Lakeland Industry & Community Association

MAY 2023

Monthly Ambient Air Quality Monitoring Integrated Sampling Report

LICA-202305-INTEGRATED

June 27, 2023

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June 27, 2023

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

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

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

The representative of the Person Responsible for this monitoring program is

LICA Airshed
Michael Bisaga, Monitoring Programs Manager
5107 50 Street
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Phone #: 780-226-7068
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This report has been prepared, reviewed and submitted by Michael Bisaga & Lily Lin of the LICA Airshed.

NETWORK STATION SUMMARY

Listing of Air Monitoring Stations and Integrated Sampling Stations

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

Listing of Passive Sampling Stations

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

Listing of Passive Aromatic Compounds Stations

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

List of Contractors who performed the air monitoring activities

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

Monitoring Notes during the Month of May 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 verification/calibration was completed on May 20. The sampler passed the check requirement.
  - Five samples were collected this month: on May 6, 12, 18, 24 and 30.
- **Polycyclic Aromatic Hydrocarbons (PAHs)**
  - The PUF sampler is programed to collect a 24-hour sample of air every sixth day as per the North American Pollution Surveillance schedule (NAPS).
  - Five samples were collected this month: on May 6, 12, 18, 24 and 30.
- **Partisols**
  - Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) where applicable.

    - The Partisol sampler is programed to collect a 24-hour sample of air every sixth day as per the North American Pollution Surveillance schedule (NAPS).
    - The Partisol 2000p-D Partisol sampler audit was completed on May 20. The sampler passed the audit requirements.
    - Five samples were collected this month: on May 6, 12, 18, 24 and 30.
- **Passives**
    - There were no exceedances of the AAAQOs for all monitored parameters at any of the passive stations during this month.
    - The passive sample filters were installed at the stations March 30 and May 1, and were removed between May 28 and May 30.
    - A total of 13 duplicate samples were collected: 2 for H2S, 3 for SO2, 2 for NO2, 2 for O3, 2 for NMH3 and 2 for HNO3.
    - A total of 6 blank samples were collected: 3 for NMH3 and 3 for HNO3.
    - No samples were collected at station 25. The field technician has not completed the necessary safety orientation for the CNRL Primrose/Burnt Lake site and access is not permitted at this time.
    - Station 18: The sample media for the SO2 and H2S were destroyed, likely by a bear. As a result, no analytical results were reported.

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.
    - One canister event was recorded on May 25 at 07:35, at concentration of 0.47ppm. However, the canister event was missed during the daily data review. The sample therefore passed the sample hold time and became invalid. Investigation is being conducted to determine the root cause to prevent future reoccurrence.

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 May/June monitoring period were installed between May 28 and May 30. They are scheduled to be replaced in late June or early July.

Revisions to Alberta's Ambient Air Quality Data Warehouse

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

Deviations from Authorized Monitoring Methods

There were no deviations from authorized monitoring methods.

Certification

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

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

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

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

INTEGRATED SAMPLING RESULTS SUMMARY

COLD LAKE SOUTH STATION

- **VOCs analytical results**

Sample Date	2023-05-06	2023-05-12	2023-05-18	2023-05-24
Canister ID	32243	28953	29038	32189
Maximum Reading (ppbv)	1.3	5.5	3.3	3.1
Parameter	Ethanol	Acetone	Acetone	Acetone

Sample Date	2023-05-30
Canister ID	32261
Maximum Reading (ppbv)	3.8
Parameter	Acetone

- **PAHs analytical results**

Sample Date	2023-05-06		2023-05-12		2023-05-18		2023-05-24	
PUF S/N	TE-12		A13-02		TE-01		TE-04	
Volume (Vstd m^3)	330.40		330.41		330.40		330.40	
Maximum Reading	0.73	2.21	4.03	12.20	4.08	12.35	0.60	1.82
Parameter	Retene		Retene		Retene		Retene	

Sample Date	2023-05-30	
PUF S/N	TE-06	
Volume (Vstd m3)	330.42	
Maximum Reading	ug	ng/m3
	0.34	1.03
Parameter	Retene	

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

Sample Date	2023-05-06		2023-05-12		2023-05-18		2023-05-24	
Filter #	C1165511		C9700057		C9700067		C9700063	
Volume (Vstd m^3)	21.3		21.1		21.5		21.1	
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	0.011	0.001	0.651	0.031	0.349	0.016	0.155	0.007

Sample Date	2023-05-30	
Filter #	C9700065	
Volume (Vstd m^3)	20.6	
Result	Result (mg)	Result (mg/m^3)
Particulate Matter	0.149	0.007

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

Sample Date	2023-05-06		2023-05-12		2023-05-18		2023-05-24	
Filter #	C1165512		C9700058		C9700068		4C9700063	
Volume (Vstd m^3)	2.37		2.35		2.39		2.35	
Result	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)
PM2.5-10 Mass	0.078	0.033	0.152	0.065	0.150	0.063	0.228	0.097

Sample Date	2023-05-30	
Filter #	C9700066	
Volume (Vstd m^3)	2.30	
Result	Result (mg)	Result (mg/m^3)
PM2.5-10 Mass	0.140	0.061

- **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	0.13	#13	0.2	#23	30.1	#10	0.2	#23	1.4	#12	0.22	#42
Maximum	0.56	#5	1.9	#10	54.6	#29	1.2	#14	21.1	#42	2.58	#27
Average	0.28	-	0.65	-	39.97	-	0.45	-	4.75	-	0.95	-

LAC LA BICHE STATION

- **NMHC canister sample analytical results**

The canister event, which was recorded on May 25 at 07:35 was missed during the daily data review. The sample therefore passed the sample hold time and became invalid. As a result, no analytical results could be reported.

ANALYTICAL SAMPLING RESULTS

COLD LAKE SOUTH STATION

VOCS

Sample Date		2023-05-06	2023-05-12	2023-05-18	2023-05-24	2023-05-30	
Canister ID		32243	28953	29038	32189	32261	
Method		AC-058	AC-058	AC-058	AC-058	AC-058	
Maximum Reading (ppbv)		1.3	5.5	3.3	3.1	3.8	
Parameter		Ethanol	Acetone	Acetone	Acetone	Acetone	
Parameter	**AAAQOs (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**RDL (ppbv)**
1,1,1-Trichloroethane		< 0.02	0.02	0.02	0.02	< 0.02	0.02
1,1,2,2-Tetrachloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1,2-Trichloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1-Dichloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1-Dichloroethylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,2,3-Trimethylbenzene		0.06	< 0.05	< 0.05	< 0.05	< 0.05	0.05
1,2,4-Trichlorobenzene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
1,2,4-Trimethylbenzene		0.07	< 0.03	< 0.03	< 0.03	< 0.03	0.03
1,2-Dibromoethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,2-Dichlorobenzene		0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
1,2-Dichloroethane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
1,2-Dichloropropane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
1,3,5-Trimethylbenzene		0.06	< 0.03	< 0.03	< 0.03	< 0.03	0.03
1,3-Butadiene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
1,3-Dichlorobenzene		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	0.4
1,4-Dichlorobenzene		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	0.4
1,4-Dioxane		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.5
1-Butene		< 0.06	0.09	< 0.06	< 0.06	< 0.06	0.06
1-Hexene		< 0.07	< 0.07	< 0.07	< 0.07	< 0.07	0.07
1-Pentene		< 0.03	0.04	< 0.03	< 0.03	< 0.03	0.03
2,2,4-Trimethylpentane		< 0.02	0.04	< 0.02	< 0.02	0.02	0.02
2,2-Dimethylbutane		0.04	< 0.02	< 0.02	< 0.02	< 0.02	0.02
2,3,4-Trimethylpentane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
2,3-Dimethylbutane		< 0.09	< 0.09	< 0.09	< 0.09	< 0.09	0.09
2,3-Dimethylpentane		< 0.02	0.03	< 0.02	< 0.02	< 0.02	0.02
2,4-Dimethylpentane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
2-Methylheptane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
2-Methylhexane		0.04	0.03	< 0.03	< 0.03	< 0.03	0.03
2-Methylpentane		< 0.02	0.07	< 0.02	0.05	0.03	0.02
3-Methylheptane		0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
3-Methylhexane		0.04	0.03	< 0.02	< 0.02	0.02	0.02
3-Methylpentane		0.02	0.02	< 0.02	< 0.02	< 0.02	0.02
Acetone	2400	< 0.4	5.5	3.3	3.1	3.8	0.4
Acrolein	1.9	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Benzene	9.0	< 0.03	0.26	0.13	0.09	0.07	0.03
Benzyl chloride		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Bromodichloromethane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
Bromoform		0.03	0.02	< 0.02	< 0.02	< 0.02	0.02
Bromomethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Carbon disulfide	10	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Carbon tetrachloride		0.04	0.1	0.09	0.1	0.06	0.02
Chlorobenzene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Chloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Chloroform		< 0.02	0.02	< 0.02	0.02	< 0.02	0.02
Chloromethane		0.57	0.56	0.5	0.51	0.50	0.04
cis-1,2-Dichloroethene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
cis-1,3-Dichloropropene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
cis-2-Butene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
cis-2-Pentene		0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Cyclohexane		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.04
Cyclopentane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Dibromochloromethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Ethanol		1.3	1.3	< 0.5	0.5	0.8	0.5
Ethyl acetate		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Ethylbenzene	460	0.08	< 0.03	< 0.03	< 0.03	< 0.03	0.03
Freon-11		0.18	0.2	0.19	0.19	0.19	0.02
Freon-113		0.03	0.07	0.06	0.06	0.04	0.02
Freon-114		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03

Sample Date		2023-05-06	2023-05-12	2023-05-18	2023-05-24	2023-05-30	
Canister ID		32243	28953	29038	32189	32261	
Method		AC-058	AC-058	AC-058	AC-058	AC-058	
Maximum Reading (ppbv)		1.3	5.5	3.3	3.1	3.8	
Parameter		Ethanol	Acetone	Acetone	Acetone	Acetone	
Parameter	**AAAQOs (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**RDL (ppbv)**
Freon-12		0.52	0.45	0.44	0.45	0.45	0.03
Hexachloro-1,3-butadiene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Isobutane		0.3	0.53	0.25	0.27	0.37	0.03
Isopentane		0.11	0.23	0.08	0.11	0.38	0.04
Isoprene		0.06	0.18	0.03	0.16	0.55	0.02
Isopropyl alcohol		0.9	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Isopropylbenzene		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.04
m,p-Xylene		0.06	0.11	< 0.04	< 0.04	< 0.04	0.04
m-Diethylbenzene		0.09	< 0.02	< 0.02	< 0.02	< 0.02	0.02
m-Ethyltoluene		0.06	< 0.03	< 0.03	< 0.03	< 0.03	0.03
Methyl butyl ketone		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	0.4
Methyl ethyl ketone		< 0.3	0.5	< 0.3	< 0.3	< 0.3	0.3
Methyl isobutyl ketone		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Methyl methacrylate		< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	0.08
Methyl tert butyl ether		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
Methylcyclohexane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Methylcyclopentane		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Methylene chloride		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
n-Butane		0.25	0.41	0.12	0.15	0.65	0.02
n-Decane		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.06
n-Dodecane		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
n-Heptane		0.06	< 0.04	< 0.04	< 0.04	< 0.04	0.04
n-Hexane	5960	< 0.03	0.05	< 0.03	< 0.03	0.09	0.03
n-Nonane		0.05	< 0.04	< 0.04	< 0.04	< 0.04	0.04
n-Octane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
n-Pentane		0.07	0.11	< 0.04	0.05	0.13	0.04
n-Propylbenzene		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.06
n-Undecane		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.5
Naphthalene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
o-Ethyltoluene		0.05	< 0.02	< 0.02	< 0.02	< 0.02	0.02
o-Xylene		0.06	< 0.03	< 0.03	< 0.03	< 0.03	0.03
p-Diethylbenzene		0.05	< 0.02	< 0.02	< 0.02	< 0.02	0.02
p-Ethyltoluene		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.04
Styrene	52.0	0.1	< 0.04	< 0.04	< 0.04	< 0.04	0.04
Tetrachloroethylene		0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Tetrahydrofuran		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Toluene	499	< 0.03	0.16	< 0.03	< 0.03	0.04	0.03
trans-1,2-Dichloroethylene		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.06
trans-1,3-Dichloropropylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
trans-2-Butene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
trans-2-Pentene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Trichloroethylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Vinyl acetate		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Vinyl chloride	51	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02

PAHS

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - May 2023

Polycyclic Aromatic Hydrocarbons (PAHs) Results

Sample Date	2023-05-06		2023-05-12		2023-05-18		2023-05-24		2023-05-30	
PUF S/N	TE-12		A13-02		TE-01		TE-04		TE-06	
Volume (Vstd m^3)	330.4		330.41		330.40		330.40		330.42	
Method	AC-066		AC-066		AC-066		AC-066		AC-066	
Maximum Reading	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3
	0.73	2.21	4.03	12.20	4.08	12.35	0.60	1.82	0.34	1.03
Parameter	Retene		Retene		Retene		Retene		Retene	

Parameter	Result (ug)	Result (ng/m^3)	Result (ug)	Result (ng/m^3)	Result (ug)	Result (ng/m^3)	Result (ug)	Result (ng/m^3)	Result (ug)	Result (ng/m^3)	RDL (ug)
1-Methylnaphthalene	0.11	0.33	0.03	0.09	0.02	0.06	0.02	0.06	0.01	0.03	0.01
2-Methylnaphthalene	0.11	0.33	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
3-Methylcholanthrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
7,12-Dimethylbenz(a)anthracene	< 0.01	0.00	0.05	0.15	0.07	0.21	0.01	0.03	< 0.01	0.00	0.01
Acenaphthene	0.03	0.09	0.11	0.33	0.02	0.06	0.01	0.03	< 0.01	0.00	0.01
Acenaphthylene	0.14	0.42	0.70	2.12	0.38	1.15	0.03	0.09	0.03	0.09	0.01
Acridine	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Anthracene	0.10	0.30	0.04	0.12	0.04	0.12	0.01	0.03	< 0.01	0.00	0.01
Benzo(a)anthracene	0.02	0.06	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Benzo(a)pyrene	< 0.01	0.00	0.01	0.03	< 0.01	0.00	< 0.01	0.00	0.01	0.03	0.01
Benzo(b,j,k)fluoranthene	0.05	0.15	0.01	0.03	0.02	0.06	0.03	0.09	0.03	0.09	0.01
Benzo(c)phenanthrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Benzo(e)pyrene	0.02	0.06	0.01	0.03	0.01	0.03	< 0.01	0.00	0.01	0.03	0.01
Benzo(ghi)perylene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Chrysene	0.02	0.06	0.01	0.03	0.02	0.06	< 0.01	0.00	< 0.01	0.00	0.01
Dibenzo(a,h)pyrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Dibenzo(a,i)pyrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Dibenzo(a,l)pyrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Dibenzo(ah)anthracene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Fluoranthene	0.16	0.48	0.09	0.27	0.10	0.30	0.05	0.15	0.04	0.12	0.01
Fluorene	0.15	0.45	< 0.01	0.00	< 0.01	0.00	0.07	0.21	0.04	0.12	0.01
Indeno(1,2,3-cd)pyrene	< 0.01	0.00	0.02	0.06	0.01	0.03	0.02	0.06	0.03	0.09	0.01
Naphthalene	0.06	0.18	0.04	0.12	0.04	0.12	0.04	0.12	0.03	0.09	0.01
Perylene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01	0.03	0.01
Phenanthrene	0.64	1.94	0.62	1.88	0.62	1.88	0.30	0.91	0.13	0.39	0.01
Pyrene	0.13	0.39	0.07	0.21	0.08	0.24	0.05	0.15	0.02	0.06	0.01
Retene	0.73	2.21	4.03	12.20	4.08	12.35	0.60	1.82	0.34	1.03	0.01

PARTISOLS

Sample Date		2023-05-06		2023-05-12		2023-05-18		2023-05-24		2023-05-30		
Filter #		C1165511		C9700057		C9700067		C9700063		C9700065		
Volume (Vstd m^3)		21.3		21.1		21.5		21.1		20.6		
Method		AC-029		AC-029		AC-029		AC-029		AC-029		
Parameter	**AAAQO (mg/m3)**	**Result (mg)**	**Result (mg/m^3)**	**Result (mg)**	**Result (mg/m^3)**	**Result (mg)**	**Result (mg/m^3)**	**Result (mg)**	**Result (mg/m^3)**	**Result (mg)**	**Result (mg/m^3)**	**RDL (mg)**
Particulate Matter	0.029	**0.011**	**0.001**	**0.651**	**0.031**	**0.349**	**0.016**	**0.155**	**0.007**	**0.149**	**0.007**	0.004
PM2.5 Mass in ug/m3			**0.516**		**30.853**		**16.233**		**7.346**		**7.233**	
RDL in ug/m3			**0.188**		**0.190**		**0.186**		**0.190**		**0.194**	

Sample Date	2023-05-06		2023-05-12		2023-05-18		2023-05-24		2023-05-30		
Filter #	C1165512		C9700058		C9700068		C9700064		C9700066		
Volume (Vstd m^3)	2.37		2.35		2.39		2.35		2.30		
Method	AC-029		AC-029		AC-029		AC-029		AC-029		
Parameter	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)	RDL (mg)
PM2.5-10 Mass	0.078	0.033	0.152	0.065	0.150	0.063	0.228	0.097	0.140	0.061	0.004

PM2.5-10 Mass in ug/m3	32.911	64.681	62.762	97.021	60.870
RDL in ug/m3	1.688	1.702	1.674	1.702	1.739

PASSIVE SAMPLES

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

May 2023

Passive Results

	H_2S		NO_2		O_3		SO_2		NMH3		HNO3	
Unit	ppb		ppb		ppb		ppb		ppb		ug/m3	
Minimum (ppb)	0.13	#13	0.2	#23	30.1	#10	0.2	#23	1.4	#12	0.22	#42
Maximum (ppb)	0.56	#5	1.9	#10	54.6	#29	1.2	#14	21.1	#42	2.58	#27
Average (ppb)	0.28	-	0.65	-	39.97	-	0.45	-	4.75	-	0.95	-

No.	Station	Sample	Duplicate	Sample	Duplicate	Sample	Duplicate	Sample	Duplicate	Sample	Duplicate	Sample	Duplicate
3	Therien	0.33		0.9		39.9		0.3		7.8	6.9	1.56	0.41
4	Flat Lake	-		0.6		41.4		0.4		4.8		1.46	
5	Lake Eliza	0.56		0.5		39.3		0.4	0.4	4.4		1.24	
6	Telegraph Creek	-		1.8		39.8		0.4	0.4	9.3		1.02	
8	Muriel-Kehewin	-		0.4		54.2		0.4	0.4	5.6		1.19	
9	Dupre	-		0.7		34.4		0.3		4.0		1.19	
10	La Corey	0.29	0.33	1.9		30.1		0.4		2.9		1.57	
11	Wolf Lake	0.16	0.15	0.4		33.2		0.5		2.2		0.64	
12	Foster Creek	0.13		0.3		36.9		0.3		1.4		0.61	
13	Primrose	0.13		0.3		33.3		0.3		2.0		0.31	
14	Tamarack	0.30		0.8	0.9	43.0	46.5	1.2		2.1		1.11	
15	Ardmore	-		0.7	0.6	37.4	37.3	0.5		3.0		0.63	
16	Frog Lake	0.20		0.3		33.4		0.3		3.1		0.96	
17	Clear Range	0.39		0.6		38.6		0.5		9.0		0.53	
18	Fishing Lake	NA		0.4		40.6		NA		2.7		1.32	
19	Beaverdam	-		0.5		39.8		0.3		6.0		1.78	
22	Cold Lake South (1)	0.23		0.4		43.7		0.3		3.8		0.28	
23	Medley-Martineau	-		0.2		34.4		0.2		2.2		1.31	
24	Fort George	0.25		0.9		44.0		0.3		3.6		0.24	
25	Burnt Lake	Missing 1		-		-		Missing 1		-		-	
26	Mahihkan	0.24		-		-		1.0		2.0		0.29	
27	Mahkeses	0.26		-		-		1.1		3.2		2.58	
28	Town of Bonnyville	0.53		1.0		40.4		0.5		4.9		0.79	
29	Cold Lake South (2)	0.18		0.5		54.6		0.3		3.3		0.70	
32	St. Lina	0.30		0.3		47.8		0.3		4.3		0.27	
42	Lac La Biche	0.25		0.5		39.0		0.4		21.1	16.9	0.22	0.28
BLANK -1		-		-		-		-		1.1		0.42	
BLANK -2		-		-		-		-		1.0		<0.04	
BLANK -3		-		-		-		-		1.7		<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.

4 Station 18: SO2 and H2S sampls were destroyed, likely by a bear. No results could be reported.

EQUIPMENT AUDIT / CALIBRATION RECORDS

XONTECK VERIFICATION/CALIBRATION

Date:	May 20, 2023	**Last Cal. Date:**	February 13, 2023
Company/Airshed:	LICA	**Start Time 24 hr. (mst):**	9:10
Station Name:	Cold Lake South	**End Time 24 hr. (mst):**	14:09
Sampler s/n:	6200	**Performed By:**	Alex Yakupov
Purpose:	Routine Quarterly	**Reviewer:**	Chris Wesson

XONTECK MAINTENANCE

Item:	Most Recent Date Completed:
1. Replace sample line and fittings from sampler to canister every 6 months.	May 20, 2023
2. Purge line from manifold--> sampler with zero air every 6 months.	May 20, 2023
3. Sample system cleaning every 2 years.	n/a
4. Perform 12 hour leak check procedure every 6 months.	May 20, 2023

COMMENTS:

A leak check was completed using a VOC canister. Leak check starts at 09:10 (May 19, 2023) - ends at 11:10 (May 20, 2023). No leaks were detected over 24 hours.

Partisol 2000i-D Audit

Date/Previous Audit Date:	May 20, 2023	February 13, 2023	**Weather Conditions:**	Smoke	
Company:	LICA		**Start Time (mst):**	14:10	
Station:	Cold Lake South		**End Time (mst):**	15:42	
Parameter:	PM 2.5		**Performed By/Reviewer:**	Alex Yakupov	Chris Wesson

Sampler		**Instrument Data**		
Make/Model:	Partisol 2000i-D	**Ambient Temperature (°C):**	19.2	
Serial Number:	200DIW202441804	**Filter Temperature (°C):**	18.6	
Owner:	LICA	**Fine/Coarse Set Flow (litres/min):**	15.00	1.67
Reference Pressure (mmHg):	715.0	**RH (%)**	33.20	

Reference Standards/I.D./Expiry Date:

High Flow:	DeltaCal DC1, # 177246, Sep 7, 2023
Low Flow:	DeltaCal DC1, # 177246, Sep 7, 2023
Digital Manometer:	DeltaCal DC1, # 177246, Sep 7, 2023
Temperature:	Vaisala HMP76B #T1640130, Exp. Date: Jun 14, 2023
Pressure:	Fisher, Model FB 61291, #130168457, Mar 20, 2024

Reference Temperature: (+/-2 °C)	19.3	**Δ °C**	0.1
Reference Pressure: (+/- 10 mmHg)	715.0	**Δ mmHg**	0.0
Coarse Reference Flow (+/- 5%)	1.63	**litres/min**	-2.5%
Fine Reference Flow (+/- 5%)	15.10	**litres/min**	0.7%
Relative Humidity (+/- 1.5% RH)	49.6	**%**	16.4

Leak Check - External Mode

Partisol 2000i-D Leak Check: **External Mode has been selected, pass/fail criteria =+/- 25 mmHg.**

Pressure Drop Measured (mmHg): **9** **Pass**

Other Checks:

Rubber Seal Condition:	okay
Inlet Head Cleanliness:	cleaned today
Inline Filter Condition:	okay
Status Alarms:	None
Insulating Jacket Condition:	n/a
Side Hoods and Dust Filters:	cleaned today
Location v.s. AMD:	good
Flow Setting Actual or Standard ?:	actual

		As Found	**As Left**
Did the temperature require adjustment?	**No**	19.2	19.2
Did the ambient pressure require adjustment?	**No**	715.000	715.000
Did the fine flow require adjustment?	**No**	1.63	1.630
Did the coarse flow require adjustment?	**No**	15.10	15.100

Recommendations/Comments:

Sample inlet was cleaned.

End of Report

Lakeland Industry & Community Association

MAY 2023

Ambient Air Monitoring

Certified Laboratory Analysis Report

LAB-LICA-202305

Operation and Maintenance:
Bureau Veritas Canada

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

June 26, 2023

Table of Contents

Cold Lake South Station

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

Sample ID: 23050192-001 Priority: Normal

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

RECEIVED
MAY 12 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:**	32243
Station ID:	LICA 01	**Installation Date/Time (mst):**	May 03, 2023 @ 15:28
Sample ID:	LICA/VOC/CLS/May 6, 2023	**Removal Date/Time (mst):**	May 08, 2023 @ 17:58

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
May 6, 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: 23050192-002 **Priority:** Normal

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

RECEIVED
MAY 12 2023

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	TE-12
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	May 03, 2023 @ 15:30
Field Sample ID:	LICA/PUF/CLS/May 06, 2023	**Removal Date/Time:**	May 08, 2023 @ 18:04

Sample Data Collection Information

Sample Date:	6-May-23	**Average Pressure (mmHg)**	714
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	13.5
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.4

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: 32243

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: FEB 16 2023

Evacuated: APR 18 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

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

Sampled By: Alex Yakupov

Starting Vacuum: -27.1 "Hg

End Vacuum: KG +19.2 "Hg/psig

InnoTech ALBERTA

Canister ID: TE-12

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/May 6, 2023

Sampled By: Alex Yakupov

Starting Vacuum: _____ "Hg

End Vacuum: _____ "Hg/psig

Sample ID: 23050192-001 **Priority:** Normal

Customer ID: LICA

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID: LICA/PUF/CLS/May 6, 2023
Matrix: Air Filter
CANISTER ID: TE-12
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 06-May-23 0:00
DATE RECEIVED: 12-May-23
REPORT CREATED: 30-May-23
REPORT NUMBER: 23050192
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050192-002	1-Methylnaphthalene		0.11	ug/Filter	0.01	AC-066	15-May-23
23050192-002	2-Methylnaphthalene		0.11	ug/Filter	0.01	AC-066	15-May-23
23050192-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050192-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050192-002	Acenaphthene		0.03	ug/Filter	0.01	AC-066	15-May-23
23050192-002	Acenaphthylene		0.14	ug/Filter	0.01	AC-066	15-May-23
23050192-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050192-002	Anthracene		0.10	ug/Filter	0.01	AC-066	15-May-23
23050192-002	Benzo(a)anthracene		0.02	ug/Filter	0.01	AC-066	15-May-23
23050192-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050192-002	Benzo(b,j,k)fluoranthene		0.05	ug/Filter	0.01	AC-066	15-May-23
23050192-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050192-002	Benzo(e)pyrene		0.02	ug/Filter	0.01	AC-066	15-May-23
23050192-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050192-002	Chrysene		0.02	ug/Filter	0.01	AC-066	15-May-23
23050192-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050192-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: May 30, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202305

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/May 6, 2023	TE-12	Air Filter	06-May-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050192 **REPORT CREATED:** 30-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050192-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050192-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050192-002	Fluoranthene		0.16	ug/Filter	0.01	AC-066	15-May-23
23050192-002	Fluorene		0.15	ug/Filter	0.01	AC-066	15-May-23
23050192-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050192-002	Naphthalene		0.06	ug/Filter	0.01	AC-066	15-May-23
23050192-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-May-23
23050192-002	Phenanthrene		0.64	ug/Filter	0.01	AC-066	15-May-23
23050192-002	Pyrene		0.13	ug/Filter	0.01	AC-066	15-May-23
23050192-002	Retene		0.73	ug/Filter	0.01	AC-066	15-May-23

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/May 6, 2023	32243	Ambient Air	06-May-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050192 **REPORT CREATED:** 30-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050192-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-May-23
23050192-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-May-23
23050192-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-May-23
23050192-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-May-23
23050192-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-May-23
23050192-001	1,2,3-Trimethylbenzene	I	0.06	ppbv	0.05	AC-058	15-May-23
23050192-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	15-May-23
23050192-001	1,2,4-Trimethylbenzene	I	0.07	ppbv	0.03	AC-058	15-May-23
23050192-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-May-23
23050192-001	1,2-Dichlorobenzene	I	0.03	ppbv	0.03	AC-058	15-May-23
23050192-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-May-23
23050192-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-May-23
23050192-001	1,3,5-Trimethylbenzene	I	0.06	ppbv	0.03	AC-058	15-May-23
23050192-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-May-23
23050192-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	15-May-23
23050192-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	15-May-23
23050192-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	15-May-23
23050192-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	15-May-23
23050192-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	15-May-23
23050192-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-May-23
23050192-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-May-23
23050192-001	2,2-Dimethylbutane	I	0.04	ppbv	0.02	AC-058	15-May-23
23050192-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-May-23
23050192-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	15-May-23
23050192-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-May-23

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

Date: May 30, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202305

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/May 6, 2023	32243	Ambient Air	06-May-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050192 **REPORT CREATED:** 30-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050192-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-May-23
23050192-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-May-23
23050192-001	2-Methylhexane	I	0.04	ppbv	0.03	AC-058	15-May-23
23050192-001	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-May-23
23050192-001	3-Methylheptane	I	0.03	ppbv	0.03	AC-058	15-May-23
23050192-001	3-Methylhexane	I	0.04	ppbv	0.02	AC-058	15-May-23
23050192-001	3-Methylpentane	I	0.02	ppbv	0.02	AC-058	15-May-23
23050192-001	Acetone	K, T, U	< 0.4	ppbv	0.4	AC-058	15-May-23
23050192-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	15-May-23
23050192-001	Benzene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-May-23
23050192-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	15-May-23
23050192-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-May-23
23050192-001	Bromoform	I	0.03	ppbv	0.02	AC-058	15-May-23
23050192-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-May-23
23050192-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	15-May-23
23050192-001	Carbon tetrachloride	I	0.04	ppbv	0.02	AC-058	15-May-23
23050192-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-May-23
23050192-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-May-23
23050192-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	15-May-23
23050192-001	Chloromethane		0.57	ppbv	0.04	AC-058	15-May-23
23050192-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-May-23
23050192-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-May-23
23050192-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-May-23
23050192-001	cis-2-Pentene	I	0.02	ppbv	0.02	AC-058	15-May-23
23050192-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	15-May-23

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/May 6, 2023	32243	Ambient Air	06-May-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050192 **REPORT CREATED:** 30-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050192-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-May-23
23050192-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-May-23
23050192-001	Ethanol		1.3	ppbv	0.5	AC-058	15-May-23
23050192-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	15-May-23
23050192-001	Ethylbenzene	I	0.08	ppbv	0.03	AC-058	15-May-23
23050192-001	Freon-11		0.18	ppbv	0.02	AC-058	15-May-23
23050192-001	Freon-113	I	0.03	ppbv	0.02	AC-058	15-May-23
23050192-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	15-May-23
23050192-001	Freon-12		0.52	ppbv	0.03	AC-058	15-May-23
23050192-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	15-May-23
23050192-001	Isobutane		0.30	ppbv	0.03	AC-058	15-May-23
23050192-001	Isopentane		0.11	ppbv	0.04	AC-058	15-May-23
23050192-001	Isoprene	I	0.06	ppbv	0.02	AC-058	15-May-23
23050192-001	Isopropyl alcohol		0.9	ppbv	0.3	AC-058	15-May-23
23050192-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	15-May-23
23050192-001	m,p-Xylene	I	0.06	ppbv	0.04	AC-058	15-May-23
23050192-001	m-Diethylbenzene	I	0.09	ppbv	0.02	AC-058	15-May-23
23050192-001	m-Ethyltoluene	I	0.06	ppbv	0.03	AC-058	15-May-23
23050192-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	15-May-23
23050192-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	15-May-23
23050192-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	15-May-23
23050192-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	15-May-23
23050192-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	15-May-23
23050192-001	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-May-23
23050192-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	15-May-23

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/May 6, 2023	32243	Ambient Air	06-May-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050192 **REPORT CREATED:** 30-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050192-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	15-May-23
23050192-001	n-Butane		0.25	ppbv	0.02	AC-058	15-May-23
23050192-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	15-May-23
23050192-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	15-May-23
23050192-001	n-Heptane	I	0.06	ppbv	0.04	AC-058	15-May-23
23050192-001	n-Hexane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-May-23
23050192-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-May-23
23050192-001	n-Pentane	I	0.07	ppbv	0.04	AC-058	15-May-23
23050192-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	15-May-23
23050192-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	15-May-23
23050192-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	15-May-23
23050192-001	n-Nonane	I	0.05	ppbv	0.04	AC-058	15-May-23
23050192-001	o-Ethyltoluene	I	0.05	ppbv	0.02	AC-058	15-May-23
23050192-001	o-Xylene	I	0.06	ppbv	0.03	AC-058	15-May-23
23050192-001	p-Diethylbenzene	I	0.05	ppbv	0.02	AC-058	15-May-23
23050192-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	15-May-23
23050192-001	Styrene	I	0.10	ppbv	0.04	AC-058	15-May-23
23050192-001	Tetrachloroethylene	I	0.02	ppbv	0.02	AC-058	15-May-23
23050192-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	15-May-23
23050192-001	Toluene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-May-23
23050192-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	15-May-23
23050192-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-May-23
23050192-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-May-23
23050192-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-May-23
23050192-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-May-23

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

Date: May 30, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202305

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/May 6, 2023	32243	Ambient Air	06-May-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050192 **REPORT CREATED:** 30-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050192-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	15-May-23
23050192-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	15-May-23

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

Date: May 30, 2023

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

Revision History

Order ID	Ver	Date	Reason
23050192	01	30-May-23	Report created

Methods

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

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

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

Qualifiers

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

Order Comments

Sample Comments

Result Comments

Note:

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

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

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:**	28953
Station ID:	LICA 01	**Installation Date/Time (mst):**	May 08, 2023 @ 18:16
Sample ID:	LICA/VOC/CLS/May 12, 2023	**Removal Date/Time (mst):**	May 13, 2023 @ 15:16

Date and Time Information

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

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

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

Deployment/Collection and Maintenance Checklist

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

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 23050308-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/May 12, 2023

RECEIVED
MAY 19 2023
Purolator

Sample ID: 23050308-002 **Priority:** Normal

AIR FCD-01321/2

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/May 12, 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:**	May 08, 2023 @ 18:19
Field Sample ID:	LICA/PUF/CLS/May 12, 2023	**Removal Date/Time:**	May 13, 2023 @ 15:18

Sample Data Collection Information

Sample Date:	12-May-23	**Average Pressure (mmHg)**	718
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	19.8
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.41

Sample Recovery Checklist

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

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

RECEIVED
MAY 19 2023

InnoTech ALBERTA

Canister ID: A13-02

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: PUF on: _____

Evacuated: _____ Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/DUF/CLS/May 12, 20

Sampled By: Alex Yakupov

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

InnoTech ALBERTA

Canister ID: 28953

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: FEB 13 2023

Evacuated: APR 18 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

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

Sampled By: Alex Yakupov

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

Sample ID: 23050308-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/May 12, 2023

{00004818;6}

TERMS AND CONDITIONS

The attached document entitled "**Chain of Custody Form**" is subject to the following Terms and Conditions, unless otherwise specified on the Quotation. InnoTech Alberta's commencement of the Services shall be deemed acceptance of the terms and conditions by the Client.

1. Any proposal contained herein is prepared for the consideration of the Client only. Its contents may not be used or disclosed to any other party without prior written consent of the INNOTECH ALBERTA INC. (hereinafter referred to as "InnoTech Alberta").

2. InnoTech Alberta will perform the Services in accordance with normal professional standards.

3. The delivery time for performance of the Services (as set out on the front page of this Quotation) is approximate and may be changed by InnoTech Alberta giving written notice to the Client.

4. InnoTech Alberta will exercise due care and proficiency in testing items submitted by a Client. InnoTech Alberta shall not, however, be liable to the Client for any damage or loss caused to the item being tested or for any damage, loss or expense caused by any delay in carrying out the test, including any damage, loss or expense resulting from InnoTech Alberta's negligence. InnoTech Alberta shall not be responsible for any damage, which is a natural or necessary result of any testing procedure.

5. For the purposes of this Quotation, Intellectual Property means all information, data, artistic and literary works, concepts, designs, processes, software, algorithms and inventions, including, without limitation, those that could be the subject of patent, copyright, industrial design, trade secret or other forms of protection. Intellectual Property which was owned by either InnoTech Alberta or the Client prior to the signing of this Agreement remains the property of that party. Nothing in this Agreement shall operate as a license, permission or grant of any other rights to either InnoTech Alberta's or the Client's Intellectual Property.

6. All data, reports and other information relating to the Services shall be treated by InnoTech Alberta as the confidential property of the Client, and InnoTech Alberta will use reasonable efforts to ensure that its employees, contractors and agents will not disclose the same to any other person, firm or corporation during the term of this Agreement and for a period of five (5) years after the date of termination of the Agreement. The obligation of confidentiality set out herein shall not apply to any information that was in InnoTech Alberta's possession prior to receipt from the Client or which is or becomes part of the public domain through no act or failure on the part of InnoTech Alberta. The obligation of confidentiality set out in this Section shall not prevent the disclosure of information to any level of government having jurisdiction to make lawful demand therefor, or required to be disclosed by any applicable law. Any records required to be maintained by InnoTech Alberta pursuant to this Agreement are subject to the protection and access provisions of the Freedom of Information and Protection of Privacy Act (Alberta).

7. The reported results of any InnoTech Alberta tests or evaluations performed on samples or items provided by the Client shall be interpreted as being specific to the sample or item tested. InnoTech Alberta makes no representation that any similar or related untested samples or items would produce the same results.

8. The Client shall not use InnoTech Alberta's name in any advertising material, sale offer, news releases, public statements or announcements, whether written or oral relating to the Services or the results thereof, without the prior written consent of InnoTech Alberta.

9. Records, test data, reports and samples, except where shipped to the Client after completion of the work shall be retained by InnoTech Alberta according to InnoTech Alberta's approved Records Retention and Disposition Schedule.

10. Prices quoted are in Canadian Dollars unless otherwise stated in writing and are exclusive of any provincial, municipal, sales, use or goods and services tax.

11. Prices quoted do not include shipping, insurance or cost of consumables. The Client shall be responsible for all costs incurred by InnoTech Alberta in collecting any item for testing and returning the item to the Client after testing and shall be responsible for all necessary incidental costs incurred by InnoTech Alberta in providing the Services. InnoTech Alberta will not be responsible for any damage or loss to items during shipping and it is the responsibility of the Client to arrange and pay for any insurance it deems necessary.

12. Any test samples or other materials supplied by the Client to InnoTech Alberta may, at InnoTech Alberta's option, be returned by InnoTech Alberta to the Client. The Client shall:

(a) be responsible for all costs associated with the handling, transportation and disposal of such materials;

(b) reimburse InnoTech Alberta for any costs incurred by InnoTech Alberta associated with the handling, transportation and disposal of such materials; and

(c) indemnify and hold InnoTech Alberta harmless from any and all claims, damages or actions associated with the handling, transportation and disposal of such materials.

13. The Client shall pay all invoices rendered by InnoTech Alberta to the Client within thirty (30) days from the date of invoice, without deduction or set-off.

14. If the Client fails to pay any amount under this Agreement, such unpaid amount shall bear interest at a rate per month equal to one (1%) percent (or 12.6825% per annum) with interest on overdue interest at the same rate.

15. InnoTech Alberta makes no representation, warranties or conditions, either expressed or implied, statutory or otherwise and does not warrant the quality, state, merchantability or fitness for any purpose of any goods or products to be delivered pursuant to this Agreement. The Client accepts the results of these Services or items tested as is, and acknowledges that any use or interpretation of the information contained is at the Client's own risk.

16. In no event shall InnoTech Alberta be liable for any indirect or consequential damage or loss suffered by the Client, including loss of anticipated profits.

17. The Client shall indemnify and hold harmless InnoTech Alberta from any and all claims, demands, actions and costs (including legal costs on a solicitor-client basis) that may arise out of:

(a) any dangerous defect or content in the item being tested, whether apparent or not, which dangerous defect or content was not disclosed in writing to InnoTech Alberta by the Client at the time the item was submitted for testing;

(b) differences between those items actually tested and items previously or subsequently produced which are purported to be identical to the item tested; or

(c) any use of the tested item or any item incorporating the tested item, whether by the Client or a third party following its return to the Client.

The hold harmless shall survive this Agreement.

18. The Client shall, at its own expense and without limiting its liabilities herein, be responsible for insuring its operation in an amount not less than $2,000,000 inclusive per occurrence, insuring against bodily injury, and property damage including loss of use thereof. Further, the Client is responsible for insuring all owned property directly or indirectly related to this Agreement and InnoTech Alberta shall have no liability for any loss or damage to such property.

19. InnoTech Alberta shall maintain the following insurance: (i) commercial general liability insurance (including cross liability, severability of interests, non-owned automobile liability) in the amount of two million dollars ($2,000,000.00) per occurrence, and; (ii) professional liability and errors and omissions insurance in the amount of one million dollars ($1,000,000.00) per claim, and two million dollars ($2,000,000.00) in the aggregate. In addition, InnoTech Alberta shall maintain all workers' compensation coverage required by applicable laws. Notwithstanding the foregoing, InnoTech Alberta reserves the right to supplement or add insurance coverage from time to time as may be required in its sole discretion. InnoTech Alberta may provide certificates of insurance for coverages outlined in (i) and (ii) above.

20. The Client agrees to comply with all InnoTech Alberta Safety & Security regulations in effect while on InnoTech Alberta premises.

21. This Agreement represents the entire agreement between the parties and shall supersede all prior agreements relative to this transaction.

22. If a party's performance of any of its obligations under this Agreement (excepting only an obligation to pay) is delayed, rendered impossible or impractical, or prevented in whole or in part due to circumstances beyond its reasonable control, including but not limited to acts of God, war, terrorism, labour disputes, pandemics or epidemics, global health emergencies, or governmental action, that party will not be in breach of this Agreement due to the delay or failure in performance occasioned by such event..

23. InnoTech Alberta may assign this Quotation to an "affiliated" (as that term is defined at Section 2 of the Business Corporations Act (Alberta)) or successor entity on written notice to the Client.

24. This Quotation and rights and parties thereto shall be governed by and construed according to the laws of the Province of Alberta. The parties hereby submit to the jurisdiction of the Courts of Alberta.

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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/May 12, 2023
Matrix: Air Filter
CANISTER ID: A13-02
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 12-May-23 0:00
DATE RECEIVED: 19-May-23
REPORT CREATED: 23-Jun-23
REPORT NUMBER: 23050308
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050308-002	1-Methylnaphthalene		0.03	ug/Filter	0.01	AC-066	15-Jun-23
23050308-002	2-Methylnaphthalene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050308-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050308-002	7,12-Dimethylbenz(a)anthracene		0.05	ug/Filter	0.01	AC-066	15-Jun-23
23050308-002	Acenaphthene		0.11	ug/Filter	0.01	AC-066	15-Jun-23
23050308-002	Acenaphthylene		0.70	ug/Filter	0.01	AC-066	15-Jun-23
23050308-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050308-002	Anthracene		0.04	ug/Filter	0.01	AC-066	15-Jun-23
23050308-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050308-002	Benzo(a)pyrene		0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050308-002	Benzo(b,j,k)fluoranthene		0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050308-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050308-002	Benzo(e)pyrene		0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050308-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050308-002	Chrysene		0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050308-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050308-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23

Report certified by: Graham Knox, Admin. & Ops. Supervisor On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: June 23, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202305

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/May 12, 2023	A13-02	Air Filter	12-May-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050308 **REPORT CREATED:** 23-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050308-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050308-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050308-002	Fluoranthene		0.09	ug/Filter	0.01	AC-066	15-Jun-23
23050308-002	Fluorene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050308-002	Indeno(1,2,3-cd)pyrene		0.02	ug/Filter	0.01	AC-066	15-Jun-23
23050308-002	Naphthalene		0.04	ug/Filter	0.01	AC-066	15-Jun-23
23050308-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050308-002	Phenanthrene		0.62	ug/Filter	0.01	AC-066	15-Jun-23
23050308-002	Pyrene		0.07	ug/Filter	0.01	AC-066	15-Jun-23
23050308-002	Retene		4.03	ug/Filter	0.01	AC-066	15-Jun-23

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

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

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202305

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/May 12, 2023	28953	Ambient Air	12-May-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050308 **REPORT CREATED:** 23-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050308-001	1,1,1-Trichloroethane	I	0.02	ppbv	0.02	AC-058	06-Jun-23
23050308-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-23
23050308-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-23
23050308-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-23
23050308-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-23
23050308-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	06-Jun-23
23050308-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jun-23
23050308-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jun-23
23050308-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-23
23050308-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jun-23
23050308-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jun-23
23050308-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jun-23
23050308-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jun-23
23050308-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jun-23
23050308-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Jun-23
23050308-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Jun-23
23050308-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	06-Jun-23
23050308-001	1-Butene/Isobutylene	I	0.09	ppbv	0.06	AC-058	06-Jun-23
23050308-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	06-Jun-23
23050308-001	1-Pentene	I	0.04	ppbv	0.03	AC-058	06-Jun-23
23050308-001	2,2,4-Trimethylpentane	I	0.04	ppbv	0.02	AC-058	06-Jun-23
23050308-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-23
23050308-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-23
23050308-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	06-Jun-23
23050308-001	2,3-Dimethylpentane	I	0.03	ppbv	0.02	AC-058	06-Jun-23

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

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

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202305

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/May 12, 2023	28953	Ambient Air	12-May-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050308 **REPORT CREATED:** 23-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050308-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jun-23
23050308-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-23
23050308-001	2-Methylhexane	I	0.03	ppbv	0.03	AC-058	06-Jun-23
23050308-001	2-Methylpentane	I	0.07	ppbv	0.02	AC-058	06-Jun-23
23050308-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jun-23
23050308-001	3-Methylhexane	I	0.03	ppbv	0.02	AC-058	06-Jun-23
23050308-001	3-Methylpentane	I	0.02	ppbv	0.02	AC-058	06-Jun-23
23050308-001	Acetone		5.5	ppbv	0.4	AC-058	06-Jun-23
23050308-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jun-23
23050308-001	Benzene		0.26	ppbv	0.03	AC-058	06-Jun-23
23050308-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jun-23
23050308-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jun-23
23050308-001	Bromoform	I	0.02	ppbv	0.02	AC-058	06-Jun-23
23050308-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-23
23050308-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-23
23050308-001	Carbon tetrachloride	I	0.10	ppbv	0.02	AC-058	06-Jun-23
23050308-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-23
23050308-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-23
23050308-001	Chloroform	I	0.02	ppbv	0.02	AC-058	06-Jun-23
23050308-001	Chloromethane		0.56	ppbv	0.04	AC-058	06-Jun-23
23050308-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-23
23050308-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jun-23
23050308-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jun-23
23050308-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-23
23050308-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Jun-23

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

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/May 12, 2023	28953	Ambient Air	12-May-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050308 **REPORT CREATED:** 23-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050308-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-23
23050308-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-23
23050308-001	Ethanol		1.3	ppbv	0.5	AC-058	06-Jun-23
23050308-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jun-23
23050308-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jun-23
23050308-001	Freon-11		0.20	ppbv	0.02	AC-058	06-Jun-23
23050308-001	Freon-113	I	0.07	ppbv	0.02	AC-058	06-Jun-23
23050308-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jun-23
23050308-001	Freon-12		0.45	ppbv	0.03	AC-058	06-Jun-23
23050308-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jun-23
23050308-001	Isobutane		0.53	ppbv	0.03	AC-058	06-Jun-23
23050308-001	Isopentane		0.23	ppbv	0.04	AC-058	06-Jun-23
23050308-001	Isoprene		0.18	ppbv	0.02	AC-058	06-Jun-23
23050308-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jun-23
23050308-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Jun-23
23050308-001	m,p-Xylene	I	0.11	ppbv	0.04	AC-058	06-Jun-23
23050308-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-23
23050308-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jun-23
23050308-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Jun-23
23050308-001	Methyl ethyl ketone	I	0.5	ppbv	0.3	AC-058	06-Jun-23
23050308-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jun-23
23050308-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	06-Jun-23
23050308-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jun-23
23050308-001	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-23
23050308-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	06-Jun-23

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

Date: June 23, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/May 12, 2023	28953	Ambient Air	12-May-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050308 **REPORT CREATED:** 23-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050308-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jun-23
23050308-001	n-Butane		0.41	ppbv	0.02	AC-058	06-Jun-23
23050308-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	06-Jun-23
23050308-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jun-23
23050308-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Jun-23
23050308-001	n-Hexane	I	0.05	ppbv	0.03	AC-058	06-Jun-23
23050308-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-23
23050308-001	n-Pentane		0.11	ppbv	0.04	AC-058	06-Jun-23
23050308-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	06-Jun-23
23050308-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	06-Jun-23
23050308-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jun-23
23050308-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Jun-23
23050308-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-23
23050308-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jun-23
23050308-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-23
23050308-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Jun-23
23050308-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Jun-23
23050308-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-23
23050308-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jun-23
23050308-001	Toluene	I	0.16	ppbv	0.03	AC-058	06-Jun-23
23050308-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	06-Jun-23
23050308-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-23
23050308-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jun-23
23050308-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-23
23050308-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-23

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/May 12, 2023	28953	Ambient Air	12-May-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050308 **REPORT CREATED:** 23-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050308-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jun-23
23050308-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jun-23

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

Date: June 23, 2023

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

Revision History

Order ID	Ver	Date	Reason
23050308	01	23-Jun-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: 23050412-001 **Priority:** Normal

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

RECEIVED
MAY 29 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:**	29038
Station ID:	LICA 01	**Installation Date/Time (mst):**	May 13, 2023 @ 15:22
Sample ID:	LICA/VOC/CLS/May 18, 2023	**Removal Date/Time (mst):**	May 20, 2023 @ 13:42

Date and Time Information

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

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

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

Deployment/Collection and Maintenance Checklist

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

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 23050412-002 **Priority:** Normal

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

RECEIVED
MAY 29 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:**	May 13, 2023 @ 15:24
Field Sample ID:	LICA/PUF/CLS/May 18, 2023	**Removal Date/Time:**	May 20, 2023 @ 13:43

Sample Data Collection Information

Sample Date:	18-May-23	**Average Pressure (mmHg)**	716
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	13.8
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.4

Sample Recovery Checklist

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

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

Sample ID: 23050412-003 Priority: Normal

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

RECEIVED
MAY 29 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:**	32189
Station ID:	LICA 01	**Installation Date/Time (mst):**	May 20, 2023 @ 15:46
Sample ID:	LICA/VOC/CLS/May 24, 2023	**Removal Date/Time (mst):**	May 26, 2023 @ 14:40

Date and Time Information

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

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

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

Deployment/Collection and Maintenance Checklist

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

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 23050412-004 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/May 24, 2023

RECEIVED
MAY 29 2023

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	TE-04
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	May 20, 2023 @ 15:44
Field Sample ID:	LICA/PUF/CLS/May 24, 2023	**Removal Date/Time:**	May 26, 2023 @ 14:44

Sample Data Collection Information

Sample Date:	24-May-23	**Average Pressure (mmHg)**	710
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	15
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: 29038

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: FEB 2 4 2023

Evacuated: APR 1 8 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

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

Sampled By: Alex Yakupov

Starting Vacuum: -27.1 "Hg

End Vacuum: KG +17.9 "Hg/psig

InnoTech ALBERTA

Canister ID: TE-01

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: PUF on: _____

Evacuated: _____ Recertified: _____

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

Laboratory Contact Number: 780-632-8403

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

Sampled By: Alex Yakupov

Starting Vacuum: _____ "Hg

End Vacuum: _____ "Hg/psig

InnoTech ALBERTA

Canister ID: 32189

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: MAR 0 8 2023

Evacuated: APR 2 6 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

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

Sampled By: Alex Yakupov

Starting Vacuum: -27.1 "Hg

End Vacuum: KG 20 +19.4 "Hg/psig

InnoTech ALBERTA

Canister ID: TE-04

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/May 24 2023

Sampled By: Alex Yakupov

Starting Vacuum: _____ "Hg

End Vacuum: _____ "Hg/psig

Sample ID: 23050412-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/May 18, 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/May 18, 2023
Matrix: Air Filter
CANISTER ID: TE-01
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 18-May-23 0:00
DATE RECEIVED: 29-May-23
REPORT CREATED: 23-Jun-23
REPORT NUMBER: 23050412
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050412-002	1-Methylnaphthalene		0.02	ug/Filter	0.01	AC-066	15-Jun-23
23050412-002	2-Methylnaphthalene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050412-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050412-002	7,12-Dimethylbenz(a)anthracene		0.07	ug/Filter	0.01	AC-066	15-Jun-23
23050412-002	Acenaphthene		0.02	ug/Filter	0.01	AC-066	15-Jun-23
23050412-002	Acenaphthylene		0.38	ug/Filter	0.01	AC-066	15-Jun-23
23050412-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050412-002	Anthracene		0.04	ug/Filter	0.01	AC-066	15-Jun-23
23050412-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050412-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050412-002	Benzo(b,j,k)fluoranthene		0.02	ug/Filter	0.01	AC-066	15-Jun-23
23050412-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050412-002	Benzo(e)pyrene		0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050412-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050412-002	Chrysene		0.02	ug/Filter	0.01	AC-066	15-Jun-23
23050412-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050412-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23

Report certified by: Graham Knox, Admin. & Ops. Supervisor On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: June 23, 2023

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/May 18, 2023	TE-01	Air Filter	18-May-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050412 **REPORT CREATED:** 23-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050412-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050412-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050412-002	Fluoranthene		0.10	ug/Filter	0.01	AC-066	15-Jun-23
23050412-002	Fluorene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050412-002	Indeno(1,2,3-cd)pyrene		0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050412-002	Naphthalene		0.04	ug/Filter	0.01	AC-066	15-Jun-23
23050412-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050412-002	Phenanthrene		0.62	ug/Filter	0.01	AC-066	15-Jun-23
23050412-002	Pyrene		0.08	ug/Filter	0.01	AC-066	15-Jun-23
23050412-002	Retene		4.08	ug/Filter	0.01	AC-066	15-Jun-23

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/May 24, 2023	TE-04	Air Filter	24-May-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050412 **REPORT CREATED:** 23-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050412-004	1-Methylnaphthalene		0.02	ug/Filter	0.01	AC-066	15-Jun-23
23050412-004	2-Methylnaphthalene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050412-004	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050412-004	7,12-Dimethylbenz(a)anthracene		0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050412-004	Acenaphthene		0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050412-004	Acenaphthylene		0.03	ug/Filter	0.01	AC-066	15-Jun-23
23050412-004	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050412-004	Anthracene		0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050412-004	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050412-004	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050412-004	Benzo(b,j,k)fluoranthene		0.03	ug/Filter	0.01	AC-066	15-Jun-23
23050412-004	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050412-004	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050412-004	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050412-004	Chrysene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050412-004	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050412-004	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050412-004	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050412-004	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050412-004	Fluoranthene		0.05	ug/Filter	0.01	AC-066	15-Jun-23
23050412-004	Fluorene		0.07	ug/Filter	0.01	AC-066	15-Jun-23
23050412-004	Indeno(1,2,3-cd)pyrene		0.02	ug/Filter	0.01	AC-066	15-Jun-23
23050412-004	Naphthalene		0.04	ug/Filter	0.01	AC-066	15-Jun-23
23050412-004	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23050412-004	Phenanthrene		0.30	ug/Filter	0.01	AC-066	15-Jun-23

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

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/May 24, 2023	TE-04	Air Filter	24-May-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050412 **REPORT CREATED:** 23-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050412-004	Pyrene		0.05	ug/Filter	0.01	AC-066	15-Jun-23
23050412-004	Retene		0.60	ug/Filter	0.01	AC-066	15-Jun-23

Report certified by: Graham Knox, Admin. & Ops. Supervisor On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: June 23, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/May 18, 2023	29038	Ambient Air	18-May-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050412 **REPORT CREATED:** 23-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050412-001	1,1,1-Trichloroethane	I	0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Jun-23
23050412-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Jun-23
23050412-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	07-Jun-23
23050412-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	07-Jun-23
23050412-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	07-Jun-23
23050412-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	07-Jun-23
23050412-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	07-Jun-23
23050412-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	07-Jun-23
23050412-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23

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

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/May 18, 2023	29038	Ambient Air	18-May-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050412 **REPORT CREATED:** 23-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050412-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-001	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-001	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-001	Acetone		3.3	ppbv	0.4	AC-058	07-Jun-23
23050412-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Jun-23
23050412-001	Benzene	I	0.13	ppbv	0.03	AC-058	07-Jun-23
23050412-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Jun-23
23050412-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-001	Carbon tetrachloride	I	0.09	ppbv	0.02	AC-058	07-Jun-23
23050412-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-001	Chloromethane		0.50	ppbv	0.04	AC-058	07-Jun-23
23050412-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	07-Jun-23

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/May 18, 2023	29038	Ambient Air	18-May-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050412 **REPORT CREATED:** 23-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050412-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-001	Ethanol	K, T, U	< 0.5	ppbv	0.5	AC-058	07-Jun-23
23050412-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Jun-23
23050412-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-001	Freon-11		0.19	ppbv	0.02	AC-058	07-Jun-23
23050412-001	Freon-113	I	0.06	ppbv	0.02	AC-058	07-Jun-23
23050412-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-001	Freon-12		0.44	ppbv	0.03	AC-058	07-Jun-23
23050412-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Jun-23
23050412-001	Isobutane		0.25	ppbv	0.03	AC-058	07-Jun-23
23050412-001	Isopentane	I	0.08	ppbv	0.04	AC-058	07-Jun-23
23050412-001	Isoprene	I	0.03	ppbv	0.02	AC-058	07-Jun-23
23050412-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Jun-23
23050412-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	07-Jun-23
23050412-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	07-Jun-23
23050412-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	07-Jun-23
23050412-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Jun-23
23050412-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Jun-23
23050412-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	07-Jun-23
23050412-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-001	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Jun-23

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/May 18, 2023	29038	Ambient Air	18-May-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050412 **REPORT CREATED:** 23-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050412-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Jun-23
23050412-001	n-Butane		0.12	ppbv	0.02	AC-058	07-Jun-23
23050412-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	07-Jun-23
23050412-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Jun-23
23050412-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	07-Jun-23
23050412-001	n-Hexane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-001	n-Pentane	K, T, U	< 0.04	ppbv	0.04	AC-058	07-Jun-23
23050412-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	07-Jun-23
23050412-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	07-Jun-23
23050412-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Jun-23
23050412-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	07-Jun-23
23050412-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	07-Jun-23
23050412-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	07-Jun-23
23050412-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Jun-23
23050412-001	Toluene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	07-Jun-23
23050412-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/May 18, 2023	29038	Ambient Air	18-May-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050412 **REPORT CREATED:** 23-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050412-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Jun-23
23050412-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/May 24, 2023	32189	Ambient Air	24-May-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050412 **REPORT CREATED:** 23-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050412-003	1,1,1-Trichloroethane	I	0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-003	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-003	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-003	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-003	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-003	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Jun-23
23050412-003	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Jun-23
23050412-003	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-003	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-003	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-003	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-003	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-003	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-003	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-003	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	07-Jun-23
23050412-003	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	07-Jun-23
23050412-003	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	07-Jun-23
23050412-003	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	07-Jun-23
23050412-003	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	07-Jun-23
23050412-003	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-003	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-003	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-003	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-003	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	07-Jun-23
23050412-003	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/May 24, 2023	32189	Ambient Air	24-May-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050412 **REPORT CREATED:** 23-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050412-003	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-003	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-003	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-003	2-Methylpentane	I	0.05	ppbv	0.02	AC-058	07-Jun-23
23050412-003	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-003	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-003	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-003	Acetone		3.1	ppbv	0.4	AC-058	07-Jun-23
23050412-003	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Jun-23
23050412-003	Benzene	I	0.09	ppbv	0.03	AC-058	07-Jun-23
23050412-003	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Jun-23
23050412-003	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-003	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-003	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-003	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-003	Carbon tetrachloride	I	0.10	ppbv	0.02	AC-058	07-Jun-23
23050412-003	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-003	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-003	Chloroform	I	0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-003	Chloromethane		0.51	ppbv	0.04	AC-058	07-Jun-23
23050412-003	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-003	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-003	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-003	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-003	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	07-Jun-23

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/May 24, 2023	32189	Ambient Air	24-May-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050412 **REPORT CREATED:** 23-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050412-003	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-003	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-003	Ethanol	I	0.5	ppbv	0.5	AC-058	07-Jun-23
23050412-003	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Jun-23
23050412-003	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-003	Freon-11		0.19	ppbv	0.02	AC-058	07-Jun-23
23050412-003	Freon-113	I	0.06	ppbv	0.02	AC-058	07-Jun-23
23050412-003	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-003	Freon-12		0.45	ppbv	0.03	AC-058	07-Jun-23
23050412-003	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Jun-23
23050412-003	Isobutane		0.27	ppbv	0.03	AC-058	07-Jun-23
23050412-003	Isopentane		0.11	ppbv	0.04	AC-058	07-Jun-23
23050412-003	Isoprene		0.16	ppbv	0.02	AC-058	07-Jun-23
23050412-003	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Jun-23
23050412-003	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	07-Jun-23
23050412-003	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	07-Jun-23
23050412-003	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-003	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-003	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	07-Jun-23
23050412-003	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Jun-23
23050412-003	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Jun-23
23050412-003	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	07-Jun-23
23050412-003	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-003	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-003	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	07-Jun-23

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/May 24, 2023	32189	Ambient Air	24-May-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050412 **REPORT CREATED:** 23-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050412-003	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Jun-23
23050412-003	n-Butane		0.15	ppbv	0.02	AC-058	07-Jun-23
23050412-003	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	07-Jun-23
23050412-003	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Jun-23
23050412-003	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	07-Jun-23
23050412-003	n-Hexane	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-003	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-003	n-Pentane	I	0.05	ppbv	0.04	AC-058	07-Jun-23
23050412-003	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	07-Jun-23
23050412-003	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	07-Jun-23
23050412-003	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Jun-23
23050412-003	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	07-Jun-23
23050412-003	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-003	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-003	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-003	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	07-Jun-23
23050412-003	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	07-Jun-23
23050412-003	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-003	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Jun-23
23050412-003	Toluene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-003	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	07-Jun-23
23050412-003	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-003	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	07-Jun-23
23050412-003	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23
23050412-003	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23

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

Date: June 23, 2023

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/May 24, 2023	32189	Ambient Air	24-May-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23050412 **REPORT CREATED:** 23-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050412-003	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	07-Jun-23
23050412-003	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	07-Jun-23

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

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

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202305

Revision History

Order ID	Ver	Date	Reason
23050412	01	23-Jun-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: 23060169-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS

RECEIVED
JUN 13 2023

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	TE-06
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	May 26, 2023 @ 14:56
Field Sample ID:	LICA/PUF/CLS/May 30, 2023	**Removal Date/Time:**	Jun 02, 2023 @ 19:48

Sample Data Collection Information

Sample Date:	30-May-23	**Average Pressure (mmHg)**	706
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	19.1
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

ample ID: 23060169-002 Priority: Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS

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:	32261
Station ID:	LICA 01	Installation Date/Time (mst):	May 26, 2023 @ 14:55
Sample ID:	LICA/VOC/CLS/May 30, 2023	Removal Date/Time (mst):	Jun 02, 2023 @ 19:46

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
May 30, 2023	0:00	23:59	24

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

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

Deployment/Collection and Maintenance Checklist

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

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

RECEIVED
JUN 13 2023

InnoTech ALBERTA

Canister ID: 32261

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: MAR 0 8 2023

Evacuated: APR 2 6 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

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

Sampled By: Alex Yakupov

Starting Vacuum: -27.1 "Hg

End Vacuum: 18.5 "Hg/psig MW

InnoTech ALBERTA

Canister ID: TE-06

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: PUF on: _____

Evacuated: _____ Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/PUF/CLS/May 30, 202

Sampled By: Alex Yakupov

Starting Vacuum: _____ "Hg

End Vacuum: _____ "Hg/psig

Sample ID: 23060169-002 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS

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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/May 30, 2023
Matrix: Air Filter
CANISTER ID: TE-06
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 30-May-23 0:00
DATE RECEIVED: 13-Jun-23
REPORT CREATED: 23-Jun-23
REPORT NUMBER: 23060169
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060169-001	1-Methylnaphthalene		0.01	ug/Filter	0.01	AC-066	15-Jun-23
23060169-001	2-Methylnaphthalene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23060169-001	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23060169-001	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23060169-001	Acenaphthene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23060169-001	Acenaphthylene		0.03	ug/Filter	0.01	AC-066	15-Jun-23
23060169-001	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23060169-001	Anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23060169-001	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23060169-001	Benzo(a)pyrene		0.01	ug/Filter	0.01	AC-066	15-Jun-23
23060169-001	Benzo(b,j,k)fluoranthene		0.03	ug/Filter	0.01	AC-066	15-Jun-23
23060169-001	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23060169-001	Benzo(e)pyrene		0.01	ug/Filter	0.01	AC-066	15-Jun-23
23060169-001	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23060169-001	Chrysene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23060169-001	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23060169-001	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23

Report certified by: Graham Knox, Admin. & Ops. Supervisor On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: June 23, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202305

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/May 30, 2023	TE-06	Air Filter	30-May-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23060169 **REPORT CREATED:** 23-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060169-001	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23060169-001	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Jun-23
23060169-001	Fluoranthene		0.04	ug/Filter	0.01	AC-066	15-Jun-23
23060169-001	Fluorene		0.04	ug/Filter	0.01	AC-066	15-Jun-23
23060169-001	Indeno(1,2,3-cd)pyrene		0.03	ug/Filter	0.01	AC-066	15-Jun-23
23060169-001	Naphthalene		0.03	ug/Filter	0.01	AC-066	15-Jun-23
23060169-001	Perylene		0.01	ug/Filter	0.01	AC-066	15-Jun-23
23060169-001	Phenanthrene		0.13	ug/Filter	0.01	AC-066	15-Jun-23
23060169-001	Pyrene		0.02	ug/Filter	0.01	AC-066	15-Jun-23
23060169-001	Retene		0.34	ug/Filter	0.01	AC-066	15-Jun-23

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

Date: June 23, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/May 30, 2023	32261	Ambient Air	30-May-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23060169 **REPORT CREATED:** 23-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060169-002	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Jun-23
23060169-002	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Jun-23
23060169-002	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Jun-23
23060169-002	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Jun-23
23060169-002	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Jun-23
23060169-002	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	15-Jun-23
23060169-002	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Jun-23
23060169-002	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Jun-23
23060169-002	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Jun-23
23060169-002	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Jun-23
23060169-002	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Jun-23
23060169-002	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Jun-23
23060169-002	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Jun-23
23060169-002	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Jun-23
23060169-002	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	15-Jun-23
23060169-002	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	15-Jun-23
23060169-002	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	15-Jun-23
23060169-002	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	15-Jun-23
23060169-002	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	15-Jun-23
23060169-002	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Jun-23
23060169-002	2,2,4-Trimethylpentane	I	0.02	ppbv	0.02	AC-058	15-Jun-23
23060169-002	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Jun-23
23060169-002	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Jun-23
23060169-002	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	15-Jun-23
23060169-002	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Jun-23

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

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/May 30, 2023	32261	Ambient Air	30-May-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23060169 **REPORT CREATED:** 23-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060169-002	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Jun-23
23060169-002	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Jun-23
23060169-002	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Jun-23
23060169-002	2-Methylpentane	I	0.03	ppbv	0.02	AC-058	15-Jun-23
23060169-002	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Jun-23
23060169-002	3-Methylhexane	I	0.02	ppbv	0.02	AC-058	15-Jun-23
23060169-002	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Jun-23
23060169-002	Acetone		3.8	ppbv	0.4	AC-058	15-Jun-23
23060169-002	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Jun-23
23060169-002	Benzene	I	0.07	ppbv	0.03	AC-058	15-Jun-23
23060169-002	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Jun-23
23060169-002	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Jun-23
23060169-002	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Jun-23
23060169-002	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Jun-23
23060169-002	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Jun-23
23060169-002	Carbon tetrachloride	I	0.06	ppbv	0.02	AC-058	15-Jun-23
23060169-002	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Jun-23
23060169-002	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Jun-23
23060169-002	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Jun-23
23060169-002	Chloromethane		0.50	ppbv	0.04	AC-058	15-Jun-23
23060169-002	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Jun-23
23060169-002	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Jun-23
23060169-002	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Jun-23
23060169-002	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Jun-23
23060169-002	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	15-Jun-23

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

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/May 30, 2023	32261	Ambient Air	30-May-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23060169 **REPORT CREATED:** 23-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060169-002	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Jun-23
23060169-002	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Jun-23
23060169-002	Ethanol	I	0.8	ppbv	0.5	AC-058	15-Jun-23
23060169-002	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Jun-23
23060169-002	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Jun-23
23060169-002	Freon-11		0.19	ppbv	0.02	AC-058	15-Jun-23
23060169-002	Freon-113	I	0.04	ppbv	0.02	AC-058	15-Jun-23
23060169-002	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Jun-23
23060169-002	Freon-12		0.45	ppbv	0.03	AC-058	15-Jun-23
23060169-002	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Jun-23
23060169-002	Isobutane		0.37	ppbv	0.03	AC-058	15-Jun-23
23060169-002	Isopentane		0.38	ppbv	0.04	AC-058	15-Jun-23
23060169-002	Isoprene		0.55	ppbv	0.02	AC-058	15-Jun-23
23060169-002	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Jun-23
23060169-002	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	15-Jun-23
23060169-002	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	15-Jun-23
23060169-002	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Jun-23
23060169-002	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Jun-23
23060169-002	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	15-Jun-23
23060169-002	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Jun-23
23060169-002	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Jun-23
23060169-002	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	15-Jun-23
23060169-002	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Jun-23
23060169-002	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Jun-23
23060169-002	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	15-Jun-23

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

Date: June 23, 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/VOC/CLS/May 30, 2023	32261	Ambient Air	30-May-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23060169 **REPORT CREATED:** 23-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060169-002	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Jun-23
23060169-002	n-Butane		0.65	ppbv	0.02	AC-058	15-Jun-23
23060169-002	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	15-Jun-23
23060169-002	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Jun-23
23060169-002	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	15-Jun-23
23060169-002	n-Hexane	I	0.09	ppbv	0.03	AC-058	15-Jun-23
23060169-002	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Jun-23
23060169-002	n-Pentane		0.13	ppbv	0.04	AC-058	15-Jun-23
23060169-002	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	15-Jun-23
23060169-002	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	15-Jun-23
23060169-002	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Jun-23
23060169-002	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	15-Jun-23
23060169-002	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Jun-23
23060169-002	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Jun-23
23060169-002	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Jun-23
23060169-002	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	15-Jun-23
23060169-002	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	15-Jun-23
23060169-002	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Jun-23
23060169-002	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Jun-23
23060169-002	Toluene	I	0.04	ppbv	0.03	AC-058	15-Jun-23
23060169-002	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	15-Jun-23
23060169-002	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Jun-23
23060169-002	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	15-Jun-23
23060169-002	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Jun-23
23060169-002	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Jun-23

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

Date: June 23, 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/VOC/CLS/May 30, 2023	32261	Ambient Air	30-May-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23060169 **REPORT CREATED:** 23-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060169-002	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	15-Jun-23
23060169-002	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	15-Jun-23

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

Date: June 23, 2023

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

Revision History

Order ID	Ver	Date	Reason
23060169	01	23-Jun-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: 23050193-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C1165511

RECEIVED
MAY 12 2023

ol 2000i-D Sample Data Sheet

Date Sampled:	6-May-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 #:	C1165511	C1165512
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	12.6	
Pressure	714	
Std Volume (Instrument)	21.3	2.37

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date): Alex Yakupov Date: 3-May-23

Removed by (Sign/Date) Alex Yakupov Date: 8-May-23

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

Sample ID: 23050193-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C1165512

Filter Shipping Record

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

Date: Jan 6/23

Project: LICA/Bureau Veritas Labs

Prepared by:

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	C1165511 → C1165512

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
C1165511	Air Filter

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

DATE SAMPLED: 06-May-23 0:00
DATE RECEIVED: 12-May-23
REPORT CREATED: 24-May-23
REPORT NUMBER: 23050193
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050193-001	Particulate Weight		0.011	mg	0.004	AC-029	15-May-23

Report certified by: Andrea Conner, Admin Assistant
On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: May 24, 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-202305

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
C1165512		Air Filter	06-May-23 0:00

DESCRIPTION: Cold Lake South - Coarse - PM 10

REPORT NUMBER: 23050193 **REPORT CREATED:** 24-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050193-002	Particulate Weight		0.078	mg	0.004	AC-029	15-May-23

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

Date: May 24, 2023

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

Revision History

Order ID	Ver	Date	Reason
23050193	01	24-May-23	Report created

Methods

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

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

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

Qualifiers

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

Order Comments

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

Sample Comments

Result Comments

Note:

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

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

Partisol 2000i-D Sample Data Sheet

Date Sampled:	12-May-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: 23050309-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9700057

	FINE (1)	COURSE (2)
Filter Type:	47mm	47mm
Filter #:	C9700057	C9700058
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	17.1	
Pressure	718	
Std Volume (Instrument)	21.1	2.35

Comments: Weather Conditions, etc.

n/a

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

Removed by (Sign/Date) Alex Yakupov Date: 13-May-23

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

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MAY 19 2023

Sample ID: 23050309-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9700057

Filter Shipping Record

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

Date: MARCH 16/23

Project: LICA/Bureau Veritas Labs

Prepared by:

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	C9700057 → C9700058

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

RECEIVED
MAY 19 2023

{00004818;6}

TERMS AND CONDITIONS

The attached document entitled "**Chain of Custody Form**" is subject to the following Terms and Conditions, unless otherwise specified on the Quotation. InnoTech Alberta's commencement of the Services shall be deemed acceptance of the terms and conditions by the Client.

1. Any proposal contained herein is prepared for the consideration of the Client only. Its contents may not be used or disclosed to any other party without prior written consent of the INNOTECH ALBERTA INC. (hereinafter referred to as "InnoTech Alberta").

2. InnoTech Alberta will perform the Services in accordance with normal professional standards.

3. The delivery time for performance of the Services (as set out on the front page of this Quotation) is approximate and may be changed by InnoTech Alberta giving written notice to the Client.

4. InnoTech Alberta will exercise due care and proficiency in testing items submitted by a Client. InnoTech Alberta shall not, however, be liable to the Client for any damage or loss caused to the item being tested or for any damage, loss or expense caused by any delay in carrying out the test, including any damage, loss or expense resulting from InnoTech Alberta's negligence. InnoTech Alberta shall not be responsible for any damage, which is a natural or necessary result of any testing procedure.

5. For the purposes of this Quotation, Intellectual Property means all information, data, artistic and literary works, concepts, designs, processes, software, algorithms and inventions, including, without limitation, those that could be the subject of patent, copyright, industrial design, trade secret or other forms of protection. Intellectual Property which was owned by either InnoTech Alberta or the Client prior to the signing of this Agreement remains the property of that party. Nothing in this Agreement shall operate as a license, permission or grant of any other rights to either InnoTech Alberta's or the Client's Intellectual Property.

6. All data, reports and other information relating to the Services shall be treated by InnoTech Alberta as the confidential property of the Client, and InnoTech Alberta will use reasonable efforts to ensure that its employees, contractors and agents will not disclose the same to any other person, firm or corporation during the term of this Agreement and for a period of five (5) years after the date of termination of the Agreement. The obligation of confidentiality set out herein shall not apply to any information that was in InnoTech Alberta's possession prior to receipt from the Client or which is or becomes part of the public domain through no act or failure on the part of InnoTech Alberta. The obligation of confidentiality set out in this Section shall not prevent the disclosure of information to any level of government having jurisdiction to make lawful demand therefor, or required to be disclosed by any applicable law. Any records required to be maintained by InnoTech Alberta pursuant to this Agreement are subject to the protection and access provisions of the Freedom of Information and Protection of Privacy Act (Alberta).

7. The reported results of any InnoTech Alberta tests or evaluations performed on samples or items provided by the Client shall be interpreted as being specific to the sample or item tested. InnoTech Alberta makes no representation that any similar or related untested samples or items would produce the same results.

8. The Client shall not use InnoTech Alberta's name in any advertising material, sale offer, news releases, public statements or announcements, whether written or oral relating to the Services or the results thereof, without the prior written consent of InnoTech Alberta.

9. Records, test data, reports and samples, except where shipped to the Client after completion of the work shall be retained by InnoTech Alberta according to InnoTech Alberta's approved Records Retention and Disposition Schedule.

10. Prices quoted are in Canadian Dollars unless otherwise stated in writing and are exclusive of any provincial, municipal, sales, use or goods and services tax.

11. Prices quoted do not include shipping, insurance or cost of consumables. The Client shall be responsible for all costs incurred by InnoTech Alberta in collecting any item for testing and returning the item to the Client after testing and shall be responsible for all necessary incidental costs incurred by InnoTech Alberta in providing the Services. InnoTech Alberta will not be responsible for any damage or loss to items during shipping and it is the responsibility of the Client to arrange and pay for any insurance it deems necessary.

12. Any test samples or other materials supplied by the Client to InnoTech Alberta may, at InnoTech Alberta's option, be returned by InnoTech Alberta to the Client. The Client shall:

(a) be responsible for all costs associated with the handling, transportation and disposal of such materials;

(b) reimburse InnoTech Alberta for any costs incurred by InnoTech Alberta associated with the handling, transportation and disposal of such materials; and

(c) indemnify and hold InnoTech Alberta harmless from any and all claims, damages or actions associated with the handling, transportation and disposal of such materials.

13. The Client shall pay all invoices rendered by InnoTech Alberta to the Client within thirty (30) days from the date of invoice, without deduction or set-off.

14. If the Client fails to pay any amount under this Agreement, such unpaid amount shall bear interest at a rate per month equal to one (1%) percent (or 12.6825% per annum) with interest on overdue interest at the same rate.

15. InnoTech Alberta makes no representation, warranties or conditions, either expressed or implied, statutory or otherwise and does not warrant the quality, state, merchantability or fitness for any purpose of any goods or products to be delivered pursuant to this Agreement. The Client accepts the results of these Services or items tested as is, and acknowledges that any use or interpretation of the information contained is at the Client's own risk.

16. In no event shall InnoTech Alberta be liable for any indirect or consequential damage or loss suffered by the Client, including loss of anticipated profits.

17. The Client shall indemnify and hold harmless InnoTech Alberta from any and all claims, demands, actions and costs (including legal costs on a solicitor-client basis) that may arise out of:

(a) any dangerous defect or content in the item being tested, whether apparent or not, which dangerous defect or content was not disclosed in writing to InnoTech Alberta by the Client at the time the item was submitted for testing;

(b) differences between those items actually tested and items previously or subsequently produced which are purported to be identical to the item tested; or

(c) any use of the tested item or any item incorporating the tested item, whether by the Client or a third party following its return to the Client.

The hold harmless shall survive this Agreement.

18. The Client shall, at its own expense and without limiting its liabilities herein, be responsible for insuring its operation in an amount not less than $2,000,000 inclusive per occurrence, insuring against bodily injury, and property damage including loss of use thereof. Further, the Client is responsible for insuring all owned property directly or indirectly related to this Agreement and InnoTech Alberta shall have no liability for any loss or damage to such property.

19. InnoTech Alberta shall maintain the following insurance: (i) commercial general liability insurance (including cross liability, severability of interests, non-owned automobile liability) in the amount of two million dollars ($2,000,000.00) per occurrence, and; (ii) professional liability and errors and omissions insurance in the amount of one million dollars ($1,000,000.00) per claim, and two million dollars ($2,000,000.00) in the aggregate. In addition, InnoTech Alberta shall maintain all workers' compensation coverage required by applicable laws. Notwithstanding the foregoing, InnoTech Alberta reserves the right to supplement or add insurance coverage from time to time as may be required in its sole discretion. InnoTech Alberta may provide certificates of insurance for coverages outlined in (i) and (ii) above.

20. The Client agrees to comply with all InnoTech Alberta Safety & Security regulations in effect while on InnoTech Alberta premises.

21. This Agreement represents the entire agreement between the parties and shall supersede all prior agreements relative to this transaction.

22. If a party's performance of any of its obligations under this Agreement (excepting only an obligation to pay) is delayed, rendered impossible or impractical, or prevented in whole or in part due to circumstances beyond its reasonable control, including but not limited to acts of God, war, terrorism, labour disputes, pandemics or epidemics, global health emergencies, or governmental action, that party will not be in breach of this Agreement due to the delay or failure in performance occasioned by such event..

23. InnoTech Alberta may assign this Quotation to an "affiliated" (as that term is defined at Section 2 of the Business Corporations Act (Alberta)) or successor entity on written notice to the Client.

24. This Quotation and rights and parties thereto shall be governed by and construed according to the laws of the Province of Alberta. The parties hereby submit to the jurisdiction of the Courts of Alberta.

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
C9700057	Air Filter

CANISTER ID:
PRIORITY: Normal
DESCRIPTION:

DATE SAMPLED: 12-May-23 0:00
DATE RECEIVED: 19-May-23
REPORT CREATED: 29-May-23
REPORT NUMBER: 23050309
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050309-001	Particulate Weight		0.651	mg	0.004	AC-029	26-May-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: May 29, 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
C9700058		Air Filter	12-May-23 0:00

DESCRIPTION:

REPORT NUMBER: 23050309 **REPORT CREATED:** 29-May-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050309-002	Particulate Weight		0.152	mg	0.004	AC-029	26-May-23

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

Date: May 29, 2023

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

Revision History

Order ID	Ver	Date	Reason
23050309	01	29-May-23	Report created

Methods

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

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

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

Qualifiers

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

Order Comments

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: 23050411-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9700067

RECEIVED
MAY 29 2023

ol 2000i-D Sample Data Sheet

Date Sampled:	18-May-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 #:	C9700067	C9700068
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	11.3	
Pressure	716	
Std Volume (Instrument)	21.5	2.39

Comments: Weather Conditions, etc.

n/a

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

Removed by (Sign/Date) Alex Yakupov Date: 20-May-23

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

Sample ID: 23050411-003 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9700063

RECEIVED
MAY 29 2023

ol 2000i-D Sample Data Sheet

Date Sampled:	24-May-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 #:	C9700063	C9700064
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	13.3	
Pressure	710	
Std Volume (Instrument)	21.1	2.35

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date): Alex Yakupov Date: 20-May-23

Removed by (Sign/Date) Alex Yakupov Date: 26-May-23

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

Sample ID: 23050411-002 Priority: Normal

Customer ID: LICA
Cust Samp ID: C9700068

RECEIVED
MAY 29 2023

Filter Shipping Record

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

Date: MARCH 16/23

Project: LICA/Bureau Veritas Labs

Prepared by:

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	C9700067 → C9700068

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

Sample ID: 23050411-004 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9700064

RECEIVED
MAY 29 2023

Filter Shipping Record

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

Date: March 16/23

Project: LICA/Bureau Veritas Labs

Prepared by:

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	C9700063 → C9700064

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: C9700063
Matrix: Air Filter
CANISTER ID:
PRIORITY: Normal
DESCRIPTION: Cold Lake South - PM 2.5
DATE SAMPLED: 24-May-23 0:00
DATE RECEIVED: 29-May-23
REPORT CREATED: 06-Jun-23
REPORT NUMBER: 23050411
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050411-003	Particulate Weight		0.155	mg	0.004	AC-029	30-May-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: June 6, 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
C9700064		Air Filter	24-May-23 0:00

DESCRIPTION: Cold Lake South - PM 10

REPORT NUMBER: 23050411 **REPORT CREATED:** 06-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050411-004	Particulate Weight		0.228	mg	0.004	AC-029	30-May-23

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

Date: June 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
C9700067		Air Filter	18-May-23 0:00

DESCRIPTION: Cold Lake South - PM 2.5

REPORT NUMBER: 23050411 **REPORT CREATED:** 06-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050411-001	Particulate Weight		0.349	mg	0.004	AC-029	30-May-23

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

Date: June 6, 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
C9700068		Air Filter	18-May-23 0:00

DESCRIPTION: Cold Lake South - PM 10

REPORT NUMBER: 23050411 **REPORT CREATED:** 06-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23050411-002	Particulate Weight		0.150	mg	0.004	AC-029	30-May-23

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

Date: June 6, 2023

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

Revision History

Order ID	Ver	Date	Reason
23050411	01	06-Jun-23	Report created

Methods

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

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

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

Qualifiers

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

Order Comments

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

Sample Comments

Result Comments

Note:

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

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

mple ID: 23060170-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9700065

RECEIVED
JUN 13 2023

2000i-D Sample Data Sheet

Date Sampled:	30-May-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 #:	C9700065	C9700066
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	18.4	
Pressure	706	
Std Volume (Instrument)	20.6	2.3

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date): Alex Yakupov Date: 26-May-23

Removed by (Sign/Date) Alex Yakupov Date: 2-Jun-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: 23060170-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9700065

RECEIVED
JUN 13 2023

Filter Shipping Record

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

Date: MARCH 16/23

Project: LICA/Bureau Veritas Labs

Prepared by:

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	C9700065 → C9700066

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
C9700065	Air Filter

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

DATE SAMPLED: 30-May-23 0:00
DATE RECEIVED: 13-Jun-23
REPORT CREATED: 26-Jun-23
REPORT NUMBER: 23060170
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060170-001	Particulate Weight		0.149	mg	0.004	AC-029	14-Jun-23

Report certified by: Andrea Conner, Admin Assistant
On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: June 26, 2023
Inquiries: (780) 632 8403
E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202305

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
C9700066		Air Filter	30-May-23 0:00

DESCRIPTION: Cold Lake South - PM10 - Coarse

REPORT NUMBER: 23060170 **REPORT CREATED:** 26-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060170-002	Particulate Weight		0.140	mg	0.004	AC-029	14-Jun-23

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

Date: June 26, 2023

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

Revision History

Order ID	Ver	Date	Reason
23060170	01	26-Jun-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

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AC-079	Alkylated PAH in Soil and Sediment
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Q	Sample held beyond the accepted holding time
R	Rejected data; Not suitable for the projects intended use
T	Value reported is less than the laboratory method detection limit
U	Compound was analyzed for but not detected
V	Analyte was detected in both the sample and the associated method blank

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

Order Comments

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

Sample Comments

Result Comments

Note:

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

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

Passive Samples

Passive Sampler Field Sheet for LICA, May 2023 sample period

ID	SAMPLER						START		END		NOTES
							DATE	TIME	DATE	TIME	
3	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Apr 28	15:54	May 29	16:16	
4	---	SO_2	NO_2	O_3	HNO3	NH3	Apr 29	12:55	May 31	13:02	
5	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Apr 29	14:31	May 31	13:57	
6	---	SO_2	NO_2	O_3	HNO3	NH3	Apr 29	16:17	May 31	15:24	
8	---	SO_2	NO_2	O_3	HNO3	NH3	Apr 29	11:54	May 31	11:45	
9	---	SO_2	NO_2	O_3	HNO3	NH3	Apr 28	14:58	May 29	13:46	
10	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Apr 30	16:17	Jun 1	18:00	
11	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Apr 30	15:41	Jun 1	17:10	
12	H2S	SO2	NO2	O3	HNO3	NH3	Apr 30	14:22	Jun 1	15:32	
13	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Apr 28	19:44	May 29	17:49	
14	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Apr 28	21:11	May 29	19:05	water sample taken. Jun 2 NH_3 NO_2
15	---	SO_2	NO_2	O_3	HNO3	NH3	Apr 28	13:25	May 29	12:14	
16	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Apr 29	18:15	May 31	18:02	
17	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Apr 29	17:19	May 31	17:06	
18	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Apr 29	18:55	Jun 1	11:58	H_2S/SO_2 samples destroyed by a bear
19	---	SO_2	NO_2	O_3	HNO3	NH3	Apr 29	20:15	May 31	18:40	
22	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Apr 28	11:01	May 29	08:16	
23	---	SO_2	NO_2	O_3	HNO3	NH3	Apr 28	12:36	May 29	11:15	
24	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Apr 29	15:25	May 31	14:50	
25	H2S	SO2	---	---							
26	H_2S	SO_2	---	---	HNO3	NH3	Apr 28	20:49	May 29	18:54	
27	H_2S	SO_2	---	---	HNO3	NH3	Apr 30	17:22	May 29	19:17	
28	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Apr 28	14:55	May 29	12:51	
29	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Apr 28	10:45	May 24	08:22	
32	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Apr 28	17:10	May 29	15:10	
42	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Apr 30	14:35	May 30	18:14	
							DUPLICATES				
10	H2S	---	---	---	---	---	Apr 30	16:17	Jun 1	18:00	
11	H2S	---	---	---	---	---	Apr 30	15:41	Jun 1	17:10	
5	---	SO2	---	---	---	---	Apr 29	14:31	May 31	13:57	
6		SO2	---	---	---	---	Apr 29	16:17	May 31	15:24	
8	---	SO2	---	---	---	---	Apr 29	11:54	May 31	11:45	
14	---	---	NO_2	O_3	---	---	Apr 28	13:25	May 29	19:05	
15	---	---	NO_2	O_3	---	---	Apr 28	21:11	May 29	12:14	
3	---	---	---	---	HNO3	NH3	Apr 28	15:54	May 29	16:16	
42	---	---	---	---	HNO3	NH3	Apr 30	11:35	May 30	18:14	

28 O_3
27 NO_2
32 NH_3
32 HNO_3
32 SO_2
21 H_2S

SB 23-06-06
07:30

Your Project #: MAY 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: 2023/06/16
Report #: R3350907
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C340572
Received: 2023/06/06, 07:30

Sample Matrix: Air
Samples Received: 62

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
H2S Passive Analysis	20	2023/06/13	2023/06/15	PTC SOP-00150	Passive H2S in ATM
HNO3 by Passive Sampler	30	2023/06/08	2023/06/14	PTC SOP-00288	Passive HNO3 in ATM
NH3 by Passive Sampler	30	2023/06/07	2023/06/14	PTC SOP-00157	ASTM D6919
NO2 Passive Analysis	25	2023/06/07	2023/06/15	PTC SOP-00148	Passive NO2 in ATM
O3 Passive Analysis	25	2023/06/07	2023/06/15	PTC SOP-00197	EPA 300 R2.1
SO2 Passive Analysis	28	2023/06/07	2023/06/15	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

Belma Elefante
Customer Service Associate
16 Jun 2023 09:12:32

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 #: C340572
Report Date: 2023/06/16

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BRU497			BRU498			BRU499		
Sampling Date		2023/04/28 15:59			2023/04/29 12:55			2023/04/29 14:31		
	UNITS	3	RDL	QC Batch	4	RDL	QC Batch	5	RDL	QC Batch
Passive Monitoring										
Calculated H2S	ppb	0.33	0.02	A993059				0.56	0.02	A993059
Calculated NO2	ppb	0.9	0.1	A986194	0.6	0.1	A986194	0.5	0.1	A986194
Calculated O3	ppb	39.9	0.1	A986191	41.4	0.1	A986191	39.3	0.1	A986191
Calculated SO2	ppb	0.3	0.1	A987108	0.4	0.1	A987108	0.4	0.1	A987108
RDL = Reportable Detection Limit										

Bureau Veritas ID		BRU500	BRU501	BRU502			BRU503	BRU504	BRU505		
Sampling Date		2023/04/29 16:17	2023/04/29 11:54	2023/04/28 14:58			2023/04/30 16:17	2023/04/30 15:41	2023/04/30 14:22		
	UNITS	6	8	9	RDL	QC Batch	10	11	12	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb						0.29	0.16	0.13	0.02	A993059
Calculated NO2	ppb	1.8	0.4	0.7	0.1	A986194	1.9	0.4	0.3	0.1	A986194
Calculated O3	ppb	39.8	54.2	34.4	0.1	A986191	30.1	33.2	36.9	0.1	A986191
Calculated SO2	ppb	0.4	0.4	0.3	0.1	A987108	0.4	0.5	0.3	0.1	A987108
RDL = Reportable Detection Limit											

Bureau Veritas ID		BRU506	BRU507			BRU508			BRU509		
Sampling Date		2023/04/28 19:44	2023/04/28 21:11			2023/04/28 13:25			2023/04/29 18:15		
	UNITS	13	14	RDL	QC Batch	15	RDL	QC Batch	16	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb	0.13	0.30	0.02	A993059				0.20	0.02	A993059
Calculated NO2	ppb	0.3	0.8	0.1	A986194	0.7	0.1	A986194	0.3	0.1	A986194
Calculated O3	ppb	33.3	43.0	0.1	A986191	37.4	0.1	A986191	33.4	0.1	A986191
Calculated SO2	ppb	0.3	1.2	0.1	A987108	0.5	0.1	A987113	0.3	0.1	A987113
RDL = Reportable Detection Limit											

Bureau Veritas Job #: C340572
Report Date: 2023/06/16

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BRU510	BRU511			BRU512			BRU513		
Sampling Date		2023/04/29 17:19	2023/04/29 18:55			2023/04/29 20:15			2023/04/28 11:01		
	UNITS	17	18	RDL	QC Batch	19	RDL	QC Batch	22	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb	0.39	NA	0.02	A993059				0.23	0.02	A993059
Calculated NO2	ppb	0.6	0.4	0.1	A986194	0.5	0.1	A986194	0.4	0.1	A986194
Calculated O3	ppb	38.6	40.6	0.1	A986191	39.8	0.1	A986191	43.7	0.1	A986191
Calculated SO2	ppb	0.5	NA	0.1	A987113	0.3	0.1	A987113	0.3	0.1	A987113
RDL = Reportable Detection Limit											

Bureau Veritas ID		BRU514			BRU515			BRU516	BRU517		
Sampling Date		2023/04/28 12:36			2023/04/29 15:25			2023/04/28 20:49	2023/04/30 17:22		
	UNITS	23	RDL	QC Batch	24	RDL	QC Batch	26	27	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb				0.25	0.02	A993059	0.24	0.26	0.02	A993059
Calculated NO2	ppb	0.2	0.1	A986194	0.9	0.1	A986194				
Calculated O3	ppb	34.4	0.1	A986191	44.0	0.1	A986191				
Calculated SO2	ppb	0.2	0.1	A987113	0.3	0.1	A987113	1.0	1.1	0.1	A987113
RDL = Reportable Detection Limit											

Bureau Veritas ID		BRU518		BRU519	BRU520	BRU521			BRU525		
Sampling Date		2023/04/28 14:35		2023/04/28 10:45	2023/04/28 17:10	2023/04/30 11:35			2023/04/29 14:21		
	UNITS	28	QC Batch	29	32	42	RDL	QC Batch	5 DUP	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb	0.53	A993059	0.18	0.30	0.25	0.02	A993059			
Calculated NO2	ppb	1.0	A986194	0.5	0.3	0.5	0.1	A986198			
Calculated O3	ppb	40.4	A986191	54.6	47.8	39.0	0.1	A986192			
Calculated SO2	ppb	0.5	A987113	0.3	0.3	0.4	0.1	A987113	0.4	0.1	A987113
RDL = Reportable Detection Limit											

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Client Project #: MAY 2023 PASSIVES
Site Location: BONNYVILLE, AB
Sampler Initials: AY

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BRU526	BRU527			BRU528	BRU529			BRU530		
Sampling Date		2023/04/29 16:17	2023/04/29 11:54			2023/04/28 13:28	2023/04/28 21:11			2023/04/30 16:17		
	UNITS	6 DUP	8 DUP	RDL	QC Batch	14 DUP	15 DUP	RDL	QC Batch	10 DUP	RDL	QC Batch
Passive Monitoring												
Calculated H2S	ppb									0.33	0.02	A993059
Calculated NO2	ppb					0.9	0.6	0.1	A986198			
Calculated O3	ppb					46.5	37.3	0.1	A986192			
Calculated SO2	ppb	0.4	0.4	0.1	A987113							
RDL = Reportable Detection Limit												

Bureau Veritas ID		BRU813			BRU531	BRU532	BRU533	BRU534		
Sampling Date		2023/04/30 15:41			2023/04/28 15:59	2023/04/29 12:55	2023/04/29 14:31	2023/04/29 16:17		
	UNITS	11 DUP	RDL	QC Batch	3-NH3 HNO3	4-NH3 HNO3	5-NH3 HNO3	6-NH3 HNO3	RDL	QC Batch
Passive Monitoring										
Ammonia by Passive Sampler	ppb				7.8	4.8	4.4	9.3	0.1	A987187
Calculated H2S	ppb	0.15	0.02	A993059						
HNO3 by Passive Sampler	ug/m3				1.56	1.46	1.24	1.02	0.04	A988475
RDL = Reportable Detection Limit										

Bureau Veritas ID		BRU535	BRU536	BRU537	BRU538	BRU539	BRU540		
Sampling Date		2023/04/29 11:54	2023/04/28 14:58	2023/04/30 16:17	2023/04/30 15:41	2023/04/30 14:22	2023/04/28 19:44		
	UNITS	8-NH3 HNO3	9-NH3 HNO3	10-NH3 HNO3	11-NH3 HNO3	12-NH3 HNO3	13-NH3 HNO3	RDL	QC Batch
Passive Monitoring									
Ammonia by Passive Sampler	ppb	5.6	4.0	2.9	2.2	1.4	2.0	0.1	A987187
HNO3 by Passive Sampler	ug/m3	1.19	1.19	1.57	0.64	0.61	0.31	0.04	A988475
RDL = Reportable Detection Limit									

Bureau Veritas ID		BRU541	BRU542	BRU543	BRU544	BRU545	BRU546		
Sampling Date		2023/04/28 21:11	2023/04/28 13:25	2023/04/29 18:15	2023/04/29 17:19	2023/04/29 18:55	2023/04/29 20:15		
	UNITS	14-NH3 HNO3	15-NH3 HNO3	16-NH3 HNO3	17-NH3 HNO3	18-NH3 HNO3	19-NH3 HNO3	RDL	QC Batch
Passive Monitoring									
Ammonia by Passive Sampler	ppb	2.1	3.0	3.1	9.0	2.7	6.0	0.1	A987187
HNO3 by Passive Sampler	ug/m3	1.11	0.63	0.96	0.53	1.32	1.78	0.04	A988475
RDL = Reportable Detection Limit									

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Client Project #: MAY 2023 PASSIVES
Site Location: BONNYVILLE, AB
Sampler Initials: AY

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BRU547	BRU548	BRU549	BRU550		BRU551		
Sampling Date		2023/04/28 11:01	2023/04/28 12:36	2023/04/29 15:25	2023/04/28 20:49		2023/04/30 17:22		
	UNITS	22-NH3 HNO3	23-NH3 HNO3	24-NH3 HNO3	26-NH3 HNO3	QC Batch	27-NH3 HNO3	RDL	QC Batch
Passive Monitoring									
Ammonia by Passive Sampler	ppb	3.8	2.2	3.6	2.0	A987187	3.2	0.1	A987190
HNO3 by Passive Sampler	ug/m3	0.28	1.31	0.24	0.29	A988476	2.58	0.04	A988476
RDL = Reportable Detection Limit									

Bureau Veritas ID		BRU552	BRU553	BRU554	BRU555	BRU556		
Sampling Date		2023/04/28 14:35	2023/04/28 10:45	2023/04/28 17:10	2023/04/30 11:35	2023/04/28 15:04		
	UNITS	28-NH3 HNO3	29-NH3 HNO3	32-NH3 HNO3	42-NH3 HNO3	3-NH3 HNO3 DUP	RDL	QC Batch
Passive Monitoring								
Ammonia by Passive Sampler	ppb	4.9	3.3	4.3	21.1	6.9	0.1	A987190
HNO3 by Passive Sampler	ug/m3	0.79	0.70	0.27	0.22	0.41	0.04	A988476
RDL = Reportable Detection Limit								

Bureau Veritas ID		BRU557	BRU558	BRU559	BRU560		
Sampling Date		2023/04/30 11:35					
	UNITS	42-NH3 HNO3 DUP	BLANK 1-NH3 HNO3	BLANK 2-NH3 HNO3	BLANK 3-NH3 HNO3	RDL	QC Batch
Passive Monitoring							
Ammonia by Passive Sampler	ppb	16.9	1.1	1.0	1.7	0.1	A987190
HNO3 by Passive Sampler	ug/m3	0.28	0.42	<0.04	<0.04	0.04	A988476
RDL = Reportable Detection Limit							

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GENERAL COMMENTS

Sample BRU555 [42-NH3 HNO3] : NH3 sampler loading may exceed its capacity, shorter exposure times are recommended. --YL6 20230615

Sample BRU557 [42-NH3 HNO3 DUP] : NH3 sampler loading may exceed its capacity, shorter exposure times are recommended. --YL6 20230615

Results relate only to the items tested.

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LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: MAY 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
A986191	SDK	Spiked Blank	Calculated O3			99	%	90 - 110
A986191	SDK	Method Blank	Calculated O3		<0.1		ppb	
A986192	SDK	Spiked Blank	Calculated O3			100	%	90 - 110
A986192	SDK	Method Blank	Calculated O3		<0.1		ppb	
A986194	SDK	Spiked Blank	Calculated NO2			101	%	90 - 110
A986194	SDK	Method Blank	Calculated NO2		<0.1		ppb	
A986198	SDK	Spiked Blank	Calculated NO2			95	%	90 - 110
A986198	SDK	Method Blank	Calculated NO2		<0.1		ppb	
A987108	OZ	Spiked Blank	Calculated SO2			101	%	90 - 110
A987108	OZ	Method Blank	Calculated SO2		<0.1		ppb	
A987113	OZ	Spiked Blank	Calculated SO2			100	%	90 - 110
A987113	OZ	Method Blank	Calculated SO2		<0.1		ppb	
A987187	SDK	Spiked Blank	Ammonia by Passive Sampler			90	%	90 - 110
A987187	SDK	Method Blank	Ammonia by Passive Sampler		<0.1		ppb	
A987190	SDK	Spiked Blank	Ammonia by Passive Sampler			97	%	90 - 110
A987190	SDK	Method Blank	Ammonia by Passive Sampler		<0.1		ppb	
A988475	OZ	Method Blank	HNO3 by Passive Sampler		<0.04		ug/m3	
A988476	OZ	Method Blank	HNO3 by Passive Sampler		<0.04		ug/m3	
A993059	YYA	Spiked Blank	Calculated H2S			101	%	90 - 110

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.

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Client Project #: MAY 2023 PASSIVES
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VALIDATION SIGNATURE PAGE

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

Yang Liu

Yang Liu, Analyst II

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End of Report