Lakeland Industry & Community Association

FEBRUARY 2023

Monthly Ambient Air Quality Monitoring Integrated Sampling Report

LICA-202302-INTEGRATED

March 17, 2023

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Table of Contents

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March 17, 2023

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

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

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

The representative of the Person Responsible for this monitoring program is

LICA Airshed
Michael Bisaga, Monitoring Programs Manager
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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 February 2023

Cold Lake South Station

- **Volatile Organic Compounds (VOCs)**
  - Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) where applicable.
  - The VOC sampler is programed to collect a 24-hour sample of air every sixth day as per the North American Pollution Surveillance schedule (NAPS).
  - The Xonteck VOC sampler, s/n: 6200, was found to be non-functional on February 16. The sampler was replaced by Xonteck VOC sampler, s/n: 6167, on the same day. A system verification was completed afterward.
  - Four samples were collected this month: on February 5, 11, 17 and 23.
- **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).
  - Four samples were collected this month: on February 5, 11, 17 and 23.
- **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).
- Four samples were collected this month: on February 5, 11, 17 and 23.

- **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 January 29 and January 31, and were removed between February 27 and March 1.
  - 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.
  - Two canisters were collected this month.

Station	Parameter	Date	Time	Concentration (ppm)
Lac La Biche	Non-methane HC	14-Feb	07:50	0.55
Lac La Biche	Non-methane HC	23-Feb	07:40	0.50

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 January/February monitoring period were installed between December 29, 2022 and January 3, 2023. They were removed between February 27 and March 1. The media for March/April sampling period were installed at the time the January/February media were removed.

Revisions to Alberta's Ambient Air Quality Data Warehouse

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

Deviations from Authorized Monitoring Methods

There were no deviations from authorized monitoring methods.

Certification

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

Lily Lin
Data & Reporting Specialist
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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
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monitoring@lica.ca

INTEGRATED SAMPLING RESULTS SUMMARY

COLD LAKE SOUTH STATION

- **VOCs analytical results**

Sample Date	2023-02-05	2023-02-11	2023-02-17	2023-02-23
Canister ID	28887	32215	28904	28881
Maximum Reading (ppbv)	2.17	1.2	1.2	0.7
Parameter	n-Butane	Acetone	Acetone	Acetone

- **PAHs analytical results**

Sample Date	2023-02-05		2023-02-11		2023-02-17		2023-02-23	
PUF S/N	A13-02		TE-01		TE-08		TE-07	
Volume (Vstd m^3)	330.39		330.40		330.40		330.42	
Maximum Reading	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3
	0.60	1.82	0.32	0.97	0.25	0.76	1.21	3.66
Parameter	Phenanthrene		Phenanthrene		Naphthalene		Naphthalene	

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

Sample Date	2023-02-05		2023-02-11		2023-02-17		2023-02-23	
Filter #	C9694251		C1165505		C9494261		C9694253	
Volume (Vstd m^3)	22.1		21.9		22.3		24.9	
Result	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)
Particulate Matter	0.100	0.005	<0.004	0.000	<0.004	0.000	0.025	0.001

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

Sample Date	2023-02-05		2023-02-11		2023-02-17		2023-02-23	
Filter #	C969452		C1165506		C9494262		C9694254	
Volume (Vstd m^3)	2.45		2.44		2.48		2.77	
Result	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)
Particulate Matter	<0.004	0.000	<0.004	0.000	<0.004	0.000	0.024	0.009

- **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	0.14	#12	0.6	#23	30.2	#23	0.5	#23	0.1	#24	0.22	#18
Maximum	0.31	#27	4.7	#10	44.1	#19	1.9	#27	1.3	#28	1.25	#8
Average	0.20	-	1.69	-	36.13	-	0.97	-	0.52	-	0.54	-

LAC LA BICHE STATION

- **NMHC canister sample analytical results**

Sample Date	2023-02-14	2023-02-23
Canister ID	32250	32206
Maximum Reading (ppbv)	1.7	2.8
Parameter	Ethanol	Ethanol

ANALYTICAL SAMPLING RESULTS

COLD LAKE SOUTH STATION

VOCS

Sample Date		2023-02-05	2023-02-11	2023-02-17	2023-02-23
Canister ID		28887	32215	28904	28881
Method		AC-058	AC-058	AC-058	AC-058
Maximum Reading (ppbv)		2.17	1.2	1.2	0.7
Parameter		n-Butane	Acetone	Acetone	Acetone

Parameter	AAAQOs (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
1,1,2,2-Tetrachloroethane		< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1,2-Trichloroethane		< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1-Dichloroethane		< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1-Dichloroethylene		< 0.02	< 0.02	< 0.02	< 0.02	0.04
1,2,3-Trimethylbenzene		< 0.05	< 0.05	< 0.05	< 0.05	0.05
1,2,4-Trichlorobenzene		< 0.3	< 0.3	< 0.3	< 0.3	0.8
1,2,4-Trimethylbenzene		< 0.03	< 0.03	< 0.03	< 0.03	0.05
1,2-Dibromoethane		< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,2-Dichlorobenzene		< 0.03	< 0.03	< 0.03	< 0.03	0.03
1,2-Dichloroethane		< 0.03	< 0.03	< 0.03	< 0.03	0.01
1,2-Dichloropropane		< 0.03	< 0.03	< 0.03	< 0.03	0.01
1,3,5-Trimethylbenzene		< 0.03	< 0.03	< 0.03	< 0.03	0.02
1,3-Butadiene		< 0.03	< 0.03	< 0.03	< 0.03	0.02
1,3-Dichlorobenzene		< 0.4	< 0.4	< 0.4	< 0.4	0.3
1,4-Dichlorobenzene		< 0.4	< 0.4	< 0.4	< 0.4	0.4
1,4-Dioxane		< 0.5	< 0.5	< 0.5	< 0.5	0.4
1-Butene		< 0.06	< 0.06	< 0.06	< 0.06	0.02
1-Hexene		< 0.07	< 0.07	< 0.07	< 0.07	0.02
1-Pentene		< 0.03	< 0.03	< 0.03	< 0.03	0.01
2,2,4-Trimethylpentane		0.05	< 0.02	< 0.02	< 0.02	0.01
2,2-Dimethylbutane		< 0.02	< 0.02	< 0.02	< 0.02	0.01
2,3,4-Trimethylpentane		< 0.02	< 0.02	< 0.02	< 0.02	0.01
2,3-Dimethylbutane		< 0.09	< 0.09	< 0.09	< 0.09	0.02
2,3-Dimethylpentane		0.07	< 0.02	0.03	0.03	0.02
2,4-Dimethylpentane		< 0.03	< 0.03	< 0.03	< 0.03	0.01
2-Methylheptane		< 0.02	< 0.02	< 0.02	< 0.02	0.01
2-Methylhexane		0.06	< 0.03	0.05	< 0.03	0.01
2-Methylpentane		0.12	0.02	0.03	0.03	0.01
3-Methylheptane		< 0.03	< 0.03	< 0.03	< 0.03	0.02
3-Methylhexane		0.07	< 0.02	0.05	< 0.02	0.02
3-Methylpentane		0.11	< 0.02	< 0.02	0.02	0.01
Acetone	2400	1.2	1.2	1.2	0.7	0.4
Acrolein	1.9	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Benzene	9.0	0.11	0.07	0.07	0.14	0.01
Benzyl chloride		< 0.3	< 0.3	< 0.3	< 0.3	0.4
Bromodichloromethane		< 0.03	< 0.03	< 0.03	< 0.03	0.02
Bromoform		< 0.02	< 0.02	< 0.02	< 0.02	0.02
Bromomethane		< 0.02	< 0.02	< 0.02	< 0.02	0.01
Carbon disulfide	10	0.08	< 0.02	< 0.02	< 0.02	0.01
Carbon tetrachloride		0.06	0.05	0.06	0.06	0.01
Chlorobenzene		< 0.02	< 0.02	< 0.02	< 0.02	0.02
Chloroethane		< 0.02	< 0.02	< 0.02	< 0.02	0.02
Chloroform		< 0.02	< 0.02	< 0.02	< 0.02	0.02
Chloromethane		0.65	0.66	0.74	0.61	0.02
cis-1,2-Dichloroethene		< 0.02	< 0.02	< 0.02	< 0.02	0.01
cis-1,3-Dichloropropene		< 0.03	< 0.03	< 0.03	< 0.03	0.04
cis-2-Butene		< 0.03	< 0.03	< 0.03	< 0.03	0.02
cis-2-Pentene		< 0.02	< 0.02	< 0.02	< 0.02	0.02
Cyclohexane		0.07	< 0.04	< 0.04	< 0.04	0.02
Cyclopentane		0.05	< 0.02	< 0.02	0.03	0.01
Dibromochloromethane		< 0.02	< 0.02	< 0.02	< 0.02	0.01
Ethanol		2	< 0.5	0.9	0.7	0.3
Ethyl acetate		< 0.3	< 0.3	< 0.3	< 0.3	0.4
Ethylbenzene	460	< 0.03	< 0.03	< 0.03	< 0.03	0.01
Freon-11		0.25	0.21	0.25	0.22	0.02
Freon-113		0.06	0.07	0.07	0.07	0.01
Freon-114		< 0.03	< 0.03	< 0.03	< 0.03	0.02

Cold Lake South Station - February 2023

Volatile Organic Compounds (VOCs) Results

Sample Date		2023-02-05	2023-02-11	2023-02-17	2023-02-23
Canister ID		28887	32215	28904	28881
Method		AC-058	AC-058	AC-058	AC-058
Maximum Reading (ppbv)		2.17	1.2	1.2	0.7
Parameter		n-Butane	Acetone	Acetone	Acetone

Parameter	AAAQOs (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	RDL (ppbv)
Freon-12		0.53	0.56	0.65	0.55	0.02
Hexachloro-1,3-butadiene		< 0.3	< 0.3	< 0.3	< 0.3	0.5
Isobutane		1.49	0.42	0.47	0.39	0.02
Isopentane		0.87	0.21	0.34	0.33	0.03
Isoprene		< 0.02	< 0.02	< 0.02	< 0.02	0.01
Isopropyl alcohol		< 0.3	< 0.3	< 0.3	< 0.3	0.4
Isopropylbenzene		< 0.04	< 0.04	< 0.04	< 0.04	0.01
m,p-Xylene		0.06	< 0.04	< 0.04	< 0.04	0.03
m-Diethylbenzene		< 0.02	< 0.02	< 0.02	< 0.02	0.04
m-Ethyltoluene		< 0.03	< 0.03	< 0.03	< 0.03	0.08
Methyl butyl ketone		< 0.4	< 0.4	< 0.4	< 0.4	0.5
Methyl ethyl ketone		< 0.3	< 0.3	< 0.3	< 0.3	0.3
Methyl isobutyl ketone		< 0.3	< 0.3	< 0.3	< 0.3	0.4
Methyl methacrylate		< 0.08	< 0.08	< 0.08	< 0.08	0.07
Methyl tert butyl ether		< 0.03	< 0.03	< 0.03	< 0.03	0.03
Methylcyclohexane		0.13	< 0.02	0.02	0.04	0.01
Methylcyclopentane		0.13	< 0.05	< 0.05	0.05	0.02
Methylene chloride		< 0.3	< 0.3	< 0.3	< 0.3	0.3
n-Butane		2.17	0.62	0.8	0.7	0.03
n-Decane		< 0.06	< 0.06	< 0.06	< 0.06	0.06
n-Dodecane		< 0.3	< 0.3	< 0.3	< 0.3	0.4
n-Heptane		0.07	< 0.04	< 0.04	< 0.04	0.01
n-Hexane	5960	0.18	< 0.03	< 0.03	< 0.03	0.01
n-Nonane		< 0.04	< 0.04	< 0.04	< 0.04	0.01
n-Octane		0.02	< 0.02	< 0.02	< 0.02	0.02
n-Pentane		0.59	0.13	0.23	0.19	0.1
n-Propylbenzene		< 0.06	< 0.06	< 0.06	< 0.06	0.05
n-Undecane		< 0.5	< 0.5	< 0.5	< 0.5	0.5
Naphthalene		< 0.3	< 0.3	< 0.3	< 0.3	0.5
o-Ethyltoluene		< 0.02	< 0.02	< 0.02	< 0.02	0.01
o-Xylene		< 0.03	< 0.03	< 0.03	< 0.03	0.01
p-Diethylbenzene		< 0.02	< 0.02	< 0.02	< 0.02	0.04
p-Ethyltoluene		< 0.04	< 0.04	< 0.04	< 0.04	0.07
Styrene	52.0	< 0.04	< 0.04	< 0.04	< 0.04	0.04
Tetrachloroethylene		0.04	< 0.02	< 0.02	< 0.02	0.04
Tetrahydrofuran		< 0.3	< 0.3	< 0.3	< 0.3	0.4
Toluene	499	0.14	< 0.03	< 0.03	0.04	0.01
trans-1,2-Dichloroethylene		< 0.06	< 0.06	< 0.06	< 0.06	0.01
trans-1,3-Dichloropropylene		< 0.02	< 0.02	< 0.02	< 0.02	0.04
trans-2-Butene		< 0.03	< 0.03	< 0.03	< 0.03	0.01
trans-2-Pentene		< 0.02	< 0.02	< 0.02	< 0.02	0.02
Trichloroethylene		< 0.02	< 0.02	< 0.02	< 0.02	0.04
Vinyl acetate		< 0.3	< 0.3	< 0.3	< 0.3	0.4
Vinyl chloride	51	< 0.02	< 0.02	< 0.02	< 0.02	0.02

PAHS

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - February 2023

Polycyclic Aromatic Hydrocarbons (PAHs) Results

Sample Date	2023-02-05		2023-02-11		2023-02-17		2023-02-23	
PUF S/N	A13-02		TE-01		TE-08		TE-07	
Volume (Vstd m^3)	330.39		330.40		330.40		330.42	
Method	AC-066		AC-066		AC-066		AC-066	
Maximum Reading	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3
	0.60	1.82	0.32	0.97	0.25	0.76	1.21	3.66
Parameter	Phenanthrene		Phenanthrene		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)	RDL (ug)
1-Methylnaphthalene	0.15	0.45	0.12	0.36	0.17	0.51	0.77	2.33	0.01
2-Methylnaphthalene	0.21	0.64	0.14	0.42	0.21	0.64	0.97	2.94	0.01
3-Methylcholanthrene	< 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	0.03	0.01
Acenaphthene	0.07	0.21	0.02	0.06	0.04	0.12	0.25	0.76	0.01
Acenaphthylene	0.04	0.12	< 0.01	0.00	0.02	0.06	0.08	0.24	0.01
Acridine	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Anthracene	0.08	0.24	< 0.01	0.00	< 0.01	0.00	0.01	0.03	0.01
Benzo(a)anthracene	0.03	0.09	0.02	0.06	0.02	0.06	0.10	0.30	0.01
Benzo(a)pyrene	0.02	0.06	< 0.01	0.00	< 0.01	0.00	0.11	0.33	0.01
Benzo(b,j,k)fluoranthene	0.07	0.21	0.03	0.09	0.02	0.06	0.28	0.85	0.01
Benzo(c)phenanthrene	0.02	0.06	< 0.01	0.00	< 0.01	0.00	0.04	0.12	0.01
Benzo(e)pyrene	0.03	0.09	0.02	0.06	0.02	0.06	0.08	0.24	0.01
Benzo(ghi)perylene	0.01	0.03	< 0.01	0.00	< 0.01	0.00	0.10	0.30	0.01
Chrysene	0.05	0.15	0.04	0.12	0.03	0.09	0.14	0.42	0.01
Dibenzo(a,h)pyrene	< 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
Dibenzo(a,l)pyrene	< 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	0.02	0.06	0.01
Fluoranthene	0.19	0.58	0.09	0.27	0.07	0.21	0.34	1.03	0.01
Fluorene	0.35	1.06	0.18	0.54	0.16	0.48	0.27	0.82	0.01
Indeno(1,2,3-cd)pyrene	0.03	0.09	0.02	0.06	0.02	0.06	0.12	0.36	0.01
Naphthalene	0.18	0.54	0.10	0.30	0.25	0.76	1.21	3.66	0.01
Perylene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01	0.03	0.01
Phenanthrene	0.60	1.82	0.32	0.97	0.23	0.70	0.53	1.60	0.01
Pyrene	0.15	0.45	0.06	0.18	0.04	0.12	0.24	0.73	0.01
Retene	0.22	0.67	0.06	0.18	0.02	0.06	0.14	0.42	0.01

PARTISOLS

AKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - February 2023

Partisol Results - $PM_{2.5}$

Sample Date		**2023-02-05**	**2023-02-11**	**2023-02-17**	**2023-02-23**
Filter #		**C9694251**	**C1165505**	**C9494261**	**C9694253**
Volume (Vstd m^3)		**22.1**	**21.9**	**22.3**	**24.9**
Method		**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)**	**RDL (mg)**
Particulate Matter	0.029	**0.100**	**0.005**	**<0.004**	**0.000**	**<0.004**	**0.000**	**0.025**	**0.001**	0.004

PM2.5 Mass in ug/m3	**4.525**	**0.183**	**0.179**	**1.004**
RDL in ug/m3	**0.181**	**0.183**	**0.179**	**0.161**

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - February 2023

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

Sample Date	**2023-02-05**	**2023-02-11**	**2023-02-17**	**2023-02-23**
Filter #	**C969452**	**C1165506**	**C9494262**	**C9694254**
Volume (Vstd m^3)	**2.45**	**2.44**	**2.48**	**2.77**
Method	**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)**	**RDL (mg)**
PM2.5-10 Mass	**<0.004**	**0.000**	**<0.004**	**0.000**	**<0.004**	**0.000**	**0.024**	**0.009**	0.004

PM2.5-10 Mass in ug/m3	**1.633**	**1.639**	**1.613**	**8.664**
RDL in ug/m3	**1.633**	**1.639**	**1.613**	**1.444**

PASSIVE SAMPLES

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

February 2023

Passive Results

		H_2S		NO_2		O_3		SO_2		NMH3		HNO3	
	Unit	**ppb**		**ppb**		**ppb**		**ppb**		**ppb**		**ug/m3**	
	Minimum (ppb)	0.14	#12	0.6	#23	30.2	#23	0.5	#23	0.1	#24	0.22	#18
	Maximum (ppb)	0.31	#27	4.7	#10	44.1	#19	1.9	#27	1.3	#28	1.25	#8
	Average (ppb)	0.20	-	1.69	-	36.13	-	0.97	-	0.52	-	0.54	-
No.	**Station**	**Sample**	**Duplicate**	**Sample**	**Duplicate**	**Sample**	**Duplicate**	**Sample**	**Duplicate**	**Sample**	**Duplicate**	**Sample**	**Duplicate**
3	Therien	0.19		1.2		39.2		0.9		1.2		0.73	
4	Flat Lake	-		1.2		39.5		0.8		0.6		0.42	
5	Lake Eliza	0.18		0.9		43.9		0.8		0.7		0.27	
6	Telegraph Creek	-		3.8		34.8		1.1		0.4		0.79	
8	Muriel-Kehewin	-		0.9	0.9	41.4	42.1	1.0		0.3		1.25	
9	Dupre	-		1.9	1.8	37.8	36.4	0.9		0.4		0.55	
10	La Corey	0.18		4.7		30.6		0.8		0.4		0.42	
11	Wolf Lake	0.15		1.2		32.3		1.3		0.5		0.50	
12	Foster Creek	0.14		0.8		34		1.3		0.3		0.45	
13	Primrose	0.14		0.9		31.7		0.8		0.2		0.29	
14	Tamarack	0.25		1.6		35.9		1.6		0.5		0.44	
15	Ardmore	-		1.5		34.4		0.8		0.4		0.68	
16	Frog Lake	0.15		1.3		32.9		0.8		0.4		0.72	
17	Clear Range	0.24		1.1		39.5		1.0		0.6		0.42	
18	Fishing Lake	0.16		0.9		34.4		0.8		0.3		0.22	
19	Beaverdam	-		0.8		44.1		0.9		1.1		0.24	
22	Cold Lake South (1)	0.25		1.6		34.5		0.8		0.2		0.71	
23	Medley-Martineau	-		0.6		30.2		0.5		0.2		0.70	
24	Fort George	0.21		1.7		36.3		0.8	0.8	0.1	0.4	0.64	0.52
25	Burnt Lake	Missing 1		-		-		Missing 1		-		-	
26	Mahihkan	0.26		-		-		1.0	1.0	0.4	0.2	0.65	0.54
27	Mahkeses	0.31		-		-		1.9	1.7	0.6		0.28	
28	Town of Bonnyville	0.25	0.25	4.4		38.2		0.9		1.3		0.65	
29	Cold Lake South (2)	0.26	0.23	2.0		33.5		0.7		0.6		0.50	
32	St. Lina	0.18		1.0		36.2		1.2		0.5		0.50	
42	Lac La Biche	0.17		2.8		35.8		0.8		0.9		0.47	
BLANK -1		-		-		-		-		0.9		0.24	
BLANK -2		-		-		-		-		1.0		0.30	
BLANK -3		-		-		-		-		0.3		<0.04	
Reportable Detection Limit (RDL)		**0.02**		**0.1**		**0.1**		**0.1**		**0.1**		**0.04**	

Note:

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

2 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.

LAC LA BICHE STATION

NMHC CANISTER SAMPLES

Sample Date/Time		2023-02-14	2023-02-23
Canister Triggered Conc.		0.55	0.5
Canister ID		32250	32206
Method		AC-058	AC-058
Maximum Reading		1.7	2.8
Parameter		Ethanol	Ethanol

Parameter	AAAQOs	Result (ppbv)	Result (ppbv)	RDL (ppbv)
1,1,1-Trichloroethane		< 0.03	< 0.03	0.02
1,1,2,2-Tetrachloroethane		< 0.03	< 0.03	0.02
1,1,2-Trichloroethane		< 0.03	< 0.03	0.02
1,1-Dichloroethane		< 0.03	< 0.03	0.02
1,1-Dichloroethylene		< 0.03	< 0.03	0.04
1,2,3-Trimethylbenzene		< 0.07	< 0.07	0.05
1,2,4-Trichlorobenzene		< 0.4	< 0.4	0.8
1,2,4-Trimethylbenzene		0.05	0.05	0.05
1,2-Dibromoethane		< 0.03	< 0.03	0.02
1,2-Dichlorobenzene		0.18	< 0.04	0.03
1,2-Dichloroethane		< 0.04	< 0.04	0.01
1,2-Dichloropropane		< 0.04	< 0.04	0.01
1,3,5-Trimethylbenzene		< 0.04	< 0.04	0.02
1,3-Butadiene		< 0.04	0.06	0.02
1,3-Dichlorobenzene		< 0.6	< 0.6	0.3
1,4-Dichlorobenzene		< 0.6	< 0.6	0.4
1,4-Dioxane		< 0.7	< 0.7	0.4
1-Butene		0.16	0.21	0.02
1-Hexene		< 0.10	< 0.10	0.02
1-Pentene		< 0.04	< 0.04	0.01
2,2,4-Trimethylpentane		0.03	0.08	0.01
2,2-Dimethylbutane		< 0.03	< 0.03	0.01
2,3,4-Trimethylpentane		< 0.03	< 0.03	0.01
2,3-Dimethylbutane		< 0.13	< 0.13	0.02
2,3-Dimethylpentane		0.04	0.12	0.02
2,4-Dimethylpentane		< 0.04	< 0.04	0.01
2-Methylheptane		< 0.03	0.04	0.01
2-Methylhexane		< 0.04	0.11	0.01
2-Methylpentane		0.05	0.11	0.01
3-Methylheptane		< 0.04	< 0.04	0.02
3-Methylhexane		0.04	0.11	0.02
3-Methylpentane		0.04	0.12	0.01
Acetone	2400	1.3	0.8	0.4
Acrolein	1.9	< 0.4	< 0.4	0.3
Benzene	9.0	0.24	0.3	0.01
Benzyl chloride		< 0.4	< 0.4	0.4
Bromodichloromethane		< 0.04	< 0.04	0.02
Bromoform		< 0.03	< 0.03	0.02
Bromomethane		< 0.03	< 0.03	0.01
Carbon disulfide	10	< 0.03	0.04	0.01
Carbon tetrachloride		0.05	0.05	0.01
Chlorobenzene		< 0.03	< 0.03	0.02
Chloroethane		< 0.03	< 0.03	0.02
Chloroform		< 0.03	< 0.03	0.02
Chloromethane		0.64	0.52	0.02
cis-1,2-Dichloroethene		< 0.03	< 0.03	0.01
cis-1,3-Dichloropropene		< 0.04	< 0.04	0.04
cis-2-Butene		< 0.04	< 0.04	0.02
cis-2-Pentene		< 0.03	< 0.03	0.02
Cyclohexane		< 0.06	< 0.06	0.02
Cyclopentane		< 0.03	< 0.03	0.01
Dibromochloromethane		< 0.03	< 0.03	0.01
Ethanol		1.7	2.8	0.3
Ethyl acetate		< 0.4	< 0.4	0.4
Ethylbenzene	460	< 0.04	0.06	0.01
Freon-11		0.2	0.2	0.02
Freon-113		0.06	0.06	0.01

Sample Date/Time		2023-02-14	2023-02-23
Canister Triggered Conc.		0.55	0.5
Canister ID		32250	32206
Method		AC-058	AC-058
Maximum Reading		1.7	2.8
Parameter		Ethanol	Ethanol

Parameter	AAAQOs	Result (ppbv)	Result (ppbv)	RDL (ppbv)
Freon-114		< 0.04	< 0.04	0.02
Freon-12		0.52	0.43	0.02
Hexachloro-1,3-butadiene		< 0.4	< 0.4	0.5
Isobutane		0.45	0.7	0.02
Isopentane		0.4	0.83	0.03
Isoprene		< 0.03	< 0.03	0.01
Isopropyl alcohol		< 0.4	< 0.4	0.4
Isopropylbenzene		< 0.06	< 0.06	0.01
m,p-Xylene		0.11	0.27	0.03
m-Diethylbenzene		< 0.03	< 0.03	0.04
m-Ethyltoluene		< 0.04	< 0.04	0.08
Methyl butyl ketone		< 0.6	< 0.6	0.5
Methyl ethyl ketone		< 0.4	< 0.4	0.3
Methyl isobutyl ketone		< 0.4	< 0.4	0.4
Methyl methacrylate		< 0.12	< 0.12	0.07
Methyl tert butyl ether		< 0.04	< 0.04	0.03
Methylcyclohexane		< 0.03	0.06	0.01
Methylcyclopentane		< 0.07	0.15	0.02
Methylene chloride		< 0.4	< 0.4	0.3
n-Butane		0.75	1.34	0.03
n-Decane		< 0.09	< 0.09	0.06
n-Dodecane		< 0.4	< 0.4	0.4
n-Heptane		< 0.06	< 0.06	0.01
n-Hexane	5960	< 0.04	0.09	0.01
n-Nonane		< 0.06	< 0.06	0.01
n-Octane		< 0.03	0.03	0.02
n-Pentane		0.15	0.38	0.1
n-Propylbenzene		< 0.09	< 0.09	0.05
n-Undecane		< 0.7	< 0.7	0.5
Naphthalene		< 0.4	< 0.4	0.5
o-Ethyltoluene		< 0.03	< 0.03	0.01
o-Xylene		0.06	0.09	0.01
p-Diethylbenzene		< 0.03	< 0.03	0.04
p-Ethyltoluene		< 0.06	< 0.06	0.07
Styrene	52.0	< 0.06	< 0.06	0.04
Tetrachloroethylene		< 0.03	< 0.03	0.04
Tetrahydrofuran		< 0.4	< 0.4	0.4
Toluene	499	0.16	0.27	0.01
trans-1,2-Dichloroethylene		< 0.09	< 0.09	0.01
trans-1,3-Dichloropropylene		< 0.03	< 0.03	0.04
trans-2-Butene		< 0.04	< 0.04	0.01
trans-2-Pentene		< 0.03	< 0.03	0.02
Trichloroethylene		< 0.03	< 0.03	0.04
Vinyl acetate		< 0.4	< 0.4	0.4
Vinyl chloride	51	< 0.03	< 0.03	0.02

End of Report

Lakeland Industry & Community Association

FEBRUARY 2023

Ambient Air Monitoring

Certified Laboratory Analysis Report

LAB-LICA-202302

Operation and Maintenance:
Bureau Veritas Canada

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

March 10, 2023

Table of Contents

Cold Lake South Station

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

Sample ID: 23020122-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Feb 05, 2023

RECEIVED
FEB 14 2023

Bureau Veritas

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

Client:	LICA	**Sampler S/N:**	6167
Location:	Cold Lake South	**Canister ID:**	28887
Station ID:	LICA 01	**Installation Date/Time (mst):**	Feb 2, 2023 @ 18:34
Sample ID:	LICA/VOC/CLS/Feb 05, 2023	**Removal Date/Time (mst):**	Feb 06, 2023 @ 19:08

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
February 5, 2023	0:00	23:59	24

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

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

Deployment/Collection and Maintenance Checklist

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

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 23020122-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Feb 05, 2023

RECEIVED
FEB 14 2023

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	A13-02
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Feb 02, 2023 @ 18:37
Field Sample ID:	LICA/PUF/CLS/Feb 05, 2023	**Removal Date/Time:**	Feb 06, 2023 @ 19:12

Sample Data Collection Information

Sample Date:	5-Feb-23	**Average Pressure (mmHg)**	699
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	-1.3
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.39

Sample Recovery Checklist

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

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

InnoTech ALBERTA

Canister ID: 28887.

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: NOV 21 2022

Evacuated: DEC 19 2022 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Feb 5, 202,

Sampled By: Alex Yakupov

Starting Vacuum: -27.1 "Hg

End Pressure: + 18.0 "Hg/ psig (17 kg)

InnoTech ALBERTA

Canister ID: A13-07

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/Feb 5, 2023

Sampled By: Alex Yakupov

Starting Vacuum: _____ "Hg

End Pressure: _____ "Hg/ psig

Sample ID: 23020122-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Feb 05, 2023

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID: LICA/PUF/CLS/Feb 05, 2023
Matrix: Air Filter
CANISTER ID: A13-02
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 05-Feb-23 0:00
DATE RECEIVED: 14-Feb-23
REPORT CREATED: 17-Mar-23
REPORT NUMBER: 23020122
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020122-002	1-Methylnaphthalene		0.15	ug/Filter	0.01	AC-066	14-Mar-23
23020122-002	2-Methylnaphthalene		0.21	ug/Filter	0.01	AC-066	14-Mar-23
23020122-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Mar-23
23020122-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Mar-23
23020122-002	Acenaphthene		0.07	ug/Filter	0.01	AC-066	14-Mar-23
23020122-002	Acenaphthylene		0.04	ug/Filter	0.01	AC-066	14-Mar-23
23020122-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Mar-23
23020122-002	Anthracene		0.08	ug/Filter	0.01	AC-066	14-Mar-23
23020122-002	Benzo(a)anthracene		0.03	ug/Filter	0.01	AC-066	14-Mar-23
23020122-002	Benzo(a)pyrene		0.02	ug/Filter	0.01	AC-066	14-Mar-23
23020122-002	Benzo(b,j,k)fluoranthene		0.07	ug/Filter	0.01	AC-066	14-Mar-23
23020122-002	Benzo(c)phenanthrene		0.02	ug/Filter	0.01	AC-066	14-Mar-23
23020122-002	Benzo(e)pyrene		0.03	ug/Filter	0.01	AC-066	14-Mar-23
23020122-002	Benzo(ghi)perylene		0.01	ug/Filter	0.01	AC-066	14-Mar-23
23020122-002	Chrysene		0.05	ug/Filter	0.01	AC-066	14-Mar-23
23020122-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Mar-23
23020122-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Mar-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: March 17, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Feb 05, 2023	A13-02	Air Filter	05-Feb-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23020122 **REPORT CREATED:** 17-Mar-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020122-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Mar-23
23020122-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Mar-23
23020122-002	Fluoranthene		0.19	ug/Filter	0.01	AC-066	14-Mar-23
23020122-002	Fluorene		0.35	ug/Filter	0.01	AC-066	14-Mar-23
23020122-002	Indeno(1,2,3-cd)pyrene		0.03	ug/Filter	0.01	AC-066	14-Mar-23
23020122-002	Naphthalene		0.18	ug/Filter	0.01	AC-066	14-Mar-23
23020122-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Mar-23
23020122-002	Phenanthrene		0.60	ug/Filter	0.01	AC-066	14-Mar-23
23020122-002	Pyrene		0.15	ug/Filter	0.01	AC-066	14-Mar-23
23020122-002	Retene		0.22	ug/Filter	0.01	AC-066	14-Mar-23

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

Date: March 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-202302

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Feb 05, 2023	28887	Ambient Air	05-Feb-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23020122 **REPORT CREATED:** 17-Mar-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020122-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Feb-23
23020122-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Feb-23
23020122-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Feb-23
23020122-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Feb-23
23020122-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Feb-23
23020122-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	14-Feb-23
23020122-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Feb-23
23020122-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Feb-23
23020122-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Feb-23
23020122-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Feb-23
23020122-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Feb-23
23020122-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Feb-23
23020122-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Feb-23
23020122-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Feb-23
23020122-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	14-Feb-23
23020122-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	14-Feb-23
23020122-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	14-Feb-23
23020122-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	14-Feb-23
23020122-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	14-Feb-23
23020122-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Feb-23
23020122-001	2,2,4-Trimethylpentane	I	0.05	ppbv	0.02	AC-058	14-Feb-23
23020122-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Feb-23
23020122-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Feb-23
23020122-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	14-Feb-23
23020122-001	2,3-Dimethylpentane	I	0.07	ppbv	0.02	AC-058	14-Feb-23

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

Date: March 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/VOC/CLS/Feb 05, 2023	28887	Ambient Air	05-Feb-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23020122 **REPORT CREATED:** 17-Mar-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020122-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Feb-23
23020122-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Feb-23
23020122-001	2-Methylhexane	I	0.06	ppbv	0.03	AC-058	14-Feb-23
23020122-001	2-Methylpentane		0.12	ppbv	0.02	AC-058	14-Feb-23
23020122-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Feb-23
23020122-001	3-Methylhexane	I	0.07	ppbv	0.02	AC-058	14-Feb-23
23020122-001	3-Methylpentane		0.11	ppbv	0.02	AC-058	14-Feb-23
23020122-001	Acetone		1.2	ppbv	0.4	AC-058	14-Feb-23
23020122-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Feb-23
23020122-001	Benzene	I	0.11	ppbv	0.03	AC-058	14-Feb-23
23020122-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Feb-23
23020122-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Feb-23
23020122-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Feb-23
23020122-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Feb-23
23020122-001	Carbon disulfide	I	0.08	ppbv	0.02	AC-058	14-Feb-23
23020122-001	Carbon tetrachloride	I	0.06	ppbv	0.02	AC-058	14-Feb-23
23020122-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Feb-23
23020122-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Feb-23
23020122-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Feb-23
23020122-001	Chloromethane		0.65	ppbv	0.04	AC-058	14-Feb-23
23020122-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Feb-23
23020122-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Feb-23
23020122-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Feb-23
23020122-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Feb-23
23020122-001	Cyclohexane	I	0.07	ppbv	0.04	AC-058	14-Feb-23

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

Date: March 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/VOC/CLS/Feb 05, 2023	28887	Ambient Air	05-Feb-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23020122 **REPORT CREATED:** 17-Mar-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020122-001	Cyclopentane	I	0.05	ppbv	0.02	AC-058	14-Feb-23
23020122-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Feb-23
23020122-001	Ethanol		2.0	ppbv	0.5	AC-058	14-Feb-23
23020122-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Feb-23
23020122-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Feb-23
23020122-001	Freon-11		0.25	ppbv	0.02	AC-058	14-Feb-23
23020122-001	Freon-113	I	0.06	ppbv	0.02	AC-058	14-Feb-23
23020122-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Feb-23
23020122-001	Freon-12		0.53	ppbv	0.03	AC-058	14-Feb-23
23020122-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Feb-23
23020122-001	Isobutane		1.49	ppbv	0.03	AC-058	14-Feb-23
23020122-001	Isopentane		0.87	ppbv	0.04	AC-058	14-Feb-23
23020122-001	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Feb-23
23020122-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Feb-23
23020122-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	14-Feb-23
23020122-001	m,p-Xylene	I	0.06	ppbv	0.04	AC-058	14-Feb-23
23020122-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Feb-23
23020122-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Feb-23
23020122-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	14-Feb-23
23020122-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Feb-23
23020122-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Feb-23
23020122-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	14-Feb-23
23020122-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Feb-23
23020122-001	Methylcyclohexane		0.13	ppbv	0.02	AC-058	14-Feb-23
23020122-001	Methylcyclopentane		0.13	ppbv	0.05	AC-058	14-Feb-23

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Feb 05, 2023	28887	Ambient Air	05-Feb-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23020122 **REPORT CREATED:** 17-Mar-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020122-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Feb-23
23020122-001	n-Butane		2.17	ppbv	0.02	AC-058	14-Feb-23
23020122-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	14-Feb-23
23020122-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Feb-23
23020122-001	n-Heptane	I	0.07	ppbv	0.04	AC-058	14-Feb-23
23020122-001	n-Hexane	I	0.18	ppbv	0.03	AC-058	14-Feb-23
23020122-001	n-Octane	I	0.02	ppbv	0.02	AC-058	14-Feb-23
23020122-001	n-Pentane		0.59	ppbv	0.04	AC-058	14-Feb-23
23020122-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	14-Feb-23
23020122-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	14-Feb-23
23020122-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Feb-23
23020122-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	14-Feb-23
23020122-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Feb-23
23020122-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Feb-23
23020122-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Feb-23
23020122-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	14-Feb-23
23020122-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	14-Feb-23
23020122-001	Tetrachloroethylene	I	0.04	ppbv	0.02	AC-058	14-Feb-23
23020122-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Feb-23
23020122-001	Toluene	I	0.14	ppbv	0.03	AC-058	14-Feb-23
23020122-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	14-Feb-23
23020122-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Feb-23
23020122-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Feb-23
23020122-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Feb-23
23020122-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Feb-23

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Feb 05, 2023	28887	Ambient Air	05-Feb-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23020122 **REPORT CREATED:** 17-Mar-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020122-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Feb-23
23020122-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Feb-23

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

Date: March 17, 2023

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

Revision History

Order ID	Ver	Date	Reason
23020122	01	17-Mar-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: 23020178-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Feb 11, 2023

RECEIVED
FEB 17 2023

Bureau Veritas

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

Client:	LICA	**Sampler S/N:**	6167
Location:	Cold Lake South	**Canister ID:**	32215
Station ID:	LICA 01	**Installation Date/Time (mst):**	Feb 6, 2023 @ 19:20
Sample ID:	LICA/VOC/CLS/Feb 11, 2023	**Removal Date/Time (mst):**	Feb 13, 2023 @ 16:01

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
February 11, 2023	0:00	23:59	24

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.1	18.3

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

Deployment/Collection and Maintenance Checklist

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

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 23020178-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Feb 11, 2023

RECEIVED
FEB 17 2023

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:**	Feb 06, 2023 @ 19:22
Field Sample ID:	LICA/PUF/CLS/Feb 11, 2023	**Removal Date/Time:**	Feb 13, 2023 @ 16:04

Sample Data Collection Information

Sample Date:	11-Feb-23	**Average Pressure (mmHg)**	707
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	3
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.4

Sample Recovery Checklist

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

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

InnoTech ALBERTA

Canister ID: 3221 5

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQV on: JAN 0 3 2023

Evacuated: _____ Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Feb 11, 2023

Sampled By: Alex Yakupov

Starting Vacuum:	End Pressure:
-27.1 "Hg	+18.3 "Hg/ psig

18 psi

Sample ID: 23020178-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Feb 11, 2023

InnoTech ALBERTA

Canister ID: PUF - TE-01

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: _____ on: _____

Evacuated: _____ Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/PUF/CLS/Feb 14 2023

Sampled By: Alex Yakupov

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID: LICA/PUF/CLS/Feb 11, 2023
Matrix: Air Filter
CANISTER ID: TE-01
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 11-Feb-23 0:00
DATE RECEIVED: 17-Feb-23
REPORT CREATED: 17-Mar-23
REPORT NUMBER: 23020178
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020178-002	1-Methylnaphthalene		0.12	ug/Filter	0.01	AC-066	14-Mar-23
23020178-002	2-Methylnaphthalene		0.14	ug/Filter	0.01	AC-066	14-Mar-23
23020178-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Mar-23
23020178-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Mar-23
23020178-002	Acenaphthene		0.02	ug/Filter	0.01	AC-066	14-Mar-23
23020178-002	Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Mar-23
23020178-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Mar-23
23020178-002	Anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Mar-23
23020178-002	Benzo(a)anthracene		0.02	ug/Filter	0.01	AC-066	14-Mar-23
23020178-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Mar-23
23020178-002	Benzo(b,j,k)fluoranthene		0.03	ug/Filter	0.01	AC-066	14-Mar-23
23020178-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Mar-23
23020178-002	Benzo(e)pyrene		0.02	ug/Filter	0.01	AC-066	14-Mar-23
23020178-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Mar-23
23020178-002	Chrysene		0.04	ug/Filter	0.01	AC-066	14-Mar-23
23020178-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Mar-23
23020178-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Mar-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: March 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/Feb 11, 2023	TE-01	Air Filter	11-Feb-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23020178 **REPORT CREATED:** 17-Mar-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020178-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Mar-23
23020178-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Mar-23
23020178-002	Fluoranthene		0.09	ug/Filter	0.01	AC-066	14-Mar-23
23020178-002	Fluorene		0.18	ug/Filter	0.01	AC-066	14-Mar-23
23020178-002	Indeno(1,2,3-cd)pyrene		0.02	ug/Filter	0.01	AC-066	14-Mar-23
23020178-002	Naphthalene		0.10	ug/Filter	0.01	AC-066	14-Mar-23
23020178-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Mar-23
23020178-002	Phenanthrene		0.32	ug/Filter	0.01	AC-066	14-Mar-23
23020178-002	Pyrene		0.06	ug/Filter	0.01	AC-066	14-Mar-23
23020178-002	Retene		0.06	ug/Filter	0.01	AC-066	14-Mar-23

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Feb 11, 2023	32215	Ambient Air	11-Feb-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23020178 **REPORT CREATED:** 17-Mar-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020178-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Feb-23
23020178-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Feb-23
23020178-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Feb-23
23020178-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Feb-23
23020178-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Feb-23
23020178-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	24-Feb-23
23020178-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	24-Feb-23
23020178-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020178-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Feb-23
23020178-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020178-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020178-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020178-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020178-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020178-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	24-Feb-23
23020178-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	24-Feb-23
23020178-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	24-Feb-23
23020178-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	24-Feb-23
23020178-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	24-Feb-23
23020178-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020178-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Feb-23
23020178-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Feb-23
23020178-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Feb-23
23020178-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	24-Feb-23
23020178-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Feb-23

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Feb 11, 2023	32215	Ambient Air	11-Feb-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23020178 **REPORT CREATED:** 17-Mar-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020178-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020178-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Feb-23
23020178-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020178-001	2-Methylpentane	I	0.02	ppbv	0.02	AC-058	24-Feb-23
23020178-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020178-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Feb-23
23020178-001	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Feb-23
23020178-001	Acetone		1.2	ppbv	0.4	AC-058	24-Feb-23
23020178-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	24-Feb-23
23020178-001	Benzene	I	0.07	ppbv	0.03	AC-058	24-Feb-23
23020178-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	24-Feb-23
23020178-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020178-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Feb-23
23020178-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Feb-23
23020178-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Feb-23
23020178-001	Carbon tetrachloride	I	0.05	ppbv	0.02	AC-058	24-Feb-23
23020178-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Feb-23
23020178-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Feb-23
23020178-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Feb-23
23020178-001	Chloromethane		0.66	ppbv	0.04	AC-058	24-Feb-23
23020178-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Feb-23
23020178-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020178-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020178-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Feb-23
23020178-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	24-Feb-23

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Feb 11, 2023	32215	Ambient Air	11-Feb-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23020178 **REPORT CREATED:** 17-Mar-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020178-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Feb-23
23020178-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Feb-23
23020178-001	Ethanol	K, T, U	< 0.5	ppbv	0.5	AC-058	24-Feb-23
23020178-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	24-Feb-23
23020178-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020178-001	Freon-11		0.21	ppbv	0.02	AC-058	24-Feb-23
23020178-001	Freon-113	I	0.07	ppbv	0.02	AC-058	24-Feb-23
23020178-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020178-001	Freon-12		0.56	ppbv	0.03	AC-058	24-Feb-23
23020178-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	24-Feb-23
23020178-001	Isobutane		0.42	ppbv	0.03	AC-058	24-Feb-23
23020178-001	Isopentane		0.21	ppbv	0.04	AC-058	24-Feb-23
23020178-001	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Feb-23
23020178-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	24-Feb-23
23020178-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	24-Feb-23
23020178-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	24-Feb-23
23020178-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Feb-23
23020178-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020178-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	24-Feb-23
23020178-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	24-Feb-23
23020178-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	24-Feb-23
23020178-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	24-Feb-23
23020178-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020178-001	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Feb-23
23020178-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	24-Feb-23

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Feb 11, 2023	32215	Ambient Air	11-Feb-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23020178 **REPORT CREATED:** 17-Mar-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020178-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	24-Feb-23
23020178-001	n-Butane		0.62	ppbv	0.02	AC-058	24-Feb-23
23020178-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	24-Feb-23
23020178-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	24-Feb-23
23020178-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	24-Feb-23
23020178-001	n-Hexane	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020178-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Feb-23
23020178-001	n-Pentane		0.13	ppbv	0.04	AC-058	24-Feb-23
23020178-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	24-Feb-23
23020178-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	24-Feb-23
23020178-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	24-Feb-23
23020178-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	24-Feb-23
23020178-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Feb-23
23020178-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020178-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Feb-23
23020178-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	24-Feb-23
23020178-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	24-Feb-23
23020178-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Feb-23
23020178-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	24-Feb-23
23020178-001	Toluene	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020178-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	24-Feb-23
23020178-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Feb-23
23020178-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020178-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Feb-23
23020178-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Feb-23

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Feb 11, 2023	32215	Ambient Air	11-Feb-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23020178 **REPORT CREATED:** 17-Mar-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020178-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	24-Feb-23
23020178-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	24-Feb-23

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

Date: March 17, 2023

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

Revision History

Order ID	Ver	Date	Reason
23020178	01	17-Mar-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: 23020216-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Feb 17, 2023

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FEB 27 2023

Bureau Veritas

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

Client:	LICA	**Sampler S/N:**	6167
Location:	Cold Lake South	**Canister ID:**	28904
Station ID:	LICA 01	**Installation Date/Time (mst):**	Feb 13, 2023 @ 16:09
Sample ID:	LICA/VOC/CLS/Feb 17, 2023	**Removal Date/Time (mst):**	Feb 21, 2023 @ 20:54

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
February 17, 2023	0:00	23:59	24

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.1	17.2

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

Deployment/Collection and Maintenance Checklist

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

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 23020216-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Feb 17, 2023

RECEIVED
FEB 27 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:**	Feb 13, 2023 @ 16:12
Field Sample ID:	LICA/PUF/CLS/Feb 17, 2023	**Removal Date/Time:**	Feb 21, 2023 @ 20:57

Sample Data Collection Information

Sample Date:	17-Feb-23	**Average Pressure (mmHg)**	708
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	-0.7
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.4

Sample Recovery Checklist

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

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

InnoTech ALBERTA

Canister ID: 28904

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: JAN 17 2023

Evacuated: _____ Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Feb 17, 2023

Sampled By: Alex Yakupov

Starting Vacuum:	End Vacuum:
-27.1 "Hg	+17.2 "Hg/psig

InnoTech ALBERTA

Canister ID: TE-08

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: PVF on: _____

Evacuated: _____ Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/[illegible]/CLS/Feb 17, 2023

Sampled By: Alex Yakupov

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

Sample ID: 23020216-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Feb 17, 2023

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Canada T9C 1T4
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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/Feb 17, 2023
Matrix: Air Filter
CANISTER ID: TE-08
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 17-Feb-23 0:00
DATE RECEIVED: 27-Feb-23
REPORT CREATED: 17-Mar-23
REPORT NUMBER: 23020216
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020216-002	1-Methylnaphthalene		0.17	ug/Filter	0.01	AC-066	14-Mar-23
23020216-002	2-Methylnaphthalene		0.21	ug/Filter	0.01	AC-066	14-Mar-23
23020216-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Mar-23
23020216-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Mar-23
23020216-002	Acenaphthene		0.04	ug/Filter	0.01	AC-066	14-Mar-23
23020216-002	Acenaphthylene		0.02	ug/Filter	0.01	AC-066	14-Mar-23
23020216-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Mar-23
23020216-002	Anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Mar-23
23020216-002	Benzo(a)anthracene		0.02	ug/Filter	0.01	AC-066	14-Mar-23
23020216-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Mar-23
23020216-002	Benzo(b,j,k)fluoranthene		0.02	ug/Filter	0.01	AC-066	14-Mar-23
23020216-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Mar-23
23020216-002	Benzo(e)pyrene		0.02	ug/Filter	0.01	AC-066	14-Mar-23
23020216-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Mar-23
23020216-002	Chrysene		0.03	ug/Filter	0.01	AC-066	14-Mar-23
23020216-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Mar-23
23020216-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Mar-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: March 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/Feb 17, 2023	TE-08	Air Filter	17-Feb-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23020216 **REPORT CREATED:** 17-Mar-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020216-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Mar-23
23020216-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Mar-23
23020216-002	Fluoranthene		0.07	ug/Filter	0.01	AC-066	14-Mar-23
23020216-002	Fluorene		0.16	ug/Filter	0.01	AC-066	14-Mar-23
23020216-002	Indeno(1,2,3-cd)pyrene		0.02	ug/Filter	0.01	AC-066	14-Mar-23
23020216-002	Naphthalene		0.25	ug/Filter	0.01	AC-066	14-Mar-23
23020216-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Mar-23
23020216-002	Phenanthrene		0.23	ug/Filter	0.01	AC-066	14-Mar-23
23020216-002	Pyrene		0.04	ug/Filter	0.01	AC-066	14-Mar-23
23020216-002	Retene		0.02	ug/Filter	0.01	AC-066	14-Mar-23

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Feb 17, 2023	28904	Ambient Air	17-Feb-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23020216 **REPORT CREATED:** 17-Mar-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020216-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020216-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020216-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020216-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020216-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020216-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	28-Feb-23
23020216-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	28-Feb-23
23020216-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020216-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020216-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020216-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020216-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020216-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020216-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020216-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	28-Feb-23
23020216-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	28-Feb-23
23020216-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	28-Feb-23
23020216-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	28-Feb-23
23020216-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	28-Feb-23
23020216-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020216-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020216-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020216-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020216-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	28-Feb-23
23020216-001	2,3-Dimethylpentane	I	0.03	ppbv	0.02	AC-058	28-Feb-23

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

Date: March 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/VOC/CLS/Feb 17, 2023	28904	Ambient Air	17-Feb-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23020216 **REPORT CREATED:** 17-Mar-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020216-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020216-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020216-001	2-Methylhexane	I	0.05	ppbv	0.03	AC-058	28-Feb-23
23020216-001	2-Methylpentane	I	0.03	ppbv	0.02	AC-058	28-Feb-23
23020216-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020216-001	3-Methylhexane	I	0.05	ppbv	0.02	AC-058	28-Feb-23
23020216-001	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020216-001	Acetone		1.2	ppbv	0.4	AC-058	28-Feb-23
23020216-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	28-Feb-23
23020216-001	Benzene	I	0.07	ppbv	0.03	AC-058	28-Feb-23
23020216-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	28-Feb-23
23020216-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020216-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020216-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020216-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020216-001	Carbon tetrachloride	I	0.06	ppbv	0.02	AC-058	28-Feb-23
23020216-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020216-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020216-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020216-001	Chloromethane		0.74	ppbv	0.04	AC-058	28-Feb-23
23020216-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020216-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020216-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020216-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020216-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	28-Feb-23

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

Date: March 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/VOC/CLS/Feb 17, 2023	28904	Ambient Air	17-Feb-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23020216 **REPORT CREATED:** 17-Mar-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020216-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020216-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020216-001	Ethanol	I	0.9	ppbv	0.5	AC-058	28-Feb-23
23020216-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	28-Feb-23
23020216-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020216-001	Freon-11		0.25	ppbv	0.02	AC-058	28-Feb-23
23020216-001	Freon-113	I	0.07	ppbv	0.02	AC-058	28-Feb-23
23020216-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020216-001	Freon-12		0.65	ppbv	0.03	AC-058	28-Feb-23
23020216-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	28-Feb-23
23020216-001	Isobutane		0.47	ppbv	0.03	AC-058	28-Feb-23
23020216-001	Isopentane		0.34	ppbv	0.04	AC-058	28-Feb-23
23020216-001	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020216-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	28-Feb-23
23020216-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	28-Feb-23
23020216-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	28-Feb-23
23020216-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020216-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020216-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	28-Feb-23
23020216-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	28-Feb-23
23020216-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	28-Feb-23
23020216-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	28-Feb-23
23020216-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020216-001	Methylcyclohexane	I	0.02	ppbv	0.02	AC-058	28-Feb-23
23020216-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	28-Feb-23

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

Date: March 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/VOC/CLS/Feb 17, 2023	28904	Ambient Air	17-Feb-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23020216 **REPORT CREATED:** 17-Mar-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020216-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	28-Feb-23
23020216-001	n-Butane		0.80	ppbv	0.02	AC-058	28-Feb-23
23020216-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	28-Feb-23
23020216-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	28-Feb-23
23020216-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	28-Feb-23
23020216-001	n-Hexane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020216-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020216-001	n-Pentane		0.23	ppbv	0.04	AC-058	28-Feb-23
23020216-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	28-Feb-23
23020216-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	28-Feb-23
23020216-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	28-Feb-23
23020216-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	28-Feb-23
23020216-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020216-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020216-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020216-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	28-Feb-23
23020216-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	28-Feb-23
23020216-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020216-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	28-Feb-23
23020216-001	Toluene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020216-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	28-Feb-23
23020216-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020216-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020216-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020216-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Feb 17, 2023	28904	Ambient Air	17-Feb-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23020216 **REPORT CREATED:** 17-Mar-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020216-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	28-Feb-23
23020216-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23

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

Date: March 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-202302

Revision History

Order ID	Ver	Date	Reason
23020216	01	17-Mar-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

PO Bag 4000
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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: 23020221-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Feb 23, 2023

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FEB 28 2023

Bureau Veritas

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

Client:	LICA	**Sampler S/N:**	6167
Location:	Cold Lake South	**Canister ID:**	28881
Station ID:	LICA 01	**Installation Date/Time (mst):**	Feb 21, 2023 @ 16:09
Sample ID:	LICA/VOC/CLS/Feb 23, 2023	**Removal Date/Time (mst):**	Feb 24, 2023 @ 18:01

Date and Time Information

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

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

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

Deployment/Collection and Maintenance Checklist

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

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 23020221-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Feb 23, 2023

RECEIVED
FEB 28 2023

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	TE-07
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Feb 21, 2023 @ 21:03
Field Sample ID:	LICA/PUF/CLS/Feb 23, 2023	**Removal Date/Time:**	Feb 24, 2023 @ 18:05

Sample Data Collection Information

Sample Date:	23-Feb-23	**Average Pressure (mmHg)**	730
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	-22.5
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.42

Sample Recovery Checklist

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

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

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Canister ID: 28881

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: JAN 0 6 2023

Evacuated: JAN 1 7 2023 Recertified:

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Feb 23, 2023

Sampled By: Alex Yakupov

Starting Vacuum: -27.1 "Hg

End Vacuum: 19.2 18 KG "Hg/psig

InnoTech ALBERTA

Canister ID: TE-07

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: PUF on:

Evacuated: Recertified:

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/PUF/CLS/Feb 23, 2023

Sampled By: Alex Yakupov

Starting Vacuum: "Hg

End Vacuum: "Hg/psig

Sample ID: 23020221-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Feb 23, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID: LICA/PUF/CLS/Feb 23, 2023
Matrix: Air Filter
CANISTER ID: TE-07
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 23-Feb-23 0:00
DATE RECEIVED: 28-Feb-23
REPORT CREATED: 17-Mar-23
REPORT NUMBER: 23020221
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020221-002	1-Methylnaphthalene		0.77	ug/Filter	0.01	AC-066	14-Mar-23
23020221-002	2-Methylnaphthalene		0.97	ug/Filter	0.01	AC-066	14-Mar-23
23020221-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Mar-23
23020221-002	7,12-Dimethylbenz(a)anthracene		0.01	ug/Filter	0.01	AC-066	14-Mar-23
23020221-002	Acenaphthene		0.25	ug/Filter	0.01	AC-066	14-Mar-23
23020221-002	Acenaphthylene		0.08	ug/Filter	0.01	AC-066	14-Mar-23
23020221-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Mar-23
23020221-002	Anthracene		0.01	ug/Filter	0.01	AC-066	14-Mar-23
23020221-002	Benzo(a)anthracene		0.10	ug/Filter	0.01	AC-066	14-Mar-23
23020221-002	Benzo(a)pyrene		0.11	ug/Filter	0.01	AC-066	14-Mar-23
23020221-002	Benzo(b,j,k)fluoranthene		0.28	ug/Filter	0.01	AC-066	14-Mar-23
23020221-002	Benzo(c)phenanthrene		0.04	ug/Filter	0.01	AC-066	14-Mar-23
23020221-002	Benzo(e)pyrene		0.08	ug/Filter	0.01	AC-066	14-Mar-23
23020221-002	Benzo(ghi)perylene		0.10	ug/Filter	0.01	AC-066	14-Mar-23
23020221-002	Chrysene		0.14	ug/Filter	0.01	AC-066	14-Mar-23
23020221-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Mar-23
23020221-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Mar-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: March 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/Feb 23, 2023	TE-07	Air Filter	23-Feb-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23020221 **REPORT CREATED:** 17-Mar-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020221-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Mar-23
23020221-002	Dibenzo(ah)anthracene		0.02	ug/Filter	0.01	AC-066	14-Mar-23
23020221-002	Fluoranthene		0.34	ug/Filter	0.01	AC-066	14-Mar-23
23020221-002	Fluorene		0.27	ug/Filter	0.01	AC-066	14-Mar-23
23020221-002	Indeno(1,2,3-cd)pyrene		0.12	ug/Filter	0.01	AC-066	14-Mar-23
23020221-002	Naphthalene		1.21	ug/Filter	0.01	AC-066	14-Mar-23
23020221-002	Perylene		0.01	ug/Filter	0.01	AC-066	14-Mar-23
23020221-002	Phenanthrene		0.53	ug/Filter	0.01	AC-066	14-Mar-23
23020221-002	Pyrene		0.24	ug/Filter	0.01	AC-066	14-Mar-23
23020221-002	Retene		0.14	ug/Filter	0.01	AC-066	14-Mar-23

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Feb 23, 2023	28881	Ambient Air	23-Feb-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23020221 **REPORT CREATED:** 17-Mar-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020221-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020221-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020221-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020221-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020221-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020221-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	28-Feb-23
23020221-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	28-Feb-23
23020221-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020221-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020221-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020221-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020221-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020221-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020221-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020221-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	28-Feb-23
23020221-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	28-Feb-23
23020221-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	28-Feb-23
23020221-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	28-Feb-23
23020221-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	28-Feb-23
23020221-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020221-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020221-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020221-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020221-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	28-Feb-23
23020221-001	2,3-Dimethylpentane	I	0.03	ppbv	0.02	AC-058	28-Feb-23

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

Date: March 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/VOC/CLS/Feb 23, 2023	28881	Ambient Air	23-Feb-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23020221 **REPORT CREATED:** 17-Mar-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020221-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020221-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020221-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020221-001	2-Methylpentane	I	0.03	ppbv	0.02	AC-058	28-Feb-23
23020221-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020221-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020221-001	3-Methylpentane	I	0.02	ppbv	0.02	AC-058	28-Feb-23
23020221-001	Acetone		0.7	ppbv	0.4	AC-058	28-Feb-23
23020221-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	28-Feb-23
23020221-001	Benzene	I	0.14	ppbv	0.03	AC-058	28-Feb-23
23020221-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	28-Feb-23
23020221-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020221-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020221-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020221-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020221-001	Carbon tetrachloride	I	0.06	ppbv	0.02	AC-058	28-Feb-23
23020221-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020221-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020221-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020221-001	Chloromethane		0.61	ppbv	0.04	AC-058	28-Feb-23
23020221-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020221-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020221-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020221-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020221-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	28-Feb-23

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Feb 23, 2023	28881	Ambient Air	23-Feb-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23020221 **REPORT CREATED:** 17-Mar-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020221-001	Cyclopentane	I	0.03	ppbv	0.02	AC-058	28-Feb-23
23020221-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020221-001	Ethanol	I	0.7	ppbv	0.5	AC-058	28-Feb-23
23020221-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	28-Feb-23
23020221-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020221-001	Freon-11		0.22	ppbv	0.02	AC-058	28-Feb-23
23020221-001	Freon-113	I	0.07	ppbv	0.02	AC-058	28-Feb-23
23020221-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020221-001	Freon-12		0.55	ppbv	0.03	AC-058	28-Feb-23
23020221-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	28-Feb-23
23020221-001	Isobutane		0.39	ppbv	0.03	AC-058	28-Feb-23
23020221-001	Isopentane		0.33	ppbv	0.04	AC-058	28-Feb-23
23020221-001	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020221-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	28-Feb-23
23020221-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	28-Feb-23
23020221-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	28-Feb-23
23020221-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020221-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020221-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	28-Feb-23
23020221-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	28-Feb-23
23020221-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	28-Feb-23
23020221-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	28-Feb-23
23020221-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020221-001	Methylcyclohexane	I	0.04	ppbv	0.02	AC-058	28-Feb-23
23020221-001	Methylcyclopentane	I	0.05	ppbv	0.05	AC-058	28-Feb-23

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

Date: March 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/VOC/CLS/Feb 23, 2023	28881	Ambient Air	23-Feb-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23020221 **REPORT CREATED:** 17-Mar-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020221-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	28-Feb-23
23020221-001	n-Butane		0.70	ppbv	0.02	AC-058	28-Feb-23
23020221-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	28-Feb-23
23020221-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	28-Feb-23
23020221-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	28-Feb-23
23020221-001	n-Hexane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020221-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020221-001	n-Pentane		0.19	ppbv	0.04	AC-058	28-Feb-23
23020221-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	28-Feb-23
23020221-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	28-Feb-23
23020221-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	28-Feb-23
23020221-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	28-Feb-23
23020221-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020221-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020221-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020221-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	28-Feb-23
23020221-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	28-Feb-23
23020221-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020221-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	28-Feb-23
23020221-001	Toluene	I	0.04	ppbv	0.03	AC-058	28-Feb-23
23020221-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	28-Feb-23
23020221-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020221-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020221-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23
23020221-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Feb 23, 2023	28881	Ambient Air	23-Feb-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23020221 **REPORT CREATED:** 17-Mar-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020221-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	28-Feb-23
23020221-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Feb-23

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

Date: March 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-202302

Revision History

Order ID	Ver	Date	Reason
23020221	01	17-Mar-23	Report created

Methods

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

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

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

Qualifiers

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

Order Comments

Sample Comments

Result Comments

Note:

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

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

Partisol Samples

Sample ID: 23020121-001 Priority: Normal

Customer ID: LICA
Cust Samp ID: C9694251

RECEIVED
FEB 14 2023

›l 2000i-D Sample Data Sheet

Date Sampled:	5-Feb-23
Location:	Cold Lake South
Parameter:	PM 2.5 / PM 10
Start Time	0:00
End Time	23:59
Valid Time	24 hours
Total Time	24 hours
Status	Done

	FINE (1)	COURSE (2)
Filter Type:	47mm	47mm
Filter #:	C9694251	C9694252
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	-2.5	
Pressure	699	
Std Volume (Instrument)	22.1	2.45

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date): Alex Yakupov Date: 2-Feb-23

Removed by (Sign/Date) Alex Yakupov Date: 6-Feb-23

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

RECEIVED
FEB 14 2023

Sample ID: 23020121-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9694252

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 23/22

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	C9694251 → C9694252

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
C9694251	Air Filter

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

DATE SAMPLED: 05-Feb-23 0:00
DATE RECEIVED: 14-Feb-23
REPORT CREATED: 28-Feb-23
REPORT NUMBER: 23020121
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020121-001	Particulate Weight		0.100	mg	0.004	AC-029	21-Feb-23

Report certified by: Andrea Conner, Admin Assistant
On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: February 28, 2023
Inquiries: (780) 632 8403
E-mail: EAS.Results@innotechalberta.ca

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
C9694252		Air Filter	05-Feb-23 0:00

DESCRIPTION: Cold Lake South - Coarse - PM 10

REPORT NUMBER: 23020121 **REPORT CREATED:** 28-Feb-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020121-002	Particulate Weight	K, T, U	< 0.004	mg	0.004	AC-029	21-Feb-23

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

Date: February 28, 2023

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

Revision History

Order ID	Ver	Date	Reason
23020121	01	28-Feb-23	Report created

Methods

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

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

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

Qualifiers

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

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

Order Comments

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

Sample Comments

Result Comments

Note:

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

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

Partisol 2000i-D Sample Data Sheet

Date Sampled:	11-Feb-23
Location:	Cold Lake South
Parameter:	PM 2.5 / PM 10
Start Time	0:00
End Time	23:59
Valid Time	24 hours
Total Time	24 hours
Status	Done

Sample ID: 23020177-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C1165505

	FINE (1)	COURSE (2)
Filter Type:	47mm	47mm
Filter #:	C1165505	C1165506
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	1.5	
Pressure	707	
Std Volume (Instrument)	21.9	2.44

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date): Alex Yakupov Date: 6-Feb-23

Removed by (Sign/Date) Alex Yakupov Date: 13-Feb-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: 23020177-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C1165505

RECEIVED
FEB 17 2023

Filter Shipping Record

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

Date: Jan 6/23

Project: LICA/Bureau Veritas Labs

Prepared by: Shelenda.

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	C1165505 → C1165506

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
C1165505	Air Filter

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

DATE SAMPLED: 11-Feb-23 0:00
DATE RECEIVED: 17-Feb-23
REPORT CREATED: 28-Feb-23
REPORT NUMBER: 23020177
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020177-001	Particulate Weight	K, T, U	< 0.004	mg	0.004	AC-029	21-Feb-23

Report certified by: Andrea Conner, Admin Assistant
On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: February 28, 2023
Inquiries: (780) 632 8403
E-mail: EAS.Results@innotechalberta.ca

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
C1165506		Air Filter	11-Feb-23 0:00

DESCRIPTION: Cold Lake South - Coarse - PM10

REPORT NUMBER: 23020177 **REPORT CREATED:** 28-Feb-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020177-002	Particulate Weight	K, T, U	< 0.004	mg	0.004	AC-029	21-Feb-23

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

Date: February 28, 2023

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

Revision History

Order ID	Ver	Date	Reason
23020177	01	28-Feb-23	Report created

Methods

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

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

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

Qualifiers

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

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

Order Comments

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

Sample Comments

Result Comments

Note:

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

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

Sample ID: 23020215-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9494261

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l 2000i-D Sample Data Sheet

Date Sampled:	17-Feb-23
Location:	Cold Lake South
Parameter:	PM 2.5 / PM 10
Start Time	0:00
End Time	23:59
Valid Time	24 hours
Total Time	24 hours
Status	Done

	FINE (1)	COURSE (2)
Filter Type:	47mm	47mm
Filter #:	C9494261	C9494262
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	-0.2	
Pressure	708	
Std Volume (Instrument)	22.3	2.48

Comments: Weather Conditions, etc.

n/a

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

Removed by (Sign/Date) Alex Yakupov Date: 21-Feb-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: 23020215-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9494262

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FEB 27 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 23/22

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	C9694261 → C9694262

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
C9494261	Air Filter

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

DATE SAMPLED: 17-Feb-23 0:00
DATE RECEIVED: 27-Feb-23
REPORT CREATED: 06-Mar-23
REPORT NUMBER: 23020215
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020215-001	Particulate Weight	K, T, U	< 0.004	mg	0.004	AC-029	28-Feb-23

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

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
C9494262		Air Filter	17-Feb-23 0:00

DESCRIPTION: Cold Lake South - Coarse - PM 10

REPORT NUMBER: 23020215 **REPORT CREATED:** 06-Mar-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020215-002	Particulate Weight	K, T, U	< 0.004	mg	0.004	AC-029	28-Feb-23

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

Date: March 6, 2023

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

Revision History

Order ID	Ver	Date	Reason
23020215	01	06-Mar-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: 23020220-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9694253

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FEB 2 8 2023

ol 2000i-D Sample Data Sheet

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

	FINE (1)	COURSE (2)
Filter Type:	47mm	47mm
Filter #:	C9694253	C9694254
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	-24	
Pressure	727	
Std Volume (Instrument)	24.9	2.77

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date): Alex Yakupov Date: 21-Feb-23

Removed by (Sign/Date) Alex Yakupov Date: 24-Feb-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: 23020220-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9694254

RECEIVED
FEB 28 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 23/22

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	C9694253 → C9694254

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
C9694253	Air Filter

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

DATE SAMPLED: 23-Feb-23 0:00
DATE RECEIVED: 28-Feb-23
REPORT CREATED: 06-Mar-23
REPORT NUMBER: 23020220
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020220-001	Particulate Weight		0.025	mg	0.004	AC-029	03-Mar-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: March 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
C9694254		Air Filter	23-Feb-23 0:00

DESCRIPTION: Cold Lake South - Coarse - PM 10

REPORT NUMBER: 23020220 **REPORT CREATED:** 06-Mar-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020220-002	Particulate Weight		0.024	mg	0.004	AC-029	03-Mar-23

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

Date: March 6, 2023

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

Revision History

Order ID	Ver	Date	Reason
23020220	01	06-Mar-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
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Order Comments

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

Sample Comments

Result Comments

Note:

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

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

Passive Samples

Passive Sampler Field Sheet for LICA, Feb 2023 sample period

ID	SAMPLER						START		END		NOTES
							DATE	TIME	DATE	TIME	
3	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Jan 29	18:24	Feb 27	17:16	
4	---	SO_2	NO_2	O_3	HNO3	NH3	Jan 30	12:18	Feb 28	13:20	
5	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Jan 30	13:40	Feb 28	14:40	
6	---	SO_2	NO_2	O_3	HNO3	NH3	Jan 30	16:02	Feb 28	16:15	
8	---	SO_2	NO_2	O_3	HNO3	NH3	Jan 30	11:01	Feb 28	12:10	
9	---	SO_2	NO_2	O_3	HNO3	NH3	Jan 29	17:30	Mar 1	11:57	
10	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Jan 31	19:40	Mar 1	19:34	
11	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Jan 31	18:45	Mar 1	18:25	
12	H2S	SO2	NO2	O3	HNO3	NH3	Jan 30	17:29	Mar 1	17:07	
13	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Jan 29	16:00	Feb 27	15:25	
14	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Jan 29	14:44	Feb 27	13:50	water isotope sample taken
15	---	SO_2	NO_2	O_3	HNO3	NH3	Jan 30	09:16	Mar 1	10:07	
16	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Jan 30	10:56	Feb 28	13:45	
17	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Jan 30	15:24	Feb 28	17:20	
18	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Jan 30	17:00	Feb 28	18:45	
19	---	SO_2	NO_2	O_3	HNO3	NH3	Jan 31	10:01	Feb 28	20.45	
22	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Jan 29	10:22	Feb 27	10:16	
23	---	SO_2	NO_2	O_3	HNO3	NH3	Jan 29	12:45	Feb 27	11:55	
24	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Jan 30	15:00	Feb 28	15:22	
25	H2S	SO2	---	---							
26	H_2S	SO_2	---	---	HNO3	NH3	Jan 29	15:07	Feb 27	13:14	
27	H_2S	SO_2	---	---	HNO3	NH3	Jan 29	13:43	Feb 27	14:22	
28	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Jan 30	10:14	Feb 28	21:10	
29	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Jan 29	10:39	Feb 27	10:23	
32	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Jan 29	20:06	Feb 27	17:50	
42	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Jan 4	14:22	Mar 1	14:26	
							DUPLICATES				
8	---	---	NO_2	O_3	---	---	Jan 30	11:01	Feb 28	12:10	
9	---	---	NO_2	O_3	---	---	Jan 29	17:30	Mar 1	11:57	
24	---	SO2	---	---	HNO3	NH3	Jan 30	15:00	Feb 28	15:22	
26	---	SO2	---	---	HNO3	NH3	Jan 29	15:07	Feb 27	13:14	
27	---	SO2	---	---	---	---	Jan 29	13:43	Feb 27	14:22	
28	H2S	---	---	---	---	---	Jan 30	10:14	Feb 28	21:10	
29	H_2S	---	---	---	---	---	Jan 29	10:39	Feb 27	10:23	

23 H_2S
31 NH_3
28 NO_2
31 HNO_3
28 O_3
33 SO_2
NS 23-03-03
C07150

Your Project #: FEBRUARY 2023 PASSIVES
Site Location: BONNYVILLE, AB

Attention: Monitoring

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
PO BOX 8237
5107W- 50TH STREET
BONNYVILLE, AB
CANADA T9N 2J5

Report Date: 2023/03/14
Report #: R3309826
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C315040
Received: 2023/03/03, 10:30

Sample Matrix: Air
Samples Received: 62

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
H2S Passive Analysis	20	2023/03/07	2023/03/10	PTC SOP-00150	Passive H2S in ATM
HNO3 by Passive Sampler	30	2023/03/06	2023/03/09	PTC SOP-00288	Passive HNO3 in ATM
NH3 by Passive Sampler	30	2023/03/06	2023/03/10	PTC SOP-00157	ASTM D6919
NO2 Passive Analysis	25	2023/03/06	2023/03/10	PTC SOP-00148	Passive NO2 in ATM
O3 Passive Analysis	25	2023/03/08	2023/03/10	PTC SOP-00197	EPA 300 R2.1
SO2 Passive Analysis	28	2023/03/06	2023/03/10	PTC SOP-00149	Passive SO2 in ATM

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

Encryption Key

Kristen Sywolos
Customer Service Supervisor/Oil & Gas Division
14 Mar 2023 16:16:00

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

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Bureau Veritas 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 #: C315040
Report Date: 2023/03/14

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BMX185			BMX186			BMX187			BMX188		
Sampling Date		2023/01/29 18:24			2023/01/30 12:18			2023/01/30 13:40			2023/01/30 16:02		
	UNITS	3	RDL	QC Batch	4	RDL	QC Batch	5	RDL	QC Batch	6	RDL	QC Batch
Passive Monitoring													
Calculated H2S	ppb	0.19	0.02	A900751				0.18	0.02	A900751			
Calculated NO2	ppb	1.2	0.1	A900161	1.2	0.1	A900161	0.9	0.1	A900161	3.8	0.1	A900161
Calculated O3	ppb	39.2	0.1	A904013	39.5	0.1	A904013	43.9	0.1	A904013	34.8	0.1	A904013
Calculated SO2	ppb	0.9	0.1	A899609	0.8	0.1	A899609	0.8	0.1	A899609	1.1	0.1	A899609
RDL = Reportable Detection Limit													

Bureau Veritas ID		BMX189	BMX190			BMX191		BMX192	BMX193		
Sampling Date		2023/01/30 11:01	2023/01/29 17:30			2023/01/31 19:40		2023/01/31 18:45	2023/01/30 17:25		
	UNITS	8	9	RDL	QC Batch	10	QC Batch	11	12	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb					0.18	A900751	0.15	0.14	0.02	A900751
Calculated NO2	ppb	0.9	1.9	0.1	A900161	4.7	A900161	1.2	0.8	0.1	A900165
Calculated O3	ppb	41.4	37.8	0.1	A904013	30.6	A904013	32.3	34.0	0.1	A904013
Calculated SO2	ppb	1.0	0.9	0.1	A899609	0.8	A899609	1.3	1.3	0.1	A899609
RDL = Reportable Detection Limit											

Bureau Veritas ID		BMX194	BMX195			BMX196			BMX197	BMX198		
Sampling Date		2023/01/29 16:00	2023/01/29 14:44			2023/01/30 09:16			2023/01/30 10:52	2023/01/30 18:24		
	UNITS	13	14	RDL	QC Batch	15	RDL	QC Batch	16	17	RDL	QC Batch
Passive Monitoring												
Calculated H2S	ppb	0.14	0.25	0.02	A900751				0.15	0.24	0.02	A900751
Calculated NO2	ppb	0.9	1.6	0.1	A900165	1.5	0.1	A900165	1.3	1.1	0.1	A900165
Calculated O3	ppb	31.7	35.9	0.1	A904013	34.4	0.1	A904013	32.9	39.5	0.1	A904013
Calculated SO2	ppb	0.8	1.6	0.1	A899609	0.8	0.1	A899609	0.8	1.0	0.1	A899609
RDL = Reportable Detection Limit												

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

Bureau Veritas Job #: C315040
Report Date: 2023/03/14

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BMX199			BMX200			BMX201			BMX202		
Sampling Date		2023/01/30 17:00			2023/01/31 10:01			2023/01/29 10:22			2023/01/29 12:15		
	UNITS	18	RDL	QC Batch	19	RDL	QC Batch	22	RDL	QC Batch	23	RDL	QC Batch
Passive Monitoring													
Calculated H2S	ppb	0.16	0.02	A900751				0.25	0.02	A900751			
Calculated NO2	ppb	0.9	0.1	A900165	0.8	0.1	A900165	1.6	0.1	A900165	0.6	0.1	A900165
Calculated O3	ppb	34.4	0.1	A904013	44.1	0.1	A904013	34.5	0.1	A904013	30.2	0.1	A904013
Calculated SO2	ppb	0.8	0.1	A899609	0.9	0.1	A899609	0.8	0.1	A899609	0.5	0.1	A899609
RDL = Reportable Detection Limit													

Bureau Veritas ID		BMX203			BMX204	BMX205			BMX206		
Sampling Date		2023/01/30 15:00			2023/01/29 15:07	2023/01/29 13:43			2023/01/30 10:14		
	UNITS	24	RDL	QC Batch	26	27	RDL	QC Batch	28	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb	0.21	0.02	A900751	0.26	0.31	0.02	A900751	0.25	0.02	A900751
Calculated NO2	ppb	1.7	0.1	A900165					4.4	0.1	A900165
Calculated O3	ppb	36.3	0.1	A904013					38.2	0.1	A904013
Calculated SO2	ppb	0.8	0.1	A899609	1.0	1.9	0.1	A899613	0.9	0.1	A899613
RDL = Reportable Detection Limit											

Bureau Veritas ID		BMX207	BMX208	BMX209			BMX213	BMX214	BMX215		
Sampling Date		2023/01/29 10:39	2023/01/29 20:06	2023/01/30 14:22			2023/01/29 13:43	2023/01/30 15:00	2023/01/29 15:07		
	UNITS	29	32	42	RDL	QC Batch	27 DUP	24 DUP	26 DUP	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb	0.26	0.18	0.17	0.02	A900751					
Calculated NO2	ppb	2.0	1.0	2.8	0.1	A900165					
Calculated O3	ppb	33.5	36.2	35.8	0.1	A905376					
Calculated SO2	ppb	0.7	1.2	0.8	0.1	A899613	1.7	0.8	1.0	0.1	A899613
RDL = Reportable Detection Limit											

Bureau Veritas Job #: C315040
Report Date: 2023/03/14

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BMX216	BMX217			BMX218	BMX219			BMX220		
Sampling Date		2023/01/30 11:01	2023/01/29 17:30			2023/01/30 10:14	2023/01/29 10:39			2023/01/29 18:24		
	UNITS	8 DUP	9 DUP	RDL	QC Batch	28 DUP	29 DUP	RDL	QC Batch	3-NH3 HNO3	RDL	QC Batch
Passive Monitoring												
Ammonia by Passive Sample	ppb									1.2	0.1	A900352
Calculated H2S	ppb					0.25	0.23	0.02	A900751			
HNO3 by Passive Sampler	ug/m3									0.73	0.04	A900155
Calculated NO2	ppb	0.9	1.8	0.1	A900165							
Calculated O3	ppb	42.1	36.4	0.1	A905376							
RDL = Reportable Detection Limit												

Bureau Veritas ID		BMX221	BMX222	BMX223	BMX224	BMX225	BMX226	BMX227		
Sampling Date		2023/01/30 12:18	2023/01/30 13:40	2023/01/30 16:02	2023/01/30 11:01	2023/01/29 17:30	2023/01/31 19:40	2023/01/31 18:45		
	UNITS	4-NH3 HNO3	5-NH3 HNO3	6-NH3 HNO3	8-NH3 HNO3	9-NH3 HNO3	10-NH3 HNO3	11-NH3 HNO3	RDL	QC Batch
Passive Monitoring										
Ammonia by Passive Sample	ppb	0.6	0.7	0.4	0.3	0.4	0.4	0.5	0.1	A900352
HNO3 by Passive Sampler	ug/m3	0.42	0.27	0.79	1.25	0.55	0.42	0.50	0.04	A900155
RDL = Reportable Detection Limit										

Bureau Veritas ID		BMX228	BMX229	BMX230	BMX231	BMX232	BMX233		
Sampling Date		2023/01/30 17:25	2023/01/29 16:00	2023/01/29 14:44	2023/01/30 09:16	2023/01/30 10:52	2023/01/30 18:24		
	UNITS	12-NH3 HNO3	13-NH3 HNO3	14-NH3 HNO3	15-NH3 HNO3	16-NH3 HNO3	17-NH3 HNO3	RDL	QC Batch
Passive Monitoring									
Ammonia by Passive Sample	ppb	0.3	0.2	0.5	0.4	0.4	0.6	0.1	A900352
HNO3 by Passive Sampler	ug/m3	0.45	0.29	0.44	0.68	0.72	0.42	0.04	A900155
RDL = Reportable Detection Limit									

Bureau Veritas ID		BMX234	BMX235		BMX236	BMX237	BMX238		
Sampling Date		2023/01/30 17:00	2023/01/31 10:01		2023/01/29 10:22	2023/01/29 12:15	2023/01/30 15:00		
	UNITS	18-NH3 HNO3	19-NH3 HNO3	QC Batch	22-NH3 HNO3	23-NH3 HNO3	24-NH3 HNO3	RDL	QC Batch
Passive Monitoring									
Ammonia by Passive Sample	ppb	0.3	1.1	A900352	0.2	0.2	0.1	0.1	A900352
HNO3 by Passive Sampler	ug/m3	0.22	0.24	A900155	0.71	0.70	0.64	0.04	A900156
RDL = Reportable Detection Limit									

Bureau Veritas Job #: C315040
Report Date: 2023/03/14

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BMX239	BMX240	BMX241	BMX242	BMX243	BMX244		
Sampling Date		2023/01/29 15:07	2023/01/29 13:43	2023/01/30 10:14	2023/01/29 10:39	2023/01/29 20:06	2023/01/30 14:22		
	UNITS	26-NH3 HNO3	27-NH3 HNO3	28-NH3 HNO3	29-NH3 HNO3	32-NH3 HNO3	42-NH3 HNO3	RDL	QC Batch
Passive Monitoring									
Ammonia by Passive Sample	ppb	0.4	0.6	1.3	0.6	0.5	0.9	0.1	A900353
HNO3 by Passive Sampler	ug/m3	0.65	0.28	0.65	0.50	0.50	0.47	0.04	A900156
RDL = Reportable Detection Limit									

Bureau Veritas ID		BMX245	BMX246	BMX247	BMX248		
Sampling Date		2023/01/30 15:00	2023/01/29 15:07				
	UNITS	24-NH3 HNO3 DUP	26-NH3 HNO3 DUP	BLANK 1-NH3 HNO3	BLANK 2-NH3 HNO3	RDL	QC Batch
Passive Monitoring							
Ammonia by Passive Sample	ppb	0.4	0.2	0.9	1.0	0.1	A900353
HNO3 by Passive Sampler	ug/m3	0.52	0.54	0.24	0.30	0.04	A900156
RDL = Reportable Detection Limit							

Bureau Veritas ID		BMX249		
Sampling Date				
	UNITS	BLANK 3-NH3 HNO3	RDL	QC Batch
Passive Monitoring				
Ammonia by Passive Sample	ppb	0.3	0.1	A900353
HNO3 by Passive Sampler	ug/m3	<0.04	0.04	A900156
RDL = Reportable Detection Limit				

GENERAL COMMENTS

Sample BMX247 [BLANK 1-NH3 HNO3] : Default exposure time(720 hrs) is used for calculation. --YL6 20230308

Sample BMX248 [BLANK 2-NH3 HNO3] : Default exposure time(720 hrs) is used for calculation. --YL6 20230308

Sample BMX249 [BLANK 3-NH3 HNO3] : Default exposure time(720 hrs) is used for calculation. --YL6 20230308

Results relate only to the items tested.

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

Bureau Veritas Job #: C315040
Report Date: 2023/03/14

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

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A899609	OZ	Spiked Blank	Calculated SO2			101	%	90 - 110
A899609	OZ	Method Blank	Calculated SO2		<0.1		ppb	
A899613	OZ	Spiked Blank	Calculated SO2			97	%	90 - 110
A899613	OZ	Method Blank	Calculated SO2		<0.1		ppb	
A900155	OZ	Method Blank	HNO3 by Passive Sampler		<0.04		ug/m3	
A900156	OZ	Method Blank	HNO3 by Passive Sampler		<0.04		ug/m3	
A900161	SDK	Spiked Blank	Calculated NO2			98	%	90 - 110
A900161	SDK	Method Blank	Calculated NO2		<0.1		ppb	
A900165	SDK	Spiked Blank	Calculated NO2			99	%	90 - 110
A900165	SDK	Method Blank	Calculated NO2		<0.1		ppb	
A900352	YL6	Spiked Blank	Ammonia by Passive Sampler			98	%	90 - 110
A900352	YL6	Method Blank	Ammonia by Passive Sampler		<0.1		ppb	
A900353	YL6	Spiked Blank	Ammonia by Passive Sampler			97	%	90 - 110
A900353	YL6	Method Blank	Ammonia by Passive Sampler		<0.1		ppb	
A900751	YYA	Spiked Blank	Calculated H2S			100	%	90 - 110
A904013	SDK	Spiked Blank	Calculated O3			100	%	90 - 110
A904013	SDK	Method Blank	Calculated O3		<0.1		ppb	
A905376	SDK	Spiked Blank	Calculated O3			101	%	90 - 110
A905376	SDK	Method Blank	Calculated O3		<0.1		ppb	

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.

Bureau Veritas Job #: C315040
Report Date: 2023/03/14

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

VALIDATION SIGNATURE PAGE

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

Carmen Toker, CT, Manager Air Laboratory Services

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

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

Lac La Biche Station

Non- Methane Hydrocarbons (NMHCs) Canister Samples

Sample ID: 23020192-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/NMHC/LLB/Feb 14, 2023

RECEIVED
FEB 21 2023

Maxxam

VOC Sample Collection Data Sheet

Client: LICA
Location: LLB
Station ID: LICA - 4
Field Sample ID: LICA/NMHC/LLB/Feb 14, 2023

Sampler S/N: n/a
Canister ID: 32250
Canister Installation Date/Time: Jan 31, 2023 @ 12:36
Canister Removal Date/Time: Feb 16, 2023 @ 18:24

Date and Time Information			
Sample Date	Start Time (MST)	End Time (MST)	Elapsed Time (Hours)
Feb 14, 2023	07:55	n/a	n/a

Flow Settings		
Meter Reading (sccm)	Pot Set Pt.	Pump Pressure Setting (psig)
n/a	n/a	n/a

Canister Information	
Initial Canister Vacuum (inHg)	Final Canister Vacuum (inHg)
-27.1	-0.2

Canister valve open prior to sampling?: (YES) / NO

Canister valve closed prior to disconnection?: (YES) / NO

Comments: NMHC canister

Technician Signature: Alex Yakupov **Date:** Feb 16, 2023

Sample ID: 23020192-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/NMHC/LLB/Feb 14, 2023

InnoTech ALBERTA

Canister ID: 32250

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: SEP 1 6 2022

Evacuated: SEP 1 6 2022 Recertified: NOV 0 7 2022

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/NMHC/LLB/Feb 14, 2023

Sampled By: Alex Yakupov

-4 "Hg JWS

Starting Vacuum: -27.1 "Hg

End Vacuum: -0.2 "Hg/psig

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID: LICA/NMHC/LLB/Feb 14, 2023
Matrix: Ambient Air
CANISTER ID: 32250
PRIORITY: Normal
DESCRIPTION: NMHC Canister - LLB
DATE SAMPLED: 14-Feb-23 7:55
DATE RECEIVED: 21-Feb-23
REPORT CREATED: 27-Feb-23
REPORT NUMBER: 23020192
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020192-001	1,1,1-Trichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020192-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020192-001	1,1,2-Trichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020192-001	1,1-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020192-001	1,1-Dichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020192-001	1,2,3-Trimethylbenzene	K, T, U	< 0.07	ppbv	0.07	AC-058	24-Feb-23
23020192-001	1,2,4-Trichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	24-Feb-23
23020192-001	1,2,4-Trimethylbenzene	I	0.05	ppbv	0.04	AC-058	24-Feb-23
23020192-001	1,2-Dibromoethane	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020192-001	1,2-Dichlorobenzene		0.18	ppbv	0.04	AC-058	24-Feb-23
23020192-001	1,2-Dichloroethane	K, T, U	< 0.04	ppbv	0.04	AC-058	24-Feb-23
23020192-001	1,2-Dichloropropane	K, T, U	< 0.04	ppbv	0.04	AC-058	24-Feb-23
23020192-001	1,3,5-Trimethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	24-Feb-23
23020192-001	1,3-Butadiene	K, T, U	< 0.04	ppbv	0.04	AC-058	24-Feb-23
23020192-001	1,3-Dichlorobenzene	K, T, U	< 0.6	ppbv	0.6	AC-058	24-Feb-23
23020192-001	1,4-Dichlorobenzene	K, T, U	< 0.6	ppbv	0.6	AC-058	24-Feb-23
23020192-001	1,4-Dioxane	K, T, U	< 0.7	ppbv	0.7	AC-058	24-Feb-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: February 27, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech ALBERTA
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Vegreville, Alberta
Canada T9C 1T4
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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/NMHC/LLB/Feb 14, 2023	32250	Ambient Air	14-Feb-23 7:55

DESCRIPTION: NMHC Canister - LLB

REPORT NUMBER: 23020192 **REPORT CREATED:** 27-Feb-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020192-001	1-Butene/Isobutylene	I	0.16	ppbv	0.09	AC-058	24-Feb-23
23020192-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.10	ppbv	0.10	AC-058	24-Feb-23
23020192-001	1-Pentene	K, T, U	< 0.04	ppbv	0.04	AC-058	24-Feb-23
23020192-001	2,2,4-Trimethylpentane	I	0.03	ppbv	0.03	AC-058	24-Feb-23
23020192-001	2,2-Dimethylbutane	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020192-001	2,3,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020192-001	2,3-Dimethylbutane	K, T, U	< 0.13	ppbv	0.13	AC-058	24-Feb-23
23020192-001	2,3-Dimethylpentane	I	0.04	ppbv	0.03	AC-058	24-Feb-23
23020192-001	2,4-Dimethylpentane	K, T, U	< 0.04	ppbv	0.04	AC-058	24-Feb-23
23020192-001	2-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020192-001	2-Methylhexane	K, T, U	< 0.04	ppbv	0.04	AC-058	24-Feb-23
23020192-001	2-Methylpentane	I	0.05	ppbv	0.03	AC-058	24-Feb-23
23020192-001	3-Methylheptane	K, T, U	< 0.04	ppbv	0.04	AC-058	24-Feb-23
23020192-001	3-Methylhexane	I	0.04	ppbv	0.03	AC-058	24-Feb-23
23020192-001	3-Methylpentane	I	0.04	ppbv	0.03	AC-058	24-Feb-23
23020192-001	Acetone		1.3	ppbv	0.6	AC-058	24-Feb-23
23020192-001	Acrolein	K, T, U	< 0.4	ppbv	0.4	AC-058	24-Feb-23
23020192-001	Benzene	I	0.24	ppbv	0.04	AC-058	24-Feb-23
23020192-001	Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	24-Feb-23
23020192-001	Bromodichloromethane	K, T, U	< 0.04	ppbv	0.04	AC-058	24-Feb-23
23020192-001	Bromoform	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020192-001	Bromomethane	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020192-001	Carbon disulfide	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020192-001	Carbon tetrachloride	I	0.05	ppbv	0.03	AC-058	24-Feb-23
23020192-001	Chlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23

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

Date: February 27, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/NMHC/LLB/Feb 14, 2023	32250	Ambient Air	14-Feb-23 7:55

DESCRIPTION: NMHC Canister - LLB

REPORT NUMBER: 23020192 **REPORT CREATED:** 27-Feb-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020192-001	Chloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020192-001	Chloroform	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020192-001	Chloromethane		0.64	ppbv	0.06	AC-058	24-Feb-23
23020192-001	cis-1,2-Dichloroethene	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020192-001	cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	24-Feb-23
23020192-001	cis-2-Butene	K, T, U	< 0.04	ppbv	0.04	AC-058	24-Feb-23
23020192-001	cis-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020192-001	Cyclohexane	K, T, U	< 0.06	ppbv	0.06	AC-058	24-Feb-23
23020192-001	Cyclopentane	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020192-001	Dibromochloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020192-001	Ethanol		1.7	ppbv	0.7	AC-058	24-Feb-23
23020192-001	Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	24-Feb-23
23020192-001	Ethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	24-Feb-23
23020192-001	Freon-11		0.20	ppbv	0.03	AC-058	24-Feb-23
23020192-001	Freon-113	I	0.06	ppbv	0.03	AC-058	24-Feb-23
23020192-001	Freon-114	K, T, U	< 0.04	ppbv	0.04	AC-058	24-Feb-23
23020192-001	Freon-12		0.52	ppbv	0.04	AC-058	24-Feb-23
23020192-001	Hexachloro-1,3-butadiene	K, T, U	< 0.4	ppbv	0.4	AC-058	24-Feb-23
23020192-001	Isobutane		0.45	ppbv	0.04	AC-058	24-Feb-23
23020192-001	Isopentane		0.40	ppbv	0.06	AC-058	24-Feb-23
23020192-001	Isoprene	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020192-001	Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	24-Feb-23
23020192-001	Isopropylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	24-Feb-23
23020192-001	m,p-Xylene	I	0.11	ppbv	0.06	AC-058	24-Feb-23
23020192-001	m-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23

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

Date: February 27, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/NMHC/LLB/Feb 14, 2023	32250	Ambient Air	14-Feb-23 7:55

DESCRIPTION: NMHC Canister - LLB

REPORT NUMBER: 23020192 **REPORT CREATED:** 27-Feb-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020192-001	m-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	24-Feb-23
23020192-001	Methyl butyl ketone	K, T, U	< 0.6	ppbv	0.6	AC-058	24-Feb-23
23020192-001	Methyl ethyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	24-Feb-23
23020192-001	Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	24-Feb-23
23020192-001	Methyl methacrylate	K, T, U	< 0.12	ppbv	0.12	AC-058	24-Feb-23
23020192-001	Methyl tert butyl ether	K, T, U	< 0.04	ppbv	0.04	AC-058	24-Feb-23
23020192-001	Methylcyclohexane	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020192-001	Methylcyclopentane	K, T, U	< 0.07	ppbv	0.07	AC-058	24-Feb-23
23020192-001	Methylene chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	24-Feb-23
23020192-001	n-Butane		0.75	ppbv	0.03	AC-058	24-Feb-23
23020192-001	n-Decane	K, T, U	< 0.09	ppbv	0.09	AC-058	24-Feb-23
23020192-001	n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	24-Feb-23
23020192-001	n-Heptane	K, T, U	< 0.06	ppbv	0.06	AC-058	24-Feb-23
23020192-001	n-Hexane	K, T, U	< 0.04	ppbv	0.04	AC-058	24-Feb-23
23020192-001	n-Octane	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020192-001	n-Pentane		0.15	ppbv	0.06	AC-058	24-Feb-23
23020192-001	n-Propylbenzene	K, T, U	< 0.09	ppbv	0.09	AC-058	24-Feb-23
23020192-001	n-Undecane	K, T, U	< 0.7	ppbv	0.7	AC-058	24-Feb-23
23020192-001	Naphthalene	K, T, U	< 0.4	ppbv	0.4	AC-058	24-Feb-23
23020192-001	n-Nonane	K, T, U	< 0.06	ppbv	0.06	AC-058	24-Feb-23
23020192-001	o-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020192-001	o-Xylene	I	0.06	ppbv	0.04	AC-058	24-Feb-23
23020192-001	p-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020192-001	p-Ethyltoluene	K, T, U	< 0.06	ppbv	0.06	AC-058	24-Feb-23
23020192-001	Styrene	K, T, U	< 0.06	ppbv	0.06	AC-058	24-Feb-23

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

Date: February 27, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/NMHC/LLB/Feb 14, 2023	32250	Ambient Air	14-Feb-23 7:55

DESCRIPTION: NMHC Canister - LLB

REPORT NUMBER: 23020192 **REPORT CREATED:** 27-Feb-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020192-001	Tetrachloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020192-001	Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	24-Feb-23
23020192-001	Toluene	I	0.16	ppbv	0.04	AC-058	24-Feb-23
23020192-001	trans-1,2-Dichloroethylene	K, T, U	< 0.09	ppbv	0.09	AC-058	24-Feb-23
23020192-001	trans-1,3-Dichloropropylene	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020192-001	trans-2-Butene	K, T, U	< 0.04	ppbv	0.04	AC-058	24-Feb-23
23020192-001	trans-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020192-001	Trichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23
23020192-001	Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	24-Feb-23
23020192-001	Vinyl chloride	K, T, U	< 0.03	ppbv	0.03	AC-058	24-Feb-23

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

Date: February 27, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

Revision History

Order ID	Ver	Date	Reason
23020192	01	27-Feb-23	Report created

Methods

Method	Description
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry

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

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

Qualifiers

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

Order Comments

23020192

NMHC Can

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

Sample Comments

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

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: 23020219-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/NMHC/LLB/Feb 23, 2023

RECEIVED
FEB 28 2023

Maxxam Analytics

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

Client:	LICA	**Sampler S/N:**	n/a
Location:	LLB	**Canister ID:**	32206
Station ID:	41	**Installation Date/Time (mst):**	Feb 16, 2023 @ 14:28
Sample ID:	LICA/NMHC/LLB/Feb 23, 2023	**Removal Date/Time (mst):**	Feb 24, 2023 @ 14:24

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
Feb 23, 2023	07:45	n/a	n/a

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

Flow Settings		
Flow Reading (sccm)	Pot Set Point	Pump Set (psi)
—	—	—

Deployment/Collection and Maintenance Checklist

Initial leak check deployment vacuum (in. Hg) =	n/a	@	n/a	mst
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/no)		
Date of last flow calibration:	n/a			(due every 3 months)
Last date of sample line & fitting replacement:	n/a			(due every 6 months)

Leak rate must be 0.0 psi over a minimum of 5 minutes or repair is required

Comments: NMHC canister

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

InnoTech ALBERTA

Canister ID: 32206

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: NOV 08 2022

Evacuated: DEC 19 2022 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/NMHC/LLB/Feb 23, 2023

Sampled By: Alex Yakupov

Starting Vacuum:	End Vacuum: -4 FG
-27.1 "Hg	-3.0 "Hg/psig

Sample ID: 23020219-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/NMHC/LLB/Feb 23, 2023

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID: LICA/NMHC/LLB/Feb 23, 2023
Matrix: Ambient Air
CANISTER ID: 32206
PRIORITY: Normal
DESCRIPTION: NMHC Canister - LLB
DATE SAMPLED: 23-Feb-23 7:45
DATE RECEIVED: 28-Feb-23
REPORT CREATED: 06-Mar-23
REPORT NUMBER: 23020219
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020219-001	1,1,1-Trichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020219-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020219-001	1,1,2-Trichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020219-001	1,1-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020219-001	1,1-Dichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020219-001	1,2,3-Trimethylbenzene	K, T, U	< 0.07	ppbv	0.07	AC-058	28-Feb-23
23020219-001	1,2,4-Trichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	28-Feb-23
23020219-001	1,2,4-Trimethylbenzene	I	0.05	ppbv	0.04	AC-058	28-Feb-23
23020219-001	1,2-Dibromoethane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020219-001	1,2-Dichlorobenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	28-Feb-23
23020219-001	1,2-Dichloroethane	K, T, U	< 0.04	ppbv	0.04	AC-058	28-Feb-23
23020219-001	1,2-Dichloropropane	K, T, U	< 0.04	ppbv	0.04	AC-058	28-Feb-23
23020219-001	1,3,5-Trimethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	28-Feb-23
23020219-001	1,3-Butadiene	I	0.06	ppbv	0.04	AC-058	28-Feb-23
23020219-001	1,3-Dichlorobenzene	K, T, U	< 0.6	ppbv	0.6	AC-058	28-Feb-23
23020219-001	1,4-Dichlorobenzene	K, T, U	< 0.6	ppbv	0.6	AC-058	28-Feb-23
23020219-001	1,4-Dioxane	K, T, U	< 0.7	ppbv	0.7	AC-058	28-Feb-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: March 6, 2023

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/NMHC/LLB/Feb 23, 2023	32206	Ambient Air	23-Feb-23 7:45

DESCRIPTION: NMHC Canister - LLB

REPORT NUMBER: 23020219 **REPORT CREATED:** 06-Mar-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020219-001	1-Butene/Isobutylene	I	0.21	ppbv	0.09	AC-058	28-Feb-23
23020219-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.10	ppbv	0.10	AC-058	28-Feb-23
23020219-001	1-Pentene	K, T, U	< 0.04	ppbv	0.04	AC-058	28-Feb-23
23020219-001	2,2,4-Trimethylpentane	I	0.08	ppbv	0.03	AC-058	28-Feb-23
23020219-001	2,2-Dimethylbutane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020219-001	2,3,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020219-001	2,3-Dimethylbutane	K, T, U	< 0.13	ppbv	0.13	AC-058	28-Feb-23
23020219-001	2,3-Dimethylpentane	I	0.12	ppbv	0.03	AC-058	28-Feb-23
23020219-001	2,4-Dimethylpentane	K, T, U	< 0.04	ppbv	0.04	AC-058	28-Feb-23
23020219-001	2-Methylheptane	I	0.04	ppbv	0.03	AC-058	28-Feb-23
23020219-001	2-Methylhexane	I	0.11	ppbv	0.04	AC-058	28-Feb-23
23020219-001	2-Methylpentane	I	0.11	ppbv	0.03	AC-058	28-Feb-23
23020219-001	3-Methylheptane	K, T, U	< 0.04	ppbv	0.04	AC-058	28-Feb-23
23020219-001	3-Methylhexane	I	0.11	ppbv	0.03	AC-058	28-Feb-23
23020219-001	3-Methylpentane	I	0.12	ppbv	0.03	AC-058	28-Feb-23
23020219-001	Acetone		0.8	ppbv	0.6	AC-058	28-Feb-23
23020219-001	Acrolein	K, T, U	< 0.4	ppbv	0.4	AC-058	28-Feb-23
23020219-001	Benzene		0.30	ppbv	0.04	AC-058	28-Feb-23
23020219-001	Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	28-Feb-23
23020219-001	Bromodichloromethane	K, T, U	< 0.04	ppbv	0.04	AC-058	28-Feb-23
23020219-001	Bromoform	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020219-001	Bromomethane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020219-001	Carbon disulfide	I	0.04	ppbv	0.03	AC-058	28-Feb-23
23020219-001	Carbon tetrachloride	I	0.05	ppbv	0.03	AC-058	28-Feb-23
23020219-001	Chlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23

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

Date: March 6, 2023

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CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/NMHC/LLB/Feb 23, 2023	32206	Ambient Air	23-Feb-23 7:45

DESCRIPTION: NMHC Canister - LLB

REPORT NUMBER: 23020219 **REPORT CREATED:** 06-Mar-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020219-001	Chloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020219-001	Chloroform	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020219-001	Chloromethane		0.52	ppbv	0.06	AC-058	28-Feb-23
23020219-001	cis-1,2-Dichloroethene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020219-001	cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	28-Feb-23
23020219-001	cis-2-Butene	K, T, U	< 0.04	ppbv	0.04	AC-058	28-Feb-23
23020219-001	cis-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020219-001	Cyclohexane	K, T, U	< 0.06	ppbv	0.06	AC-058	28-Feb-23
23020219-001	Cyclopentane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020219-001	Dibromochloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020219-001	Ethanol		2.8	ppbv	0.7	AC-058	28-Feb-23
23020219-001	Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	28-Feb-23
23020219-001	Ethylbenzene	I	0.06	ppbv	0.04	AC-058	28-Feb-23
23020219-001	Freon-11		0.20	ppbv	0.03	AC-058	28-Feb-23
23020219-001	Freon-113	I	0.06	ppbv	0.03	AC-058	28-Feb-23
23020219-001	Freon-114	K, T, U	< 0.04	ppbv	0.04	AC-058	28-Feb-23
23020219-001	Freon-12		0.43	ppbv	0.04	AC-058	28-Feb-23
23020219-001	Hexachloro-1,3-butadiene	K, T, U	< 0.4	ppbv	0.4	AC-058	28-Feb-23
23020219-001	Isobutane		0.70	ppbv	0.04	AC-058	28-Feb-23
23020219-001	Isopentane		0.83	ppbv	0.06	AC-058	28-Feb-23
23020219-001	Isoprene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020219-001	Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	28-Feb-23
23020219-001	Isopropylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	28-Feb-23
23020219-001	m,p-Xylene	I	0.27	ppbv	0.06	AC-058	28-Feb-23
23020219-001	m-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23

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DESCRIPTION: NMHC Canister - LLB

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Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020219-001	m-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	28-Feb-23
23020219-001	Methyl butyl ketone	K, T, U	< 0.6	ppbv	0.6	AC-058	28-Feb-23
23020219-001	Methyl ethyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	28-Feb-23
23020219-001	Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	28-Feb-23
23020219-001	Methyl methacrylate	K, T, U	< 0.12	ppbv	0.12	AC-058	28-Feb-23
23020219-001	Methyl tert butyl ether	K, T, U	< 0.04	ppbv	0.04	AC-058	28-Feb-23
23020219-001	Methylcyclohexane	I	0.06	ppbv	0.03	AC-058	28-Feb-23
23020219-001	Methylcyclopentane		0.15	ppbv	0.07	AC-058	28-Feb-23
23020219-001	Methylene chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	28-Feb-23
23020219-001	n-Butane		1.34	ppbv	0.03	AC-058	28-Feb-23
23020219-001	n-Decane	K, T, U	< 0.09	ppbv	0.09	AC-058	28-Feb-23
23020219-001	n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	28-Feb-23
23020219-001	n-Heptane	K, T, U	< 0.06	ppbv	0.06	AC-058	28-Feb-23
23020219-001	n-Hexane	I	0.09	ppbv	0.04	AC-058	28-Feb-23
23020219-001	n-Octane	I	0.03	ppbv	0.03	AC-058	28-Feb-23
23020219-001	n-Pentane		0.38	ppbv	0.06	AC-058	28-Feb-23
23020219-001	n-Propylbenzene	K, T, U	< 0.09	ppbv	0.09	AC-058	28-Feb-23
23020219-001	n-Undecane	K, T, U	< 0.7	ppbv	0.7	AC-058	28-Feb-23
23020219-001	Naphthalene	K, T, U	< 0.4	ppbv	0.4	AC-058	28-Feb-23
23020219-001	n-Nonane	K, T, U	< 0.06	ppbv	0.06	AC-058	28-Feb-23
23020219-001	o-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020219-001	o-Xylene	I	0.09	ppbv	0.04	AC-058	28-Feb-23
23020219-001	p-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020219-001	p-Ethyltoluene	K, T, U	< 0.06	ppbv	0.06	AC-058	28-Feb-23
23020219-001	Styrene	K, T, U	< 0.06	ppbv	0.06	AC-058	28-Feb-23

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LICA/NMHC/LLB/Feb 23, 2023	32206	Ambient Air	23-Feb-23 7:45

DESCRIPTION: NMHC Canister - LLB

REPORT NUMBER: 23020219 **REPORT CREATED:** 06-Mar-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23020219-001	Tetrachloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020219-001	Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	28-Feb-23
23020219-001	Toluene	I	0.27	ppbv	0.04	AC-058	28-Feb-23
23020219-001	trans-1,2-Dichloroethylene	K, T, U	< 0.09	ppbv	0.09	AC-058	28-Feb-23
23020219-001	trans-1,3-Dichloropropylene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020219-001	trans-2-Butene	K, T, U	< 0.04	ppbv	0.04	AC-058	28-Feb-23
23020219-001	trans-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020219-001	Trichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23
23020219-001	Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	28-Feb-23
23020219-001	Vinyl chloride	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Feb-23

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

Date: March 6, 2023

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Revision History

Order ID	Ver	Date	Reason
23020219	01	06-Mar-23	Report created

Methods

Method	Description
AC-058	Determination of Volatile Organic Compounds in Ambient Air by Gas Chromatography Mass Spectrometry

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

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

Qualifiers

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

Order Comments

23020219

NMHC Can

Sample Comments

Result Comments

Note:

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

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

End of Report