Lakeland Industry & Community Association

JUNE 2023

Monthly Ambient Air Quality Monitoring Integrated Sampling Report

LICA-202306-INTEGRATED

July 25, 2023

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July 25, 2023

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

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

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

The representative of the Person Responsible for this monitoring program is

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

NETWORK STATION SUMMARY

Listing of Air Monitoring Stations and Integrated Sampling Stations

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

Listing of Passive Sampling Stations

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

Listing of Passive Aromatic Compounds Stations

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

List of Contractors who performed the air monitoring activities

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

Monitoring Notes during the Month of June 2023

Cold Lake South Station

- **Volatile Organic Compounds (VOCs)**
  - Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) where applicable.
  - The VOC sampler is programed to collect a 24-hour sample of air every sixth day as per the North American Pollution Surveillance schedule (NAPS).
  - Five samples were collected this month: on June 5, 11, 17, 23 and 29.
- **Polycyclic Aromatic Hydrocarbons (PAHs)**
  - The PUF sampler is programed to collect a 24-hour sample of air every sixth day as per the North American Pollution Surveillance schedule (NAPS).
  - Four samples were collected this month: on June 11, 17, 23 and 29. Due to a lab error, the scheduled June 5 sample could not be collected.
- **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 June 20. The sampler passed the audit requirements.
    - Five samples were collected this month: on June 5, 11, 17, 23 and 29.
- **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 June 1, and were removed between June 28 and June 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 16: Both HNO3 and NH3 sample media were found on the ground.
    - Station 18: Both H2S and HNO3 sample media were found on the ground; site disturbed by a bear.
    - Station 23: No sample media were collected this month as road to the sampler was closed due to local wildfires.
    - Station 27: All sample media were found on the ground; site disturbed by a bear.
    - Station 28: No sample media were collected this month as the access to the sampler was restricted (the gate was locked).

Lac La Biche Station

- **Non-methane Hydrocarbons (NMHC) Canisters**
    - The canister sampling program collects a 1-hour sample of air when the continuously measured non-methane hydrocarbon (NMHC) concentration reaches a specified trigger point. The current trigger point is 0.3 ppm, and is based on real-time monitoring data that are averaged over a 5-minute period.
    - Two canister events were recorded this month; on June 2 at 22:30, at concentration of 0.30 ppm, and on June 24 at 18:50, at concentration of 0.40ppm. However, due to tech errors, the June 2 sample was not collected properly. Therefore, it was discarded.

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 April 28 and April 30. They were replaced between June 30 and July 3.
- The media for the July/August monitoring period were installed between June 30 and July 3. They will be replaced by the end of August or early September.

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
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INTEGRATED SAMPLING RESULTS SUMMARY

COLD LAKE SOUTH STATION

- **VOCs analytical results**

Sample Date	2023-06-05	2023-06-11	2023-06-17	2023-06-23
Canister ID	28951	28908	31826	28917
Maximum Reading (ppbv)	4.4	5.7	2.2	4.4
Parameter	Acetone	Acetone	Acetone	Acetone

Sample Date	2023-06-29
Canister ID	29018
Maximum Reading (ppbv)	6.1
Parameter	Acetone

- **PAHs analytical results**

Sample Date	2023-06-05		2023-06-11		2023-06-17		2023-06-23	
PUF S/N	9803		TE-02		9801		9802	
Volume (Vstd m^3)	342.21		330.41		330.41		330.41	
Maximum Reading	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3
	N/A	N/A	0.28	0.85	0.42	1.27	0.34	1.03
Parameter	-		Phenanthrene		Benzo(c)phenanthrene		Benzo(c)phenanthrene	

Sample Date	2023-06-29	
PUF S/N	TE-10	
Volume (Vstd m3)	330.41	
Maximum Reading	ug	ng/m3
	0.27	0.82
Parameter	Phenanthrene	

Note: Due to a lab error, no samples were collected during the June 5 sample run.

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

Sample Date	2023-06-05		2023-06-11		2023-06-17		2023-06-23	
Filter #	C9700061		C1170493		C1168579		C1169916	
Volume (Vstd m^3)	20.5		20.3		20.6		20.7	
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	0.142	0.007	0.609	0.030	0.059	0.003	0.067	0.003

Sample Date	2023-06-29	
Filter #	C1169914	
Volume (Vstd m^3)	20.4	
Result	Result (mg)	Result (mg/m^3)
Particulate Matter	0.257	0.013

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

Sample Date	2023-06-05		2023-06-11		2023-06-17		2023-06-23	
Filter #	C9700062		C1170494		C1168580		C1169917	
Volume (Vstd m^3)	2.28		2.27		2.30		2.31	
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	<0.004	0.000	0.178	0.078	0.058	0.025	0.058	0.025

Sample Date	2023-06-29	
Filter #	C1169915	
Volume (Vstd m^3)	2.27	
Result	Result (mg)	Result (mg/m^3)
PM2.5-10 Mass	0.195	0.086

- **Passive analytical results**

	H_2S		NO_2		O_3		SO_2		NMH3		HNO3	
	Unit (ppb)		Unit (ppb)		Unit (ppb)		Unit (ppb)		Unit (ppb)		Unit (ug/m3)	
Minimum	0.15	#12	0.3	#11	22.1	#11	0.2	#18	0.1	#26	<0.004	#13
Maximum	0.85	#5	2.9	#6	46.8	#24	1.0	#14	5.8	#16	1.92	#19
Average	0.33	-	0.89	-	32.60	-	0.43	-	1.73	-	1.20	-

LAC LA BICHE STATION

- **NMHC canister sample analytical results**

Sample Date / Time	2023-06-24 @18:50
Canister Triggered Conc.	0.40 ppm
Canister ID	28906
Maximum Reading (ppbv)	5.9
Parameter	Acetone

ANALYTICAL SAMPLING RESULTS

COLD LAKE SOUTH STATION

VOCS

Cold Lake South Station - June 2023

Volatile Organic Compounds (VOCs) Results

Sample Date		2023-06-05	2023-06-11	2023-06-17	2023-06-23	2023-06-29
Canister ID		28951	28908	31826	28917	29018
Method		AC-058	AC-058	AC-058	AC-058	AC-058
Maximum Reading (ppbv)		4.4	5.7	2.2	4.4	6.1
Parameter		Acetone	Acetone	Acetone	Acetone	Acetone

Parameter	AAAQOs (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	RDL (ppbv)
1,1,1-Trichloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1,2,2-Tetrachloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1,2-Trichloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1-Dichloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1-Dichloroethylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
1,2,3-Trimethylbenzene		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.05
1,2,4-Trichlorobenzene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.8
1,2,4-Trimethylbenzene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.05
1,2-Dibromoethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,2-Dichlorobenzene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
1,2-Dichloroethane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
1,2-Dichloropropane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
1,3,5-Trimethylbenzene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02
1,3-Butadiene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02
1,3-Dichlorobenzene		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	0.3
1,4-Dichlorobenzene		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	0.4
1,4-Dioxane		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.4
1-Butene		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.02
1-Hexene		< 0.07	< 0.07	< 0.07	< 0.07	< 0.07	0.02
1-Pentene		< 0.03	< 0.03	< 0.03	0.04	< 0.03	0.01
2,2,4-Trimethylpentane		0.04	< 0.02	< 0.02	< 0.02	< 0.02	0.01
2,2-Dimethylbutane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
2,3,4-Trimethylpentane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
2,3-Dimethylbutane		< 0.09	< 0.09	< 0.09	< 0.09	< 0.09	0.02
2,3-Dimethylpentane		0.03	< 0.02	< 0.02	< 0.02	< 0.02	0.02
2,4-Dimethylpentane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
2-Methylheptane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
2-Methylhexane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
2-Methylpentane		0.11	0.04	< 0.02	< 0.02	< 0.02	0.01
3-Methylheptane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02
3-Methylhexane		0.03	< 0.02	< 0.02	< 0.02	< 0.02	0.02
3-Methylpentane		0.03	0.02	< 0.02	< 0.02	< 0.02	0.01
Acetone	2400	4.4	5.7	2.2	4.4	6.1	0.4
Acrolein	1.9	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Benzene	9.0	< 0.03	0.19	< 0.03	< 0.03	0.05	0.01
Benzyl chloride		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Bromodichloromethane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02
Bromoform		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Bromomethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
Carbon disulfide	10	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
Carbon tetrachloride		0.06	0.06	0.09	0.06	0.05	0.01
Chlorobenzene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Chloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Chloroform		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Chloromethane		0.54	0.54	0.5	0.91	< 0.04	0.02
cis-1,2-Dichloroethene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
cis-1,3-Dichloropropene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.04
cis-2-Butene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02
cis-2-Pentene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Cyclohexane		< 0.04	< 0.04	0.05	< 0.04	< 0.04	0.02
Cyclopentane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
Dibromochloromethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
Ethanol		1.7	1.5	< 0.5	1.5	1.6	0.3
Ethyl acetate		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Ethylbenzene	460	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
Freon-11		0.18	0.19	0.19	0.31	0.30	0.02
Freon-113		0.04	0.04	0.05	0.06	0.05	0.01
Freon-114		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02

Sample Date		2023-06-05	2023-06-11	2023-06-17	2023-06-23	2023-06-29	
Canister ID		28951	28908	31826	28917	29018	
Method		AC-058	AC-058	AC-058	AC-058	AC-058	
Maximum Reading (ppbv)		4.4	5.7	2.2	4.4	6.1	
Parameter		Acetone	Acetone	Acetone	Acetone	Acetone	
Parameter	**AAAQOs (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**Result (ppbv)**	**RDL (ppbv)**
Freon-12		0.48	0.5	0.46	0.69	0.69	0.02
Hexachloro-1,3-butadiene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.5
Isobutane		0.36	0.18	0.05	0.3	0.23	0.02
Isopentane		0.41	0.23	0.11	0.4	0.31	0.03
Isoprene		1.38	1.56	0.49	1.44	5.26	0.01
Isopropyl alcohol		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Isopropylbenzene		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.01
m,p-Xylene		0.07	< 0.04	< 0.04	< 0.04	< 0.04	0.03
m-Diethylbenzene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
m-Ethyltoluene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.08
Methyl butyl ketone		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	0.5
Methyl ethyl ketone		0.4	0.5	< 0.3	< 0.3	0.30	0.3
Methyl isobutyl ketone		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Methyl methacrylate		< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	0.07
Methyl tert butyl ether		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
Methylcyclohexane		0.03	< 0.02	< 0.02	< 0.02	0.03	0.01
Methylcyclopentane		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.02
Methylene chloride		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
n-Butane		0.64	0.43	0.13	0.76	0.26	0.03
n-Decane		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.06
n-Dodecane		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
n-Heptane		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.01
n-Hexane	5960	0.04	0.08	< 0.03	< 0.03	< 0.03	0.01
n-Nonane		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.01
n-Octane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
n-Pentane		0.16	0.15	0.06	0.1	0.07	0.1
n-Propylbenzene		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.05
n-Undecane		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.5
Naphthalene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.5
o-Ethyltoluene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
o-Xylene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
p-Diethylbenzene		0.03	0.02	< 0.02	< 0.02	< 0.02	0.04
p-Ethyltoluene		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.07
Styrene	52.0	0.04	< 0.04	0.05	< 0.04	< 0.04	0.04
Tetrachloroethylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
Tetrahydrofuran		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Toluene	499	0.09	0.06	< 0.03	< 0.03	< 0.03	0.01
trans-1,2-Dichloroethylene		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.01
trans-1,3-Dichloropropylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
trans-2-Butene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
trans-2-Pentene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Trichloroethylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
Vinyl acetate		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Vinyl chloride	51	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02

PAHS

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - June 2023

Polycyclic Aromatic Hydrocarbons (PAHs) Results

Sample Date	2023-06-05		2023-06-11		2023-06-17		2023-06-23		2023-06-29	
PUF S/N	9803		TE-02		9801		9802		TE-10	
Volume (Vstd m^3)	342.21		330.41		330.41		330.41		330.41	
Method	AC-066		AC-066		AC-066		AC-066		AC-066	
Maximum Reading	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3
	n/a	n/a	0.28	0.85	0.42	1.27	0.34	1.03	0.27	0.82
Parameter	-		Phenanthrene		Benzo(c)phenanthrene		Benzo(c)phenanthrene		Phenanthrene	

Parameter	Result (ug)	Result (ng/m^3)	Result (ug)	Result (ng/m^3)	Result (ug)	Result (ng/m^3)	Result (ug)	Result (ng/m^3)	Result (ug)	Result (ng/m^3)	RDL (ug)
1-Methylnaphthalene	n/a	n/a	0.07	0.21	0.02	0.06	0.05	0.15	0.02	0.06	0.01
2-Methylnaphthalene	n/a	n/a	0.06	0.18	0.04	0.12	0.08	0.24	0.04	0.12	0.01
3-Methylcholanthrene	n/a	n/a	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
7,12-Dimethylbenz(a)anthracene	n/a	n/a	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Acenaphthene	n/a	n/a	0.03	0.09	0.01	0.03	0.03	0.09	0.01	0.03	0.01
Acenaphthylene	n/a	n/a	0.05	0.15	0.02	0.06	0.05	0.15	0.03	0.09	0.01
Acridine	n/a	n/a	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Anthracene	n/a	n/a	0.02	0.06	0.01	0.03	0.01	0.03	< 0.01	0.00	0.01
Benzo(a)anthracene	n/a	n/a	0.01	0.03	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Benzo(a)pyrene	n/a	n/a	0.01	0.03	0.01	0.03	< 0.01	0.00	< 0.01	0.00	0.01
Benzo(b,j,k)fluoranthene	n/a	n/a	0.05	0.15	0.07	0.21	0.05	0.15	< 0.01	0.00	0.01
Benzo(c)phenanthrene	n/a	n/a	< 0.01	0.00	0.42	1.27	0.34	1.03	< 0.01	0.00	0.01
Benzo(e)pyrene	n/a	n/a	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Benzo(ghi)perylene	n/a	n/a	< 0.01	0.00	0.02	0.06	< 0.01	0.00	< 0.01	0.00	0.01
Chrysene	n/a	n/a	0.02	0.06	0.04	0.12	0.01	0.03	< 0.01	0.00	0.01
Dibenzo(a,h)pyrene	n/a	n/a	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Dibenzo(a,i)pyrene	n/a	n/a	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Dibenzo(a,l)pyrene	n/a	n/a	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Dibenzo(ah)anthracene	n/a	n/a	0.03	0.09	0.06	0.18	< 0.01	0.00	< 0.01	0.00	0.01
Fluoranthene	n/a	n/a	0.07	0.21	0.05	0.15	0.07	0.21	0.07	0.21	0.01
Fluorene	n/a	n/a	0.11	0.33	0.04	0.12	0.05	0.15	0.03	0.09	0.01
Indeno(1,2,3-cd)pyrene	n/a	n/a	0.02	0.06	0.02	0.06	< 0.01	0.00	< 0.01	0.00	0.01
Naphthalene	n/a	n/a	0.06	0.18	0.01	0.03	0.05	0.15	< 0.01	0.00	0.01
Perylene	n/a	n/a	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Phenanthrene	n/a	n/a	0.28	0.85	0.21	0.64	0.28	0.85	0.27	0.82	0.01
Pyrene	n/a	n/a	0.06	0.18	0.05	0.15	0.06	0.18	0.07	0.21	0.01
Retene	n/a	n/a	0.18	0.54	0.11	0.33	0.18	0.54	0.14	0.42	0.01

PARTISOLS

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - June 2023

Partisol Results - $PM_{2.5}$

Sample Date		**2023-06-05**		**2023-06-11**		**2023-06-17**		**2023-06-23**		**2023-06-29**		
Filter #		**C9700061**		**C1170493**		**C1168579**		**C1169916**		**C1169914**		
Volume (Vstd m^3)		**20.5**		**20.3**		**20.6**		**20.7**		**20.4**		
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	**0.142**	**0.007**	**0.609**	**0.030**	**0.059**	**0.003**	**0.067**	**0.003**	**0.257**	**0.013**	0.004
PM2.5 Mass in ug/m3			**6.927**		**30.000**		**2.864**		**3.237**		**12.598**	
RDL in ug/m3			**0.195**		**0.197**		**0.194**		**0.193**		**0.196**	

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

Sample Date	**2023-06-05**	**2023-06-11**	**2023-06-17**	**2023-06-26**	**2023-06-29**
Filter #	**C9700062**	**C1170494**	**C1168580**	**C1169917**	**C1169915**
Volume (Vstd m^3)	**2.28**	**2.27**	**2.30**	**2.31**	**2.27**
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	**<0.004**	**0.000**	**0.178**	**0.078**	**0.058**	**0.025**	**0.058**	**0.025**	**0.195**	**0.086**	0.004

PM2.5-10 Mass in ug/m3	**1.754**	**78.414**	**25.217**	**25.108**	**85.903**
RDL in ug/m3	**1.754**	**1.762**	**1.739**	**1.732**	**1.762**

PASSIVE SAMPLES

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

June 2023

Passive Results

		H_2S		NO_2		O_3		SO_2		NMH3		HNO3	
	Unit	**ppb**		**ppb**		**ppb**		**ppb**		**ppb**		**ug/m3**	
	Minimum (ppb)	0.15	#12	0.3	#11	22.1	#11	0.2	#18	0.1	#26	<0.04	#13
	Maximum (ppb)	0.85	#5	2.9	#6	46.8	#24	1.0	#14	5.8	#16	1.92	#19
	Average (ppb)	0.33	-	0.89	-	32.60	-	0.43	-	1.73	-	1.20	-
No.	**Station**	**Sample**	**Duplicate**	**Sample**	**Duplicate**	**Sample**	**Duplicate**	**Sample**	**Duplicate**	**Sample**	**Duplicate**	**Sample**	**Duplicate**
3	Therien	0.28		1.2		46.3		0.4		2.1		1.76	
4	Flat Lake	-		1.6		36.5		0.4		1.7	1.5	1.79	1.86
5	Lake Eliza	0.85		0.8		35.7		0.5		4.0	4.7	0.75	2.53
6	Telegraph Creek	-		2.9		31.1		0.5		2.5		1.53	
8	Muriel-Kehewin	-		0.6		35.6		0.6		3.2		1.50	
9	Dupre	-		1.0		33.9		0.3	0.3	1.7		1.02	
10	La Corey	0.40		1.9		23.8		0.4	0.4	2.3		1.63	
11	Wolf Lake	0.16		0.3		22.1		0.4	0.3	0.2		1.30	
12	Foster Creek	0.19	0.15	0.3		31.6		0.5		4.0		0.39	
13	Primrose	0.16	0.16	0.3		23.0		0.3		0.2		<0.04	
14	Tamarack	0.32		0.9		28.0		1.0		0.5		0.76	
15	Ardmore	-		0.9		29.0		0.5		1.1		1.62	
16	Frog Lake	0.29		0.6	0.5	31.7	29.1	0.3		5.8*		0.19*	
17	Clear Range	0.34		1.1	1.0	32.0	33.6	0.5		2.5		1.39	
18	Fishing Lake	0.47*		0.5		23.2		0.2		0.5		0.86*	
19	Beaverdam	-		0.6		41.7		0.3		1.2		1.92	
22	Cold Lake South (1)	0.27		0.5		30.7		0.3		0.8		1.53	
23	Medley-Martineau	-		Missing 3		Missing 3		Missing 3		Missing 3		Missing 3	
24	Fort George	0.41		1.1		46.8		0.4		1.8		1.35	
25	Burnt Lake	Missing 1		-		-		Missing 1		-		-	
26	Mahihkan	0.19		-		-		0.5		0.1		0.81	
27	Mahkeses	0.60*		-		-		0.7*		0.6*		1.34*	
28	Town of Bonnyville	Missing 2		Missing 2		Missing 2		Missing 2		Missing 2		Missing 2	
29	Cold Lake South (2)	0.18		0.4		32.3		0.3		0.9		0.55	
32	St. Lina	0.31		0.5		36.3		0.4		0.9		1.37	
42	Lac La Biche	0.27		0.7		33.4		0.3		1.1		0.95	
BLANK -1		-		-		-		-		0.7		0.53	
BLANK -2		-		-		-		-		0.9		0.44	
BLANK -3		-		-		-		-		0.2		0.61	
Reportable Detection Limit (RDL)		**0.02**		**0.1**		**0.1**		**0.1**		**0.1**		**0.04**	

Note:

1 - : Sample collection was not required at the station.
2 Missing 1: Access to the station was not possible due to lack of permit to access the stations.
3 Blank (Duplicate): no duplicate sample was taken.
4 Missing 2: Access to the station was not possible as the gate to the station was locked.
5 Missing 3: Access to the station was not possible due to road closure/wildfires.
* Sample media was found on the ground due to site disturbance, likely by a bear.

LAC LA BICHE STATION

NMHC CANISTER SAMPLES

Volatile Organic Compounds (VOCs) Results

Sample Date/Time		**2023-06-24 @18:50**
Canister Triggered Conc.		**0.40**
Canister ID		**28906**
Method		**AC-058**
Maximum Reading		**5.9**
Parameter		**Acetone**

Parameter	AAAQOs	Result (ppbv)	RDL (ppbv)
1,1,1-Trichloroethane		< 0.03	0.03
1,1,2,2-Tetrachloroethane		< 0.03	0.03
1,1,2-Trichloroethane		< 0.03	0.03
1,1-Dichloroethane		< 0.03	0.03
1,1-Dichloroethylene		< 0.03	0.03
1,2,3-Trimethylbenzene		< 0.07	0.07
1,2,4-Trichlorobenzene		< 0.4	0.40
1,2,4-Trimethylbenzene		0.07	0.04
1,2-Dibromoethane		< 0.03	0.03
1,2-Dichlorobenzene		< 0.04	0.04
1,2-Dichloroethane		< 0.04	0.04
1,2-Dichloropropane		< 0.04	0.04
1,3,5-Trimethylbenzene		< 0.04	0.04
1,3-Butadiene		< 0.04	0.04
1,3-Dichlorobenzene		< 0.5	0.53
1,4-Dichlorobenzene		< 0.5	0.53
1,4-Dioxane		< 0.7	0.66
1-Butene		< 0.08	0.08
1-Hexene		< 0.09	0.09
1-Pentene		0.06	0.04
2,2,4-Trimethylpentane		0.81	0.03
2,2-Dimethylbutane		0.07	0.03
2,3,4-Trimethylpentane		< 0.03	0.03
2,3-Dimethylbutane		< 0.12	0.12
2,3-Dimethylpentane		0.04	0.03
2,4-Dimethylpentane		< 0.04	0.04
2-Methylheptane		< 0.03	0.03
2-Methylhexane		0.08	0.04
2-Methylpentane		< 0.03	0.03
3-Methylheptane		< 0.04	0.04
3-Methylhexane		0.12	0.03
3-Methylpentane		0.14	0.03
Acetone	2400	5.9	0.53
Acrolein	1.9	< 0.4	0.40
Benzene	9.0	0.12	0.04
Benzyl chloride		< 0.4	0.40
Bromodichloromethane		< 0.04	0.04
Bromoform		< 0.03	0.03
Bromomethane		< 0.03	0.03
Carbon disulfide	10	< 0.03	0.03
Carbon tetrachloride		0.05	0.03
Chlorobenzene		< 0.03	0.03
Chloroethane		< 0.03	0.03
Chloroform		< 0.03	0.03
Chloromethane		0.85	0.05
cis-1,2-Dichloroethene		< 0.03	0.03
cis-1,3-Dichloropropene		< 0.04	0.04
cis-2-Butene		< 0.04	0.04
cis-2-Pentene		< 0.03	0.03
Cyclohexane		< 0.05	0.05
Cyclopentane		< 0.03	0.03
Dibromochloromethane		< 0.03	0.03
Ethanol		3.7	0.66
Ethyl acetate		< 0.4	0.40
Ethylbenzene	460	< 0.04	0.04
Freon-11		0.28	0.03
Freon-113		0.05	0.03

Sample Date/Time		**2023-06-24 @18:50**
Canister Triggered Conc.		**0.40**
Canister ID		**28906**
Method		**AC-058**
Maximum Reading		**5.9**
Parameter		**Acetone**

Parameter	AAAQOs	Result (ppbv)	RDL (ppbv)
Freon-114		< 0.04	0.04
Freon-12		0.63	0.04
Hexachloro-1,3-butadiene		< 0.4	0.40
Isobutane		0.84	0.04
Isopentane		1.51	0.05
Isoprene		2.27	0.03
Isopropyl alcohol		< 0.4	0.40
Isopropylbenzene		< 0.05	0.05
m,p-Xylene		0.19	0.05
m-Diethylbenzene		< 0.03	0.03
m-Ethyltoluene		0.1	0.04
Methyl butyl ketone		< 0.5	0.53
Methyl ethyl ketone		< 0.4	0.40
Methyl isobutyl ketone		< 0.4	0.40
Methyl methacrylate		< 0.11	0.11
Methyl tert butyl ether		< 0.04	0.04
Methylcyclohexane		0.05	0.03
Methylcyclopentane		0.12	0.07
Methylene chloride		< 0.4	0.40
n-Butane		1.1	0.03
n-Decane		< 0.08	0.08
n-Dodecane		< 0.4	0.40
n-Heptane		0.07	0.05
n-Hexane	5960	0.14	0.04
n-Nonane		< 0.05	0.05
n-Octane		0.09	0.03
n-Pentane		0.41	0.05
n-Propylbenzene		0.09	0.08
n-Undecane		< 0.7	0.66
Naphthalene		< 0.4	0.40
o-Ethyltoluene		< 0.03	0.03
o-Xylene		0.06	0.04
p-Diethylbenzene		0.05	0.03
p-Ethyltoluene		< 0.05	0.05
Styrene	52.0	< 0.05	0.05
Tetrachloroethylene		< 0.03	0.03
Tetrahydrofuran		< 0.4	0.40
Toluene	499	0.33	0.04
trans-1,2-Dichloroethylene		< 0.08	0.08
trans-1,3-Dichloropropylene		< 0.03	0.03
trans-2-Butene		< 0.04	0.04
trans-2-Pentene		0.04	0.03
Trichloroethylene		< 0.03	0.03
Vinyl acetate		< 0.4	0.40
Vinyl chloride	51	< 0.03	0.03

End of Report

Lakeland Industry & Community Association

JUNE 2023

Ambient Air Monitoring

Certified Laboratory Analysis Report

LAB-LICA-202306

Operation and Maintenance:
Bureau Veritas Canada

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

July 19, 2023

Table of Contents

Cold Lake South Station

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

Sample ID: 23060292-001 **Priority:** Normal

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

RECEIVED
JUN 20 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:**	28951
Station ID:	LICA 01	**Installation Date/Time (mst):**	Jun 02, 2023 @ 19:56
Sample ID:	LICA/VOC/CLS/Jun 05, 2023	**Removal Date/Time (mst):**	Jun 6, 2023 @ 11:05

Date and Time Information

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

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

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

Deployment/Collection and Maintenance Checklist

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

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: ~~Alex Yakupov~~ Kevin S.

Sample ID: 23060292-001 **Priority:** Normal

AIR FCD-01321/2

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

RECEIVED
JUN 20 2023

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	9803
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Jun 02, 2023 @ 19:58
Field Sample ID:	LICA/PUF/CLS/Jun 05, 2023	**Removal Date/Time:**	Jun 6, 2023 @ 11:21

Sample Data Collection Information

Sample Date:	5-Jun-23	**Average Pressure (mmHg)**	714
Start Time (mst):	0:00	**Average Flow (Q_{std})**	2224
End Time (mst):	23:59	**Average Tempurature (°C)**	22.2
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	342.21

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:	Kevin S.

InnoTech ALBERTA

Canister ID: 28951

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/June 05, 2023

Sampled By: Alex Yakupov

Starting Vacuum: -27.1 "Hg

End Vacuum: 18.1 "Hg/psig 1

InnoTech ALBERTA

Canister ID: 9803

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: _____ on: _____

Evacuated: _____ Recertified: _____

PUF

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/PUF/CLS/June 05,

Sampled By: _____

Starting Vacuum: _____ "Hg

End Vacuum: _____ "Hg/psig

Sample ID: 23060292-001 **Priority:** Normal

Customer ID: LICA

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

Sample ID: 23060292-001 **Priority:** Normal

From:	Environmental Analytical Services Reception	**Customer ID:**	LICA
To:	Ryan Rybchuk	**Cust Samp ID:**	LICA/VOC/CLS/June 05, 2023
Subject:	FW: PUF filter does not have filters		
Date:	June-05-23 8:07:59 AM		

Hey Ryan. We had a PUF without filters in it. Any ideas?
Jess

From: Alexander YAKUPOV <alexander.yakupov@bureauveritas.com>
Sent: Friday, June 2, 2023 7:38 PM
To: Environmental Analytical Services Reception <EAS.Reception@innotechalberta.ca>
Subject: PUF filter does not have filters

*** EXTERNAL E-mail. Please be cautious and evaluate the sender and content before you click on any links or open attachments. ***

Hi Jessica,
It looks like we are going to miss one sample.
In my last cooler I found a PUF not equipped with filters.

Thank you,
Alex

Alex Yakupov BSc
Field Technician, Emission Services
Energy & Renewables
Bureau Veritas Canada
6744 50 Street NW, Edmonton, AB, T6B 3M9
Mobile: (780) 545-9363
alexander.yakupov@bureauveritas.com
www.bvna.com

Sample ID: 23060292-001 **Priority:** Normal

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

From: Ryan Rybchuk
Sent: July 19, 2023 10:23 AM
To: Graham Knox
Cc: Environmental Analytical Services Reception
Subject: RE: LICA
Attachments: FW_ PUF filter does not have filters .pdf

Hi Graham

I have attached the email we received from Alex that says the only GPS-1 unit they had available for June 5th sampling period had no filter or PUF in it.

They were shipped new GPS-1's for future sampling events.

The June 5th and June 11th samples (cans and PUFs) were received at the same time.

I do not have a tag or PUF for the June 5th sample date (order 23060292). Not sure why June 11 is 23060291 and June 5 is 23060292.

I have reloaded the PAH data to 23060291-002.

I have overwritten the data for 23060292-002 as all zeros in sample master.

I assume this will require an issue log and CAR analysis.

Cheers
Ryan

From: Graham Knox <Graham.Knox@innotechalberta.ca>
Sent: July-19-23 8:22 AM
To: Ryan Rybchuk <Ryan.Rybchuk@innotechalberta.ca>
Subject: RE: LICA

Ryan,

Are you saying there was no PUF in 23060291 (23060291-002)?

Were Reception contacted to cancel the test & advise the client, I can't see any indication that they were.

Graham Knox, M.Sc., PChem, MRSC
Admin. & Operations Supervisor, Applied Chemistry Services (ACS)
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Graham.Knox@InnotechAlberta.ca

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Vegreville, Alberta, T9C 1T4, Canada

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From: Ryan Rybchuk <Ryan.Rybchuk@innotechalberta.ca>
Sent: Tuesday, July 18, 2023 3:40 PM
To: Graham Knox <Graham.Knox@innotechalberta.ca>
Subject: RE: LICA

Hi Graham

The GPS-1 unit they were sent wasn't loaded so the only sample I had was the 23060292-002.
I didn't transfer the data properly but hopefully its all fixed now.

I will update the control charts and blanks tables shortly

Ryan

From: Graham Knox <Graham.Knox@innotechalberta.ca>
Sent: July-18-23 2:23 PM
To: Ryan Rybchuk <Ryan.Rybchuk@innotechalberta.ca>
Subject: LICA

Ryan,

No data has been entered for 23060291 & 23060292 bus subsequent orders (23060313, 23060375) do have data, was there a problem/

InnoTech ALBERTA
A SUBSIDIARY OF ALBERTA INNOVATES

Sample ID: 23060292-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/June 05, 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/VOC/CLS/June 05, 2023
Matrix: Ambient Air
CANISTER ID: 28951
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 05-Jun-23 0:00
DATE RECEIVED: 20-Jun-23
REPORT CREATED: 25-Jul-23
REPORT NUMBER: 23060292
REPORT REVISED: 25-Jul-23
VERSION: Version 02

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060292-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060292-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060292-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060292-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060292-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060292-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	22-Jun-23
23060292-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Jun-23
23060292-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Jun-23
23060292-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060292-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Jun-23
23060292-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Jun-23
23060292-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Jun-23
23060292-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Jun-23
23060292-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Jun-23
23060292-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Jun-23
23060292-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Jun-23
23060292-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	22-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: July 25, 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-202306

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/June 05, 2023	28951	Ambient Air	05-Jun-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23060292 **REPORT CREATED:** 25-Jul-23 **REPORT REVISED:** 25-Jul-23 **VERSION:** Version 02

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060292-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	22-Jun-23
23060292-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	22-Jun-23
23060292-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Jun-23
23060292-001	2,2,4-Trimethylpentane	I	0.04	ppbv	0.02	AC-058	22-Jun-23
23060292-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060292-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060292-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	22-Jun-23
23060292-001	2,3-Dimethylpentane	I	0.03	ppbv	0.02	AC-058	22-Jun-23
23060292-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Jun-23
23060292-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060292-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Jun-23
23060292-001	2-Methylpentane		0.11	ppbv	0.02	AC-058	22-Jun-23
23060292-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Jun-23
23060292-001	3-Methylhexane	I	0.03	ppbv	0.02	AC-058	22-Jun-23
23060292-001	3-Methylpentane	I	0.03	ppbv	0.02	AC-058	22-Jun-23
23060292-001	Acetone		4.4	ppbv	0.4	AC-058	22-Jun-23
23060292-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Jun-23
23060292-001	Benzene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Jun-23
23060292-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Jun-23
23060292-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Jun-23
23060292-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060292-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060292-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060292-001	Carbon tetrachloride	I	0.06	ppbv	0.02	AC-058	22-Jun-23
23060292-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23

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

Date: July 25, 2023

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/June 05, 2023	28951	Ambient Air	05-Jun-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23060292 **REPORT CREATED:** 25-Jul-23 **REPORT REVISED:** 25-Jul-23 **VERSION:** Version 02

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060292-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060292-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060292-001	Chloromethane		0.54	ppbv	0.04	AC-058	22-Jun-23
23060292-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060292-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Jun-23
23060292-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Jun-23
23060292-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060292-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Jun-23
23060292-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060292-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060292-001	Ethanol		1.7	ppbv	0.5	AC-058	22-Jun-23
23060292-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Jun-23
23060292-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Jun-23
23060292-001	Freon-11		0.18	ppbv	0.02	AC-058	22-Jun-23
23060292-001	Freon-113	I	0.04	ppbv	0.02	AC-058	22-Jun-23
23060292-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Jun-23
23060292-001	Freon-12		0.48	ppbv	0.03	AC-058	22-Jun-23
23060292-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Jun-23
23060292-001	Isobutane		0.36	ppbv	0.03	AC-058	22-Jun-23
23060292-001	Isopentane		0.41	ppbv	0.04	AC-058	22-Jun-23
23060292-001	Isoprene		1.38	ppbv	0.02	AC-058	22-Jun-23
23060292-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Jun-23
23060292-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Jun-23
23060292-001	m,p-Xylene	I	0.07	ppbv	0.04	AC-058	22-Jun-23
23060292-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: July 25, 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-202306

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/June 05, 2023	28951	Ambient Air	05-Jun-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23060292 **REPORT CREATED:** 25-Jul-23 **REPORT REVISED:** 25-Jul-23 **VERSION:** Version 02

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060292-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Jun-23
23060292-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Jun-23
23060292-001	Methyl ethyl ketone	I	0.4	ppbv	0.3	AC-058	22-Jun-23
23060292-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Jun-23
23060292-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	22-Jun-23
23060292-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Jun-23
23060292-001	Methylcyclohexane	I	0.03	ppbv	0.02	AC-058	22-Jun-23
23060292-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	22-Jun-23
23060292-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Jun-23
23060292-001	n-Butane		0.64	ppbv	0.02	AC-058	22-Jun-23
23060292-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	22-Jun-23
23060292-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Jun-23
23060292-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Jun-23
23060292-001	n-Hexane	I	0.04	ppbv	0.03	AC-058	22-Jun-23
23060292-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060292-001	n-Pentane		0.16	ppbv	0.04	AC-058	22-Jun-23
23060292-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	22-Jun-23
23060292-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	22-Jun-23
23060292-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Jun-23
23060292-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Jun-23
23060292-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060292-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Jun-23
23060292-001	p-Diethylbenzene	I	0.03	ppbv	0.02	AC-058	22-Jun-23
23060292-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Jun-23
23060292-001	Styrene	I	0.04	ppbv	0.04	AC-058	22-Jun-23

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

Date: July 25, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/June 05, 2023	28951	Ambient Air	05-Jun-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23060292 **REPORT CREATED:** 25-Jul-23 **REPORT REVISED:** 25-Jul-23 **VERSION:** Version 02

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060292-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060292-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Jun-23
23060292-001	Toluene	I	0.09	ppbv	0.03	AC-058	22-Jun-23
23060292-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	22-Jun-23
23060292-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060292-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Jun-23
23060292-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060292-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060292-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Jun-23
23060292-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23

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

Date: July 25, 2023

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

Revision History

Order ID	Ver	Date	Reason
23060292	01	25-Jul-23	Report created
23060292	02	25-Jul-23	PAH test removed as sampler contained no substrate

Methods

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

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

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

Qualifiers

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

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Order Comments

23060292

PUF Unit had no Substrate present

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: 23060291-001 **Priority:** Normal

AIR FCD-01321/2

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

RECEIVED
JUN 20 2023

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	TE-02
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	June 06, 2023 @ 13:30
Field Sample ID:	LICA/PUF/CLS/June 11, 2023	**Removal Date/Time:**	June 15, 2023 @ 18:21

Sample Data Collection Information

Sample Date:	11-Jun-23	**Average Pressure (mmHg)**	709
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	25.9
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:	Kevin Sebastian
Collected By:	Alex Yakupov

Sample ID: 23060291-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/June 11, 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:**	28908
Station ID:	LICA 01	**Installation Date/Time (mst):**	June 6 , 2023 @ 13:08
Sample ID:	LICA/VOC/CLS/June 11, 2023	**Removal Date/Time (mst):**	June 15 , 2023 @ 18:11

Date and Time Information

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

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.1	18.6

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: Kevin Sebastian

Collection Technician Signature: Alex Yakupov

RECEIVED
JUN 20 2023

InnoTech ALBERTA

Canister ID: 28908

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: IGA on: MAR 0 8 2023

Evacuated: MAY 1 7 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

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

Sampled By: Alex Yakupov

Starting Vacuum:	End Vacuum: MW
-27.1 "Hg	+18.6 "Hg/psig

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Canister ID: TE-02

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: PUF on: _____

Evacuated: _____ Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/PUF/CLS/Jun 11, 20

Sampled By: Alex Yakupov

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

Sample ID: 23060291-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/June 11, 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/June 11, 2023
Matrix: Air Filter
CANISTER ID: TE-02
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 11-Jun-23 0:00
DATE RECEIVED: 20-Jun-23
REPORT CREATED: 25-Jul-23
REPORT NUMBER: 23060291
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060291-002	1-Methylnaphthalene		0.07	ug/Filter	0.01	AC-066	28-Jun-23
23060291-002	2-Methylnaphthalene		0.06	ug/Filter	0.01	AC-066	28-Jun-23
23060291-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	28-Jun-23
23060291-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	28-Jun-23
23060291-002	Acenaphthene		0.03	ug/Filter	0.01	AC-066	28-Jun-23
23060291-002	Acenaphthylene		0.05	ug/Filter	0.01	AC-066	28-Jun-23
23060291-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	28-Jun-23
23060291-002	Anthracene		0.02	ug/Filter	0.01	AC-066	28-Jun-23
23060291-002	Benzo(a)anthracene		0.01	ug/Filter	0.01	AC-066	28-Jun-23
23060291-002	Benzo(a)pyrene		0.01	ug/Filter	0.01	AC-066	28-Jun-23
23060291-002	Benzo(b,j,k)fluoranthene		0.05	ug/Filter	0.01	AC-066	28-Jun-23
23060291-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	28-Jun-23
23060291-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	28-Jun-23
23060291-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	28-Jun-23
23060291-002	Chrysene		0.02	ug/Filter	0.01	AC-066	28-Jun-23
23060291-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	28-Jun-23
23060291-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	28-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: July 25, 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-202306

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/June 11, 2023	TE-02	Air Filter	11-Jun-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23060291 **REPORT CREATED:** 25-Jul-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060291-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	28-Jun-23
23060291-002	Dibenzo(ah)anthracene		0.03	ug/Filter	0.01	AC-066	28-Jun-23
23060291-002	Fluoranthene		0.07	ug/Filter	0.01	AC-066	28-Jun-23
23060291-002	Fluorene		0.11	ug/Filter	0.01	AC-066	28-Jun-23
23060291-002	Indeno(1,2,3-cd)pyrene		0.02	ug/Filter	0.01	AC-066	28-Jun-23
23060291-002	Naphthalene		0.06	ug/Filter	0.01	AC-066	28-Jun-23
23060291-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	28-Jun-23
23060291-002	Phenanthrene		0.28	ug/Filter	0.01	AC-066	28-Jun-23
23060291-002	Pyrene		0.06	ug/Filter	0.01	AC-066	28-Jun-23
23060291-002	Retene		0.18	ug/Filter	0.01	AC-066	28-Jun-23

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

Date: July 25, 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-202306

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/June 11, 2023	28908	Ambient Air	11-Jun-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23060291 **REPORT CREATED:** 25-Jul-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060291-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060291-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060291-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060291-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060291-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060291-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	22-Jun-23
23060291-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Jun-23
23060291-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Jun-23
23060291-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060291-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Jun-23
23060291-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Jun-23
23060291-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Jun-23
23060291-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Jun-23
23060291-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Jun-23
23060291-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Jun-23
23060291-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Jun-23
23060291-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	22-Jun-23
23060291-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	22-Jun-23
23060291-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	22-Jun-23
23060291-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Jun-23
23060291-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060291-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060291-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060291-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	22-Jun-23
23060291-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23

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

Date: July 25, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/June 11, 2023	28908	Ambient Air	11-Jun-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23060291 **REPORT CREATED:** 25-Jul-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060291-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Jun-23
23060291-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060291-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Jun-23
23060291-001	2-Methylpentane	I	0.04	ppbv	0.02	AC-058	22-Jun-23
23060291-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Jun-23
23060291-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060291-001	3-Methylpentane	I	0.02	ppbv	0.02	AC-058	22-Jun-23
23060291-001	Acetone		5.7	ppbv	0.4	AC-058	22-Jun-23
23060291-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Jun-23
23060291-001	Benzene	I	0.19	ppbv	0.03	AC-058	22-Jun-23
23060291-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Jun-23
23060291-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Jun-23
23060291-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060291-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060291-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060291-001	Carbon tetrachloride	I	0.06	ppbv	0.02	AC-058	22-Jun-23
23060291-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060291-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060291-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060291-001	Chloromethane		0.54	ppbv	0.04	AC-058	22-Jun-23
23060291-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060291-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Jun-23
23060291-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Jun-23
23060291-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060291-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Jun-23

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

Date: July 25, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/June 11, 2023	28908	Ambient Air	11-Jun-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23060291 **REPORT CREATED:** 25-Jul-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060291-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060291-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060291-001	Ethanol		1.5	ppbv	0.5	AC-058	22-Jun-23
23060291-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Jun-23
23060291-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Jun-23
23060291-001	Freon-11		0.19	ppbv	0.02	AC-058	22-Jun-23
23060291-001	Freon-113	I	0.04	ppbv	0.02	AC-058	22-Jun-23
23060291-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Jun-23
23060291-001	Freon-12		0.50	ppbv	0.03	AC-058	22-Jun-23
23060291-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Jun-23
23060291-001	Isobutane		0.18	ppbv	0.03	AC-058	22-Jun-23
23060291-001	Isopentane		0.23	ppbv	0.04	AC-058	22-Jun-23
23060291-001	Isoprene		1.56	ppbv	0.02	AC-058	22-Jun-23
23060291-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Jun-23
23060291-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Jun-23
23060291-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Jun-23
23060291-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060291-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Jun-23
23060291-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Jun-23
23060291-001	Methyl ethyl ketone	I	0.5	ppbv	0.3	AC-058	22-Jun-23
23060291-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Jun-23
23060291-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	22-Jun-23
23060291-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Jun-23
23060291-001	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060291-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	22-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: July 25, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/June 11, 2023	28908	Ambient Air	11-Jun-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23060291 **REPORT CREATED:** 25-Jul-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060291-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Jun-23
23060291-001	n-Butane		0.43	ppbv	0.02	AC-058	22-Jun-23
23060291-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	22-Jun-23
23060291-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Jun-23
23060291-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Jun-23
23060291-001	n-Hexane	I	0.08	ppbv	0.03	AC-058	22-Jun-23
23060291-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060291-001	n-Pentane		0.15	ppbv	0.04	AC-058	22-Jun-23
23060291-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	22-Jun-23
23060291-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	22-Jun-23
23060291-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Jun-23
23060291-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Jun-23
23060291-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060291-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Jun-23
23060291-001	p-Diethylbenzene	I	0.02	ppbv	0.02	AC-058	22-Jun-23
23060291-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Jun-23
23060291-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Jun-23
23060291-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060291-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Jun-23
23060291-001	Toluene	I	0.06	ppbv	0.03	AC-058	22-Jun-23
23060291-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	22-Jun-23
23060291-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060291-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Jun-23
23060291-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23
23060291-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23

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

Date: July 25, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/June 11, 2023	28908	Ambient Air	11-Jun-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23060291 **REPORT CREATED:** 25-Jul-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060291-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Jun-23
23060291-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Jun-23

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

Date: July 25, 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-202306

Revision History

Order ID	Ver	Date	Reason
23060291	01	25-Jul-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: 23060375-001 **Priority:** Normal

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

Bureau Veritas

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

Client:	LICA	**Sampler S/N:**	6167
Location:	Cold Lake South	**Canister ID:**	31826
Station ID:	LICA 01	**Installation Date/Time (mst):**	Jun 15, 2023 @ 18:45
Sample ID:	LICA/VOC/CLS/Jun 17, 2023	**Removal Date/Time (mst):**	Jun 21, 2023 @ 15:46

Date and Time Information

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

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.1	19.1

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

Deployment/Collection and Maintenance Checklist

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

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

RECEIVED
JUN 23 2023

Sample ID: 23060375-001 **Priority:** Normal

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

InnoTech ALBERTA

Canister ID: 31826

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ3 on: MAY 1 6 2023

Evacuated: MAY 2 6 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

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

Sampled By: Alex Yakupov

Starting Vacuum:	End Vacuum:
-27.1 "Hg	+19.1 "Hg/ psig

InnoTech ALBERTA

Canister ID: 9801

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: _____ on: _____

Evacuated: _____ Recertified: _____

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

Laboratory Contact Number: 780-632-8403

PUF

Sample ID: LICA/PUF/CLS/Jun 7, 202

Sampled By: Alex Yakupov

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

RECEIVED
JUN 2 3 2023

Sample ID: 23060375-002 **Priority:** Normal

AIR FCD-01321/2

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

RECEIVED
JUN 23 2023

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	9801
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Jun 15, 2023 @ 18:47
Field Sample ID:	LICA/PUF/CLS/Jun 17, 2023	**Removal Date/Time:**	Jun 21, 2023 @ 15:47

Sample Data Collection Information

Sample Date:	17-Jun-23	**Average Pressure (mmHg)**	704
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	19.4
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.41

Sample Recovery Checklist

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

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

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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/Jun 17, 2023
Matrix: Air Filter
CANISTER ID: 9801
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 17-Jun-23 0:00
DATE RECEIVED: 23-Jun-23
REPORT CREATED: 25-Jul-23
REPORT NUMBER: 23060375
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060375-002	1-Methylnaphthalene		0.02	ug/Filter	0.01	AC-066	12-Jul-23
23060375-002	2-Methylnaphthalene		0.04	ug/Filter	0.01	AC-066	12-Jul-23
23060375-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23
23060375-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23
23060375-002	Acenaphthene		0.01	ug/Filter	0.01	AC-066	12-Jul-23
23060375-002	Acenaphthylene		0.02	ug/Filter	0.01	AC-066	12-Jul-23
23060375-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23
23060375-002	Anthracene		0.01	ug/Filter	0.01	AC-066	12-Jul-23
23060375-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23
23060375-002	Benzo(a)pyrene		0.01	ug/Filter	0.01	AC-066	12-Jul-23
23060375-002	Benzo(b,j,k)fluoranthene		0.07	ug/Filter	0.01	AC-066	12-Jul-23
23060375-002	Benzo(c)phenanthrene		0.42	ug/Filter	0.01	AC-066	12-Jul-23
23060375-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23
23060375-002	Benzo(ghi)perylene		0.02	ug/Filter	0.01	AC-066	12-Jul-23
23060375-002	Chrysene		0.04	ug/Filter	0.01	AC-066	12-Jul-23
23060375-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23
23060375-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: July 25, 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-202306

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Jun 17, 2023	9801	Air Filter	17-Jun-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23060375 **REPORT CREATED:** 25-Jul-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060375-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23
23060375-002	Dibenzo(ah)anthracene		0.06	ug/Filter	0.01	AC-066	12-Jul-23
23060375-002	Fluoranthene		0.05	ug/Filter	0.01	AC-066	12-Jul-23
23060375-002	Fluorene		0.04	ug/Filter	0.01	AC-066	12-Jul-23
23060375-002	Indeno(1,2,3-cd)pyrene		0.02	ug/Filter	0.01	AC-066	12-Jul-23
23060375-002	Naphthalene		0.01	ug/Filter	0.01	AC-066	12-Jul-23
23060375-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23
23060375-002	Phenanthrene		0.21	ug/Filter	0.01	AC-066	12-Jul-23
23060375-002	Pyrene		0.05	ug/Filter	0.01	AC-066	12-Jul-23
23060375-002	Retene		0.11	ug/Filter	0.01	AC-066	12-Jul-23

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

Date: July 25, 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-202306

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Jun 17, 2023	31826	Ambient Air	17-Jun-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23060375 **REPORT CREATED:** 25-Jul-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060375-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-Jun-23
23060375-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-Jun-23
23060375-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-Jun-23
23060375-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-Jun-23
23060375-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-Jun-23
23060375-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	27-Jun-23
23060375-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	27-Jun-23
23060375-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Jun-23
23060375-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-Jun-23
23060375-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Jun-23
23060375-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Jun-23
23060375-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Jun-23
23060375-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Jun-23
23060375-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Jun-23
23060375-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	27-Jun-23
23060375-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	27-Jun-23
23060375-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	27-Jun-23
23060375-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	27-Jun-23
23060375-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	27-Jun-23
23060375-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Jun-23
23060375-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-Jun-23
23060375-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-Jun-23
23060375-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-Jun-23
23060375-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	27-Jun-23
23060375-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-Jun-23

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

Date: July 25, 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-202306

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Jun 17, 2023	31826	Ambient Air	17-Jun-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23060375 **REPORT CREATED:** 25-Jul-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060375-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Jun-23
23060375-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-Jun-23
23060375-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Jun-23
23060375-001	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-Jun-23
23060375-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Jun-23
23060375-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-Jun-23
23060375-001	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-Jun-23
23060375-001	Acetone		2.2	ppbv	0.4	AC-058	27-Jun-23
23060375-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	27-Jun-23
23060375-001	Benzene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Jun-23
23060375-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	27-Jun-23
23060375-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Jun-23
23060375-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	27-Jun-23
23060375-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-Jun-23
23060375-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	27-Jun-23
23060375-001	Carbon tetrachloride	I	0.09	ppbv	0.02	AC-058	27-Jun-23
23060375-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-Jun-23
23060375-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-Jun-23
23060375-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	27-Jun-23
23060375-001	Chloromethane		0.50	ppbv	0.04	AC-058	27-Jun-23
23060375-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-Jun-23
23060375-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Jun-23
23060375-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Jun-23
23060375-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-Jun-23
23060375-001	Cyclohexane	I	0.05	ppbv	0.04	AC-058	27-Jun-23

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

Date: July 25, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Jun 17, 2023	31826	Ambient Air	17-Jun-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23060375 **REPORT CREATED:** 25-Jul-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060375-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-Jun-23
23060375-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-Jun-23
23060375-001	Ethanol	K, T, U	< 0.5	ppbv	0.5	AC-058	27-Jun-23
23060375-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	27-Jun-23
23060375-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Jun-23
23060375-001	Freon-11		0.19	ppbv	0.02	AC-058	27-Jun-23
23060375-001	Freon-113	I	0.05	ppbv	0.02	AC-058	27-Jun-23
23060375-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Jun-23
23060375-001	Freon-12		0.46	ppbv	0.03	AC-058	27-Jun-23
23060375-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	27-Jun-23
23060375-001	Isobutane	I	0.05	ppbv	0.03	AC-058	27-Jun-23
23060375-001	Isopentane		0.11	ppbv	0.04	AC-058	27-Jun-23
23060375-001	Isoprene		0.49	ppbv	0.02	AC-058	27-Jun-23
23060375-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	27-Jun-23
23060375-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-Jun-23
23060375-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-Jun-23
23060375-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-Jun-23
23060375-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Jun-23
23060375-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	27-Jun-23
23060375-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	27-Jun-23
23060375-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	27-Jun-23
23060375-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	27-Jun-23
23060375-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Jun-23
23060375-001	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-Jun-23
23060375-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	27-Jun-23

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Jun 17, 2023	31826	Ambient Air	17-Jun-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23060375 **REPORT CREATED:** 25-Jul-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060375-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	27-Jun-23
23060375-001	n-Butane		0.13	ppbv	0.02	AC-058	27-Jun-23
23060375-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	27-Jun-23
23060375-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	27-Jun-23
23060375-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	27-Jun-23
23060375-001	n-Hexane	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Jun-23
23060375-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	27-Jun-23
23060375-001	n-Pentane	I	0.06	ppbv	0.04	AC-058	27-Jun-23
23060375-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	27-Jun-23
23060375-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	27-Jun-23
23060375-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	27-Jun-23
23060375-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	27-Jun-23
23060375-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-Jun-23
23060375-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Jun-23
23060375-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-Jun-23
23060375-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	27-Jun-23
23060375-001	Styrene	I	0.05	ppbv	0.04	AC-058	27-Jun-23
23060375-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-Jun-23
23060375-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	27-Jun-23
23060375-001	Toluene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Jun-23
23060375-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	27-Jun-23
23060375-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-Jun-23
23060375-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	27-Jun-23
23060375-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-Jun-23
23060375-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	27-Jun-23

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Jun 17, 2023	31826	Ambient Air	17-Jun-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23060375 **REPORT CREATED:** 25-Jul-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060375-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	27-Jun-23
23060375-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	27-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: July 25, 2023

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

Revision History

Order ID	Ver	Date	Reason
23060375	01	25-Jul-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: 23060463-001 **Priority:** Normal

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

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JUN 30 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:**	28917
Station ID:	LICA 01	**Installation Date/Time (mst):**	Jun 21, 2023 @ 15:58
Sample ID:	LICA/VOC/CLS/Jun 23, 2023	**Removal Date/Time (mst):**	Jun 28, 2023 @ 18:29

Date and Time Information

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

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.1	19.1

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

Deployment/Collection and Maintenance Checklist

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

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 23060463-002 **Priority:** Normal

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

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TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	9802
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Jun 21, 2023 @ 16:01
Field Sample ID:	LICA/PUF/CLS/Jun 23, 2023	**Removal Date/Time:**	Jun 28, 2023 @ 18:31

Sample Data Collection Information

Sample Date:	23-Jun-23	**Average Pressure (mmHg)**	711
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	20.9
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.41

Sample Recovery Checklist

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

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

Sample ID: 23060463-001 **Priority:** Normal

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

InnoTech ALBERTA

Canister ID: 28917

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISO4 on: MAR 0 8 2023

Evacuated: MAY 1 2 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

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

Sampled By: Alex Yakupov

Starting Vacuum: -27.1 "Hg

End Vacuum: +19.1 "Hg/psig mw

InnoTech ALBERTA

Canister ID: 9802

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/Jun 23, 2023

Sampled By: Alex Yakupov

Starting Vacuum: _____ "Hg

End Vacuum: _____ "Hg/psig

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JUN 30 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID: LICA/PUF/CLS/Jun 23, 2023
Matrix: Air Filter
CANISTER ID: 9802
PRIORITY: Normal
DESCRIPTION:
DATE SAMPLED: 23-Jun-23 0:00
DATE RECEIVED: 30-Jun-23
REPORT CREATED: 25-Jul-23
REPORT NUMBER: 23060463
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060463-002	1-Methylnaphthalene		0.05	ug/Filter	0.01	AC-066	12-Jul-23
23060463-002	2-Methylnaphthalene		0.08	ug/Filter	0.01	AC-066	12-Jul-23
23060463-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23
23060463-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23
23060463-002	Acenaphthene		0.03	ug/Filter	0.01	AC-066	12-Jul-23
23060463-002	Acenaphthylene		0.05	ug/Filter	0.01	AC-066	12-Jul-23
23060463-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23
23060463-002	Anthracene		0.01	ug/Filter	0.01	AC-066	12-Jul-23
23060463-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23
23060463-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23
23060463-002	Benzo(b,j,k)fluoranthene		0.05	ug/Filter	0.01	AC-066	12-Jul-23
23060463-002	Benzo(c)phenanthrene		0.34	ug/Filter	0.01	AC-066	12-Jul-23
23060463-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23
23060463-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23
23060463-002	Chrysene		0.01	ug/Filter	0.01	AC-066	12-Jul-23
23060463-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23
23060463-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: July 25, 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-202306

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Jun 23, 2023	9802	Air Filter	23-Jun-23 0:00

DESCRIPTION:

REPORT NUMBER: 23060463 **REPORT CREATED:** 25-Jul-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060463-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23
23060463-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23
23060463-002	Fluoranthene		0.07	ug/Filter	0.01	AC-066	12-Jul-23
23060463-002	Fluorene		0.05	ug/Filter	0.01	AC-066	12-Jul-23
23060463-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23
23060463-002	Naphthalene		0.05	ug/Filter	0.01	AC-066	12-Jul-23
23060463-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23
23060463-002	Phenanthrene		0.28	ug/Filter	0.01	AC-066	12-Jul-23
23060463-002	Pyrene		0.06	ug/Filter	0.01	AC-066	12-Jul-23
23060463-002	Retene		0.18	ug/Filter	0.01	AC-066	12-Jul-23

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/JUN 23, 2023	28917	Ambient Air	23-Jun-23 0:00

DESCRIPTION:

REPORT NUMBER: 23060463 **REPORT CREATED:** 25-Jul-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060463-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23060463-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23060463-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23060463-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23060463-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23060463-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	05-Jul-23
23060463-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jul-23
23060463-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23060463-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23060463-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23060463-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23060463-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23060463-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23060463-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23060463-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Jul-23
23060463-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Jul-23
23060463-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	05-Jul-23
23060463-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Jul-23
23060463-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	05-Jul-23
23060463-001	1-Pentene	I	0.04	ppbv	0.03	AC-058	05-Jul-23
23060463-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23060463-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23060463-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23060463-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	05-Jul-23
23060463-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23

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

Date: July 25, 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-202306

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/JUN 23, 2023	28917	Ambient Air	23-Jun-23 0:00

DESCRIPTION:

REPORT NUMBER: 23060463 **REPORT CREATED:** 25-Jul-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060463-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23060463-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23060463-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23060463-001	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23060463-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23060463-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23060463-001	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23060463-001	Acetone		4.4	ppbv	0.4	AC-058	05-Jul-23
23060463-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jul-23
23060463-001	Benzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23060463-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jul-23
23060463-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23060463-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23060463-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23060463-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23060463-001	Carbon tetrachloride	I	0.06	ppbv	0.02	AC-058	05-Jul-23
23060463-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23060463-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23060463-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23060463-001	Chloromethane		0.91	ppbv	0.04	AC-058	05-Jul-23
23060463-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23060463-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23060463-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23060463-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23060463-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jul-23

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

Date: July 25, 2023 Inquiries: (780) 632 8403 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/JUN 23, 2023	28917	Ambient Air	23-Jun-23 0:00

DESCRIPTION:

REPORT NUMBER: 23060463 **REPORT CREATED:** 25-Jul-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060463-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23060463-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23060463-001	Ethanol		1.5	ppbv	0.5	AC-058	05-Jul-23
23060463-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jul-23
23060463-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23060463-001	Freon-11		0.31	ppbv	0.02	AC-058	05-Jul-23
23060463-001	Freon-113	I	0.06	ppbv	0.02	AC-058	05-Jul-23
23060463-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23060463-001	Freon-12		0.69	ppbv	0.03	AC-058	05-Jul-23
23060463-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jul-23
23060463-001	Isobutane		0.30	ppbv	0.03	AC-058	05-Jul-23
23060463-001	Isopentane		0.40	ppbv	0.04	AC-058	05-Jul-23
23060463-001	Isoprene		1.44	ppbv	0.02	AC-058	05-Jul-23
23060463-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jul-23
23060463-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jul-23
23060463-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jul-23
23060463-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23060463-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23060463-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Jul-23
23060463-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jul-23
23060463-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jul-23
23060463-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	05-Jul-23
23060463-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23060463-001	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23060463-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	05-Jul-23

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

Date: July 25, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/JUN 23, 2023	28917	Ambient Air	23-Jun-23 0:00

DESCRIPTION:

REPORT NUMBER: 23060463 **REPORT CREATED:** 25-Jul-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060463-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jul-23
23060463-001	n-Butane		0.76	ppbv	0.02	AC-058	05-Jul-23
23060463-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Jul-23
23060463-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jul-23
23060463-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jul-23
23060463-001	n-Hexane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23060463-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23060463-001	n-Pentane	I	0.10	ppbv	0.04	AC-058	05-Jul-23
23060463-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Jul-23
23060463-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	05-Jul-23
23060463-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jul-23
23060463-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jul-23
23060463-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23060463-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23060463-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23060463-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jul-23
23060463-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jul-23
23060463-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23060463-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jul-23
23060463-001	Toluene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23060463-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Jul-23
23060463-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23060463-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23060463-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23060463-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/JUN 23, 2023	28917	Ambient Air	23-Jun-23 0:00

DESCRIPTION:

REPORT NUMBER: 23060463 **REPORT CREATED:** 25-Jul-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060463-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jul-23
23060463-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23

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

Date: July 25, 2023

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

Revision History

Order ID	Ver	Date	Reason
23060463	01	25-Jul-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: 23070037-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Jun 29, 2023

RECEIVED
JUL 05 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:**	29018
Station ID:	LICA 01	**Installation Date/Time (mst):**	Jun 28, 2023 @ 18:36
Sample ID:	LICA/VOC/CLS/Jun 29, 2023	**Removal Date/Time (mst):**	Jul 03, 2023 @ 20:47

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
June 29, 2023	0:00	23:59	24

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.1	17.6

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: 23070037-002 Priority: Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Jun 29, 2023

RECEIVED
JUL 05 2023

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	TE-10
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Jun 28, 2023 @ 18:37
Field Sample ID:	LICA/PUF/CLS/Jun 29, 2023	**Removal Date/Time:**	Jul 03, 2023 @ 20:49

Sample Data Collection Information

Sample Date:	29-Jun-23	**Average Pressure (mmHg)**	708
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	25.6
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.41

Sample Recovery Checklist

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

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

InnoTech ALBERTA

Canister ID: 29018

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: 1504 on: APR 21 2023

Evacuated: MAY 12 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Jun29, 2023

Sampled By: Alex Yakupov

Starting Vacuum: -27.1 "Hg

End Vacuum: +17.6 "Hg/psig

InnoTech ALBERTA

Canister ID: TE10

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/Jun 29, 2023

Sampled By: Alex Yakupov

Starting Vacuum: _____ "Hg

End Vacuum: _____ "Hg/psig

Sample ID: 23070037-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Jun 29, 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/Jun 29, 2023
Matrix: Air Filter
CANISTER ID: TE-10
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 29-Jun-23 0:00
DATE RECEIVED: 05-Jul-23
REPORT CREATED: 25-Jul-23
REPORT NUMBER: 23070037
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23070037-002	1-Methylnaphthalene		0.02	ug/Filter	0.01	AC-066	12-Jul-23
23070037-002	2-Methylnaphthalene		0.04	ug/Filter	0.01	AC-066	12-Jul-23
23070037-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23
23070037-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23
23070037-002	Acenaphthene		0.01	ug/Filter	0.01	AC-066	12-Jul-23
23070037-002	Acenaphthylene		0.03	ug/Filter	0.01	AC-066	12-Jul-23
23070037-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23
23070037-002	Anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23
23070037-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23
23070037-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23
23070037-002	Benzo(b,j,k)fluoranthene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23
23070037-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23
23070037-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23
23070037-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23
23070037-002	Chrysene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23
23070037-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23
23070037-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: July 25, 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-202306

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Jun 29, 2023	TE-10	Air Filter	29-Jun-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23070037 **REPORT CREATED:** 25-Jul-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23070037-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23
23070037-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23
23070037-002	Fluoranthene		0.07	ug/Filter	0.01	AC-066	12-Jul-23
23070037-002	Fluorene		0.03	ug/Filter	0.01	AC-066	12-Jul-23
23070037-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23
23070037-002	Naphthalene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23
23070037-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	12-Jul-23
23070037-002	Phenanthrene		0.27	ug/Filter	0.01	AC-066	12-Jul-23
23070037-002	Pyrene		0.07	ug/Filter	0.01	AC-066	12-Jul-23
23070037-002	Retene		0.14	ug/Filter	0.01	AC-066	12-Jul-23

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

Date: July 25, 2023

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Jun 29, 2023	29018	Ambient Air	29-Jun-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23070037 **REPORT CREATED:** 25-Jul-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23070037-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23070037-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23070037-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23070037-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23070037-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23070037-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	05-Jul-23
23070037-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jul-23
23070037-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070037-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23070037-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070037-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070037-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070037-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070037-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070037-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Jul-23
23070037-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Jul-23
23070037-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	05-Jul-23
23070037-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Jul-23
23070037-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	05-Jul-23
23070037-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070037-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23070037-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23070037-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23070037-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	05-Jul-23
23070037-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23

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

Date: July 25, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Jun 29, 2023	29018	Ambient Air	29-Jun-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23070037 **REPORT CREATED:** 25-Jul-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23070037-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070037-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23070037-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070037-001	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23070037-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070037-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23070037-001	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23070037-001	Acetone		6.1	ppbv	0.4	AC-058	05-Jul-23
23070037-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jul-23
23070037-001	Benzene	I	0.05	ppbv	0.03	AC-058	05-Jul-23
23070037-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jul-23
23070037-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070037-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23070037-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23070037-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23070037-001	Carbon tetrachloride	I	0.05	ppbv	0.02	AC-058	05-Jul-23
23070037-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23070037-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23070037-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23070037-001	Chloromethane	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jul-23
23070037-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23070037-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070037-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070037-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23070037-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jul-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: July 25, 2023

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Jun 29, 2023	29018	Ambient Air	29-Jun-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23070037 **REPORT CREATED:** 25-Jul-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23070037-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23070037-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23070037-001	Ethanol		1.6	ppbv	0.5	AC-058	05-Jul-23
23070037-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jul-23
23070037-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070037-001	Freon-11		0.30	ppbv	0.02	AC-058	05-Jul-23
23070037-001	Freon-113	I	0.05	ppbv	0.02	AC-058	05-Jul-23
23070037-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070037-001	Freon-12		0.69	ppbv	0.03	AC-058	05-Jul-23
23070037-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jul-23
23070037-001	Isobutane		0.23	ppbv	0.03	AC-058	05-Jul-23
23070037-001	Isopentane		0.31	ppbv	0.04	AC-058	05-Jul-23
23070037-001	Isoprene		5.26	ppbv	0.02	AC-058	05-Jul-23
23070037-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jul-23
23070037-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jul-23
23070037-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jul-23
23070037-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23070037-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070037-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Jul-23
23070037-001	Methyl ethyl ketone	I	0.3	ppbv	0.3	AC-058	05-Jul-23
23070037-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jul-23
23070037-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	05-Jul-23
23070037-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070037-001	Methylcyclohexane	I	0.03	ppbv	0.02	AC-058	05-Jul-23
23070037-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	05-Jul-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: July 25, 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/Jun 29, 2023	29018	Ambient Air	29-Jun-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23070037 **REPORT CREATED:** 25-Jul-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23070037-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jul-23
23070037-001	n-Butane		0.26	ppbv	0.02	AC-058	05-Jul-23
23070037-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Jul-23
23070037-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jul-23
23070037-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jul-23
23070037-001	n-Hexane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070037-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23070037-001	n-Pentane	I	0.07	ppbv	0.04	AC-058	05-Jul-23
23070037-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Jul-23
23070037-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	05-Jul-23
23070037-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jul-23
23070037-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jul-23
23070037-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23070037-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070037-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23070037-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jul-23
23070037-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jul-23
23070037-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23070037-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jul-23
23070037-001	Toluene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070037-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Jul-23
23070037-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23070037-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070037-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23
23070037-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: July 25, 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/Jun 29, 2023	29018	Ambient Air	29-Jun-23 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 23070037 **REPORT CREATED:** 25-Jul-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23070037-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jul-23
23070037-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jul-23

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

Date: July 25, 2023

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

Revision History

Order ID	Ver	Date	Reason
23070037	01	25-Jul-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: 23060290-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9700061

RECEIVED JUN 20 2023

l 2000i-D Sample Data Sheet

5 Jun, July 25/23 see email.

Date Sampled:	2-Jun-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 #:	C9700061	C9700062
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	~~23.2~~ 20.8	
Pressure	708.1 709.5	
Std Volume (Instrument)	~~20.5~~ 20.5	2.28

Comments: Weather Conditions, etc.

n/a

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

Removed by (Sign/Date) Kevin Sebastian Date: 06/06/2023

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: 23060290-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9700062

RECEIVED
JUN 20 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	C9700061 → C9700062

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

Jessica Payne

From: Alexander YAKUPOV <alexander.yakupov@bureauveritas.com>
Sent: 25-Jul-23 1:03 PM
To: Environmental Analytical Services Recepti
Subject: Sample records correction
Attachments: AnalyticalReport - 23060290-01 .pdf; 230

Sample ID: 23060290-001 **Priority:** Normal
Customer ID: LICA
Cust Samp ID: C9700061

Follow Up Flag: Follow up
Flag Status: Flagged

*** EXTERNAL E-mail. Please be cautious and evaluate the sender and content before you click on any links or open attachments. ***

Good afternoon Jessica,

Can you please contact the lab and ask them to correct the sample records as follows:
The sample date of June 2d needs to be corrected to Sample day June 5th?

Thank you so much. June 2d was a day of installation, not a sample date. I am sorry, my bad.
I attached the paperwork for reference.

Thank you,
Alex

Thank you,
Alex Yakupov

Field Technician, Emission Services
Energy & Renewables Division
Bureau Veritas Canada
6724 50th Street NW, Edmonton, AB
T6B 3M9
Mobile: 780 545 9363
alexander.yakupov@bvlabs.com
www.bvlabs.com
Shaping a world of trust

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
C9700061	Air Filter

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

DATE SAMPLED: 05-Jun-23 0:00
DATE RECEIVED: 20-Jun-23
REPORT CREATED: 26-Jun-23
REPORT NUMBER: 23060290
REPORT REVISED: 25-Jul-23
VERSION: Version 02

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060290-001	Particulate Weight		0.142	mg	0.004	AC-029	21-Jun-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: July 25, 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-202306

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
C9700062		Air Filter	05-Jun-23 0:00

DESCRIPTION: Cold Lake South - Coarse - PM10

REPORT NUMBER: 23060290 **REPORT CREATED:** 26-Jun-23 **REPORT REVISED:** 25-Jul-23 **VERSION:** Version 02

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060290-002	Particulate Weight	K, T, U	< 0.004	mg	0.004	AC-029	21-Jun-23

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

Date: July 25, 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-202306

Revision History

Order ID	Ver	Date	Reason
23060290	01	26-Jun-23	Report created
23060290	02	25-Jul-23	Client provided corrected sample dates.

Methods

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

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

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

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

Qualifiers

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

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

Order Comments

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

Sample Comments

Result Comments

Note:

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

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

Sample ID: 23060289-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C1170493

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JUN 20 2023

2000i-D Sample Data Sheet

Date Sampled:	11-Jun-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 #:	C1170493	C1170494
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	23.9	
Pressure	709	
Std Volume (Instrument)	20.3	2.27

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date): Kevin Sebastian Date: 6-Jun-23

Removed by (Sign/Date) Alex Yakupov Date: 15-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: 23060289-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C1170494

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: MAY 10/23

Project: LICA/Bureau Veritas Labs

Prepared by: S Mulenla .

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	C1170493 → C1170494

RECEIVED
JUN 20 2023

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
C1170493	Air Filter

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

DATE SAMPLED: 11-Jun-23 0:00
DATE RECEIVED: 20-Jun-23
REPORT CREATED: 26-Jun-23
REPORT NUMBER: 23060289
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060289-001	Particulate Weight		0.609	mg	0.004	AC-029	21-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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
C1170494		Air Filter	11-Jun-23 0:00

DESCRIPTION: Cold Lake South - Coarse - PM10

REPORT NUMBER: 23060289 **REPORT CREATED:** 26-Jun-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060289-002	Particulate Weight		0.178	mg	0.004	AC-029	21-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
23060289	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

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

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

Order Comments

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

Sample Comments

Result Comments

Note:

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

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

Sample ID: 23060376-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C1168579

l 2000i-D Sample Data Sheet

Date Sampled:	17-Jun-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 #:	C1168579	C1168580
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	17.7	
Pressure	704	
Std Volume (Instrument)	20.6	2.3

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date): Alex Yakupov Date: 15-Jun-23

Removed by (Sign/Date) Date: 21-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: 23060376-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C1168579

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: May 31/23

Project: LICA/Bureau Veritas Labs

Prepared by:

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	C1168579 → C1168580

RECEIVED
JUN 23 2023

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
C1168579	Air Filter

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

DATE SAMPLED: 17-Jun-23 0:00
DATE RECEIVED: 23-Jun-23
REPORT CREATED: 07-Jul-23
REPORT NUMBER: 23060376
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060376-001	Particulate Weight		0.059	mg	0.004	AC-029	04-Jul-23

Report certified by: Andrea Conner, Admin Assistant
On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: July 7, 2023
Inquiries: (780) 632 8403
E-mail: EAS.Results@innotechalberta.ca

InnoTech's ISO/IEC 17025:2017 scope of accreditation can be located at https://directory.cala.ca// LAB-LICA-202306

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
C1168580		Air Filter	17-Jun-23 0:00

DESCRIPTION: Cold Lake South - Coarse - PM 10

REPORT NUMBER: 23060376 **REPORT CREATED:** 07-Jul-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060376-002	Particulate Weight		0.058	mg	0.004	AC-029	04-Jul-23

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

Date: July 7, 2023

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

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

Revision History

Order ID	Ver	Date	Reason
23060376	01	07-Jul-23	Report created

Methods

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

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

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

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

Qualifiers

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

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

Order Comments

Sample Comments

Result Comments

Note:

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

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

Sample ID: 23060462-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C1169916

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JUN 30 2023

›l 2000i-D Sample Data Sheet

Date Sampled:	23-Jun-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 #:	C1169916	C1169917
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	19.2	
Pressure	710	
Std Volume (Instrument)	20.7	2.31

Comments: Weather Conditions, etc.

n/a

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

Removed by (Sign/Date) Alex Yakupov Date: 28-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: 23060462-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C1169916

RECEIVED
JUN 30 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: May 10/23

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	C1169916 → C1169917

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
C1169916	Air Filter

CANISTER ID:
PRIORITY: Normal
DESCRIPTION: PM 2.5

DATE SAMPLED: 23-Jun-23 0:00
DATE RECEIVED: 30-Jun-23
REPORT CREATED: 07-Jul-23
REPORT NUMBER: 23060462
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060462-001	Particulate Weight		0.067	mg	0.004	AC-029	04-Jul-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: July 7, 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
C1169917		Air Filter	23-Jun-23 0:00

DESCRIPTION: PM 10

REPORT NUMBER: 23060462 **REPORT CREATED:** 07-Jul-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23060462-002	Particulate Weight		0.058	mg	0.004	AC-029	04-Jul-23

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

Date: July 7, 2023

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

Revision History

Order ID	Ver	Date	Reason
23060462	01	07-Jul-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
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J2	Reported value is estimated; No known QC criteria for this component
J3	Reported value is estimated; The value failed to meet QC criteria for either precision or accuracy
J4	Reported value is estimated; The sample matrix interfered with the analysis
K	Off-scale low. Actual value is known to be less than the value given
L	Off-scale high. Actual value is known to be greater than value given
N	Non-target analyte; Tentatively identified compound (using mass spectroscopy)
Q	Sample held beyond the accepted holding time
R	Rejected data; Not suitable for the projects intended use
T	Value reported is less than the laboratory method detection limit
U	Compound was analyzed for but not detected
V	Analyte was detected in both the sample and the associated method blank

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

Order Comments

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: 23070034-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C1169914

RECEIVED
JUL 05 2023

I 2000i-D Sample Data Sheet

Date Sampled:	29-Jun-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 #:	C1169914	C1169915
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	23.5	
Pressure	709	
Std Volume (Instrument)	20.4	2.27

Comments: Weather Conditions, etc.

n/a

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

Removed by (Sign/Date) Alex Yakupov Date: 3-Jul-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: 23070034-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C1169915

Filter Shipping Record

RECEIVED
JUL 05 2023

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

Date: MAY 10/23

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	C1169914 → C1169915

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID: C1169914
Matrix: Air Filter
CANISTER ID:
PRIORITY: Normal
DESCRIPTION: Cold Lake South - Fine - PM 2.5
DATE SAMPLED: 29-Jun-23 0:00
DATE RECEIVED: 05-Jul-23
REPORT CREATED: 10-Jul-23
REPORT NUMBER: 23070034
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23070034-001	Particulate Weight		0.257	mg	0.004	AC-029	07-Jul-23

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

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
C1169915		Air Filter	29-Jun-23 0:00

DESCRIPTION: Cold Lake South - Coarse - PM 10

REPORT NUMBER: 23070034 **REPORT CREATED:** 10-Jul-23 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23070034-002	Particulate Weight		0.195	mg	0.004	AC-029	07-Jul-23

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

Date: July 10, 2023

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

Revision History

Order ID	Ver	Date	Reason
23070034	01	10-Jul-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-074	Pesticides in Water
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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.

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Passive Samples

Passive Sampler Field Sheet for LICA, Jun 2023 sample period

ID	SAMPLER						START		END		NOTES
							DATE	TIME	DATE	TIME	
3	H_2S	SO_2	NO_2	O_3	HNO3	NH3	May 29	16:16	Jun 30	15:47	
4	---	SO_2	NO_2	O_3	HNO3	NH3	May 31	13:02	Jul 2	13:20	
5	H_2S	SO_2	NO_2	O_3	HNO3	NH3	May 31	13:57	Jul 2	14:15	
6	---	SO_2	NO_2	O_3	HNO3	NH3	May 31	15:24	Jul 2	16:12	
8	---	SO_2	NO_2	O_3	HNO3	NH3	May 31	11:45	Jul 2	12:14	
9	---	SO_2	NO_2	O_3	HNO3	NH3	May 29	13:46	Jun 30	12:44	
10	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Jun 1	18:00	Jul 3	18:10	
11	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Jun 1	17:10	Jul 3	17:15	
12	H2S	SO2	NO2	O3	HNO3	NH3	Jun 1	15:32	Jul 3	16:04	
13	H_2S	SO_2	NO_2	O_3	HNO3	NH3	May 29	17:49	Jun 30	17:35	
14	H_2S	SO_2	NO_2	O_3	HNO3	NH3	May 29	19:05	Jun 30	18:45	water isotope sample taken
15	---	SO_2	NO_2	O_3	HNO3	NH3	May 29	12:14	Jun 30	11:40	
16	H_2S	SO_2	NO_2	O_3	HNO3	NH3	May 31	18:02	Jul 3	10:02	HNO_3/NH_3 - found on the ground
17	H_2S	SO_2	NO_2	O_3	HNO3	NH3	May 31	17:06	Jul 2	18:10	
18	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Jun 1	11:58	Jul 2	19:35	H_2S/HNO_3 - found on the ground (site disturbed by a bear)
19	---	SO_2	NO_2	O_3	HNO3	NH3	May 31	18:40	Jul 2	21:02	
22	H_2S	SO_2	NO_2	O_3	HNO3	NH3	May 29	08:16	Jul 3	19:22	
23	---	SO_2	NO_2	O_3	HNO3	NH3	May 29	11:15	road closed / forest fire		
24	H_2S	SO_2	NO_2	O_3	HNO3	NH3	May 31	14:50	Jul 2	15:17	
25	H2S	SO2	---	---							
26	H_2S	SO_2	---	---	HNO3	NH3	May 29	18:54	Jun 30	18:24	
27	H_2S	SO_2	---	---	HNO3	NH3	May 29	19:17	Jun 30	19:12	all passives found on the ground as
28	H_2S	SO_2	NO_2	O_3	HNO3	NH3	May 29	12:52	no access / gates locked		
29	H_2S	SO_2	NO_2	O_3	HNO3	NH3	May 29	08:22	Jul 3	19:32	
32	H_2S	SO_2	NO_2	O_3	HNO3	NH3	May 29	15:10	Jun 30	15:09	
42	H_2S	SO_2	NO_2	O_3	HNO3	NH3	May 30	18:14	Jul 3	12:32	
							DUPLICATES				
12	H2S	---	---	---	---	---	Jun 1	15:32	Jul 3	16:04	
13	H2S	---	---	---	---	---	May 29	17:49	Jun 30	17:35	
9	---	SO2	---	---	---	---	May 29	13:46	Jun 30	12:44	
10		SO2	---	---	---	---	Jun 1	18:00	Jul 3	18:10	
11	---	SO2	---	---	---	---	Jun 1	17:10	Jul 3	17:15	
16	---	---	NO_2	O_3	---	---	May 31	18:02	Jul 3	10:02	
17	---	---	NO_2	O_3	---	---	17:06 ↔ May 31		Jul 2	18:10	
4	---	---	---	---	HNO3	NH3	13:02 ↔ May 31		Jul 2	13:20	
5	---	---	---	---	HNO3	NH3	13:57 ↔ May 31		Jul 2	14:15	

W#27 site disturbed by a bear

Your Project #: JUNE 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: 2023/07/17
Report #: R3365220
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C350312
Received: 2023/07/05, 12:00

Sample Matrix: Air
Samples Received: 62

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
H2S Passive Analysis	20	2023/07/11	2023/07/14	PTC SOP-00150	Passive H2S in ATM
HNO3 by Passive Sampler	30	2023/07/06	2023/07/13	PTC SOP-00288	Passive HNO3 in ATM
NH3 by Passive Sampler	30	2023/07/06	2023/07/13	PTC SOP-00157	ASTM D6919
NO2 Passive Analysis	25	2023/07/06	2023/07/14	PTC SOP-00148	Passive NO2 in ATM
O3 Passive Analysis	25	2023/07/07	2023/07/14	PTC SOP-00197	EPA 300 R2.1
SO2 Passive Analysis	28	2023/07/06	2023/07/14	PTC SOP-00149	Passive SO2 in ATM

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

Encryption Key

Belma Elefante
Customer Service Associate
17 Jul 2023 09:57:54

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

==========

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

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

Bureau Veritas Job #: C350312
Report Date: 2023/07/17

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BTY711			BTY712			BTY713		
Sampling Date		2023/05/29 16:16			2023/05/31 13:02			2023/05/31 13:57		
	UNITS	3	RDL	QC Batch	4	RDL	QC Batch	5	RDL	QC Batch
Passive Monitoring										
Calculated H2S	ppb	0.28	0.02	B028449				0.85	0.02	B028449
Calculated NO2	ppb	1.2	0.1	B030152	1.6	0.1	B030152	0.8	0.1	B030152
Calculated O3	ppb	46.3	0.1	B029494	36.5	0.1	B029494	35.7	0.1	B029494
Calculated SO2	ppb	0.4	0.1	B023478	0.4	0.1	B023478	0.5	0.1	B023478
RDL = Reportable Detection Limit										

Bureau Veritas ID		BTY714	BTY715	BTY716			BTY717	BTY718	BTY720		
Sampling Date		2023/05/31 15:24	2023/05/31 11:45	2023/05/29 13:46			2023/06/01 18:00	2023/06/01 17:10	2023/06/01 15:32		
	UNITS	6	8	9	RDL	QC Batch	10	11	12	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb						0.40	0.16	0.19	0.02	B028449
Calculated NO2	ppb	2.9	0.6	1.0	0.1	B030152	1.9	0.3	0.3	0.1	B030152
Calculated O3	ppb	31.1	35.6	33.9	0.1	B029494	23.8	22.1	31.6	0.1	B029494
Calculated SO2	ppb	0.5	0.6	0.3	0.1	B023478	0.4	0.4	0.5	0.1	B023478
RDL = Reportable Detection Limit											

Bureau Veritas ID		BTY721	BTY722			BTY723			BTY724		
Sampling Date		2023/05/29 17:49	2023/05/29 19:05			2023/05/29 12:14			2023/05/31 18:02		
	UNITS	13	14	RDL	QC Batch	15	RDL	QC Batch	16	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb	0.16	0.32	0.02	B028449				0.29	0.02	B028449
Calculated NO2	ppb	0.3	0.9	0.1	B030152	0.9	0.1	B030152	0.6	0.1	B030152
Calculated O3	ppb	23.0	28.0	0.1	B029494	29.0	0.1	B029494	31.7	0.1	B029494
Calculated SO2	ppb	0.3	1.0	0.1	B023478	0.5	0.1	B023482	0.3	0.1	B023482
RDL = Reportable Detection Limit											

Bureau Veritas Job #: C350312
Report Date: 2023/07/17

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BTY725	BTY726			BTY727			BTY728		
Sampling Date		2023/05/31 17:06	2023/06/01 11:58			2023/05/31 18:40			2023/05/29 08:16		
	UNITS	17	18	RDL	QC Batch	19	RDL	QC Batch	22	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb	0.34	0.47	0.02	B028449				0.27	0.02	B028449
Calculated NO2	ppb	1.1	0.5	0.1	B030152	0.6	0.1	B030152	0.5	0.1	B030152
Calculated O3	ppb	32.0	23.2	0.1	B029494	41.7	0.1	B029494	30.7	0.1	B029494
Calculated SO2	ppb	0.5	0.2	0.1	B023482	0.3	0.1	B023482	0.3	0.1	B023482
RDL = Reportable Detection Limit											

Bureau Veritas ID		BTY729			BTY730			BTY731	BTY732		
Sampling Date		2023/05/29 11:15			2023/05/31 14:50			2023/05/29 18:54	2023/05/29 19:17		
	UNITS	23	RDL	QC Batch	24	RDL	QC Batch	26	27	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb				0.41	0.02	B028449	0.19	0.60	0.02	B028449
Calculated NO2	ppb	NA	0.1	B030152	1.1	0.1	B030152				
Calculated O3	ppb	NA	0.1	B029494	46.8	0.1	B029494				
Calculated SO2	ppb	NA	0.1	B023482	0.4	0.1	B023482	0.5	0.7	0.1	B023482
RDL = Reportable Detection Limit											

Bureau Veritas ID		BTY733		BTY734	BTY735	BTY736			BTY740		
Sampling Date		2023/05/29 12:52		2023/05/29 08:22	2023/05/29 15:10	2023/05/30 18:14			2023/05/29 16:16		
	UNITS	28	QC Batch	29	32	42	RDL	QC Batch	9 DUP	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb	NA	B028449	0.18	0.31	0.27	0.02	B028449			
Calculated NO2	ppb	NA	B030152	0.4	0.5	0.7	0.1	B030154			
Calculated O3	ppb	NA	B029494	32.3	36.3	33.4	0.1	B029505			
Calculated SO2	ppb	NA	B023482	0.3	0.4	0.3	0.1	B023482	0.3	0.1	B023482
RDL = Reportable Detection Limit											

Bureau Veritas Job #: C350312
Report Date: 2023/07/17

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BTY741	BTY742			BTY743	BTY744			BTY746		
Sampling Date		2023/05/29 16:16	2023/05/29 16:16			2023/05/29 16:16	2023/05/29 16:16			2023/05/29 16:16		
	UNITS	10 DUP	11 DUP	RDL	QC Batch	16 DUP	17 DUP	RDL	QC Batch	12 DUP	RDL	QC Batch
Passive Monitoring												
Calculated H2S	ppb									0.15	0.02	B028449
Calculated NO2	ppb					0.5	1.0	0.1	B030154			
Calculated O3	ppb					29.1	33.6	0.1	B029505			
Calculated SO2	ppb	0.4	0.3	0.1	B023482							
RDL = Reportable Detection Limit												

Bureau Veritas ID		BTY778			BTY747	BTY748	BTY749	BTY750		
Sampling Date		2023/05/29 16:16			2023/05/29 16:16	2023/05/29 16:16	2023/05/29 16:16	2023/05/29 16:16		
	UNITS	13 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				2.1	1.7	4.0	2.5	0.1	B023472
Calculated H2S	ppb	0.16	0.02	B028449						
HNO3 by Passive Sampler	ug/m3				1.76	1.79	0.75	1.53	0.04	B023473
RDL = Reportable Detection Limit										

Bureau Veritas ID		BTY751	BTY752	BTY753	BTY754	BTY755	BTY756		
Sampling Date		2023/05/29 16:16	2023/05/29 16:16	2023/05/29 16:16	2023/05/29 16:16	2023/05/29 16:16	2023/05/29 16:16		
	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	3.2	1.7	2.3	0.2	4.0	0.2	0.1	B023472
HNO3 by Passive Sampler	ug/m3	1.50	1.02	1.63	1.30	0.39	<0.04	0.04	B023473
RDL = Reportable Detection Limit									

Bureau Veritas ID		BTY757	BTY758	BTY759		BTY760	BTY761		
Sampling Date		2023/05/29 16:16	2023/05/29 16:16	2023/05/29 16:16		2023/05/29 16:16	2023/05/29 16:16		
	UNITS	14-NH3 HNO3	15-NH3 HNO3	16-NH3 HNO3	QC Batch	17-NH3 HNO3	18-NH3 HNO3	RDL	QC Batch
Passive Monitoring									
Ammonia by Passive Sampler	ppb	0.5	1.1	5.8	B023472	2.5	0.5	0.1	B023477
HNO3 by Passive Sampler	ug/m3	0.76	1.62	0.19	B023473	1.39	0.86	0.04	B023473
RDL = Reportable Detection Limit									

Bureau Veritas Job #: C350312
Report Date: 2023/07/17

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BTY762		BTY763	BTY764	BTY765	BTY766		
Sampling Date		2023/05/29 16:16		2023/05/29 16:16	2023/05/29 16:16	2023/05/29 16:16	2023/05/29 16:16		
	UNITS	19-NH3 HNO3	QC Batch	22-NH3 HNO3	23-NH3 HNO3	24-NH3 HNO3	26-NH3 HNO3	RDL	QC Batch
Passive Monitoring									
Ammonia by Passive Sampler	ppb	1.2	B023477	0.8	NA	1.8	0.1	0.1	B023477
HNO3 by Passive Sampler	ug/m3	1.92	B023473	1.53	NA	1.35	0.81	0.04	B023475
RDL = Reportable Detection Limit									

Bureau Veritas ID		BTY767	BTY768	BTY769	BTY770	BTY771		
Sampling Date		2023/05/29 16:16	2023/05/29 16:16	2023/05/29 16:16	2023/05/29 16:16	2023/05/29 16:16		
	UNITS	27-NH3 HNO3	28-NH3 HNO3	29-NH3 HNO3	32-NH3 HNO3	42-NH3 HNO3	RDL	QC Batch
Passive Monitoring								
Ammonia by Passive Sampler	ppb	0.6	NA	0.9	0.9	1.1	0.1	B023477
HNO3 by Passive Sampler	ug/m3	1.34	NA	0.55	1.37	0.95	0.04	B023475
RDL = Reportable Detection Limit								

Bureau Veritas ID		BTY772	BTY773	BTY774	BTY775		
Sampling Date		2023/05/29 16:16	2023/05/29 16:16	2023/05/29 16:16	2023/05/29 16:16		
	UNITS	4-NH3 HNO3 DUP	5-NH3 HNO3 DUP	BLANK 1-NH3 HNO3	BLANK 2-NH3 HNO3	RDL	QC Batch
Passive Monitoring							
Ammonia by Passive Sampler	ppb	1.5	4.7	0.7	0.9	0.1	B023477
HNO3 by Passive Sampler	ug/m3	1.86	2.53	0.53	0.44	0.04	B023475
RDL = Reportable Detection Limit							

Bureau Veritas ID		BTY777		
Sampling Date		2023/05/29 16:16		
	UNITS	BLANK 3-NH3 HNO3	RDL	QC Batch
Passive Monitoring				
Ammonia by Passive Sampler	ppb	0.2	0.1	B023477
HNO3 by Passive Sampler	ug/m3	0.61	0.04	B023475
RDL = Reportable Detection Limit				

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

GENERAL COMMENTS

According to COC, HNO3 and NH3 samples from site #16 were found on the ground. H2S and HNO3 samples from site #17 were found on the ground. All samples from site #27 were found on the ground.--YL6 20230706

Sample BTY756 [13-NH3 HNO3] : HNO3 filter was wet. --YL6 20230713

Results relate only to the items tested.

Bureau Veritas Job #: C350312
Report Date: 2023/07/17

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: JUNE 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
B023472	SDK	Spiked Blank	Ammonia by Passive Sampler			95	%	90 - 110
B023472	SDK	Method Blank	Ammonia by Passive Sampler		<0.1		ppb	
B023473	OZ	Method Blank	HNO3 by Passive Sampler		<0.04		ug/m3	
B023473	OZ	RPD [BTY747-01]	HNO3 by Passive Sampler	2023/07/13	NC		%	N/A
B023475	OZ	Method Blank	HNO3 by Passive Sampler		<0.04		ug/m3	
B023475	OZ	RPD [BTY763-01]	HNO3 by Passive Sampler	2023/07/13	NC		%	N/A
B023477	SDK	Spiked Blank	Ammonia by Passive Sampler			100	%	90 - 110
B023477	SDK	Method Blank	Ammonia by Passive Sampler		<0.1		ppb	
B023477	SDK	RPD [BTY760-01]	Ammonia by Passive Sampler	2023/07/13	NC		%	N/A
B023478	OZ	Spiked Blank	Calculated SO2			98	%	90 - 110
B023478	OZ	Method Blank	Calculated SO2		<0.1		ppb	
B023482	OZ	Spiked Blank	Calculated SO2			99	%	90 - 110
B023482	OZ	Method Blank	Calculated SO2		<0.1		ppb	
B028449	YYA	Spiked Blank	Calculated H2S			100	%	90 - 110
B029494	SDK	Spiked Blank	Calculated O3			100	%	90 - 110
B029494	SDK	Method Blank	Calculated O3		<0.1		ppb	
B029505	SDK	Spiked Blank	Calculated O3			100	%	90 - 110
B029505	SDK	Method Blank	Calculated O3		<0.1		ppb	
B030152	SDK	Spiked Blank	Calculated NO2			100	%	90 - 110
B030152	SDK	Method Blank	Calculated NO2		<0.1		ppb	
B030154	SDK	Spiked Blank	Calculated NO2			93	%	90 - 110
B030154	SDK	Method Blank	Calculated NO2		<0.1		ppb	

N/A = Not Applicable

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

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

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

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

Bureau Veritas Job #: C350312
Report Date: 2023/07/17

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

VALIDATION SIGNATURE PAGE

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

Yang Liu

Yang Liu, Laboratory Supervisor

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

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

Lac La Biche Station

Non- Methane Hydrocarbons (NMHCs) Canister Samples

Sample ID: 23070026-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/NMHC/LCB/June 25 2023

Maxxam Analytics

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

Client:	LICA	**Sampler S/N:**	n/a
Location:	LCB	**Canister ID:**	28906
Station ID:	41	**Installation Date/Time (mst):**	June 6, 2023 @ 16:35
Sample ID:	LICA/NMHC/LCB/Jun 25 2023	**Removal Date/Time (mst):**	Jul 3, 2023 @ 13:32

June 24 - see email. JNP, July 25/23.

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
Jun ~~25~~ ~~30~~ 1 2023	18:45	18:50	5 min

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	**Final Pressure (psi)**
~~30~~ 27.1 A.V.	-4.0

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

Deployment/Collection and Maintenance Checklist

Initial leak check deployment vacuum (in. Hg) =	—	@	—	mst
Final leak check deployment vacuum (in. Hg) =	—	@	—	mst
Total leak rate =	—	psi over	—	minutes
Timer reset to zero prior to sampling?	—	(yes/no)		
Date of last flow calibration:	—			(due every 3 months)
Last date of sample line & fitting replacement:	—			(due every 6 months)

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

Comments:

RECEIVED
JUL 05 2023

Deployment Technician Signature: Kevin Sebastian

Collection Technician Signature: Alex Yakupov

Sample ID: 23070026-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/NMHC/LCB/June 25 2023

InnoTech ALBERTA

Canister ID: 28906

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: MAR 24 2023

Evacuated: MAY 12 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/NMHC/LCB/Jun 25 2023

Sampled By: Alex Yakupov

Starting Vacuum: -27.1 "Hg

End Pressure: -4.0 "Hg/psig MW

Jessica Payne

From: Alexander YAKUPOV <alexander.yakupov@bureauveritas.com>
Sent: 25-Jul-23 1:33 PM
To: Environmental Analytical Services Recepti
Subject: NMHC canister date correction
Attachments: 23070026 coc.pdf; 23070026.XLS

Sample ID: 23070026-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/NMHC/LCB/June 24, 2023

Follow Up Flag: Follow up
Flag Status: Flagged

*** EXTERNAL E-mail. Please be cautious and evaluate the sender and content before you click on any links or open attachments. ***

Hello Jessica,

Can I ask you about one more correction please?
The NMHC canister sample date is June 24, not June 25. Can you please ask the lab to correct the date and re-issue the report?
I am sorry for all that mess.
I attached the paperwork for reference.

Thank you so much.
Alex

Thank you,
Alex Yakupov

Field Technician, Emission Services
Energy & Renewables Division
Bureau Veritas Canada
6724 50th Street NW, Edmonton, AB
T6B 3M9
Mobile: 780 545 9363
alexander.yakupov@bvlabs.com
www.bvlabs.com
Shaping a world of trust

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID: LICA/NMHC/LCB/June 24, 2023

Matrix: Ambient Air

CANISTER ID:

PRIORITY: Normal

DESCRIPTION:

DATE SAMPLED: 24-Jun-23 18:45

DATE RECEIVED: 05-Jul-23

REPORT CREATED: 17-Jul-23

REPORT NUMBER: 23070026

REPORT REVISED: 25-Jul-23

VERSION: Version 02

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23070026-001	1,1,1-Trichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070026-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070026-001	1,1,2-Trichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070026-001	1,1-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070026-001	1,1-Dichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070026-001	1,2,3-Trimethylbenzene	K, T, U	< 0.07	ppbv	0.07	AC-058	05-Jul-23
23070026-001	1,2,4-Trichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Jul-23
23070026-001	1,2,4-Trimethylbenzene	I	0.07	ppbv	0.04	AC-058	05-Jul-23
23070026-001	1,2-Dibromoethane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070026-001	1,2-Dichlorobenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jul-23
23070026-001	1,2-Dichloroethane	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jul-23
23070026-001	1,2-Dichloropropane	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jul-23
23070026-001	1,3,5-Trimethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jul-23
23070026-001	1,3-Butadiene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jul-23
23070026-001	1,3-Dichlorobenzene	K, T, U	< 0.5	ppbv	0.5	AC-058	05-Jul-23
23070026-001	1,4-Dichlorobenzene	K, T, U	< 0.5	ppbv	0.5	AC-058	05-Jul-23
23070026-001	1,4-Dioxane	K, T, U	< 0.7	ppbv	0.7	AC-058	05-Jul-23

Report certified by: Andrea Conner, Admin Assistant On behalf of: Adam Malcolm, Manager, Chemical Testing
Date: July 25, 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/NMHC/LCB/June 24, 2023		Ambient Air	24-Jun-23 18:45

DESCRIPTION:

REPORT NUMBER: 23070026 **REPORT CREATED:** 17-Jul-23 **REPORT REVISED:** 25-Jul-23 **VERSION:** Version 02

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23070026-001	1-Butene/Isobutylene	K, T, U	< 0.08	ppbv	0.08	AC-058	05-Jul-23
23070026-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.09	ppbv	0.09	AC-058	05-Jul-23
23070026-001	1-Pentene	I	0.06	ppbv	0.04	AC-058	05-Jul-23
23070026-001	2,2,4-Trimethylpentane		0.81	ppbv	0.03	AC-058	05-Jul-23
23070026-001	2,2-Dimethylbutane	I	0.07	ppbv	0.03	AC-058	05-Jul-23
23070026-001	2,3,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070026-001	2,3-Dimethylbutane	K, T, U	< 0.12	ppbv	0.12	AC-058	05-Jul-23
23070026-001	2,3-Dimethylpentane	I	0.04	ppbv	0.03	AC-058	05-Jul-23
23070026-001	2,4-Dimethylpentane	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jul-23
23070026-001	2-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070026-001	2-Methylhexane	I	0.08	ppbv	0.04	AC-058	05-Jul-23
23070026-001	2-Methylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070026-001	3-Methylheptane	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jul-23
23070026-001	3-Methylhexane	I	0.12	ppbv	0.03	AC-058	05-Jul-23
23070026-001	3-Methylpentane		0.14	ppbv	0.03	AC-058	05-Jul-23
23070026-001	Acetone		5.9	ppbv	0.5	AC-058	05-Jul-23
23070026-001	Acrolein	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Jul-23
23070026-001	Benzene	I	0.12	ppbv	0.04	AC-058	05-Jul-23
23070026-001	Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Jul-23
23070026-001	Bromodichloromethane	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jul-23
23070026-001	Bromoform	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070026-001	Bromomethane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070026-001	Carbon disulfide	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070026-001	Carbon tetrachloride	I	0.05	ppbv	0.03	AC-058	05-Jul-23
23070026-001	Chlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/NMHC/LCB/June 24, 2023		Ambient Air	24-Jun-23 18:45

DESCRIPTION:

REPORT NUMBER: 23070026 **REPORT CREATED:** 17-Jul-23 **REPORT REVISED:** 25-Jul-23 **VERSION:** Version 02

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23070026-001	Chloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070026-001	Chloroform	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070026-001	Chloromethane		0.85	ppbv	0.05	AC-058	05-Jul-23
23070026-001	cis-1,2-Dichloroethene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070026-001	cis-1,3-Dichloropropene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jul-23
23070026-001	cis-2-Butene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jul-23
23070026-001	cis-2-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070026-001	Cyclohexane	K, T, U	< 0.05	ppbv	0.05	AC-058	05-Jul-23
23070026-001	Cyclopentane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070026-001	Dibromochloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070026-001	Ethanol		3.7	ppbv	0.7	AC-058	05-Jul-23
23070026-001	Ethyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Jul-23
23070026-001	Ethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jul-23
23070026-001	Freon-11		0.28	ppbv	0.03	AC-058	05-Jul-23
23070026-001	Freon-113	I	0.05	ppbv	0.03	AC-058	05-Jul-23
23070026-001	Freon-114	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jul-23
23070026-001	Freon-12		0.63	ppbv	0.04	AC-058	05-Jul-23
23070026-001	Hexachloro-1,3-butadiene	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Jul-23
23070026-001	Isobutane		0.84	ppbv	0.04	AC-058	05-Jul-23
23070026-001	Isopentane		1.51	ppbv	0.05	AC-058	05-Jul-23
23070026-001	Isoprene		2.27	ppbv	0.03	AC-058	05-Jul-23
23070026-001	Isopropyl alcohol	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Jul-23
23070026-001	Isopropylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	05-Jul-23
23070026-001	m,p-Xylene	I	0.19	ppbv	0.05	AC-058	05-Jul-23
23070026-001	m-Diethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23

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ENVIRONMENTAL ANALYTICAL SERVICES

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LICA/NMHC/LCB/June 24, 2023		Ambient Air	24-Jun-23 18:45

DESCRIPTION:

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Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23070026-001	m-Ethyltoluene	I	0.10	ppbv	0.04	AC-058	05-Jul-23
23070026-001	Methyl butyl ketone	K, T, U	< 0.5	ppbv	0.5	AC-058	05-Jul-23
23070026-001	Methyl ethyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Jul-23
23070026-001	Methyl isobutyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Jul-23
23070026-001	Methyl methacrylate	K, T, U	< 0.11	ppbv	0.11	AC-058	05-Jul-23
23070026-001	Methyl tert butyl ether	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jul-23
23070026-001	Methylcyclohexane	I	0.05	ppbv	0.03	AC-058	05-Jul-23
23070026-001	Methylcyclopentane	I	0.12	ppbv	0.07	AC-058	05-Jul-23
23070026-001	Methylene chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Jul-23
23070026-001	n-Butane		1.10	ppbv	0.03	AC-058	05-Jul-23
23070026-001	n-Decane	K, T, U	< 0.08	ppbv	0.08	AC-058	05-Jul-23
23070026-001	n-Dodecane	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Jul-23
23070026-001	n-Heptane	I	0.07	ppbv	0.05	AC-058	05-Jul-23
23070026-001	n-Hexane	I	0.14	ppbv	0.04	AC-058	05-Jul-23
23070026-001	n-Octane	I	0.09	ppbv	0.03	AC-058	05-Jul-23
23070026-001	n-Pentane		0.41	ppbv	0.05	AC-058	05-Jul-23
23070026-001	n-Propylbenzene	I	0.09	ppbv	0.08	AC-058	05-Jul-23
23070026-001	n-Undecane	K, T, U	< 0.7	ppbv	0.7	AC-058	05-Jul-23
23070026-001	Naphthalene	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Jul-23
23070026-001	n-Nonane	K, T, U	< 0.05	ppbv	0.05	AC-058	05-Jul-23
23070026-001	o-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070026-001	o-Xylene	I	0.06	ppbv	0.04	AC-058	05-Jul-23
23070026-001	p-Diethylbenzene	I	0.05	ppbv	0.03	AC-058	05-Jul-23
23070026-001	p-Ethyltoluene	K, T, U	< 0.05	ppbv	0.05	AC-058	05-Jul-23
23070026-001	Styrene	K, T, U	< 0.05	ppbv	0.05	AC-058	05-Jul-23

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TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/NMHC/LCB/June 24, 2023		Ambient Air	24-Jun-23 18:45

DESCRIPTION:

REPORT NUMBER: 23070026 **REPORT CREATED:** 17-Jul-23 **REPORT REVISED:** 25-Jul-23 **VERSION:** Version 02

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23070026-001	Tetrachloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070026-001	Tetrahydrofuran	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Jul-23
23070026-001	Toluene		0.33	ppbv	0.04	AC-058	05-Jul-23
23070026-001	trans-1,2-Dichloroethylene	K, T, U	< 0.08	ppbv	0.08	AC-058	05-Jul-23
23070026-001	trans-1,3-Dichloropropylene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070026-001	trans-2-Butene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jul-23
23070026-001	trans-2-Pentene	I	0.04	ppbv	0.03	AC-058	05-Jul-23
23070026-001	Trichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23
23070026-001	Vinyl acetate	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Jul-23
23070026-001	Vinyl chloride	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jul-23

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Date: July 25, 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-202306

Revision History

Order ID	Ver	Date	Reason
23070026	01	17-Jul-23	Report created
23070026	02	25-Jul-23	Client provided corrected sample dates.

Methods

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

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

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

Qualifiers

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

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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.

End of Report