	0.01	AC-066	11-Jan-23
23010006-002	Acenaphthylene		0.17	ug/Filter	0.01	AC-066	11-Jan-23
23010006-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
23010006-002	Anthracene		0.03	ug/Filter	0.01	AC-066	11-Jan-23
23010006-002	Benzo(a)anthracene		0.02	ug/Filter	0.01	AC-066	11-Jan-23
23010006-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
23010006-002	Benzo(b,j,k)fluoranthene		0.14	ug/Filter	0.01	AC-066	11-Jan-23
23010006-002	Benzo(c)phenanthrene		0.02	ug/Filter	0.01	AC-066	11-Jan-23
23010006-002	Benzo(e)pyrene		0.03	ug/Filter	0.01	AC-066	11-Jan-23
23010006-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
23010006-002	Chrysene		0.04	ug/Filter	0.01	AC-066	11-Jan-23
23010006-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
23010006-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: January 17, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Dec 19, 2022	TE-08	Air Filter	19-Dec-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23010006 **REPORT CREATED:** 17-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010006-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
23010006-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
23010006-002	Fluoranthene		0.12	ug/Filter	0.01	AC-066	11-Jan-23
23010006-002	Fluorene		0.11	ug/Filter	0.01	AC-066	11-Jan-23
23010006-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
23010006-002	Naphthalene		0.97	ug/Filter	0.01	AC-066	11-Jan-23
23010006-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
23010006-002	Phenanthrene		0.31	ug/Filter	0.01	AC-066	11-Jan-23
23010006-002	Pyrene		0.07	ug/Filter	0.01	AC-066	11-Jan-23
23010006-002	Retene		0.02	ug/Filter	0.01	AC-066	11-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

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

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202212

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Dec 25, 2022	TE-05	Air Filter	25-Dec-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23010006 **REPORT CREATED:** 17-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010006-004	1-Methylnaphthalene		0.22	ug/Filter	0.01	AC-066	11-Jan-23
23010006-004	2-Methylnaphthalene		0.33	ug/Filter	0.01	AC-066	11-Jan-23
23010006-004	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
23010006-004	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
23010006-004	Acenaphthene		0.04	ug/Filter	0.01	AC-066	11-Jan-23
23010006-004	Acenaphthylene		0.04	ug/Filter	0.01	AC-066	11-Jan-23
23010006-004	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
23010006-004	Anthracene		0.02	ug/Filter	0.01	AC-066	11-Jan-23
23010006-004	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
23010006-004	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
23010006-004	Benzo(b,j,k)fluoranthene		0.05	ug/Filter	0.01	AC-066	11-Jan-23
23010006-004	Benzo(c)phenanthrene		0.02	ug/Filter	0.01	AC-066	11-Jan-23
23010006-004	Benzo(e)pyrene		0.01	ug/Filter	0.01	AC-066	11-Jan-23
23010006-004	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
23010006-004	Chrysene		0.02	ug/Filter	0.01	AC-066	11-Jan-23
23010006-004	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
23010006-004	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
23010006-004	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
23010006-004	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
23010006-004	Fluoranthene		0.10	ug/Filter	0.01	AC-066	11-Jan-23
23010006-004	Fluorene		0.08	ug/Filter	0.01	AC-066	11-Jan-23
23010006-004	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
23010006-004	Naphthalene		0.44	ug/Filter	0.01	AC-066	11-Jan-23
23010006-004	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
23010006-004	Phenanthrene		0.21	ug/Filter	0.01	AC-066	11-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Dec 25, 2022	TE-05	Air Filter	25-Dec-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23010006 **REPORT CREATED:** 17-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010006-004	Pyrene		0.06	ug/Filter	0.01	AC-066	11-Jan-23
23010006-004	Retene		0.02	ug/Filter	0.01	AC-066	11-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

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InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202212

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 19, 2022	28914	Ambient Air	19-Dec-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23010006 **REPORT CREATED:** 17-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010006-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Jan-23
23010006-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Jan-23
23010006-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Jan-23
23010006-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Jan-23
23010006-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Jan-23
23010006-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	04-Jan-23
23010006-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Jan-23
23010006-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Jan-23
23010006-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Jan-23
23010006-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Jan-23
23010006-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Jan-23
23010006-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Jan-23
23010006-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Jan-23
23010006-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Jan-23
23010006-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Jan-23
23010006-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Jan-23
23010006-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Jan-23
23010006-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Jan-23
23010006-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	04-Jan-23
23010006-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Jan-23
23010006-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Jan-23
23010006-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Jan-23
23010006-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Jan-23
23010006-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	04-Jan-23
23010006-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: January 17, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 19, 2022	28914	Ambient Air	19-Dec-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23010006 **REPORT CREATED:** 17-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010006-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Jan-23
23010006-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Jan-23
23010006-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Jan-23
23010006-001	2-Methylpentane	I	0.03	ppbv	0.02	AC-058	04-Jan-23
23010006-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Jan-23
23010006-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Jan-23
23010006-001	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Jan-23
23010006-001	Acetone		1.2	ppbv	0.4	AC-058	04-Jan-23
23010006-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Jan-23
23010006-001	Benzene	I	0.09	ppbv	0.03	AC-058	04-Jan-23
23010006-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Jan-23
23010006-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Jan-23
23010006-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Jan-23
23010006-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Jan-23
23010006-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Jan-23
23010006-001	Carbon tetrachloride	I	0.06	ppbv	0.02	AC-058	04-Jan-23
23010006-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Jan-23
23010006-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Jan-23
23010006-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Jan-23
23010006-001	Chloromethane		0.66	ppbv	0.04	AC-058	04-Jan-23
23010006-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Jan-23
23010006-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Jan-23
23010006-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Jan-23
23010006-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Jan-23
23010006-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: January 17, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 19, 2022	28914	Ambient Air	19-Dec-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23010006 **REPORT CREATED:** 17-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010006-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Jan-23
23010006-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Jan-23
23010006-001	Ethanol	I	0.6	ppbv	0.5	AC-058	04-Jan-23
23010006-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Jan-23
23010006-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Jan-23
23010006-001	Freon-11		0.27	ppbv	0.02	AC-058	04-Jan-23
23010006-001	Freon-113	I	0.06	ppbv	0.02	AC-058	04-Jan-23
23010006-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Jan-23
23010006-001	Freon-12		0.63	ppbv	0.03	AC-058	04-Jan-23
23010006-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Jan-23
23010006-001	Isobutane		0.22	ppbv	0.03	AC-058	04-Jan-23
23010006-001	Isopentane		0.24	ppbv	0.04	AC-058	04-Jan-23
23010006-001	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Jan-23
23010006-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Jan-23
23010006-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Jan-23
23010006-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Jan-23
23010006-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Jan-23
23010006-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Jan-23
23010006-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	04-Jan-23
23010006-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Jan-23
23010006-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Jan-23
23010006-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	04-Jan-23
23010006-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Jan-23
23010006-001	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Jan-23
23010006-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	04-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: January 17, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 19, 2022	28914	Ambient Air	19-Dec-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23010006 **REPORT CREATED:** 17-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010006-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Jan-23
23010006-001	n-Butane		0.75	ppbv	0.02	AC-058	04-Jan-23
23010006-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Jan-23
23010006-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Jan-23
23010006-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Jan-23
23010006-001	n-Hexane	I	0.03	ppbv	0.03	AC-058	04-Jan-23
23010006-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Jan-23
23010006-001	n-Pentane		0.13	ppbv	0.04	AC-058	04-Jan-23
23010006-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Jan-23
23010006-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	04-Jan-23
23010006-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Jan-23
23010006-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Jan-23
23010006-001	o-Ethyltoluene	I	0.09	ppbv	0.02	AC-058	04-Jan-23
23010006-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Jan-23
23010006-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Jan-23
23010006-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Jan-23
23010006-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	04-Jan-23
23010006-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Jan-23
23010006-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Jan-23
23010006-001	Toluene	I	0.04	ppbv	0.03	AC-058	04-Jan-23
23010006-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	04-Jan-23
23010006-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Jan-23
23010006-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	04-Jan-23
23010006-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Jan-23
23010006-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Jan-23

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 19, 2022	28914	Ambient Air	19-Dec-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23010006 **REPORT CREATED:** 17-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010006-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	04-Jan-23
23010006-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	04-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 25, 2022	29023	Ambient Air	25-Dec-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23010006 **REPORT CREATED:** 17-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010006-003	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
23010006-003	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
23010006-003	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
23010006-003	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
23010006-003	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
23010006-003	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	05-Jan-23
23010006-003	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
23010006-003	1,2,4-Trimethylbenzene	I	0.04	ppbv	0.03	AC-058	05-Jan-23
23010006-003	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
23010006-003	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
23010006-003	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
23010006-003	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
23010006-003	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
23010006-003	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
23010006-003	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Jan-23
23010006-003	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Jan-23
23010006-003	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	05-Jan-23
23010006-003	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Jan-23
23010006-003	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	05-Jan-23
23010006-003	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
23010006-003	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
23010006-003	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
23010006-003	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
23010006-003	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	05-Jan-23
23010006-003	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 25, 2022	29023	Ambient Air	25-Dec-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23010006 **REPORT CREATED:** 17-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010006-003	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
23010006-003	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
23010006-003	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
23010006-003	2-Methylpentane	I	0.03	ppbv	0.02	AC-058	05-Jan-23
23010006-003	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
23010006-003	3-Methylhexane	I	0.04	ppbv	0.02	AC-058	05-Jan-23
23010006-003	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
23010006-003	Acetone		13.7	ppbv	0.4	AC-058	05-Jan-23
23010006-003	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
23010006-003	Benzene	I	0.08	ppbv	0.03	AC-058	05-Jan-23
23010006-003	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
23010006-003	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
23010006-003	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
23010006-003	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
23010006-003	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
23010006-003	Carbon tetrachloride	I	0.06	ppbv	0.02	AC-058	05-Jan-23
23010006-003	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
23010006-003	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
23010006-003	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
23010006-003	Chloromethane		0.64	ppbv	0.04	AC-058	05-Jan-23
23010006-003	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
23010006-003	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
23010006-003	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
23010006-003	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
23010006-003	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jan-23

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 25, 2022	29023	Ambient Air	25-Dec-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23010006 **REPORT CREATED:** 17-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010006-003	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
23010006-003	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
23010006-003	Ethanol		6.3	ppbv	0.5	AC-058	05-Jan-23
23010006-003	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
23010006-003	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
23010006-003	Freon-11		0.22	ppbv	0.02	AC-058	05-Jan-23
23010006-003	Freon-113	I	0.06	ppbv	0.02	AC-058	05-Jan-23
23010006-003	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
23010006-003	Freon-12		0.40	ppbv	0.03	AC-058	05-Jan-23
23010006-003	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
23010006-003	Isobutane		0.27	ppbv	0.03	AC-058	05-Jan-23
23010006-003	Isopentane		1.46	ppbv	0.04	AC-058	05-Jan-23
23010006-003	Isoprene		0.17	ppbv	0.02	AC-058	05-Jan-23
23010006-003	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
23010006-003	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jan-23
23010006-003	m,p-Xylene	I	0.07	ppbv	0.04	AC-058	05-Jan-23
23010006-003	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
23010006-003	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
23010006-003	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Jan-23
23010006-003	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
23010006-003	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
23010006-003	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	05-Jan-23
23010006-003	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
23010006-003	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
23010006-003	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	05-Jan-23

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 25, 2022	29023	Ambient Air	25-Dec-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23010006 **REPORT CREATED:** 17-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010006-003	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
23010006-003	n-Butane		1.01	ppbv	0.02	AC-058	05-Jan-23
23010006-003	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Jan-23
23010006-003	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
23010006-003	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jan-23
23010006-003	n-Hexane	I	0.04	ppbv	0.03	AC-058	05-Jan-23
23010006-003	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
23010006-003	n-Pentane		0.21	ppbv	0.04	AC-058	05-Jan-23
23010006-003	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Jan-23
23010006-003	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	05-Jan-23
23010006-003	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
23010006-003	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jan-23
23010006-003	o-Ethyltoluene	I	0.09	ppbv	0.02	AC-058	05-Jan-23
23010006-003	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
23010006-003	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
23010006-003	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jan-23
23010006-003	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jan-23
23010006-003	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
23010006-003	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
23010006-003	Toluene	I	0.10	ppbv	0.03	AC-058	05-Jan-23
23010006-003	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Jan-23
23010006-003	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
23010006-003	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-23
23010006-003	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23
23010006-003	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 25, 2022	29023	Ambient Air	25-Dec-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23010006 **REPORT CREATED:** 17-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010006-003	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-23
23010006-003	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: January 17, 2023

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Revision History

Order ID	Ver	Date	Reason
23010006	01	17-Jan-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: 23010041-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Dec 31, 2022

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Bureau Veritas

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

Client:	LICA	**Sampler S/N:**	6200
Location:	Cold Lake South	**Canister ID:**	32258
Station ID:	LICA 01	**Installation Date/Time (mst):**	Dec 28, 2022 @ 10:57
Sample ID:	LICA/VOC/CLS/Dec 31, 2022	**Removal Date/Time (mst):**	Jan 04, 2023 @ 19:18

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
December 31, 2022	0:00	23:59	24

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

Flow Settings		
Flow Reading (sccm)	Pot Set Point	Pump Set (psi)
10.00	4.98	24.0

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: 23010041-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Dec 31, 2022

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TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	P13-01
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Dec 28, 2022 @ 10:59
Field Sample ID:	LICA/PUF/CLS/Dec 31, 2022	**Removal Date/Time:**	Jan 04, 2023 @ 19:20

Sample Data Collection Information

Sample Date:	31-Dec-22	**Average Pressure (mmHg)**	705
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	-10.6
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: 32258

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: OCT 13 2022

Evacuated: NOV 08 2022 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Dec 31, 202

Sampled By: Alex Yakupov

Starting Vacuum: -27.1 "Hg

End Pressure: KG +19.4 "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/Dec 31, 2022

Sampled By: Alex Yakupov

Starting Vacuum: _____ "Hg

End Vacuum: _____ "Hg/psig

Sample ID: 23010041-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Dec 31, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID: LICA/PUF/CLS/Dec 31, 2022
Matrix: Air Filter
CANISTER ID: P13-01
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 31-Dec-22 0:00
DATE RECEIVED: 06-Jan-23
REPORT CREATED: 18-Jan-23
REPORT NUMBER: 23010041
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010041-002	1-Methylnaphthalene		0.42	ug/Filter	0.01	AC-066	11-Jan-23
23010041-002	2-Methylnaphthalene		0.55	ug/Filter	0.01	AC-066	11-Jan-23
23010041-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
23010041-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
23010041-002	Acenaphthene		0.06	ug/Filter	0.01	AC-066	11-Jan-23
23010041-002	Acenaphthylene		0.07	ug/Filter	0.01	AC-066	11-Jan-23
23010041-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
23010041-002	Anthracene		0.24	ug/Filter	0.01	AC-066	11-Jan-23
23010041-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
23010041-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
23010041-002	Benzo(b,j,k)fluoranthene		0.04	ug/Filter	0.01	AC-066	11-Jan-23
23010041-002	Benzo(c)phenanthrene		0.05	ug/Filter	0.01	AC-066	11-Jan-23
23010041-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
23010041-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
23010041-002	Chrysene		0.01	ug/Filter	0.01	AC-066	11-Jan-23
23010041-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
23010041-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: January 18, 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-202212

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Dec 31, 2022	P13-01	Air Filter	31-Dec-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23010041 **REPORT CREATED:** 18-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010041-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
23010041-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
23010041-002	Fluoranthene		0.08	ug/Filter	0.01	AC-066	11-Jan-23
23010041-002	Fluorene		0.07	ug/Filter	0.01	AC-066	11-Jan-23
23010041-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
23010041-002	Naphthalene		0.66	ug/Filter	0.01	AC-066	11-Jan-23
23010041-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Jan-23
23010041-002	Phenanthrene		0.24	ug/Filter	0.01	AC-066	11-Jan-23
23010041-002	Pyrene		0.05	ug/Filter	0.01	AC-066	11-Jan-23
23010041-002	Retene		0.03	ug/Filter	0.01	AC-066	11-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: January 18, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 31, 2022	32258	Ambient Air	31-Dec-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23010041 **REPORT CREATED:** 18-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010041-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jan-23
23010041-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jan-23
23010041-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jan-23
23010041-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jan-23
23010041-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jan-23
23010041-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	11-Jan-23
23010041-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Jan-23
23010041-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010041-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jan-23
23010041-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010041-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010041-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010041-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010041-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010041-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	11-Jan-23
23010041-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	11-Jan-23
23010041-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	11-Jan-23
23010041-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	11-Jan-23
23010041-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	11-Jan-23
23010041-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010041-001	2,2,4-Trimethylpentane	I	0.05	ppbv	0.02	AC-058	11-Jan-23
23010041-001	2,2-Dimethylbutane	I	0.04	ppbv	0.02	AC-058	11-Jan-23
23010041-001	2,3,4-Trimethylpentane	I	0.02	ppbv	0.02	AC-058	11-Jan-23
23010041-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	11-Jan-23
23010041-001	2,3-Dimethylpentane	I	0.07	ppbv	0.02	AC-058	11-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 31, 2022	32258	Ambient Air	31-Dec-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23010041 **REPORT CREATED:** 18-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010041-001	2,4-Dimethylpentane	I	0.04	ppbv	0.03	AC-058	11-Jan-23
23010041-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jan-23
23010041-001	2-Methylhexane	I	0.09	ppbv	0.03	AC-058	11-Jan-23
23010041-001	2-Methylpentane		0.17	ppbv	0.02	AC-058	11-Jan-23
23010041-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010041-001	3-Methylhexane	I	0.09	ppbv	0.02	AC-058	11-Jan-23
23010041-001	3-Methylpentane		0.18	ppbv	0.02	AC-058	11-Jan-23
23010041-001	Acetone		1.1	ppbv	0.4	AC-058	11-Jan-23
23010041-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Jan-23
23010041-001	Benzene	I	0.19	ppbv	0.03	AC-058	11-Jan-23
23010041-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Jan-23
23010041-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010041-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jan-23
23010041-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jan-23
23010041-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jan-23
23010041-001	Carbon tetrachloride	I	0.08	ppbv	0.02	AC-058	11-Jan-23
23010041-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jan-23
23010041-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jan-23
23010041-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jan-23
23010041-001	Chloromethane		0.49	ppbv	0.04	AC-058	11-Jan-23
23010041-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jan-23
23010041-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010041-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010041-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jan-23
23010041-001	Cyclohexane		0.21	ppbv	0.04	AC-058	11-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 31, 2022	32258	Ambient Air	31-Dec-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23010041 **REPORT CREATED:** 18-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010041-001	Cyclopentane	I	0.09	ppbv	0.02	AC-058	11-Jan-23
23010041-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jan-23
23010041-001	Ethanol		1.4	ppbv	0.5	AC-058	11-Jan-23
23010041-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Jan-23
23010041-001	Ethylbenzene	I	0.03	ppbv	0.03	AC-058	11-Jan-23
23010041-001	Freon-11		0.21	ppbv	0.02	AC-058	11-Jan-23
23010041-001	Freon-113	I	0.06	ppbv	0.02	AC-058	11-Jan-23
23010041-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010041-001	Freon-12		0.50	ppbv	0.03	AC-058	11-Jan-23
23010041-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Jan-23
23010041-001	Isobutane		2.02	ppbv	0.03	AC-058	11-Jan-23
23010041-001	Isopentane		1.18	ppbv	0.04	AC-058	11-Jan-23
23010041-001	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jan-23
23010041-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Jan-23
23010041-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	11-Jan-23
23010041-001	m,p-Xylene	I	0.07	ppbv	0.04	AC-058	11-Jan-23
23010041-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jan-23
23010041-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010041-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	11-Jan-23
23010041-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Jan-23
23010041-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Jan-23
23010041-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	11-Jan-23
23010041-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010041-001	Methylcyclohexane		0.29	ppbv	0.02	AC-058	11-Jan-23
23010041-001	Methylcyclopentane		0.25	ppbv	0.05	AC-058	11-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 31, 2022	32258	Ambient Air	31-Dec-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23010041 **REPORT CREATED:** 18-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010041-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Jan-23
23010041-001	n-Butane		3.16	ppbv	0.02	AC-058	11-Jan-23
23010041-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	11-Jan-23
23010041-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Jan-23
23010041-001	n-Heptane	I	0.12	ppbv	0.04	AC-058	11-Jan-23
23010041-001	n-Hexane		0.35	ppbv	0.03	AC-058	11-Jan-23
23010041-001	n-Octane	I	0.05	ppbv	0.02	AC-058	11-Jan-23
23010041-001	n-Pentane		1.01	ppbv	0.04	AC-058	11-Jan-23
23010041-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	11-Jan-23
23010041-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	11-Jan-23
23010041-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Jan-23
23010041-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	11-Jan-23
23010041-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jan-23
23010041-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010041-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jan-23
23010041-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	11-Jan-23
23010041-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	11-Jan-23
23010041-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jan-23
23010041-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Jan-23
23010041-001	Toluene	I	0.17	ppbv	0.03	AC-058	11-Jan-23
23010041-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	11-Jan-23
23010041-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jan-23
23010041-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jan-23
23010041-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jan-23
23010041-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 31, 2022	32258	Ambient Air	31-Dec-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23010041 **REPORT CREATED:** 18-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010041-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Jan-23
23010041-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: January 18, 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-202212

Revision History

Order ID	Ver	Date	Reason
23010041	01	18-Jan-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

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 Samples

Sample ID: 22120043-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9697001

RECEIVED
DEC 07 2022

I 2000i-D Sample Data Sheet

Date Sampled:	1-Dec-22
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 #:	C9697001	C9697002
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	-20	
Pressure	711	
Std Volume (Instrument)	24	2.67

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date): Alex Yakupov Date: 29-Nov-22

Removed by (Sign/Date) Alex Yakupov Date: 5-Dec-22

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: 22120043-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9697002

Filter Shipping Record

RECEIVED
DEC 07 2022

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: Sept 16/22

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	C9697001 → C9697002

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID: C9697001
Matrix: Air Filter
CANISTER ID:
PRIORITY: Normal
DESCRIPTION: Cold Lake South - Fine - PM 2.5
DATE SAMPLED: 01-Dec-22 0:00
DATE RECEIVED: 07-Dec-22
REPORT CREATED: 20-Dec-22
REPORT NUMBER: 22120043
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22120043-001	Particulate Weight		0.019	mg	0.004	AC-029	09-Dec-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: December 20, 2022

Inquiries: (780) 632 8455 E-mail: EAS.Results@innotechalberta.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
C9697002		Air Filter	01-Dec-22 0:00

DESCRIPTION: Cold Lake South - Coarse - PM 10

REPORT NUMBER: 22120043 **REPORT CREATED:** 20-Dec-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22120043-002	Particulate Weight	K, T, U	< 0.004	mg	0.004	AC-029	09-Dec-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: December 20, 2022

Inquiries: (780) 632 8455 E-mail: EAS.Results@innotechalberta.ca

Revision History

Order ID	Ver	Date	Reason
22120043	01	20-Dec-22	Report created

Methods

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

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

Qualifiers

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

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

Order Comments

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

Sample Comments

Result Comments

Note:

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

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

Sample ID: 22120180-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9697005

l 2000i-D Sample Data Sheet

RECEIVED
DEC 20 2022

Date Sampled:	7-Dec-22
Location:	Cold Lake South
Parameter:	PM 2.5 / PM 10
Start Time	0:00
End Time	23:59
Valid Time	24 hours
Total Time	24 hours
Status	Done

	FINE (1) 1	COURSE (2) 2
Filter Type:	47mm	47mm
Filter #:	C9697005	C9697006
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	-18	
Pressure	711	
Std Volume (Instrument)	23.7	2.63

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date): Alex Yakupov Date: 5-Dec-22

Removed by (Sign/Date) Alex Yakupov Date: 9-Dec-22

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: 22120180-003 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C1162118

2000i-D Sample Data Sheet

RECEIVED
DEC 20 2022

Date Sampled:	13-Dec-22
Location:	Cold Lake South
Parameter:	PM 2.5 / PM 10
Start Time	0:00
End Time	23:59
Valid Time	24 hours
Total Time	24 hours
Status	Done

	FINE (1) 3	COURSE (2) 4
Filter Type:	47mm	47mm
Filter #:	C1162118	C1162119
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	-12	
Pressure	715	
Std Volume (Instrument)	23.3	2.6

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date): Alex Yakupov Date: 9-Dec-22

Removed by (Sign/Date) Alex Yakupov Date: 18-Dec-22

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: 22120180-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9697006

RECEIVED
DEC 20 2022

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: Sept 16/22

Project: LICA/Bureau Veritas Labs

Prepared by: S Mulenka

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	C9697005 → C9697006

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

Sample ID: 22120180-004 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C1162119

RECEIVED
DEC 20 2022

Filter Shipping Record

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

Date: August 16/22

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	C1162118 → C1162119

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
C1162118	Air Filter

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

DATE SAMPLED: 13-Dec-22 0:00
DATE RECEIVED: 20-Dec-22
REPORT CREATED: 06-Jan-23
REPORT NUMBER: 22120180
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22120180-003	Particulate Weight		0.134	mg	0.004	AC-029	22-Dec-22

Report certified by: Graham Knox, Admin. & Ops. Supervisor On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: January 6, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202212

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
C1162119		Air Filter	13-Dec-22 0:00

DESCRIPTION: Cold Lake South - Coarse - PM 10

REPORT NUMBER: 22120180 **REPORT CREATED:** 06-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22120180-004	Particulate Weight	K, T, U	< 0.004	mg	0.004	AC-029	22-Dec-22

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

Date: January 6, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202212

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
C9697005		Air Filter	07-Dec-22 0:00

DESCRIPTION: Cold Lake South - Fine - PM 2.5

REPORT NUMBER: 22120180 **REPORT CREATED:** 06-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22120180-001	Particulate Weight		0.104	mg	0.004	AC-029	22-Dec-22

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

Date: January 6, 2023

Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.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
C9697006		Air Filter	07-Dec-22 0:00

DESCRIPTION: Cold Lake South - Coarse - PM 10

REPORT NUMBER: 22120180 **REPORT CREATED:** 06-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22120180-002	Particulate Weight		0.019	mg	0.004	AC-029	22-Dec-22

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

Date: January 6, 2023

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

Revision History

Order ID	Ver	Date	Reason
22120180	01	06-Jan-23	Report created

Methods

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

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

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

Qualifiers

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

Order Comments

Sample Comments

Result Comments

Note:

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

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

Sample ID: 23010005-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9697007

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›l 2000i-D Sample Data Sheet

Date Sampled:	19-Dec-22
Location:	Cold Lake South
Parameter:	PM 2.5 / PM 10
Start Time	0:00
End Time	23:59
Valid Time	24 hours
Total Time	24 hours
Status	Done

	FINE (1) 1	COURSE (2) 2
Filter Type:	47mm	47mm
Filter #:	C9697007	C9697008
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	-22	
Pressure	727	
Std Volume (Instrument)	24.7	2.75

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date): Alex Yakupov Date: 18-Dec-22

Removed by (Sign/Date) Alex Yakupov Date: 23-Dec-22

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: 23010005-003 Priority: Normal

Customer ID: LICA
Cust Samp ID: C9694349

RECEIVED
JAN 03 2023

ol 2000i-D Sample Data Sheet

Date Sampled:	25-Dec-22
Location:	Cold Lake South
Parameter:	PM 2.5 / PM 10
Start Time	0:00
End Time	23:59
Valid Time	24 hours
Total Time	24 hours
Status	Done

	FINE (1) 3	COURSE (2) 4
Filter Type:	47mm	47mm
Filter #:	C9694349	C9694350
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	-14	
Pressure	713	
Std Volume (Instrument)	23.6	2.64

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date):	Alex Yakupov	Date:	23-Dec-22
Removed by (Sign/Date)	Alex Yakupov	Date:	28-Dec-22

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: 23010005-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9697008

RECEIVED
JAN 03 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: Sept 16/22

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	C9697007 → C9697008

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

Sample ID: 23010005-004 Priority: Normal

Customer ID: LICA
Cust Samp ID: C9694350

RECEIVED
JAN 03 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: November 7/22

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	C9694349 → C9694350

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
C9694349	Air Filter

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

DATE SAMPLED: 25-Dec-22 0:00
DATE RECEIVED: 03-Jan-23
REPORT CREATED: 12-Jan-23
REPORT NUMBER: 23010005
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010005-003	Particulate Weight	K, T, U	< 0.004	mg	0.004	AC-029	05-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: January 12, 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-202212

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
C9694350		Air Filter	25-Dec-22 0:00

DESCRIPTION: Cold Lake South - Coarse - PM 10

REPORT NUMBER: 23010005 **REPORT CREATED:** 12-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010005-004	Particulate Weight	K, T, U	< 0.004	mg	0.004	AC-029	05-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: January 12, 2023

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
C9697007		Air Filter	19-Dec-22 0:00

DESCRIPTION: Cold Lake South - Fine - PM 2.5

REPORT NUMBER: 23010005 **REPORT CREATED:** 12-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010005-001	Particulate Weight		0.048	mg	0.004	AC-029	05-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: January 12, 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-202212

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
C9697008		Air Filter	19-Dec-22 0:00

DESCRIPTION: Cold Lake South - Coarse - PM 10

REPORT NUMBER: 23010005 **REPORT CREATED:** 12-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010005-002	Particulate Weight	K, T, U	< 0.004	mg	0.004	AC-029	05-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: January 12, 2023

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

Revision History

Order ID	Ver	Date	Reason
23010005	01	12-Jan-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.

Sample ID: 23010040-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9694335

2000i-D Sample Data Sheet

RECEIVED
JAN 06 2023

Date Sampled:	31-Dec-22
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 #:	C9694335	C9694336
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	-11	
Pressure	705	
Std Volume (Instrument)	23	2.56

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date):	Alex Yakupov	Date:	28-Dec-22
Removed by (Sign/Date)	Alex Yakupov	Date:	4-Jan-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: 23010040-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9694336

RECEIVED
JAN 06 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: November 7/22

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	C9694335 → C9694336

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
C9694335	Air Filter

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

DATE SAMPLED: 31-Dec-22 0:00
DATE RECEIVED: 06-Jan-23
REPORT CREATED: 23-Jan-23
REPORT NUMBER: 23010040
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010040-001	Particulate Weight		0.202	mg	0.004	AC-029	10-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: January 23, 2023

Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.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
C9694336		Air Filter	31-Dec-22 0:00

DESCRIPTION: Cold Lake South - Coarse - PM 10

REPORT NUMBER: 23010040 **REPORT CREATED:** 23-Jan-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23010040-002	Particulate Weight		0.009	mg	0.004	AC-029	10-Jan-23

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: January 23, 2023

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

Revision History

Order ID	Ver	Date	Reason
23010040	01	23-Jan-23	Report created

Methods

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

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

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N	Non-target analyte; Tentatively identified compound (using mass spectroscopy)
Q	Sample held beyond the accepted holding time
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T	Value reported is less than the laboratory method detection limit
U	Compound was analyzed for but not detected
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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.

Passive Samples

Passive Sampler Field Sheet for LICA, Dec 2022 sample period

ID	SAMPLER						START		END		NOTES
							DATE	TIME	DATE	TIME	
3	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Nov 30	19:30	Dec 29	19:35	
4	---	SO_2	NO_2	O_3	HNO3	NH3	Dec 1	13:06	Dec 30	14:25	
5	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Dec 1	14:11	Dec 30	15:24	
6	---	SO_2	NO_2	O_3	HNO3	NH3	Dec 1	15:40	Dec 30	17:23	
8	---	SO_2	NO_2	O_3	HNO3	NH3	Dec 1	12:01	Dec 30	18:20	
9	---	SO_2	NO_2	O_3	HNO3	NH3	Dec 1	10:35	Jan 3	21:38	
10	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Dec 3	15:45	Jan 3	20:40	
11	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Dec 3	14:07	Jan 3	20:00	
12	H2S	SO2	NO2	O3	HNO3	NH3	Dec 3	15:15	Jan 3	18:41	
13	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Nov 30	15:53	Dec 29	15:25	
14	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Nov 30	14:32	Dec 29	13:40	water isotope sample taken
15	---	SO_2	NO_2	O_3	HNO3	NH3	Dec 1	09:24	Dec 30	10:44	
16	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Dec 1	19:25	Jan 3	11:25	
17	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Dec 1	17:32	Dec 30	19:50	
18	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Dec 1	18:16	Dec 30	13:02	
19	---	SO_2	NO_2	O_3	HNO3	NH3	Dec 1	20:05	Jan 3	10:15	
22	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Nov 30	10:54	Dec 29	09:35	
23	---	SO_2	NO_2	O_3	HNO3	NH3	Nov 30	12:35	Dec 29	11:34	
24	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Dec 1	14:50	Dec 30	16:25	
25	H2S	SO2	---	---							
26	H_2S	SO_2	---	---	HNO3	NH3	Nov 30	15:15	Dec 26	14:14	
27	H_2S	SO_2	---	---	HNO3	NH3	Nov 30	14:00	Dec 29	12:58	
28	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Dec 1	11:09	Dec 29	21:05	
29	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Nov 30	11:27	Dec 29	09:54	
32	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Nov 30	18:34	Dec 29	17:55	
42	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Dec 2	11:24	Jan 3	15:50	
							DUPLICATES				
3	---	---	NO_2	O_3	---	---	Nov 30	19:30	Dec 29	19:35	
4	---	---	NO_2	O_3	---	---	Dec 1	13:06	Dec 30	14:25	
16	---	SO2	---	---	HNO3	NH3	Dec 1	19:25	Jan 3	11:28	
17	---	SO2	---	---	HNO3	NH3	Dec 1	17:32	Dec 30	19:50	
18	---	SO2	---	---	---	---	Dec 1	18:16	Dec 30	13:02	
22	H2S	---	---	---	---	---	Nov 30	10:54	Dec 29	09:35	
24	H_2S	---	---	---	---	---	Dec 1	14:50	Dec 30	16:25	

Your Project #: DECEMBER 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: 2023/01/19
Report #: R3290187
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C301190
Received: 2023/01/06, 07:30

Sample Matrix: Air
Samples Received: 62

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
H2S Passive Analysis	20	2023/01/13	2023/01/18	PTC SOP-00150	Passive H2S in ATM
HNO3 by Passive Sampler	30	2023/01/10	2023/01/17	PTC SOP-00288	Passive HNO3 in ATM
NH3 by Passive Sampler	19	2023/01/13	2023/01/17	PTC SOP-00157	ASTM D6919
NH3 by Passive Sampler	1	2023/01/13	2023/01/18	PTC SOP-00157	ASTM D6919
NH3 by Passive Sampler	10	2023/01/16	2023/01/18	PTC SOP-00157	ASTM D6919
NO2 Passive Analysis	25	2023/01/09	2023/01/18	PTC SOP-00148	Passive NO2 in ATM
O3 Passive Analysis	25	2023/01/11	2023/01/18	PTC SOP-00197	EPA 300 R2.1
SO2 Passive Analysis	28	2023/01/09	2023/01/18	PTC SOP-00149	Passive SO2 in ATM

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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
19 Jan 2023 12:02:43

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

Bureau Veritas Job #: C301190
Report Date: 2023/01/19

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BJY341			BJY342			BJY343		
Sampling Date		2022/11/30 19:30			2022/12/01 13:06			2022/12/01 14:11		
	UNITS	3	RDL	QC Batch	4	RDL	QC Batch	5	RDL	QC Batch
Passive Monitoring										
Calculated H2S	ppb	0.20	0.02	A852511				0.29	0.02	A852511
Calculated NO2	ppb	2.6	0.1	A848977	2.1	0.1	A848977	2.6	0.1	A848977
Calculated O3	ppb	32.9	0.1	A851161	33.8	0.1	A851161	29.4	0.1	A851161
Calculated SO2	ppb	0.6	0.1	A848910	0.9	0.1	A848910	0.9	0.1	A848910
RDL = Reportable Detection Limit										

Bureau Veritas ID		BJY344	BJY345	BJY346			BJY347	BJY348	BJY349		
Sampling Date		2022/12/01 15:40	2022/12/01 12:01	2022/12/01 10:35			2022/12/03 15:45	2022/12/03 14:07	2022/12/03 15:15		
	UNITS	6	8	9	RDL	QC Batch	10	11	12	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb						0.23	0.24	0.19	0.02	A852511
Calculated NO2	ppb	4.5	1.7	3.9	0.1	A848977	6.1	2.2	1.5	0.1	A848977
Calculated O3	ppb	30.1	31.8	28.4	0.1	A851161	27.8	24.5	27.4	0.1	A851161
Calculated SO2	ppb	1.1	0.7	0.6	0.1	A848910	0.9	0.9	0.7	0.1	A848910
RDL = Reportable Detection Limit											

Bureau Veritas ID		BJY350		BJY351			BJY352			BJY353		
Sampling Date		2022/11/30 15:53		2022/11/30 14:32			2022/12/01 09:24			2022/12/01 19:25		
	UNITS	13	QC Batch	14	RDL	QC Batch	15	RDL	QC Batch	16	RDL	QC Batch
Passive Monitoring												
Calculated H2S	ppb	0.10	A852511	0.25	0.02	A852513				0.23	0.02	A852513
Calculated NO2	ppb	1.1	A848977	2.9	0.1	A848977	3.3	0.1	A848977	3.2	0.1	A848977
Calculated O3	ppb	25.3	A851161	28.2	0.1	A851161	33.4	0.1	A851161	24.9	0.1	A851161
Calculated SO2	ppb	0.5	A848910	1.4	0.1	A848910	0.4	0.1	A848910	0.7	0.1	A848910
RDL = Reportable Detection Limit												

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

Bureau Veritas Job #: C301190
Report Date: 2023/01/19

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BJY354	BJY355			BJY356			BJY357		
Sampling Date		2022/12/01 17:32	2022/12/01 18:16			2022/12/01 20:05			2022/11/30 10:54		
	UNITS	17	18	RDL	QC Batch	19	RDL	QC Batch	22	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb	0.27	0.20	0.02	A852513				0.19	0.02	A852513
Calculated NO2	ppb	2.3	2.7	0.1	A848977	2.5	0.1	A848977	3.3	0.1	A848977
Calculated O3	ppb	39.0	33.3	0.1	A851164	32.2	0.1	A851164	34.9	0.1	A851164
Calculated SO2	ppb	1.5	0.7	0.1	A848910	0.7	0.1	A848913	0.4	0.1	A848913
RDL = Reportable Detection Limit											

Bureau Veritas ID		BJY358			BJY359			BJY360	BJY361		
Sampling Date		2022/11/30 12:35			2022/12/01 14:50			2022/11/30 15:15	2022/11/30 14:00		
	UNITS	23	RDL	QC Batch	24	RDL	QC Batch	26	27	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb				0.23	0.02	A852513	0.27	0.32	0.02	A852513
Calculated NO2	ppb	0.8	0.1	A848977	4.1	0.1	A848977				
Calculated O3	ppb	25.8	0.1	A851164	31.9	0.1	A851164				
Calculated SO2	ppb	0.5	0.1	A848913	0.9	0.1	A848913	0.8	1.1	0.1	A848913
RDL = Reportable Detection Limit											

Bureau Veritas ID		BJY362		BJY363	BJY364	BJY365			BJY369		
Sampling Date		2022/12/01 14:09		2022/11/30 11:21	2022/11/30 18:34	2022/12/02 11:24			2022/12/01 19:25		
	UNITS	28	QC Batch	29	32	42	RDL	QC Batch	16 DUP	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb	0.21	A852513	0.22	0.22	0.21	0.02	A852513			
Calculated NO2	ppb	6.7	A848977	3.9	1.8	4.3	0.1	A848979			
Calculated O3	ppb	25.7	A851164	28.4	33.5	26.9	0.1	A851164			
Calculated SO2	ppb	0.6	A848913	0.4	0.7	0.6	0.1	A848913	0.7	0.1	A848913
RDL = Reportable Detection Limit											

Bureau Veritas Job #: C301190
Report Date: 2023/01/19

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BJY370	BJY371			BJY372	BJY373			BJY374		
Sampling Date		2022/12/01 17:32	2022/12/01 18:16			2022/11/30 19:30	2022/12/01 13:06			2022/11/30 10:54		
	UNITS	17 DUP	18 DUP	RDL	QC Batch	3 DUP	4 DUP	RDL	QC Batch	22 DUP	RDL	QC Batch
Passive Monitoring												
Calculated H2S	ppb									0.21	0.02	A852513
Calculated NO2	ppb					2.6	2.1	0.1	A848979			
Calculated O3	ppb					34.2	30.3	0.1	A851164			
Calculated SO2	ppb	1.2	0.7	0.1	A848913							
RDL = Reportable Detection Limit												

Bureau Veritas ID		BJY375			BJY376	BJY378	BJY380	BJY382		
Sampling Date		2022/12/01 14:50			2022/11/30 19:30	2022/12/01 13:06	2022/12/01 14:11	2022/12/01 15:40		
	UNITS	24 DUP	RDL	QC Batch	3-NH3 HNO3	4-NH3 HNO3	5-NH3 HNO3	6-NH3 HNO3	RDL	QC Batch
Passive Monitoring										
Ammonia by Passive Sampler	ppb				0.8	1.2	0.9	1.1	0.1	A852712
Calculated H2S	ppb	0.27	0.02	A852513						
HNO3 by Passive Sampler	ug/m3				0.92	0.62	0.98	0.51	0.04	A850236
RDL = Reportable Detection Limit										

Bureau Veritas ID		BJY384	BJY386	BJY388	BJY390	BJY392	BJY394		
Sampling Date		2022/12/01 12:01	2022/12/01 10:35	2022/12/03 15:45	2022/12/03 14:07	2022/12/03 15:15	2022/11/30 15:53		
	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	0.3	0.2	1.4	0.4	0.5	0.9	0.1	A852712
HNO3 by Passive Sampler	ug/m3	1.01	0.89	0.91	2.06	0.65	0.74	0.04	A850236
RDL = Reportable Detection Limit									

Bureau Veritas ID		BJY396	BJY398	BJY400	BJY402	BJY404	BJY406		
Sampling Date		2022/11/30 14:32	2022/12/01 09:24	2022/12/01 19:25	2022/12/01 17:32	2022/12/01 18:16	2022/12/01 20:05		
	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	0.3	0.6	0.4	0.9	0.9	0.8	0.1	A852712
HNO3 by Passive Sampler	ug/m3	0.78	0.64	0.75	0.84	1.50	0.95	0.04	A850236
RDL = Reportable Detection Limit									

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BJY408	BJY410	BJY412		BJY414	BJY416		
Sampling Date		2022/11/30 10:54	2022/11/30 12:35	2022/12/01 14:50		2022/11/30 15:15	2022/11/30 14:00		
	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	0.6	0.4	0.7	A852712	0.9	0.7	0.1	A854331
HNO3 by Passive Sampler	ug/m3	0.81	0.76	1.24	A850237	1.16	0.72	0.04	A850237
RDL = Reportable Detection Limit									

Bureau Veritas ID		BJY418	BJY420	BJY422	BJY423	BJY424		
Sampling Date		2022/12/01 14:09	2022/11/30 11:21	2022/11/30 18:34	2022/12/02 11:24	2022/12/01 19:25		
	UNITS	28-NH3 HNO3	29-NH3 HNO3	32-NH3 HNO3	42-NH3 HNO3	16-NH3 HNO3 DUP	RDL	QC Batch
Passive Monitoring								
Ammonia by Passive Sampler	ppb	1.4	1.0	0.6	1.3	1.6	0.1	A854331
HNO3 by Passive Sampler	ug/m3	1.10	1.16	3.71	1.22	1.87	0.04	A850237
RDL = Reportable Detection Limit								

Bureau Veritas ID		BJY425	BJY426	BJY428	BJY430		
Sampling Date		2022/12/01 17:32					
	UNITS	17-NH3 HNO3 DUP	BLANK 1-NH3 HNO3	BLANK 2-NH3 HNO3	BLANK 3-NH3 HNO3	RDL	QC Batch
Passive Monitoring							
Ammonia by Passive Sampler	ppb	1.0	0.4	0.4	0.4	0.1	A854331
HNO3 by Passive Sampler	ug/m3	0.81	0.72	0.56	0.60	0.04	A850237
RDL = Reportable Detection Limit							

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LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
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GENERAL COMMENTS

SO2 samples BJY354 (#17) and BJY358 (#23) were returned to the lab. with small perforation in filter membrane. - OZ 2023/01/12

Sample BJY426 [BLANK 1-NH3 HNO3] : Default exposure time(720 hrs) is used for calculation.

Sample BJY428 [BLANK 2-NH3 HNO3] : Default exposure time(720 hrs) is used for calculation.

Sample BJY430 [BLANK 3-NH3 HNO3] : Default exposure time(720 hrs) is used for calculation.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A848910	OZ	Spiked Blank	Calculated SO2			99	%	90 - 110
A848910	OZ	Method Blank	Calculated SO2		<0.1		ppb	
A848913	OZ	Spiked Blank	Calculated SO2			99	%	90 - 110
A848913	OZ	Method Blank	Calculated SO2		<0.1		ppb	
A848977	OZ	Spiked Blank	Calculated NO2			98	%	90 - 110
A848977	OZ	Method Blank	Calculated NO2		<0.1		ppb	
A848979	OZ	Spiked Blank	Calculated NO2			99	%	90 - 110
A848979	OZ	Method Blank	Calculated NO2		<0.1		ppb	
A850236	OZ	Method Blank	HNO3 by Passive Sampler		<0.04		ug/m3	
A850236	OZ	RPD [BJY376-01]	HNO3 by Passive Sampler	2023/01/17	NC		%	N/A
A850237	OZ	Method Blank	HNO3 by Passive Sampler		<0.04		ug/m3	
A850237	OZ	RPD [BJY408-01]	HNO3 by Passive Sampler	2023/01/17	NC		%	N/A
A851161	YL6	Spiked Blank	Calculated O3			100	%	90 - 110
A851161	YL6	Method Blank	Calculated O3		<0.1		ppb	
A851164	YL6	Spiked Blank	Calculated O3			99	%	90 - 110
A851164	YL6	Method Blank	Calculated O3		<0.1		ppb	
A852511	YYA	Spiked Blank	Calculated H2S			100	%	90 - 110
A852513	YYA	Spiked Blank	Calculated H2S			100	%	90 - 110
A852712	YL6	Spiked Blank	Ammonia by Passive Sampler			99	%	90 - 110
A852712	YL6	Method Blank	Ammonia by Passive Sampler		<0.1		ppb	
A852712	YL6	RPD [BJY376-01]	Ammonia by Passive Sampler	2023/01/17	NC		%	N/A
A854331	YL6	Spiked Blank	Ammonia by Passive Sampler			100	%	90 - 110
A854331	YL6	Method Blank	Ammonia by Passive Sampler		<0.1		ppb	
A854331	YL6	RPD [BJY414-01]	Ammonia by Passive Sampler	2023/01/18	NC		%	N/A

N/A = Not Applicable

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

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

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

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

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LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
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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