



Lakeland Industry & Community Association

JULY 2023

**Monthly Ambient Air Quality Monitoring Integrated
Sampling Report**

LICA-202307-INTEGRATED

August 18, 2023

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Lakeland Industry & Community Association

5107 50 St

Bonnyville, AB, T9N 2J7

Phone #: 780-226-7068

E-mail: monitoring@lica.ca

www.lica.ca

August 18, 2023

Alberta Environment and Protected Areas (EPA)

11th Floor, Oxbridge Place

9820 106 Street

Edmonton, AB, T5K 2J6

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

Enclosed is the July 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 (O₃), hydrogen sulphide (H₂S), sulphur dioxide (SO₂), nitrogen dioxide (NO₂), ammonia (NH₃) and nitric acid (HNO₃).

The representative of the Person Responsible for this monitoring program is

LICA Airshed

Michael Bisaga, Monitoring Programs Manager

5107 50 Street

Bonnyville, AB, T9N 2J7

Phone #: 780-226-7068

E-mail: monitoring@lica.ca

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

NETWORK STATION SUMMARY

Listing of Air Monitoring Stations and Integrated Sampling Stations

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

Listing of Passive Sampling Stations

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

Listing of Passive Aromatic Compounds Stations

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

List of Contractors who performed the air monitoring activities

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

Monitoring Notes during the Month of July 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 July 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).
 - Five samples were collected this month: on July 5, 11, 17, 23 and 29.
- **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 July 20. The sampler passed the audit requirements.
- Five samples were collected this month: on July 5, 11, 17, 23 and 29.
- **Passives**
 - There were no exceedances of the AAQOs for all monitored parameters at any of the passive stations during this month.
 - The passive sample filters were installed at the stations June 30 and July 3, and were removed between July 29 and July 31.
 - 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 11: NO₂ sample media went missing and could not be located.
 - Station 29: NMH₃ sample media went missing and could not be located.
 - 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.
 - One canister event was recorded this month; on July 4 at 00:50, at concentration of 0.37 ppm.

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 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
587-225-2248
monitoring@lica.ca

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

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



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

INTEGRATED SAMPLING RESULTS SUMMARY

COLD LAKE SOUTH STATION

- VOCs analytical results

Sample Date	2023-07-05	2023-07-11	2023-07-17	2023-07-23
Canister ID	32255	29031	32263	28968
Maximum Reading (ppbv)	2.5	3.0	3.8	6.9
Parameter	Acetone	Acetone	Acetone	Acetone
Sample Date	2023-07-29			
Canister ID	28957			
Maximum Reading (ppbv)	2.3			
Parameter	Acetone			

- PAHs analytical results

Sample Date	2023-07-05		2023-07-11		2023-07-17		2023-07-23	
PUF S/N	TE-08		TE-09		TE-03		TE-01	
Volume (Vstd m³)	330.42		330.41		330.44		330.48	
Maximum Reading	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3
	0.39	1.18	0.34	1.03	0.43	1.30	0.74	2.24
Parameter	Phenanthrene		Phenanthrene		Phenanthrene		Phenanthrene	
Sample Date	2023-07-29							
PUF S/N	TE-12							
Volume (Vstd m3)	330.41							
Maximum Reading	ug	ng/m3						
	0.38	1.15						
Parameter	Phenanthrene							

- Partisol analytical results

- PM_{2.5}

Sample Date	2023-07-05		2023-07-11		2023-07-17		2023-07-23	
Filter #	C1167726		C1170473		C1168573		C1168575	
Volume (Vstd m ³)	20.8		20.8		20.6		20.6	
Result	Result (mg)	Result (mg/m ³)	Result (mg)	Result (mg/m ³)	Result (mg)	Result (mg/m ³)	Result (mg)	Result (mg/m ³)
Particulate Matter	0.074	0.004	0.064	0.003	0.212	0.010	0.508	0.025
Sample Date	2023-07-29							
Filter #	C9700149							
Volume (Vstd m ³)	21.0							
Result	Result (mg)	Result (mg/m ³)						
Particulate Matter	0.097	0.05						

- PM_{2.5-10}

Sample Date	2023-07-05		2023-07-11		2023-07-17		2023-07-23	
Filter #	C1167727		C1170474		C1168574		C1168576	
Volume (Vstd m ³)	2.32		2.32		2.29		2.29	
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)
PM _{2.5-10} Mass	0.029	0.013	0.161	0.069	0.190	0.083	0.122	0.053
Sample Date	2023-07-29							
Filter #	C9700150							
Volume (Vstd m ³)	2.34							
Result	Result (mg)	Result (mg/m ³)						
PM _{2.5-10} Mass	0.096	0.041						

- **Passive analytical results**

	H₂S		NO₂		O₃		SO₂		NM_H3		HNO₃	
	Unit (ppb)		Unit (ppb)		Unit (ppb)		Unit (ppb)		Unit (ppb)		Unit (ug/m3)	
Minimum	0.14	#13	0.1	#23	18.1	#11	0.2	#12	0.2	#23	0.25	#17
Maximum	1.23	#27	2.0	#10	33.7	#3	1.4	#4	14.7	#13	1.32	#11
Average	0.42	-	0.66	-	25.86	-	0.43	-	3.20	-	0.72	-

LAC LA BICHE STATION

- **NMHC canister sample analytical results**

Sample Date / Time	2023-07-07 @00:45
Canister Triggered Conc.	0.37PPM
Canister ID	32247
Maximum Reading (ppbv)	13.4
Parameter	n-Butane

ANALYTICAL SAMPLING RESULTS

COLD LAKE SOUTH STATION

VOCS



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - July 2023

Volatile Organic Compounds (VOCs) Results

Sample Date		2023-07-05	2023-07-11	2023-07-17	2023-07-23	2023-07-29	
Canister ID		32255	29031	32263	28968	28957	
Method		AC-058	AC-058	AC-058	AC-058	AC-058	
Maximum Reading (ppbv)		2.5	3.0	3.8	6.9	2.3	
Parameter		Acetone	Acetone	Acetone	Acetone	Acetone	
Parameter	AAQOs (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	RDL (ppbv)
1,1,1-Trichloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1,2,2-Tetrachloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1,2-Trichloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1-Dichloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1-Dichloroethylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,2,3-Trimethylbenzene		< 0.05	0.08	0.08	< 0.05	< 0.05	0.05
1,2,4-Trichlorobenzene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
1,2,4-Trimethylbenzene		< 0.03	0.04	0.04	0.16	< 0.03	0.03
1,2-Dibromoethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,2-Dichlorobenzene		< 0.03	0.03	0.03	< 0.03	< 0.03	0.03
1,2-Dichloroethane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
1,2-Dichloropropane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
1,3,5-Trimethylbenzene		< 0.03	< 0.03	< 0.03	0.03	< 0.03	0.03
1,3-Butadiene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
1,3-Dichlorobenzene		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	0.4
1,4-Dichlorobenzene		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	0.4
1,4-Dioxane		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.5
1-Butene		< 0.06	< 0.06	< 0.06	0.11	< 0.06	0.06
1-Hexene		< 0.07	< 0.07	< 0.07	< 0.07	< 0.07	0.07
1-Pentene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
2,2,4-Trimethylpentane		< 0.02	0.04	0.02	0.04	< 0.02	0.02
2,2-Dimethylbutane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
2,3,4-Trimethylpentane		< 0.02	< 0.02	0.02	0.03	< 0.02	0.02
2,3-Dimethylbutane		< 0.09	< 0.09	< 0.09	< 0.09	< 0.09	0.09
2,3-Dimethylpentane		< 0.02	0.03	< 0.02	0.03	< 0.02	0.02
2,4-Dimethylpentane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
2-Methylheptane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
2-Methylhexane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
2-Methylpentane		0.05	0.11	< 0.02	< 0.02	0.04	0.02
3-Methylheptane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
3-Methylhexane		< 0.02	0.03	0.02	< 0.02	< 0.02	0.02
3-Methylpentane		< 0.02	0.04	< 0.02	0.04	< 0.02	0.02
Acetone	2400	2.5	3.0	3.8	6.9	2.3	0.4
Acrolein	1.9	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Benzene	9.0	0.03	0.04	0.1	0.24	< 0.03	0.03
Benzyl chloride		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Bromodichloromethane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
Bromoform		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Bromomethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Carbon disulfide	10	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Carbon tetrachloride		0.08	0.06	0.08	0.09	0.04	0.02
Chlorobenzene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Chloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Chloroform		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Chloromethane		0.4	0.57	0.82	0.94	0.39	0.04
cis-1,2-Dichloroethene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
cis-1,3-Dichloropropene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
cis-2-Butene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
cis-2-Pentene		< 0.02	0.02	< 0.02	< 0.02	< 0.02	0.02
Cyclohexane		< 0.04	< 0.04	< 0.04	0.05	< 0.04	0.04
Cyclopentane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Dibromochloromethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Ethanol		< 0.5	1.4	1.4	1.6	< 0.5	0.5
Ethyl acetate		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Ethylbenzene	460	< 0.03	0.03	0.03	0.06	< 0.03	0.03
Freon-11		0.2	0.2	0.33	0.38	0.17	0.02
Freon-113		0.05	0.05	0.07	0.07	0.04	0.02
Freon-114		< 0.03	< 0.03	< 0.03	0.03	< 0.03	0.03



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - July 2023

Volatile Organic Compounds (VOCs) Results

Sample Date		2023-07-05	2023-07-11	2023-07-17	2023-07-23	2023-07-29	
Canister ID		32255	29031	32263	28968	28957	
Method		AC-058	AC-058	AC-058	AC-058	AC-058	
Maximum Reading (ppbv)		2.5	3.0	3.8	6.9	2.3	
Parameter		Acetone	Acetone	Acetone	Acetone	Acetone	
Parameter	AAQOs (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	RDL (ppbv)
Freon-12		0.49	0.51	0.7	0.78	0.45	0.03
Hexachloro-1,3-butadiene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Isobutane		0.08	0.4	0.08	0.46	0.09	0.03
Isopentane		0.14	0.69	0.22	0.72	0.19	0.04
Isoprene		1.07	2.01	2.31	3	1.11	0.02
Isopropyl alcohol		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Isopropylbenzene		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.04
m,p-Xylene		< 0.04	0.08	0.08	0.1	< 0.04	0.04
m-Diethylbenzene		< 0.02	0.08	< 0.02	< 0.02	< 0.02	0.02
m-Ethyltoluene		< 0.03	0.09	0.03	0.04	< 0.03	0.03
Methyl butyl ketone		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	0.4
Methyl ethyl ketone		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Methyl isobutyl ketone		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Methyl methacrylate		< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	0.08
Methyl tert butyl ether		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
Methylcyclohexane		0.03	0.02	< 0.02	< 0.02	0.07	0.02
Methylcyclopentane		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.05
Methylene chloride		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
n-Butane		0.16	0.66	0.21	0.94	0.12	0.02
n-Decane		< 0.06	0.07	< 0.06	< 0.06	< 0.06	0.06
n-Dodecane		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
n-Heptane		< 0.04	< 0.04	< 0.04	0.05	< 0.04	0.04
n-Hexane	5960	< 0.03	0.05	0.04	0.06	< 0.03	0.03
n-Nonane		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.04
n-Octane		< 0.02	0.03	0.03	0.03	< 0.02	0.02
n-Pentane		0.08	0.14	0.13	0.14	0.05	0.04
n-Propylbenzene		< 0.06	0.06	0.06	0.07	< 0.06	0.06
n-Undecane		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.5
Naphthalene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
o-Ethyltoluene		< 0.02	0.03	0.03	0.08	< 0.02	0.02
o-Xylene		< 0.03	0.04	0.03	0.05	< 0.03	0.03
p-Diethylbenzene		< 0.02	0.08	< 0.02	< 0.02	< 0.02	0.02
p-Ethyltoluene		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.04
Styrene	52.0	< 0.04	0.07	0.16	0.18	< 0.04	0.04
Tetrachloroethylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Tetrahydrofuran		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Toluene	499	0.04	0.07	0.07	0.12	0.06	0.03
trans-1,2-Dichloroethylene		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.06
trans-1,3-Dichloropropylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
trans-2-Butene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
trans-2-Pentene		< 0.02	0.03	< 0.02	< 0.02	< 0.02	0.02
Trichloroethylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Vinyl acetate		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Vinyl chloride	51	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02

PAHS



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - July 2023

Polycyclic Aromatic Hydrocarbons (PAHs) Results

Sample Date	2023-07-05		2023-07-11		2023-07-17		2023-07-23		2023-07-29	
PUF S/N	TE-08		TE-09		TE-03		TE-01		TE-12	
Volume (Vstd m ³)	330.42		330.41		330.44		330.48		330.41	
Method	AC-066		AC-066		AC-066		AC-066		AC-066	
Maximum Reading	ug	ng/m ³	ug	ng/m ³	ug	ng/m ³	ug	ng/m ³	ug	ng/m ³
	0.39	1.18	0.34	1.03	0.43	1.30	0.74	2.24	0.38	1.15
Parameter	Phenanthrene		Phenanthrene		Phenanthrene		Phenanthrene		Phenanthrene	

Parameter	Result (ug)	Result (ng/m ³)	Result (ug)	Result (ng/m ³)	Result (ug)	Result (ng/m ³)	Result (ug)	Result (ng/m ³)	Result (ug)	Result (ng/m ³)	RDL (ug)
1-Methylnaphthalene	0.05	0.15	0.05	0.15	0.03	0.09	0.04	0.12	0.06	0.18	0.01
2-Methylnaphthalene	0.04	0.12	0.04	0.12	0.03	0.09	0.05	0.15	0.08	0.24	0.01
3-Methylcholanthrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
7,12-Dimethylbenz(a)anthracene	0.01	0.03	0.01	0.03	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Acenaphthene	< 0.01	0.00	0.01	0.03	< 0.01	0.00	0.01	0.03	0.01	0.03	0.01
Acenaphthylene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.02	0.06	0.02	0.06	0.01
Acridine	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Anthracene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.04	0.12	< 0.01	0.00	0.01
Benzo(a)anthracene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.02	0.06	< 0.01	0.00	0.01
Benzo(a)pyrene	0.03	0.09	0.02	0.06	0.02	0.06	0.01	0.03	< 0.01	0.00	0.01
Benzo(b,j,k)fluoranthene	0.09	0.27	0.08	0.24	0.06	0.18	0.07	0.21	0.03	0.09	0.01
Benzo(c)phenanthrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Benzo(e)pyrene	0.02	0.06	0.02	0.06	0.02	0.06	0.02	0.06	0.01	0.03	0.01
Benzo(ghi)perylene	0.06	0.18	0.06	0.18	0.05	0.15	0.04	0.12	0.04	0.12	0.01
Chrysene	< 0.01	0.00	< 0.01	0.00	0.01	0.03	0.03	0.09	< 0.01	0.00	0.01
Dibenzo(a,h)pyrene	0.26	0.79	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Dibenzo(a,i)pyrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Dibenzo(a,l)pyrene	0.07	0.21	0.06	0.18	0.05	0.15	0.04	0.12	0.04	0.12	0.01
Dibenzo(ah)anthracene	0.05	0.15	0.05	0.15	0.04	0.12	0.04	0.12	0.03	0.09	0.01
Fluoranthene	0.04	0.12	0.04	0.12	0.06	0.18	0.11	0.33	0.05	0.15	0.01
Fluorene	0.05	0.15	0.03	0.09	0.04	0.12	0.05	0.15	0.03	0.09	0.01
Indeno(1,2,3-cd)pyrene	0.05	0.15	0.05	0.15	0.04	0.12	0.04	0.12	0.03	0.09	0.01
Naphthalene	0.03	0.09	0.02	0.06	0.02	0.06	0.03	0.09	0.04	0.12	0.01
Perylene	0.02	0.06	0.02	0.06	0.02	0.06	0.01	0.03	< 0.01	0.00	0.01
Phenanthrene	0.39	1.18	0.34	1.03	0.43	1.30	0.74	2.24	0.38	1.15	0.01
Pyrene	0.03	0.09	0.04	0.12	0.05	0.15	0.10	0.30	0.04	0.12	0.01
Retene	0.12	0.36	0.07	0.21	0.25	0.76	0.74	2.24	0.07	0.21	0.01

PARTISOLS



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - July 2023

Partisol Results - PM_{2.5}

Sample Date	2023-07-05	2023-07-11	2023-07-17	2023-07-23	2023-07-29
Filter #	C1167726	C1170473	C1168573	C1168575	C9700149
Volume (Vstd m ³)	20.8	20.8	20.6	20.6	21.0
Method	AC-029	AC-029	AC-029	AC-029	AC-029

Parameter	AAAQO (mg/m ³)	Result (mg)	Result (mg/m ³)	Result (mg)	Result (mg/m ³)	Result (mg)	Result (mg/m ³)	Result (mg)	Result (mg/m ³)	Result (mg)	Result (mg/m ³)	RDL (mg)
Particulate Matter	0.029	0.074	0.004	0.064	0.003	0.212	0.010	0.508	0.025	0.097	0.005	0.004

PM2.5 Mass in ug/m ³	3.558	3.077	10.291	24.660	4.619
RDL in ug/m ³	0.192	0.192	0.194	0.194	0.190



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - July 2023

Partisol Results -PM_{2.5}-PM₁₀

Sample Date	2023-07-05	2023-07-11	2023-07-17	2023-07-23	2023-07-29						
Filter #	C1167727	C1170474	C1168574	C1168576	C9700150						
Volume (Vstd m ³)	2.32	2.32	2.29	2.29	2.34						
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	0.029	0.013	0.161	0.069	0.190	0.083	0.122	0.053	0.096	0.041	0.004
PM2.5-10 Mass in ug/m3	12.500		69.397		82.969		53.275		41.026		
RDL in ug/m3	1.724		1.724		1.747		1.747		1.709		

PASSIVE SAMPLES



LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

July 2023
Passive Results

	H ₂ S		NO ₂		O ₃		SO ₂		NMH ₃		HNO ₃	
Unit	ppb		ppb		ppb		ppb		ppb		ug/m ³	
Minimum (ppb)	0.14	#13	0.1	#23	18.1	#11	0.2	#12	0.2	#23	0.25	#17
Maximum (ppb)	1.23	#27	2.0	#10	33.7	#3	1.4	#4	14.7	#13	1.32	#11
Average (ppb)	0.42	-	0.66	-	25.86	-	0.43	-	3.20	-	0.72	-

No.	Station	Sample	Duplicate	Sample	Duplicate	Sample	Duplicate	Sample	Duplicate	Sample	Duplicate	Sample	Duplicate
3	Therien	0.30		0.6		33.7		0.3		3.2		0.74	
4	Flat Lake	-		0.8		23.2		1.4		3.5		0.65	
5	Lake Eliza	0.99		0.4		25.7		0.6		2.6		0.37	
6	Telegraph Creek	-		1.9		24.9		0.6		4.2	3.2	0.72	0.50
8	Muriel-Kehewin	-		0.4		28.9		0.4		3.0	3.4	0.77	0.82
9	Dupre	-		0.7		22.5		0.3		2.6		0.75	
10	La Corey	0.43		2.0		24.0		0.3		2.0		0.45	
11	Wolf Lake	0.2		Missing 2		18.1		0.4		1.3		1.32	
12	Foster Creek	0.2		0.2		27.4		0.2	0.3	1.8		1.25	
13	Primrose	0.14		0.3		20.8		0.2	0.2	14.7		1.22	
14	Tamarack	0.43	0.46	1.1		28.7		0.4	0.4	2.0		0.39	
15	Ardmore	-		0.7		25.6		0.3		2.3		0.64	
16	Frog Lake	0.27	0.29	0.6		26.0		0.3		1.7		0.78	
17	Clear Range	0.53		0.6		27.3		0.4		5.2		0.25	
18	Fishing Lake	0.17		0.3	0.3	20.1	21.8	0.2		1.9		0.75	
19	Beaverdam	-		0.4	0.5	28.5	28.8	0.3		3.9		0.89	
22	Cold Lake South (1)	0.46		0.5		24.7		0.4		2.3		0.62	
23	Medley-Martineau	-		0.1		21.9		0.2		0.2		0.39	
24	Fort George	0.44		0.8		27.5		0.4		3.3		0.85	
25	Burnt Lake	Missing 1		-		-		Missing 1		-		-	
26	Mahihkan	0.26		-		-		0.6		1.3		0.44	
27	Mahkeses	1.23		-		-		1.2		2.7		0.90	
28	Town of Bonnyville	Missing 3		Missing 3		Missing 3		Missing 3		Missing 3		Missing 3	
29	Cold Lake South (2)	0.38		0.5		30.0		0.4		Missing 2		0.59	
32	St. Lina	0.40		0.3		29.4		0.3		3.6		1.20	
42	Lac La Biche	0.34		0.7		30.1		0.3		4.3		0.29	
	BLANK -1	-		-		-		-		0.9		0.59	
	BLANK -2	-		-		-		-		1.3		0.06	
	BLANK -3	-		-		-		-		1.7		0.08	
	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: Sample went missing and could not be located.
- 5 Missing 3: Access to the station was not possible as the gate to the station was locked.

LAC LA BICHE STATION

NMHC CANISTER SAMPLES



Sample Date/Time	2023-07-04 @00:45
Canister Triggered Conc.	0.37 ppm
Canister ID	32247
Method	AC-058
Maximum Reading	13.4
Parameter	n-Butane

Parameter	AAAOs	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		< 0.04	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	0.54
1,4-Dichlorobenzene		< 0.5	0.54
1,4-Dioxane		< 0.7	0.67
1-Butene		0.11	0.08
1-Hexene		< 0.09	0.09
1-Pentene		< 0.04	0.04
2,2,4-Trimethylpentane		< 0.03	0.03
2,2-Dimethylbutane		0.04	0.03
2,3,4-Trimethylpentane		< 0.03	0.03
2,3-Dimethylbutane		0.16	0.12
2,3-Dimethylpentane		0.07	0.03
2,4-Dimethylpentane		< 0.04	0.04
2-Methylheptane		< 0.03	0.03
2-Methylhexane		0.12	0.04
2-Methylpentane		0.73	0.03
3-Methylheptane		< 0.04	0.04
3-Methylhexane		0.11	0.03
3-Methylpentane		0.4	0.03
Acetone	2400	0.8	0.54
Acrolein	1.9	< 0.4	0.40
Benzene	9.0	0.07	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	0.04	0.03
Carbon tetrachloride		0.08	0.03
Chlorobenzene		< 0.03	0.03
Chloroethane		< 0.03	0.03
Chloroform		< 0.03	0.03
Chloromethane		0.38	0.05
cis-1,2-Dichloroethene		< 0.03	0.03
cis-1,3-Dichloropropene		< 0.04	0.04
cis-2-Butene		0.05	0.04
cis-2-Pentene		< 0.03	0.03
Cyclohexane		< 0.05	0.05
Cyclopentane		0.14	0.03
Dibromochloromethane		< 0.03	0.03
Ethanol		1.7	0.67
Ethyl acetate		< 0.4	0.40
Ethylbenzene	460	< 0.04	0.04
Freon-11		0.19	0.03
Freon-113		0.04	0.03



Sample Date/Time	2023-07-04 @00:45		
Canister Triggered Conc.	0.37 ppm		
Canister ID	32247		
Method	AC-058		
Maximum Reading	13.4		
Parameter	n-Butane		
Parameter	AAAOs	Result (ppbv)	RDL (ppbv)
Freon-114		< 0.04	0.04
Freon-12		0.45	0.04
Hexachloro-1,3-butadiene		< 0.4	0.40
Isobutane		9.41	0.04
Isopentane		8.38	0.05
Isoprene		0.27	0.03
Isopropyl alcohol		< 0.4	0.40
Isopropylbenzene		< 0.05	0.05
m,p-Xylene		0.09	0.05
m-Diethylbenzene		< 0.03	0.03
m-Ethyltoluene		< 0.04	0.04
Methyl butyl ketone		< 0.5	0.54
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		0.07	0.03
Methylcyclopentane		0.4	0.07
Methylene chloride		< 0.4	0.40
n-Butane		13.4	0.03
n-Decane		< 0.08	0.08
n-Dodecane		< 0.4	0.40
n-Heptane		< 0.05	0.05
n-Hexane	5960	0.27	0.04
n-Nonane		< 0.05	0.05
n-Octane		0.03	0.03
n-Pentane		1.9	0.05
n-Propylbenzene		< 0.08	0.08
n-Undecane		< 0.7	0.67
Naphthalene		< 0.4	0.40
o-Ethyltoluene		< 0.03	0.03
o-Xylene		< 0.04	0.04
p-Diethylbenzene		< 0.03	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	0.06	0.04
trans-1,2-Dichloroethylene		< 0.08	0.08
trans-1,3-Dichloropropylene		< 0.03	0.03
trans-2-Butene		0.07	0.04
trans-2-Pentene		< 0.03	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

JULY 2023

Ambient Air Monitoring

Certified Laboratory Analysis Report

LAB-LICA-202307

Operation and Maintenance:

Bureau Veritas Canada

Data Validation and Analytical Report:

Bureau Veritas Canada and InnoTech Alberta

August 3, 2023

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Cold Lake South Station

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



Customer ID: LICA
 Cust Samp ID: LICA/VOC/CLS/July 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: 32255
 Station ID: LICA 01 Installation Date/Time (mst): Jul 03, 2023 @ 20:56
 Sample ID: LICA/VOC/CLS/Jul 05, 2023 Removal Date/Time (mst): Jul 07, 2023 @ 17:01

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
July 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
 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)

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

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 23070124-002 Priority: Normal



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



TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	Puf+ S/N:	TE-08
Location:	Cold Lake South	Motor S/N:	1138/100-1020
Station ID:	LICA 01	Installation Date/Time:	Jul 03, 2023 @ 21:01
Field Sample ID:	LICA/PUF/CLS/Jul 05, 2023	Removal Date/Time:	Jul 07, 2023 @ 17:02

Sample Data Collection Information

Sample Date:	5-Jul-23	Average Pressure (mmHg)	712
Start Time (mst):	0:00	Average Flow (Q _{std})	229
End Time (mst):	23:59	Average Temperature (°C)	19.6
Elapsed Time (Hours):	24	Volume (V _{std} m ³)	330.42

Sample Recovery Checklist

(circle one)

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

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov



Canister ID: 32255

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: APR 17 2023

Evacuated: JUN 28 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Jul 5, 2023

Sampled By: Alex Yakupov

Starting Vacuum: -27.1 "Hg

End Pressure: ~~KG~~
+18.1 "Hg ~~psig~~



Canister ID: TE-08

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: _____ on: _____

Evacuated: _____ Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/PUF/CLS/Jul 5, 2023

Sampled By: Alex Yakupov

Starting Vacuum: _____ "Hg

End Vacuum: _____ "Hg/psig

Sample ID: 23070124-001 Priority: Normal



Customer ID: LICA

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

<p>RESULTS: Lica Communal Mail Lakeland Industry and Community Assn</p>	<p>CLIENT SAMPLE ID LICA/PUF/CLS/July 05, 2023</p> <p>MATRIX: Air Filter</p> <p>CANISTER ID: TE-08</p> <p>PRIORITY: Normal</p> <p>DESCRIPTION: Cold Lake South</p> <p>DATE SAMPLED: 05-Jul-23 0:00</p> <p>REPORT CREATED: 18-Aug-23</p>	<p>DATE RECEIVED: 11-Jul-23</p> <p>REPORT NUMBER: 23070124</p> <p>VERSION: Version 01</p>
<p>INVOICE: Maria Cueva PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>		

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23070124-002	1-Methylnaphthalene		0.05	ug/Filter	0.01	AC-066	14-Aug-23
23070124-002	2-Methylnaphthalene		0.04	ug/Filter	0.01	AC-066	14-Aug-23
23070124-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Aug-23
23070124-002	7,12-Dimethylbenz(a)anthracene		0.01	ug/Filter	0.01	AC-066	14-Aug-23
23070124-002	Acenaphthene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Aug-23
23070124-002	Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Aug-23
23070124-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Aug-23
23070124-002	Anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Aug-23
23070124-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Aug-23
23070124-002	Benzo(a)pyrene		0.03	ug/Filter	0.01	AC-066	14-Aug-23
23070124-002	Benzo(b,j,k)fluoranthene		0.09	ug/Filter	0.01	AC-066	14-Aug-23
23070124-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Aug-23
23070124-002	Benzo(e)pyrene		0.02	ug/Filter	0.01	AC-066	14-Aug-23
23070124-002	Benzo(ghi)perylene		0.06	ug/Filter	0.01	AC-066	14-Aug-23
23070124-002	Chrysene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Aug-23
23070124-002	Dibenzo(a,h)pyrene		0.26	ug/Filter	0.01	AC-066	14-Aug-23
23070124-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Aug-23



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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID LICA/PUF/CLS/July 05, 2023	CANISTER ID TE-08	Matrix Air Filter	DATE SAMPLED 05-Jul-23 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 23070124	REPORT CREATED: 18-Aug-23		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
23070124-002	Dibenzo(a,l)pyrene		0.07 ug/Filter	0.01	AC-066	14-Aug-23
23070124-002	Dibenzo(ah)anthracene		0.05 ug/Filter	0.01	AC-066	14-Aug-23
23070124-002	Fluoranthene		0.04 ug/Filter	0.01	AC-066	14-Aug-23
23070124-002	Fluorene		0.05 ug/Filter	0.01	AC-066	14-Aug-23
23070124-002	Indeno(1,2,3-cd)pyrene		0.05 ug/Filter	0.01	AC-066	14-Aug-23
23070124-002	Naphthalene		0.03 ug/Filter	0.01	AC-066	14-Aug-23
23070124-002	Perylene		0.02 ug/Filter	0.01	AC-066	14-Aug-23
23070124-002	Phenanthrene		0.39 ug/Filter	0.01	AC-066	14-Aug-23
23070124-002	Pyrene		0.03 ug/Filter	0.01	AC-066	14-Aug-23
23070124-002	Retene		0.12 ug/Filter	0.01	AC-066	14-Aug-23

Report certified by: Graham Knox, Admin. & Ops. Supervisor

Date: August 18, 2023

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

On behalf of: Adam Malcolm, Manager, Chemical Testing

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

LAB-LICA-202307

CLIENT SAMPLE ID LICA/VOC/CLS/July 05, 2023	CANISTER ID 32255	Matrix Ambient Air	DATE SAMPLED 05-Jul-23 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 23070124	REPORT CREATED: 18-Aug-23		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23070124-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-23
23070124-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-23
23070124-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-23
23070124-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-23
23070124-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-23
23070124-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	12-Jul-23
23070124-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jul-23
23070124-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-23
23070124-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-23
23070124-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-23
23070124-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-23
23070124-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-23
23070124-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-23
23070124-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-23
23070124-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Jul-23
23070124-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Jul-23
23070124-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	12-Jul-23
23070124-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	12-Jul-23
23070124-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	12-Jul-23
23070124-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-23
23070124-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-23
23070124-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-23
23070124-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-23
23070124-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	12-Jul-23
23070124-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-23

Report certified by: Andrea Conner, Admin Assistant

Date: August 18, 2023

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

On behalf of: Adam Malcolm, Manager, Chemical Testing

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

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CLIENT SAMPLE ID LICA/VOC/CLS/July 05, 2023	CANISTER ID 32255	Matrix Ambient Air	DATE SAMPLED 05-Jul-23 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 23070124	REPORT CREATED: 18-Aug-23		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23070124-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-23
23070124-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-23
23070124-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-23
23070124-001	2-Methylpentane	I	0.05	ppbv	0.02	AC-058	12-Jul-23
23070124-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-23
23070124-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-23
23070124-001	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-23
23070124-001	Acetone		2.5	ppbv	0.4	AC-058	12-Jul-23
23070124-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jul-23
23070124-001	Benzene	I	0.03	ppbv	0.03	AC-058	12-Jul-23
23070124-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jul-23
23070124-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-23
23070124-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-23
23070124-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-23
23070124-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-23
23070124-001	Carbon tetrachloride	I	0.08	ppbv	0.02	AC-058	12-Jul-23
23070124-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-23
23070124-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-23
23070124-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-23
23070124-001	Chloromethane		0.40	ppbv	0.04	AC-058	12-Jul-23
23070124-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-23
23070124-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-23
23070124-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-23
23070124-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-23
23070124-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jul-23

Report certified by: Andrea Conner, Admin Assistant

Date: August 18, 2023

On behalf of: Adam Malcolm, Manager, Chemical Testing

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

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CLIENT SAMPLE ID LICA/VOC/CLS/July 05, 2023	CANISTER ID 32255	Matrix Ambient Air	DATE SAMPLED 05-Jul-23 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 23070124	REPORT CREATED: 18-Aug-23		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23070124-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-23
23070124-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-23
23070124-001	Ethanol	K, T, U	< 0.5	ppbv	0.5	AC-058	12-Jul-23
23070124-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jul-23
23070124-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-23
23070124-001	Freon-11		0.20	ppbv	0.02	AC-058	12-Jul-23
23070124-001	Freon-113	I	0.05	ppbv	0.02	AC-058	12-Jul-23
23070124-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-23
23070124-001	Freon-12		0.49	ppbv	0.03	AC-058	12-Jul-23
23070124-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jul-23
23070124-001	Isobutane	I	0.08	ppbv	0.03	AC-058	12-Jul-23
23070124-001	Isopentane		0.14	ppbv	0.04	AC-058	12-Jul-23
23070124-001	Isoprene		1.07	ppbv	0.02	AC-058	12-Jul-23
23070124-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jul-23
23070124-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jul-23
23070124-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jul-23
23070124-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-23
23070124-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-23
23070124-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Jul-23
23070124-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jul-23
23070124-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jul-23
23070124-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	12-Jul-23
23070124-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-23
23070124-001	Methylcyclohexane	I	0.03	ppbv	0.02	AC-058	12-Jul-23
23070124-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	12-Jul-23

Report certified by: Andrea Conner, Admin Assistant

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: August 18, 2023

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

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CLIENT SAMPLE ID LICA/VOC/CLS/July 05, 2023	CANISTER ID 32255	Matrix Ambient Air	DATE SAMPLED 05-Jul-23 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 23070124	REPORT CREATED: 18-Aug-23		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23070124-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jul-23
23070124-001	n-Butane		0.16	ppbv	0.02	AC-058	12-Jul-23
23070124-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	12-Jul-23
23070124-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jul-23
23070124-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jul-23
23070124-001	n-Hexane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-23
23070124-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-23
23070124-001	n-Pentane	I	0.08	ppbv	0.04	AC-058	12-Jul-23
23070124-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	12-Jul-23
23070124-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	12-Jul-23
23070124-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jul-23
23070124-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jul-23
23070124-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-23
23070124-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-23
23070124-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-23
23070124-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jul-23
23070124-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jul-23
23070124-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-23
23070124-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jul-23
23070124-001	Toluene	I	0.04	ppbv	0.03	AC-058	12-Jul-23
23070124-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	12-Jul-23
23070124-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-23
23070124-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-23
23070124-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-23
23070124-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-23

Report certified by: Andrea Conner, Admin Assistant

Date: August 18, 2023

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

On behalf of: Adam Malcolm, Manager, Chemical Testing

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID LICA/VOC/CLS/July 05, 2023	CANISTER ID 32255	Matrix Ambient Air	DATE SAMPLED 05-Jul-23 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 23070124	REPORT CREATED: 18-Aug-23		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
23070124-001	Vinyl acetate	K, T, U	< 0.3 ppbv	0.3	AC-058	12-Jul-23
23070124-001	Vinyl chloride	K, T, U	< 0.02 ppbv	0.02	AC-058	12-Jul-23

Report certified by: Andrea Conner, Admin Assistant

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: August 18, 2023

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Revision History

Order ID	Ver	Date	Reason
23070124	01	18-Aug-23	Report created

Methods

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

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

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

Qualifiers

Data Qualifier Translation

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



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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Order Comments



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ENVIRONMENTAL ANALYTICAL SERVICES

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Sample Comments



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TEST REPORT

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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.*



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



TISCH PUF PLUS Sample Collection Data Sheet			
Client:	LICA	Puf+ S/N:	TE-09
Location:	Cold Lake South	Motor S/N:	1138/100-1020
Station ID:	LICA 01	Installation Date/Time:	Jul 07, 2023 @ 17:10
Field Sample ID:	LICA/PUF/CLS/Jul 11, 2023	Removal Date/Time:	Jul 13, 2023 @ 17:48
Sample Data Collection Information			
Sample Date:	11-Jul-23	Average Pressure (mmHg)	710
Start Time (mst):	0:00	Average Flow (Q _{std})	229
End Time (mst):	23:59	Average Temperature (°C)	19
Elapsed Time (Hours):	24	Volume (V _{std} m ³)	17.6
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		



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

Bureau Veritas

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

Client: LICA Sampler S/N: 6167
 Location: Cold Lake South Canister ID: 29031
 Station ID: LICA 01 Installation Date/Time (mst): Jul 07, 2023 @ 17:09
 Sample ID: LICA/VOC/CLS/Jul 11, 2023 Removal Date/Time (mst): Jul 13, 2023 @ 17:47

Date and Time Information

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

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.1	20.1

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
 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)

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


Comments: n/a


Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov



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

 <p>Canister ID: <u>TE-09</u></p> <p>This cleaned canister meets or exceeds TO-15 Method Specifications</p> <p>Proofed by: <u>PUF</u> on: _____</p> <p>Evacuated: _____ Recertified: _____</p> <p><small>(Use within: 3 months from evacuation or recertification date)</small></p> <p>Laboratory Contact Number: 780-632-8403</p>	Sample ID: <u>LICA/PUF/CLS/Jul 11, 2023</u>	
	Sampled By: <u>Alex Yakupov</u>	
Starting Vacuum: <u>_____</u> "Hg	End Vacuum: <u>_____</u> "Hg/psig	

 <p>Canister ID: <u>29031</u></p> <p>This cleaned canister meets or exceeds TO-15 Method Specifications</p> <p>Proofed by: <u>1504</u> on: <u>MAY 11 2023</u></p> <p>Evacuated: <u>JUN 28 2023</u> Recertified: _____</p> <p><small>(Use within: 3 months from evacuation or recertification date)</small></p> <p>Laboratory Contact Number: 780-632-8403</p>	Sample ID: <u>LICA/VOC/CLS/Jul 11, 2023</u>	
	Sampled By: <u>Alex Yakupov</u>	
Starting Vacuum: <u>-27.1</u> "Hg	End Vacuum: <u>+20.1</u> "Hg/psig MW	

Lily Lin

From: Alexander YAKUPOV <alexander.yakupov@bureauveritas.com>
Sent: August 22, 2023 8:37 AM
To: Lily Lin
Subject: Re: Volume for July 11 PUF sample

Good morning Lily,

The correct number is 330.41

Yesterday I redid the sample paperwork and sent it to ATI. I asked them to correct and re-issue paperwork on their part as well.

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
Shaping a world of trust

From: Lily Lin <lily.lin@lica.ca>
Sent: Tuesday, August 22, 2023 8:34:34 AM
To: Alexander YAKUPOV <alexander.yakupov@bureauveritas.com>
Subject: RE: Volume for July 11 PUF sample

Be careful with this message: it is coming from an external sender

Do not open attachments nor click on links, unless you are sure that the content is safe

Hi Alex,

Would you please get me the correct # today? I need it to complete the monthly report.

Thanks,
Lily

From: Alexander YAKUPOV <alexander.yakupov@bureauveritas.com>
Sent: Friday, August 18, 2023 12:55 PM
To: Lily Lin <lily.lin@lica.ca>
Subject: RE: Volume for July 11 PUF sample

Good afternoon Lily,

Yes, of course, this is an obvious misprint on my side. This number refers to Partisol average temperature sample. I am at St. Lina now doing NMHC repeat calibration, and after that I am going to CLS to do NAPS samples exchange. WE have

sample history in the PUF sampler memory, and I will check it for the correct number of that sample event in the late afternoon. I will be there around 7 p.m.
I will let you know the correct flow once I am there.

Thank you,
Alex

From: Lily Lin <lily.lin@lica.ca>
Sent: Friday, August 18, 2023 12:28
To: Alexander YAKUPOV <alexander.yakupov@bureauveritas.com>
Subject: Volume for July 11 PUF sample

Be careful with this message: it is coming from an external sender
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Hi Alex,

Can you please confirm the sample volume for the PUF sample collected on the July 11 run? Normally the volume is around 330-ish, but this one only had 17.6.

Thank you,
Lily

Sample ID: 23070206-001 **Priority:** Normal



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

TISCH PUF PLUS Sample Collection Data			
Client:	LICA		
Location:	Cold Lake South		
Station ID:	LICA 01	Installat	
Field Sample ID:	LICA/PUF/CLS/Jul 11, 2023	Remo	
Sample Data Collection Infor			
Sample Date:	11-Jul-23	Average Pr	
Start Time (mst):	0:00	Aver	
End Time (mst):	23:59	verage Te	
Elapsed Time (Hours):	24	Vc	

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This message contains confidential information. To know more, please click on the following link:

<https://disclaimer.bureauveritas.com>

<p>RESULTS: Lica Communal Mail Lakeland Industry and Community Assn</p>	<p>CLIENT SAMPLE ID LICA/PUF/CLS/JUL 11, 2023</p>	<p>Matrix Air Filter</p>
	<p>CANISTER ID: TE-09</p>	
	<p>PRIORITY: Normal</p>	
	<p>DESCRIPTION: Cold Lake South</p>	
<p>INVOICE: Maria Cueva PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>DATE SAMPLED: 11-Jul-23 0:00</p>	<p>DATE RECEIVED: 17-Jul-23</p>
	<p>REPORT CREATED: 18-Aug-23</p>	<p>REPORT NUMBER: 23070206</p>
		<p>VERSION: Version 01</p>

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23070206-002	1-Methylnaphthalene		0.05	ug/Filter	0.01	AC-066	14-Aug-23
23070206-002	2-Methylnaphthalene		0.04	ug/Filter	0.01	AC-066	14-Aug-23
23070206-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Aug-23
23070206-002	7,12-Dimethylbenz(a)anthracene		0.01	ug/Filter	0.01	AC-066	14-Aug-23
23070206-002	Acenaphthene		0.01	ug/Filter	0.01	AC-066	14-Aug-23
23070206-002	Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Aug-23
23070206-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Aug-23
23070206-002	Anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Aug-23
23070206-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Aug-23
23070206-002	Benzo(a)pyrene		0.02	ug/Filter	0.01	AC-066	14-Aug-23
23070206-002	Benzo(b,j,k)fluoranthene		0.08	ug/Filter	0.01	AC-066	14-Aug-23
23070206-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Aug-23
23070206-002	Benzo(e)pyrene		0.02	ug/Filter	0.01	AC-066	14-Aug-23
23070206-002	Benzo(ghi)perylene		0.06	ug/Filter	0.01	AC-066	14-Aug-23
23070206-002	Chrysene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Aug-23
23070206-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Aug-23
23070206-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	14-Aug-23



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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID LICA/PUF/CLS/JUL 11, 2023		CANISTER ID TE-09	Matrix Air Filter	DATE SAMPLED 11-Jul-23 0:00
DESCRIPTION:	Cold Lake South			
REPORT NUMBER:	23070206	REPORT CREATED:	18-Aug-23	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
23070206-002	Dibenzo(a,l)pyrene		0.06 ug/Filter	0.01	AC-066	14-Aug-23
23070206-002	Dibenzo(ah)anthracene		0.05 ug/Filter	0.01	AC-066	14-Aug-23
23070206-002	Fluoranthene		0.04 ug/Filter	0.01	AC-066	14-Aug-23
23070206-002	Fluorene		0.03 ug/Filter	0.01	AC-066	14-Aug-23
23070206-002	Indeno(1,2,3-cd)pyrene		0.05 ug/Filter	0.01	AC-066	14-Aug-23
23070206-002	Naphthalene		0.02 ug/Filter	0.01	AC-066	14-Aug-23
23070206-002	Perylene		0.02 ug/Filter	0.01	AC-066	14-Aug-23
23070206-002	Phenanthrene		0.34 ug/Filter	0.01	AC-066	14-Aug-23
23070206-002	Pyrene		0.04 ug/Filter	0.01	AC-066	14-Aug-23
23070206-002	Retene		0.07 ug/Filter	0.01	AC-066	14-Aug-23

Report certified by: Graham Knox, Admin. & Ops. Supervisor

Date: August 18, 2023

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

On behalf of: Adam Malcolm, Manager, Chemical Testing

LAB-LICA-202307

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

CLIENT SAMPLE ID LICA/VOC/CLS/JUL 11, 2023	CANISTER ID 29031	Matrix Ambient Air	DATE SAMPLED 11-Jul-23 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 23070206	REPORT CREATED: 18-Aug-23		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23070206-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Jul-23
23070206-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Jul-23
23070206-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Jul-23
23070206-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Jul-23
23070206-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Jul-23
23070206-001	1,2,3-Trimethylbenzene	I	0.08	ppbv	0.05	AC-058	18-Jul-23
23070206-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	18-Jul-23
23070206-001	1,2,4-Trimethylbenzene	I	0.04	ppbv	0.03	AC-058	18-Jul-23
23070206-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Jul-23
23070206-001	1,2-Dichlorobenzene	I	0.03	ppbv	0.03	AC-058	18-Jul-23
23070206-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Jul-23
23070206-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Jul-23
23070206-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Jul-23
23070206-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Jul-23
23070206-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	18-Jul-23
23070206-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	18-Jul-23
23070206-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	18-Jul-23
23070206-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	18-Jul-23
23070206-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	18-Jul-23
23070206-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Jul-23
23070206-001	2,2,4-Trimethylpentane	I	0.04	ppbv	0.02	AC-058	18-Jul-23
23070206-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Jul-23
23070206-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Jul-23
23070206-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	18-Jul-23
23070206-001	2,3-Dimethylpentane	I	0.03	ppbv	0.02	AC-058	18-Jul-23

Report certified by: Andrea Conner, Admin Assistant

Date: August 18, 2023

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

On behalf of: Adam Malcolm, Manager, Chemical Testing

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

LAB-LICA-202307

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CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/CLS/JUL 11, 2023	29031	Ambient Air	11-Jul-23	0:00
DESCRIPTION:	Cold Lake South			
REPORT NUMBER:	23070206	REPORT CREATED:	18-Aug-23	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23070206-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Jul-23
23070206-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Jul-23
23070206-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Jul-23
23070206-001	2-Methylpentane		0.11	ppbv	0.02	AC-058	18-Jul-23
23070206-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Jul-23
23070206-001	3-Methylhexane	I	0.03	ppbv	0.02	AC-058	18-Jul-23
23070206-001	3-Methylpentane	I	0.04	ppbv	0.02	AC-058	18-Jul-23
23070206-001	Acetone		3.0	ppbv	0.4	AC-058	18-Jul-23
23070206-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	18-Jul-23
23070206-001	Benzene	I	0.04	ppbv	0.03	AC-058	18-Jul-23
23070206-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	18-Jul-23
23070206-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Jul-23
23070206-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Jul-23
23070206-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Jul-23
23070206-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Jul-23
23070206-001	Carbon tetrachloride	I	0.06	ppbv	0.02	AC-058	18-Jul-23
23070206-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Jul-23
23070206-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Jul-23
23070206-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Jul-23
23070206-001	Chloromethane		0.57	ppbv	0.04	AC-058	18-Jul-23
23070206-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Jul-23
23070206-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Jul-23
23070206-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Jul-23
23070206-001	cis-2-Pentene	I	0.02	ppbv	0.02	AC-058	18-Jul-23
23070206-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	18-Jul-23

Report certified by: Andrea Conner, Admin Assistant

Date: August 18, 2023

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

On behalf of: Adam Malcolm, Manager, Chemical Testing

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

LAB-LICA-202307

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CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/CLS/JUL 11, 2023	29031	Ambient Air	11-Jul-23	0:00
DESCRIPTION:	Cold Lake South			
REPORT NUMBER:	23070206	REPORT CREATED:	18-Aug-23	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23070206-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Jul-23
23070206-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Jul-23
23070206-001	Ethanol		1.4	ppbv	0.5	AC-058	18-Jul-23
23070206-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	18-Jul-23
23070206-001	Ethylbenzene	I	0.03	ppbv	0.03	AC-058	18-Jul-23
23070206-001	Freon-11		0.20	ppbv	0.02	AC-058	18-Jul-23
23070206-001	Freon-113	I	0.05	ppbv	0.02	AC-058	18-Jul-23
23070206-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Jul-23
23070206-001	Freon-12		0.51	ppbv	0.03	AC-058	18-Jul-23
23070206-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	18-Jul-23
23070206-001	Isobutane		0.40	ppbv	0.03	AC-058	18-Jul-23
23070206-001	Isopentane		0.69	ppbv	0.04	AC-058	18-Jul-23
23070206-001	Isoprene		2.01	ppbv	0.02	AC-058	18-Jul-23
23070206-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	18-Jul-23
23070206-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	18-Jul-23
23070206-001	m,p-Xylene	I	0.08	ppbv	0.04	AC-058	18-Jul-23
23070206-001	m-Diethylbenzene	I	0.08	ppbv	0.02	AC-058	18-Jul-23
23070206-001	m-Ethyltoluene	I	0.09	ppbv	0.03	AC-058	18-Jul-23
23070206-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	18-Jul-23
23070206-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	18-Jul-23
23070206-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	18-Jul-23
23070206-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	18-Jul-23
23070206-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Jul-23
23070206-001	Methylcyclohexane	I	0.02	ppbv	0.02	AC-058	18-Jul-23
23070206-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	18-Jul-23

Report certified by: Andrea Conner, Admin Assistant

Date: August 18, 2023

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

On behalf of: Adam Malcolm, Manager, Chemical Testing

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

LAB-LICA-202307

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CLIENT SAMPLE ID LICA/VOC/CLS/JUL 11, 2023	CANISTER ID 29031	Matrix Ambient Air	DATE SAMPLED 11-Jul-23 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 23070206	REPORT CREATED: 18-Aug-23		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23070206-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	18-Jul-23
23070206-001	n-Butane		0.66	ppbv	0.02	AC-058	18-Jul-23
23070206-001	n-Decane	I	0.07	ppbv	0.06	AC-058	18-Jul-23
23070206-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	18-Jul-23
23070206-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	18-Jul-23
23070206-001	n-Hexane	I	0.05	ppbv	0.03	AC-058	18-Jul-23
23070206-001	n-Octane	I	0.03	ppbv	0.02	AC-058	18-Jul-23
23070206-001	n-Pentane		0.14	ppbv	0.04	AC-058	18-Jul-23
23070206-001	n-Propylbenzene	I	0.06	ppbv	0.06	AC-058	18-Jul-23
23070206-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	18-Jul-23
23070206-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	18-Jul-23
23070206-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	18-Jul-23
23070206-001	o-Ethyltoluene	I	0.03	ppbv	0.02	AC-058	18-Jul-23
23070206-001	o-Xylene	I	0.04	ppbv	0.03	AC-058	18-Jul-23
23070206-001	p-Diethylbenzene	I	0.08	ppbv	0.02	AC-058	18-Jul-23
23070206-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	18-Jul-23
23070206-001	Styrene	I	0.07	ppbv	0.04	AC-058	18-Jul-23
23070206-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Jul-23
23070206-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	18-Jul-23
23070206-001	Toluene	I	0.07	ppbv	0.03	AC-058	18-Jul-23
23070206-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	18-Jul-23
23070206-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Jul-23
23070206-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-Jul-23
23070206-001	trans-2-Pentene	I	0.03	ppbv	0.02	AC-058	18-Jul-23
23070206-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-Jul-23

Report certified by: Andrea Conner, Admin Assistant

Date: August 18, 2023

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

On behalf of: Adam Malcolm, Manager, Chemical Testing

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID LICA/VOC/CLS/JUL 11, 2023	CANISTER ID 29031	Matrix Ambient Air	DATE SAMPLED 11-Jul-23 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 23070206	REPORT CREATED: 18-Aug-23		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
23070206-001	Vinyl acetate	K, T, U	< 0.3 ppbv	0.3	AC-058	18-Jul-23
23070206-001	Vinyl chloride	K, T, U	< 0.02 ppbv	0.02	AC-058	18-Jul-23

Report certified by: Andrea Conner, Admin Assistant

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: August 18, 2023

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

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

LAB-LICA-202307



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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Revision History

Order ID	Ver	Date	Reason
23070206	01	18-Aug-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



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Order Comments



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Sample Comments



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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.*

AIR FCD-01321/2



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



TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	Puf+ S/N:	TE-03
Location:	Cold Lake South	Motor S/N:	1138/100-1020
Station ID:	LICA 01	Installation Date/Time:	Jul 13, 2023 @ 17:54
Field Sample ID:	LICA/PUF/CLS/Jul 17, 2023	Removal Date/Time:	Jul 18, 2023 @ 14:17

Sample Data Collection Information

Sample Date:	17-Jul-23	Average Pressure (mmHg)	708
Start Time (mst):	0:00	Average Flow (Q _{std})	229
End Time (mst):	23:59	Average Temperature (°C)	19.4
Elapsed Time (Hours):	24	Volume (V _{std} m ³)	330.44

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



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

Bureau Veritas

a Collection Data Sheet Alberta Air FCD AIR FCD-01320 / 2



Client: LICA Sampler S/N: 6167
 Location: Cold Lake South Canister ID: 32263
 Station ID: LICA 01 Installation Date/Time (mst): Jul 13, 2023 @ 17:53
 Sample ID: LICA/VOC/CLS/Jul 17, 2023 Removal Date/Time (mst): Jul 18, 2023 @ 14:13

Date and Time Information

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

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

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

Deployment/Collection and Maintenance Checklist

Initial leak check deployment vacuum (in. Hg) = n/a @ n/a mst
 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)

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

Comments: n/a

Deployment Technician Signature: Alex Yakupov


Collection Technician Signature: Alex Yakupov


Sample ID: 23070274-001 Priority: Normal



Customer ID: LICA

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

 <p>Canister ID: <u>TE-03</u></p> <p>This cleaned canister meets or exceeds TO-15 Method Specifications</p>	Sample ID: <u>LICA/PUF/CLS/ Jul 17, 2023</u>	
	Sampled By: <u>Alex Yakupov</u>	
Proofed by: <u>PUF</u> on: _____ Evacuated: _____ Recertified: _____ <small>(Use within: 3 months from evacuation or recertification date)</small> Laboratory Contact Number: 780-632-8403	Starting Vacuum: _____ "Hg	End Vacuum: _____ "Hg/psig

 <p>Canister ID: <u>32263</u></p> <p>This cleaned canister meets or exceeds TO-15 Method Specifications</p>	Sample ID: <u>LICA/VOC/CLS/ Jul 17, 2023</u>	
	Sampled By: <u>Alex Yakupov</u>	
Proofed by: <u>ISQY</u> on: <u>APR 17 2023</u> Evacuated: <u>JUN 28 2023</u> Recertified: _____ <small>(Use within: 3 months from evacuation or recertification date)</small> Laboratory Contact Number: 780-632-8403	Starting Vacuum: <u>-27.1</u> "Hg	End Pressure: <u>+19.4</u> "Hg/psig ^{mw}

<p>RESULTS: Lica Communal Mail Lakeland Industry and Community Assn</p>	<p>CLIENT SAMPLE ID LICA/PUF/CLS/Jul 17, 2023</p> <p>MATRIX: Air Filter</p> <p>CANISTER ID: TE-03</p> <p>PRIORITY: Normal</p> <p>DESCRIPTION: Cold Lake South</p> <p>DATE SAMPLED: 17-Jul-23 0:00</p> <p>REPORT CREATED: 18-Aug-23</p>	<p>DATE RECEIVED: 20-Jul-23</p> <p>REPORT NUMBER: 23070274</p> <p>VERSION: Version 01</p>
<p>INVOICE: Maria Cueva PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>		

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23070274-002	1-Methylnaphthalene		0.03	ug/Filter	0.01	AC-066	15-Aug-23
23070274-002	2-Methylnaphthalene		0.03	ug/Filter	0.01	AC-066	15-Aug-23
23070274-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Aug-23
23070274-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Aug-23
23070274-002	Acenaphthene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Aug-23
23070274-002	Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Aug-23
23070274-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Aug-23
23070274-002	Anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Aug-23
23070274-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Aug-23
23070274-002	Benzo(a)pyrene		0.02	ug/Filter	0.01	AC-066	15-Aug-23
23070274-002	Benzo(b,j,k)fluoranthene		0.06	ug/Filter	0.01	AC-066	15-Aug-23
23070274-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Aug-23
23070274-002	Benzo(e)pyrene		0.02	ug/Filter	0.01	AC-066	15-Aug-23
23070274-002	Benzo(ghi)perylene		0.05	ug/Filter	0.01	AC-066	15-Aug-23
23070274-002	Chrysene		0.01	ug/Filter	0.01	AC-066	15-Aug-23
23070274-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Aug-23
23070274-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Aug-23



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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID LICA/PUF/CLS/Jul 17, 2023	CANISTER ID TE-03	Matrix Air Filter	DATE SAMPLED 17-Jul-23 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 23070274	REPORT CREATED: 18-Aug-23		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23070274-002	Dibenzo(a,l)pyrene		0.05	ug/Filter	0.01	AC-066	15-Aug-23
23070274-002	Dibenzo(ah)anthracene		0.04	ug/Filter	0.01	AC-066	15-Aug-23
23070274-002	Fluoranthene		0.06	ug/Filter	0.01	AC-066	15-Aug-23
23070274-002	Fluorene		0.04	ug/Filter	0.01	AC-066	15-Aug-23
23070274-002	Indeno(1,2,3-cd)pyrene		0.04	ug/Filter	0.01	AC-066	15-Aug-23
23070274-002	Naphthalene		0.02	ug/Filter	0.01	AC-066	15-Aug-23
23070274-002	Perylene		0.02	ug/Filter	0.01	AC-066	15-Aug-23
23070274-002	Phenanthrene		0.43	ug/Filter	0.01	AC-066	15-Aug-23
23070274-002	Pyrene		0.05	ug/Filter	0.01	AC-066	15-Aug-23
23070274-002	Retene		0.25	ug/Filter	0.01	AC-066	15-Aug-23

Report certified by: Graham Knox, Admin. & Ops. Supervisor

Date: August 18, 2023

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

On behalf of: Adam Malcolm, Manager, Chemical Testing

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

LAB-LICA-202307

CLIENT SAMPLE ID LICA/VOC/CLS/JUL 17, 2023	CANISTER ID 32263	Matrix Ambient Air	DATE SAMPLED 17-Jul-23 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 23070274	REPORT CREATED: 18-Aug-23		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23070274-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jul-23
23070274-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jul-23
23070274-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jul-23
23070274-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jul-23
23070274-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jul-23
23070274-001	1,2,3-Trimethylbenzene	I	0.08	ppbv	0.05	AC-058	21-Jul-23
23070274-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	21-Jul-23
23070274-001	1,2,4-Trimethylbenzene	I	0.04	ppbv	0.03	AC-058	21-Jul-23
23070274-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jul-23
23070274-001	1,2-Dichlorobenzene	I	0.03	ppbv	0.03	AC-058	21-Jul-23
23070274-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Jul-23
23070274-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Jul-23
23070274-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Jul-23
23070274-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Jul-23
23070274-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	21-Jul-23
23070274-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	21-Jul-23
23070274-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	21-Jul-23
23070274-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	21-Jul-23
23070274-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	21-Jul-23
23070274-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Jul-23
23070274-001	2,2,4-Trimethylpentane	I	0.02	ppbv	0.02	AC-058	21-Jul-23
23070274-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jul-23
23070274-001	2,3,4-Trimethylpentane	I	0.02	ppbv	0.02	AC-058	21-Jul-23
23070274-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	21-Jul-23
23070274-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jul-23

Report certified by: Andrea Conner, Admin Assistant

Date: August 18, 2023

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On behalf of: Adam Malcolm, Manager, Chemical Testing

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CLIENT SAMPLE ID LICA/VOC/CLS/JUL 17, 2023	CANISTER ID 32263	Matrix Ambient Air	DATE SAMPLED 17-Jul-23 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 23070274	REPORT CREATED: 18-Aug-23		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23070274-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Jul-23
23070274-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jul-23
23070274-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Jul-23
23070274-001	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jul-23
23070274-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Jul-23
23070274-001	3-Methylhexane	I	0.02	ppbv	0.02	AC-058	21-Jul-23
23070274-001	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jul-23
23070274-001	Acetone		3.8	ppbv	0.4	AC-058	21-Jul-23
23070274-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	21-Jul-23
23070274-001	Benzene	I	0.10	ppbv	0.03	AC-058	21-Jul-23
23070274-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	21-Jul-23
23070274-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Jul-23
23070274-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jul-23
23070274-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jul-23
23070274-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jul-23
23070274-001	Carbon tetrachloride	I	0.08	ppbv	0.02	AC-058	21-Jul-23
23070274-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jul-23
23070274-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jul-23
23070274-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jul-23
23070274-001	Chloromethane		0.82	ppbv	0.04	AC-058	21-Jul-23
23070274-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jul-23
23070274-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Jul-23
23070274-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Jul-23
23070274-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jul-23
23070274-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	21-Jul-23

Report certified by: Andrea Conner, Admin Assistant

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CLIENT SAMPLE ID LICA/VOC/CLS/JUL 17, 2023	CANISTER ID 32263	Matrix Ambient Air	DATE SAMPLED 17-Jul-23 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 23070274	REPORT CREATED: 18-Aug-23		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
23070274-001	Cyclopentane	K, T, U	< 0.02 ppbv	0.02	AC-058	21-Jul-23
23070274-001	Dibromochloromethane	K, T, U	< 0.02 ppbv	0.02	AC-058	21-Jul-23
23070274-001	Ethanol		1.4 ppbv	0.5	AC-058	21-Jul-23
23070274-001	Ethyl acetate	K, T, U	< 0.3 ppbv	0.3	AC-058	21-Jul-23
23070274-001	Ethylbenzene	I	0.03 ppbv	0.03	AC-058	21-Jul-23
23070274-001	Freon-11		0.33 ppbv	0.02	AC-058	21-Jul-23
23070274-001	Freon-113	I	0.07 ppbv	0.02	AC-058	21-Jul-23
23070274-001	Freon-114	K, T, U	< 0.03 ppbv	0.03	AC-058	21-Jul-23
23070274-001	Freon-12		0.70 ppbv	0.03	AC-058	21-Jul-23
23070274-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3 ppbv	0.3	AC-058	21-Jul-23
23070274-001	Isobutane	I	0.08 ppbv	0.03	AC-058	21-Jul-23
23070274-001	Isopentane		0.22 ppbv	0.04	AC-058	21-Jul-23
23070274-001	Isoprene		2.31 ppbv	0.02	AC-058	21-Jul-23
23070274-001	Isopropyl alcohol	K, T, U	< 0.3 ppbv	0.3	AC-058	21-Jul-23
23070274-001	Isopropylbenzene	K, T, U	< 0.04 ppbv	0.04	AC-058	21-Jul-23
23070274-001	m,p-Xylene	I	0.08 ppbv	0.04	AC-058	21-Jul-23
23070274-001	m-Diethylbenzene	K, T, U	< 0.02 ppbv	0.02	AC-058	21-Jul-23
23070274-001	m-Ethyltoluene	I	0.03 ppbv	0.03	AC-058	21-Jul-23
23070274-001	Methyl butyl ketone	K, T, U	< 0.4 ppbv	0.4	AC-058	21-Jul-23
23070274-001	Methyl ethyl ketone	K, T, U	< 0.3 ppbv	0.3	AC-058	21-Jul-23
23070274-001	Methyl isobutyl ketone	K, T, U	< 0.3 ppbv	0.3	AC-058	21-Jul-23
23070274-001	Methyl methacrylate	K, T, U	< 0.08 ppbv	0.08	AC-058	21-Jul-23
23070274-001	Methyl tert butyl ether	K, T, U	< 0.03 ppbv	0.03	AC-058	21-Jul-23
23070274-001	Methylcyclohexane	K, T, U	< 0.02 ppbv	0.02	AC-058	21-Jul-23
23070274-001	Methylcyclopentane	K, T, U	< 0.05 ppbv	0.05	AC-058	21-Jul-23

Report certified by: Andrea Conner, Admin Assistant

Date: August 18, 2023

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CLIENT SAMPLE ID LICA/VOC/CLS/JUL 17, 2023	CANISTER ID 32263	Matrix Ambient Air	DATE SAMPLED 17-Jul-23 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 23070274	REPORT CREATED: 18-Aug-23		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23070274-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	21-Jul-23
23070274-001	n-Butane		0.21	ppbv	0.02	AC-058	21-Jul-23
23070274-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	21-Jul-23
23070274-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	21-Jul-23
23070274-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	21-Jul-23
23070274-001	n-Hexane	I	0.04	ppbv	0.03	AC-058	21-Jul-23
23070274-001	n-Octane	I	0.03	ppbv	0.02	AC-058	21-Jul-23
23070274-001	n-Pentane		0.13	ppbv	0.04	AC-058	21-Jul-23
23070274-001	n-Propylbenzene	I	0.06	ppbv	0.06	AC-058	21-Jul-23
23070274-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	21-Jul-23
23070274-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	21-Jul-23
23070274-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	21-Jul-23
23070274-001	o-Ethyltoluene	I	0.03	ppbv	0.02	AC-058	21-Jul-23
23070274-001	o-Xylene	I	0.03	ppbv	0.03	AC-058	21-Jul-23
23070274-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jul-23
23070274-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	21-Jul-23
23070274-001	Styrene	I	0.16	ppbv	0.04	AC-058	21-Jul-23
23070274-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jul-23
23070274-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	21-Jul-23
23070274-001	Toluene	I	0.07	ppbv	0.03	AC-058	21-Jul-23
23070274-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	21-Jul-23
23070274-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jul-23
23070274-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Jul-23
23070274-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jul-23
23070274-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jul-23

Report certified by: Andrea Conner, Admin Assistant

Date: August 18, 2023

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

On behalf of: Adam Malcolm, Manager, Chemical Testing

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

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CLIENT SAMPLE ID LICA/VOC/CLS/JUL 17, 2023	CANISTER ID 32263	Matrix Ambient Air	DATE SAMPLED 17-Jul-23 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 23070274	REPORT CREATED: 18-Aug-23		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
23070274-001	Vinyl acetate	K, T, U	< 0.3 ppbv	0.3	AC-058	21-Jul-23
23070274-001	Vinyl chloride	K, T, U	< 0.02 ppbv	0.02	AC-058	21-Jul-23



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ENVIRONMENTAL ANALYTICAL SERVICES

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Revision History

Order ID	Ver	Date	Reason
23070274	01	18-Aug-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



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ENVIRONMENTAL ANALYTICAL SERVICES

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Order Comments



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Sample Comments



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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.*



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

Bureau Veritas



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

Client:	LICA	Sampler S/N:	6167
Location:	Cold Lake South	Canister ID:	28968
Station ID:	LICA 01	Installation Date/Time (mst):	Jul 18, 2023 @ 14:32
Sample ID:	LICA/VOC/CLS/Jul 23, 2023	Removal Date/Time (mst):	Jul 25, 2023 @ 16:49

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
July 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: 23070364-002 Priority: Normal



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



TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	Puf+ S/N:	TE-01
Location:	Cold Lake South	Motor S/N:	1138/100-1020
Station ID:	LICA 01	Installation Date/Time:	Jul 18, 2023 @ 14:34
Field Sample ID:	LICA/PUF/CLS/Jul 23, 2023	Removal Date/Time:	Jul 25, 2023 @ 16:52

Sample Data Collection Information

Sample Date:	23-Jul-23	Average Pressure (mmHg)	711
Start Time (mst):	0:00	Average Flow (Q _{std})	229
End Time (mst):	23:59	Average Temperature (°C)	22.7
Elapsed Time (Hours):	24	Volume (V _{std} m ³)	330.48

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: 23070364-001 Priority: Normal



Customer ID: LICA

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



Canister ID: 28968

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQY on: APR 17 2023

Evacuated: JUN 28 2023 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

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

Sampled By: Alex Yakupov

Starting Vacuum: -27.1 "Hg

End Pressure: 19psi

-19.1 "Hg/psig JWP



Canister ID: TE-01

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: _____ on: _____

Evacuated: PUF Recertified: _____

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

Laboratory Contact Number: 780-632-8403

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

Sampled By: Alex Yakupov

Starting Vacuum: _____ "Hg

End Vacuum: _____

_____ "Hg/psig

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/July 23, 2023 CANISTER ID: TE-01 PRIORITY: Normal DESCRIPTION: Cold Lake South DATE SAMPLED: 23-Jul-23 0:00 REPORT CREATED: 18-Aug-23	Matrix Air Filter DATE RECEIVED: 27-Jul-23 REPORT NUMBER: 23070364 VERSION: Version 01
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Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23070364-002	1-Methylnaphthalene		0.04	ug/Filter	0.01	AC-066	15-Aug-23
23070364-002	2-Methylnaphthalene		0.05	ug/Filter	0.01	AC-066	15-Aug-23
23070364-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Aug-23
23070364-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Aug-23
23070364-002	Acenaphthene		0.01	ug/Filter	0.01	AC-066	15-Aug-23
23070364-002	Acenaphthylene		0.02	ug/Filter	0.01	AC-066	15-Aug-23
23070364-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Aug-23
23070364-002	Anthracene		0.04	ug/Filter	0.01	AC-066	15-Aug-23
23070364-002	Benzo(a)anthracene		0.02	ug/Filter	0.01	AC-066	15-Aug-23
23070364-002	Benzo(a)pyrene		0.01	ug/Filter	0.01	AC-066	15-Aug-23
23070364-002	Benzo(b,j,k)fluoranthene		0.07	ug/Filter	0.01	AC-066	15-Aug-23
23070364-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Aug-23
23070364-002	Benzo(e)pyrene		0.02	ug/Filter	0.01	AC-066	15-Aug-23
23070364-002	Benzo(ghi)perylene		0.04	ug/Filter	0.01	AC-066	15-Aug-23
23070364-002	Chrysene		0.03	ug/Filter	0.01	AC-066	15-Aug-23
23070364-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Aug-23
23070364-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Aug-23



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID LICA/PUF/CLS/July 23, 2023	CANISTER ID TE-01	Matrix Air Filter	DATE SAMPLED 23-Jul-23 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 23070364	REPORT CREATED: 18-Aug-23		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
23070364-002	Dibenzo(a,l)pyrene		0.04 ug/Filter	0.01	AC-066	15-Aug-23
23070364-002	Dibenzo(ah)anthracene		0.04 ug/Filter	0.01	AC-066	15-Aug-23
23070364-002	Fluoranthene		0.11 ug/Filter	0.01	AC-066	15-Aug-23
23070364-002	Fluorene		0.05 ug/Filter	0.01	AC-066	15-Aug-23
23070364-002	Indeno(1,2,3-cd)pyrene		0.04 ug/Filter	0.01	AC-066	15-Aug-23
23070364-002	Naphthalene		0.03 ug/Filter	0.01	AC-066	15-Aug-23
23070364-002	Perylene		0.01 ug/Filter	0.01	AC-066	15-Aug-23
23070364-002	Phenanthrene		0.74 ug/Filter	0.01	AC-066	15-Aug-23
23070364-002	Pyrene		0.10 ug/Filter	0.01	AC-066	15-Aug-23
23070364-002	Retene		0.74 ug/Filter	0.01	AC-066	15-Aug-23

Report certified by: Graham Knox, Admin. & Ops. Supervisor

Date: August 18, 2023

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

On behalf of: Adam Malcolm, Manager, Chemical Testing

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

LAB-LICA-202307

CLIENT SAMPLE ID LICA/VOC/CLS/July 23, 2023	CANISTER ID 28968	Matrix Ambient Air	DATE SAMPLED 23-Jul-23 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 23070364	REPORT CREATED: 18-Aug-23		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23070364-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	31-Jul-23
23070364-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	31-Jul-23
23070364-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	31-Jul-23
23070364-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	31-Jul-23
23070364-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	31-Jul-23
23070364-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	31-Jul-23
23070364-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	31-Jul-23
23070364-001	1,2,4-Trimethylbenzene	I	0.16	ppbv	0.03	AC-058	31-Jul-23
23070364-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	31-Jul-23
23070364-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	31-Jul-23
23070364-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	31-Jul-23
23070364-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	31-Jul-23
23070364-001	1,3,5-Trimethylbenzene	I	0.03	ppbv	0.03	AC-058	31-Jul-23
23070364-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	31-Jul-23
23070364-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	31-Jul-23
23070364-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	31-Jul-23
23070364-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	31-Jul-23
23070364-001	1-Butene/Isobutylene	I	0.11	ppbv	0.06	AC-058	31-Jul-23
23070364-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	31-Jul-23
23070364-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	31-Jul-23
23070364-001	2,2,4-Trimethylpentane	I	0.04	ppbv	0.02	AC-058	31-Jul-23
23070364-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	31-Jul-23
23070364-001	2,3,4-Trimethylpentane	I	0.03	ppbv	0.02	AC-058	31-Jul-23
23070364-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	31-Jul-23
23070364-001	2,3-Dimethylpentane	I	0.03	ppbv	0.02	AC-058	31-Jul-23

Report certified by: Andrea Conner, Admin Assistant

Date: August 18, 2023

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

On behalf of: Adam Malcolm, Manager, Chemical Testing

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

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CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/CLS/July 23, 2023	28968	Ambient Air	23-Jul-23	0:00
DESCRIPTION:	Cold Lake South			
REPORT NUMBER:	23070364	REPORT CREATED:	18-Aug-23	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23070364-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	31-Jul-23
23070364-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	31-Jul-23
23070364-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	31-Jul-23
23070364-001	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	31-Jul-23
23070364-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	31-Jul-23
23070364-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	31-Jul-23
23070364-001	3-Methylpentane	I	0.04	ppbv	0.02	AC-058	31-Jul-23
23070364-001	Acetone		6.9	ppbv	0.4	AC-058	31-Jul-23
23070364-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	31-Jul-23
23070364-001	Benzene		0.24	ppbv	0.03	AC-058	31-Jul-23
23070364-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	31-Jul-23
23070364-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	31-Jul-23
23070364-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	31-Jul-23
23070364-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	31-Jul-23
23070364-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	31-Jul-23
23070364-001	Carbon tetrachloride	I	0.09	ppbv	0.02	AC-058	31-Jul-23
23070364-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	31-Jul-23
23070364-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	31-Jul-23
23070364-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	31-Jul-23
23070364-001	Chloromethane		0.94	ppbv	0.04	AC-058	31-Jul-23
23070364-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	31-Jul-23
23070364-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	31-Jul-23
23070364-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	31-Jul-23
23070364-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	31-Jul-23
23070364-001	Cyclohexane	I	0.05	ppbv	0.04	AC-058	31-Jul-23

Report certified by: Andrea Conner, Admin Assistant

Date: August 18, 2023

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

On behalf of: Adam Malcolm, Manager, Chemical Testing

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

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CLIENT SAMPLE ID LICA/VOC/CLS/July 23, 2023	CANISTER ID 28968	Matrix Ambient Air	DATE SAMPLED 23-Jul-23 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 23070364	REPORT CREATED: 18-Aug-23		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23070364-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	31-Jul-23
23070364-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	31-Jul-23
23070364-001	Ethanol		1.6	ppbv	0.5	AC-058	31-Jul-23
23070364-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	31-Jul-23
23070364-001	Ethylbenzene	I	0.06	ppbv	0.03	AC-058	31-Jul-23
23070364-001	Freon-11		0.38	ppbv	0.02	AC-058	31-Jul-23
23070364-001	Freon-113	I	0.07	ppbv	0.02	AC-058	31-Jul-23
23070364-001	Freon-114	I	0.03	ppbv	0.03	AC-058	31-Jul-23
23070364-001	Freon-12		0.78	ppbv	0.03	AC-058	31-Jul-23
23070364-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	31-Jul-23
23070364-001	Isobutane		0.46	ppbv	0.03	AC-058	31-Jul-23
23070364-001	Isopentane		0.72	ppbv	0.04	AC-058	31-Jul-23
23070364-001	Isoprene		3.00	ppbv	0.02	AC-058	31-Jul-23
23070364-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	31-Jul-23
23070364-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	31-Jul-23
23070364-001	m,p-Xylene	I	0.10	ppbv	0.04	AC-058	31-Jul-23
23070364-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	31-Jul-23
23070364-001	m-Ethyltoluene	I	0.04	ppbv	0.03	AC-058	31-Jul-23
23070364-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	31-Jul-23
23070364-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	31-Jul-23
23070364-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	31-Jul-23
23070364-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	31-Jul-23
23070364-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	31-Jul-23
23070364-001	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	31-Jul-23
23070364-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	31-Jul-23

Report certified by: Andrea Conner, Admin Assistant

Date: August 18, 2023

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

On behalf of: Adam Malcolm, Manager, Chemical Testing

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

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CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/CLS/July 23, 2023	28968	Ambient Air	23-Jul-23	0:00
DESCRIPTION:	Cold Lake South			
REPORT NUMBER:	23070364	REPORT CREATED:	18-Aug-23	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23070364-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	31-Jul-23
23070364-001	n-Butane		0.94	ppbv	0.02	AC-058	31-Jul-23
23070364-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	31-Jul-23
23070364-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	31-Jul-23
23070364-001	n-Heptane	I	0.05	ppbv	0.04	AC-058	31-Jul-23
23070364-001	n-Hexane	I	0.06	ppbv	0.03	AC-058	31-Jul-23
23070364-001	n-Octane	I	0.03	ppbv	0.02	AC-058	31-Jul-23
23070364-001	n-Pentane		0.14	ppbv	0.04	AC-058	31-Jul-23
23070364-001	n-Propylbenzene	I	0.07	ppbv	0.06	AC-058	31-Jul-23
23070364-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	31-Jul-23
23070364-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	31-Jul-23
23070364-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	31-Jul-23
23070364-001	o-Ethyltoluene	I	0.08	ppbv	0.02	AC-058	31-Jul-23
23070364-001	o-Xylene	I	0.05	ppbv	0.03	AC-058	31-Jul-23
23070364-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	31-Jul-23
23070364-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	31-Jul-23
23070364-001	Styrene	I	0.18	ppbv	0.04	AC-058	31-Jul-23
23070364-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	31-Jul-23
23070364-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	31-Jul-23
23070364-001	Toluene	I	0.12	ppbv	0.03	AC-058	31-Jul-23
23070364-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	31-Jul-23
23070364-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	31-Jul-23
23070364-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	31-Jul-23
23070364-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	31-Jul-23
23070364-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	31-Jul-23

Report certified by: Andrea Conner, Admin Assistant

Date: August 18, 2023

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On behalf of: Adam Malcolm, Manager, Chemical Testing

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID LICA/VOC/CLS/July 23, 2023	CANISTER ID 28968	Matrix Ambient Air	DATE SAMPLED 23-Jul-23 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 23070364	REPORT CREATED: 18-Aug-23		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
23070364-001	Vinyl acetate	K, T, U	< 0.3 ppbv	0.3	AC-058	31-Jul-23
23070364-001	Vinyl chloride	K, T, U	< 0.02 ppbv	0.02	AC-058	31-Jul-23

Report certified by: Andrea Conner, Admin Assistant

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: August 18, 2023

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

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LAB-LICA-202307



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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Revision History

Order ID	Ver	Date	Reason
23070364	01	18-Aug-23	Report created

Methods

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

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

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

Qualifiers

Data Qualifier Translation

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



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

ENVIRONMENTAL ANALYTICAL SERVICES

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Order Comments



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Sample Comments



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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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.*



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

Bureau Veritas



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

Client: LICA	Sampler S/N: 6167
Location: Cold Lake South	Canister ID: 28957
Station ID: LICA 01	Installation Date/Time (mst): Jul 25, 2023 @ 16:58
Sample ID: LICA/VOC/CLS/Jul 29, 2023	Removal Date/Time (mst): Aug 01, 2023 @ 17:33

Date and Time Information

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

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

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

Deployment/Collection and Maintenance Checklist

Initial leak check deployment vacuum (in. Hg) = n/a @ n/a mst
 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)

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

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov



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



TISCH PUF PLUS Sample Collection Data Sheet			
Client:	LICA	Puf+ S/N:	TE-12
Location:	Cold Lake South	Motor S/N:	1138/100-1020
Station ID:	LICA 01	Installation Date/Time:	Jul 25, 2023 @ 16:59
Field Sample ID:	LICA/PUF/CLS/Jul 29, 2023	Removal Date/Time:	Aug 01, 2023 @ 17:34

Sample Data Collection Information			
Sample Date:	29-Jul-23	Average Pressure (mmHg)	716
Start Time (mst):	0:00	Average Flow (Q _{std})	229
End Time (mst):	23:59	Average Temperature (°C)	19.8
Elapsed Time (Hours):	24	Volume (V _{std} 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	



Canister ID: 28957

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: MAY 04 2023

Evacuated: ~~MAY 11 2023~~
~~JUN 7 8 2023~~
~~JUN 28 2023~~ Recertified: _____
(Use within 3 months from evacuation or recertification date)

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Jul 29, 2023

Sampled By: Alex Yakupev

Starting Vacuum: -27.1 "Hg

End Vacuum: +19.0 "Hg KG



Canister ID: TE12

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/Jul 29, 2023

Sampled By: Alex Yakupev

Starting Vacuum: _____ "Hg

End Vacuum: _____ "Hg/psig

Sample ID: 23080038-001 Priority: Normal



Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/JUL 29, 2023

<p>RESULTS: Lica Communal Mail Lakeland Industry and Community Assn</p>	<p>CLIENT SAMPLE ID LICA/PUF/CLS/Jul 29, 2023</p> <p>MATRIX: Air Filter</p> <p>CANISTER ID: TE-12</p> <p>PRIORITY: Normal</p> <p>DESCRIPTION: Cold Lake South</p> <p>DATE SAMPLED: 29-Jul-23 0:00</p> <p>REPORT CREATED: 18-Aug-23</p>	<p>DATE RECEIVED: 03-Aug-23</p> <p>REPORT NUMBER: 23080038</p> <p>VERSION: Version 01</p>
<p>INVOICE: Maria Cueva PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>		

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23080038-002	1-Methylnaphthalene		0.06	ug/Filter	0.01	AC-066	15-Aug-23
23080038-002	2-Methylnaphthalene		0.08	ug/Filter	0.01	AC-066	15-Aug-23
23080038-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Aug-23
23080038-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Aug-23
23080038-002	Acenaphthene		0.01	ug/Filter	0.01	AC-066	15-Aug-23
23080038-002	Acenaphthylene		0.02	ug/Filter	0.01	AC-066	15-Aug-23
23080038-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Aug-23
23080038-002	Anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Aug-23
23080038-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Aug-23
23080038-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Aug-23
23080038-002	Benzo(b,j,k)fluoranthene		0.03	ug/Filter	0.01	AC-066	15-Aug-23
23080038-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Aug-23
23080038-002	Benzo(e)pyrene		0.01	ug/Filter	0.01	AC-066	15-Aug-23
23080038-002	Benzo(ghi)perylene		0.04	ug/Filter	0.01	AC-066	15-Aug-23
23080038-002	Chrysene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Aug-23
23080038-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Aug-23
23080038-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	15-Aug-23



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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID LICA/PUF/CLS/Jul 29, 2023	CANISTER ID TE-12	Matrix Air Filter	DATE SAMPLED 29-Jul-23 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 23080038	REPORT CREATED: 18-Aug-23		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
23080038-002	Dibenzo(a,l)pyrene		0.04 ug/Filter	0.01	AC-066	15-Aug-23
23080038-002	Dibenzo(ah)anthracene		0.03 ug/Filter	0.01	AC-066	15-Aug-23
23080038-002	Fluoranthene		0.05 ug/Filter	0.01	AC-066	15-Aug-23
23080038-002	Fluorene		0.03 ug/Filter	0.01	AC-066	15-Aug-23
23080038-002	Indeno(1,2,3-cd)pyrene		0.03 ug/Filter	0.01	AC-066	15-Aug-23
23080038-002	Naphthalene		0.04 ug/Filter	0.01	AC-066	15-Aug-23
23080038-002	Perylene	K, T, U	< 0.01 ug/Filter	0.01	AC-066	15-Aug-23
23080038-002	Phenanthrene		0.38 ug/Filter	0.01	AC-066	15-Aug-23
23080038-002	Pyrene		0.04 ug/Filter	0.01	AC-066	15-Aug-23
23080038-002	Retene		0.07 ug/Filter	0.01	AC-066	15-Aug-23

Report certified by: Graham Knox, Admin. & Ops. Supervisor

Date: August 18, 2023

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

On behalf of: Adam Malcolm, Manager, Chemical Testing

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

LAB-LICA-202307

CLIENT SAMPLE ID LICA/VOC/CLS/JUL 29, 2023	CANISTER ID 28957	Matrix Ambient Air	DATE SAMPLED 29-Jul-23 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 23080038	REPORT CREATED: 18-Aug-23		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23080038-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Aug-23
23080038-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Aug-23
23080038-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Aug-23
23080038-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Aug-23
23080038-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Aug-23
23080038-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	08-Aug-23
23080038-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	08-Aug-23
23080038-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080038-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Aug-23
23080038-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080038-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080038-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080038-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080038-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080038-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	08-Aug-23
23080038-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	08-Aug-23
23080038-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	08-Aug-23
23080038-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	08-Aug-23
23080038-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	08-Aug-23
23080038-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080038-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Aug-23
23080038-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Aug-23
23080038-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Aug-23
23080038-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	08-Aug-23
23080038-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Aug-23

Report certified by: Graham Knox, Admin. & Ops. Supervisor

Date: August 18, 2023

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On behalf of: Adam Malcolm, Manager, Chemical Testing

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

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CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/VOC/CLS/JUL 29, 2023	28957	Ambient Air	29-Jul-23	0:00
DESCRIPTION:	Cold Lake South			
REPORT NUMBER:	23080038	REPORT CREATED:	18-Aug-23	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23080038-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080038-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Aug-23
23080038-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080038-001	2-Methylpentane	I	0.04	ppbv	0.02	AC-058	08-Aug-23
23080038-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080038-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Aug-23
23080038-001	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Aug-23
23080038-001	Acetone		2.3	ppbv	0.4	AC-058	08-Aug-23
23080038-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	08-Aug-23
23080038-001	Benzene	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080038-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	08-Aug-23
23080038-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080038-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Aug-23
23080038-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Aug-23
23080038-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Aug-23
23080038-001	Carbon tetrachloride	I	0.04	ppbv	0.02	AC-058	08-Aug-23
23080038-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Aug-23
23080038-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Aug-23
23080038-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Aug-23
23080038-001	Chloromethane		0.39	ppbv	0.04	AC-058	08-Aug-23
23080038-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Aug-23
23080038-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080038-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080038-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Aug-23
23080038-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	08-Aug-23

Report certified by: Graham Knox, Admin. & Ops. Supervisor

Date: August 18, 2023

On behalf of: Adam Malcolm, Manager, Chemical Testing

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

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CLIENT SAMPLE ID LICA/VOC/CLS/JUL 29, 2023	CANISTER ID 28957	Matrix Ambient Air	DATE SAMPLED 29-Jul-23 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 23080038	REPORT CREATED: 18-Aug-23		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23080038-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Aug-23
23080038-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Aug-23
23080038-001	Ethanol	K, T, U	< 0.5	ppbv	0.5	AC-058	08-Aug-23
23080038-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	08-Aug-23
23080038-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080038-001	Freon-11		0.17	ppbv	0.02	AC-058	08-Aug-23
23080038-001	Freon-113	I	0.04	ppbv	0.02	AC-058	08-Aug-23
23080038-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080038-001	Freon-12		0.45	ppbv	0.03	AC-058	08-Aug-23
23080038-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	08-Aug-23
23080038-001	Isobutane	I	0.09	ppbv	0.03	AC-058	08-Aug-23
23080038-001	Isopentane		0.19	ppbv	0.04	AC-058	08-Aug-23
23080038-001	Isoprene		1.11	ppbv	0.02	AC-058	08-Aug-23
23080038-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	08-Aug-23
23080038-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	08-Aug-23
23080038-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	08-Aug-23
23080038-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Aug-23
23080038-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080038-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	08-Aug-23
23080038-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	08-Aug-23
23080038-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	08-Aug-23
23080038-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	08-Aug-23
23080038-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080038-001	Methylcyclohexane	I	0.07	ppbv	0.02	AC-058	08-Aug-23
23080038-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	08-Aug-23

Report certified by: Graham Knox, Admin. & Ops. Supervisor

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: August 18, 2023

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

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CLIENT SAMPLE ID LICA/VOC/CLS/JUL 29, 2023	CANISTER ID 28957	Matrix Ambient Air	DATE SAMPLED 29-Jul-23 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 23080038	REPORT CREATED: 18-Aug-23		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23080038-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	08-Aug-23
23080038-001	n-Butane		0.12	ppbv	0.02	AC-058	08-Aug-23
23080038-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	08-Aug-23
23080038-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	08-Aug-23
23080038-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	08-Aug-23
23080038-001	n-Hexane	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080038-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Aug-23
23080038-001	n-Pentane	I	0.05	ppbv	0.04	AC-058	08-Aug-23
23080038-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	08-Aug-23
23080038-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	08-Aug-23
23080038-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	08-Aug-23
23080038-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	08-Aug-23
23080038-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Aug-23
23080038-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080038-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Aug-23
23080038-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	08-Aug-23
23080038-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	08-Aug-23
23080038-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Aug-23
23080038-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	08-Aug-23
23080038-001	Toluene	I	0.06	ppbv	0.03	AC-058	08-Aug-23
23080038-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	08-Aug-23
23080038-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Aug-23
23080038-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Aug-23
23080038-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Aug-23
23080038-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Aug-23

Report certified by: Graham Knox, Admin. & Ops. Supervisor

Date: August 18, 2023

On behalf of: Adam Malcolm, Manager, Chemical Testing

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID LICA/VOC/CLS/JUL 29, 2023	CANISTER ID 28957	Matrix Ambient Air	DATE SAMPLED 29-Jul-23 0:00
DESCRIPTION: Cold Lake South			
REPORT NUMBER: 23080038	REPORT CREATED: 18-Aug-23		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
23080038-001	Vinyl acetate	K, T, U	< 0.3 ppbv	0.3	AC-058	08-Aug-23
23080038-001	Vinyl chloride	K, T, U	< 0.02 ppbv	0.02	AC-058	08-Aug-23

Report certified by: Graham Knox, Admin. & Ops. Supervisor

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: August 18, 2023

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

Revision History

Order ID	Ver	Date	Reason
23080038	01	18-Aug-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



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Sample Comments



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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



Customer ID: LICA
 Cust Samp ID: C1167726

2000i-D Sample Data Sheet



Date Sampled: 5-Jul-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 #:	C1167726	C1167727
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	18.4	
Pressure	712	
Std Volume (Instrument)	20.8	2.32

Comments: Weather Conditions, etc.

n/a

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

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



Customer ID: LICA
 Cust Samp ID: C1167727

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: *[Signature]*

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	C1167726 → C1167727

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

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 C1167726	Matrix Air Filter
	CANISTER ID: PRIORITY: Normal DESCRIPTION: Cold Lake South - PM 2.5 DATE SAMPLED: 05-Jul-23 0:00 REPORT CREATED: 14-Jul-23	DATE RECEIVED: 11-Jul-23 REPORT NUMBER: 23070123 VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
23070123-001	Particulate Weight		0.074 mg	0.004	AC-029	13-Jul-23



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID C1167727	CANISTER ID	Matrix Air Filter	DATE SAMPLED 05-Jul-23 0:00
DESCRIPTION: Cold Lake South - PM 10			
REPORT NUMBER: 23070123	REPORT CREATED: 14-Jul-23		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
23070123-002	Particulate Weight		0.029 mg	0.004	AC-029	13-Jul-23

Report certified by: Andrea Conner, Admin Assistant

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: July 14, 2023

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Revision History

Order ID	Ver	Date	Reason
23070123	01	14-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
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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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Order Comments



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Sample Comments



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Result Comments

Note:

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Customer ID: LICA
 Cust Samp ID: C1170473

I 2000i-D Sample Data Sheet



Date Sampled: 11-Jul-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 #:	C1170473	C1170474
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	17.6	
Pressure	710	
Std Volume (Instrument)	20.8	2.32

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date): Alex Yakupov Date: 7-Jul-23

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



Customer ID: LICA
Cust Samp ID: C1170473

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: [Signature]
For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	C1170473 → C1170474

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



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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

<p>RESULTS: Lica Communal Mail Lakeland Industry and Community Assn</p>	<p>CLIENT SAMPLE ID C1170473</p> <p>MATRIX: Air Filter</p> <p>CANISTER ID:</p> <p>PRIORITY: Normal</p> <p>DESCRIPTION: Cold Lake South - PM 2.5</p> <p>DATE SAMPLED: 11-Jul-23 0:00</p> <p>REPORT CREATED: 26-Jul-23</p>	<p>DATE RECEIVED: 17-Jul-23</p> <p>REPORT NUMBER: 23070208</p> <p>VERSION: Version 01</p>
<p>INVOICE: Maria Cueva PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>		

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
23070208-001	Particulate Weight		0.064 mg	0.004	AC-029	24-Jul-23

Report certified by: Andrea Conner, Admin Assistant

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: July 26, 2023

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID C1170474	CANISTER ID	Matrix Air Filter	DATE SAMPLED 11-Jul-23 0:00
DESCRIPTION: Cold Lake South - PM 10			
REPORT NUMBER: 23070208	REPORT CREATED: 26-Jul-23		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
23070208-002	Particulate Weight		0.161 mg	0.004	AC-029	24-Jul-23

Report certified by: Andrea Conner, Admin Assistant

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: July 26, 2023

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Revision History

Order ID	Ver	Date	Reason
23070208	01	26-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

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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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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Order Comments



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Sample Comments

Result Comments

Note:

- 1. Results relate only to items tested and apply to the sample as received.*
- 2. This report shall not be reproduced, except in full, without the explicit approval of the laboratory.*



Customer ID: LICA
 Cust Samp ID: C1168573

2000i-D Sample Data Sheet



Date Sampled: 17-Jul-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 #:	C1168573	C1168574
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	19.4	
Pressure	708	
Std Volume (Instrument)	20.6	2.29

Comments: Weather Conditions, etc.

n/a

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

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



Customer ID: LICA
Cust Samp ID: C1168573



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: [Signature]
For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	C1168573 → C1168574

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

<p>RESULTS: Lica Communal Mail Lakeland Industry and Community Assn</p>	<p>CLIENT SAMPLE ID C1168573</p> <p>MATRIX: Air Filter</p> <p>CANISTER ID:</p> <p>PRIORITY: Normal</p> <p>DESCRIPTION: Cold Lake South - PM2.5 - Fine</p> <p>DATE SAMPLED: 17-Jul-23 0:00 DATE RECEIVED: 20-Jul-23</p> <p>REPORT CREATED: 26-Jul-23 REPORT NUMBER: 23070273</p> <p style="text-align: right;">VERSION: Version 01</p>
<p>INVOICE: Maria Cueva PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
23070273-001	Particulate Weight		0.212 mg	0.004	AC-029	24-Jul-23



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID C1168574	CANISTER ID	Matrix Air Filter	DATE SAMPLED 17-Jul-23 0:00
DESCRIPTION: Cold Lake South - PM10 - Coarse			
REPORT NUMBER: 23070273	REPORT CREATED: 26-Jul-23		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
23070273-002	Particulate Weight		0.190 mg	0.004	AC-029	24-Jul-23

Report certified by: Andrea Conner, Admin Assistant

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: July 26, 2023

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Revision History

Order ID	Ver	Date	Reason
23070273	01	26-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
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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ENVIRONMENTAL ANALYTICAL SERVICES

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Order Comments



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ENVIRONMENTAL ANALYTICAL SERVICES

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Sample Comments

Result Comments

Note:

- 1. Results relate only to items tested and apply to the sample as received.*
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Partisol 2000i-D Sample Data Sheet



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

Sample ID: 23070363-001 Priority: Normal



Customer ID: LICA
 Cust Samp ID: C1168575

	FINE (1) 1	COURSE (2) 2
Filter Type:	47mm	47mm
Filter #:	C1168575	C1168576
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	21.1	
Pressure	711	
Std Volume (Instrument)	20.6	2.29

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date): Alex Yakupov Date: 18-Jul-23

Removed by (Sign/Date) Alex Yakupov Date: 25-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



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

<p>RESULTS: Lica Communal Mail Lakeland Industry and Community Assn</p>	<p>CLIENT SAMPLE ID C1168575</p> <p>MATRIX: Air Filter</p> <p>CANISTER ID:</p> <p>PRIORITY: Normal</p> <p>DESCRIPTION: Cold Lake South - Fine - PM2.5</p> <p>DATE SAMPLED: 23-Jul-23 0:00 DATE RECEIVED: 27-Jul-23</p> <p>REPORT CREATED: 08-Aug-23 REPORT NUMBER: 23070363</p> <p style="text-align: right;">VERSION: Version 01</p>
<p>INVOICE: Maria Cueva PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
23070363-001	Particulate Weight		0.508 mg	0.004	AC-029	31-Jul-23



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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID C1168576	CANISTER ID	Matrix Air Filter	DATE SAMPLED 23-Jul-23 0:00
DESCRIPTION: Cold Lake South - Coarse - PM10			
REPORT NUMBER: 23070363	REPORT CREATED: 08-Aug-23		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
23070363-002	Particulate Weight		0.122 mg	0.004	AC-029	31-Jul-23

Report certified by: Andrea Conner, Admin Assistant

On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: August 8, 2023

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Revision History

Order ID	Ver	Date	Reason
23070363	01	08-Aug-23	Report created

Methods

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

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

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

Qualifiers

Data Qualifier Translation

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



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ENVIRONMENTAL ANALYTICAL SERVICES

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Order Comments



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Sample Comments



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Result Comments

Note:

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Customer ID: LICA
Cust Samp ID: C9700149

2000i-D Sample Data Sheet



Date Sampled: 29-Jul-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 #:	C9700149	C9700150
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	17.6	
Pressure	716	
Std Volume (Instrument)	21	2.34

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date): Alex Yakupov Date: 25-Jul-23

Removed by (Sign/Date) Alex Yakupov Date: 1-Aug-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: 23080037-002 Priority: Normal



Customer ID: LICA
Cust Samp ID: C9700150

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:

June 28 / 23

Project:

LICA/Bureau Veritas Labs

Prepared by:

Smullen

For information contact:

EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	C9700149 → C9700150

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: C9700149 CANISTER ID: PRIORITY: Normal DESCRIPTION: Cold Lake South - PM2.5 - Fine DATE SAMPLED: 29-Jul-23 0:00 DATE RECEIVED: 03-Aug-23 REPORT CREATED: 10-Aug-23 REPORT NUMBER: 23080037 VERSION: Version 01
---	---

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
23080037-001	Particulate Weight		0.097 mg	0.004	AC-029	08-Aug-23



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 (780) 632-8211

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID C9700150	CANISTER ID	Matrix Air Filter	DATE SAMPLED 29-Jul-23 0:00
DESCRIPTION: Cold Lake South - PM10 - Coarse			
REPORT NUMBER: 23080037	REPORT CREATED: 10-Aug-23		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
23080037-002	Particulate Weight		0.096 mg	0.004	AC-029	08-Aug-23

Report certified by: Andrea Conner, Admin Assistant

Date: August 10, 2023

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

On behalf of: Adam Malcolm, Manager, Chemical Testing

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Revision History

Order ID	Ver	Date	Reason
23080037	01	10-Aug-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
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AC-026	Ion Chromatographic Procedures using the Dionex ICS 3000 and 5000 Systems
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AC-048	Specific Conductance (Conductivity Meter Method)
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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)
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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

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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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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Order Comments



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ENVIRONMENTAL ANALYTICAL SERVICES

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Sample Comments



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ENVIRONMENTAL ANALYTICAL SERVICES

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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, Jul 2023 sample period

ID	SAMPLER						START		END		NOTES
							DATE	TIME	DATE	TIME	
3	H ₂ S	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Jun 30	15:47	Jul 29	18:05	
4	---	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Jul 2	13:20	Jul 30	13:43	
5	H ₂ S	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Jul 2	14:15	Jul 30	15:05	
6	---	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Jul 2	16:12	Jul 30	16:25	
8	---	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Jul 2	12:14	Jul 30	12:35	
9	---	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Jun 30	12:44	Jul 29	17:15	
10	H ₂ S	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Jul 3	18:10	Jul 31	18:25	
11	H ₂ S	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Jul 3	17:15	Jul 31	19:15	
12	H ₂ S	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Jul 3	16:04	Jul 31	17:02	
13	H ₂ S	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Jun 30	17:35	Jul 29	15:44	
14	H ₂ S	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Jun 30	18:45	Jul 29	14:20	water isotope sample taken
15	---	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Jun 30	11:40	Jul 30	10:56	
16	H ₂ S	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Jul 3	10:02	Jul 31	11:46	
17	H ₂ S	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Jul 2	18:10	Jul 30	17:45	
18	H ₂ S	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Jul 2	19:35	Jul 30	19:40	
19	---	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Jul 2	21:02	Jul 30	21:15	
22	H ₂ S	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Jul 3	18:22	Jul 31	20:10	
23	---	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	road closed / forest Ave		Jul 29	12:02	
24	H ₂ S	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Jul 2	15:17	Jul 30	15:50	
25	H ₂ S	SO ₂	---	---							
26	H ₂ S	SO ₂	---	---	HNO ₃	NH ₃	Jun 30	18:24	Jul 29	14:45	
27	H ₂ S	SO ₂	---	---	HNO ₃	NH ₃	Jun 30	19:12	Jul 29	13:28	
28	H ₂ S	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	no access / locked		no access	---	
29	H ₂ S	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Jul 3	19:32	Jul 31	20:25	
32	H ₂ S	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Jun 30	15:09	Jul 29	20:05	
42	H ₂ S	SO ₂	NO ₂	O ₃	HNO ₃	NH ₃	Jul 3	12:32	Jul 31	14:21	
DUPLICATES											
14	H ₂ S	---	---	---	---	---	Jun 30	18:45	Jul 29	14:20	
16	H ₂ S	---	---	---	---	---	Jul 3	10:02	Jul 31	11:46	
12	---	SO ₂	---	---	---	---	Jul 3	16:04	Jul 31	17:02	
13	---	SO ₂	---	---	---	---	Jun 30	17:35	Jul 29	15:44	
14	---	SO ₂	---	---	---	---	Jun 30	18:45	Jul 29	14:20	
18	---	---	NO ₂	O ₃	---	---	Jul 2	19:35	Jul 30	19:40	
19	---	---	NO ₂	O ₃	---	---	Jul 2	21:02	Jul 30	21:15	
6	---	---	---	---	HNO ₃	NH ₃	Jul 2	16:12	Jul 30	16:25	
8	---	---	---	---	HNO ₃	NH ₃	Jul 2	12:14	Jul 30	12:35	

33 SO₂
30 NH₃
18 25-05-03
23 H₂S
28 NO₂
07:30
29 O₃
32 HNO₃

Lily Lin

From: Alexander YAKUPOV <alexander.yakupov@bureauveritas.com>
Sent: August 18, 2023 1:20 PM
To: LICA Monitoring; Passive Air CS
Subject: RE: Final Report-Job#: C359428, Site: BONNYVILLE, AB, Results are attached ...

Yes, exactly.
Thank you VERY MUCH, Lily 😊!

From: LICA Monitoring <monitoring@lica.ca>
Sent: Friday, August 18, 2023 13:19
To: Alexander YAKUPOV <alexander.yakupov@bureauveritas.com>; LICA Monitoring <monitoring@lica.ca>; Passive Air CS <bureauveritascompassiveair@bvlabs.freshdesk.com>
Subject: RE: Final Report-Job#: C359428, Site: BONNYVILLE, AB, Results are attached ...

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Thanks Alex. I can add your notes to the COC. Just to confirm for the July sample collection, both the NO2 sample at #11 and NMH3 sample at #29 are missing, and no access to station #28. Do I capture it correctly?

Lily

From: Alexander YAKUPOV <alexander.yakupov@bureauveritas.com>
Sent: Friday, August 18, 2023 12:59 PM
To: LICA Monitoring <monitoring@lica.ca>; Passive Air CS <bureauveritascompassiveair@bvlabs.freshdesk.com>
Subject: RE: Final Report-Job#: C359428, Site: BONNYVILLE, AB, Results are attached ...

Hi Lily,

No. I just did not find them in the sampler when I exchange them.
Sometimes, a bear can disturb the sampler. Especially at the site 11, where we have a tone of bears messing around.

Thank you,
Alex

From: LICA Monitoring <monitoring@lica.ca>
Sent: Friday, August 18, 2023 12:56
To: Passive Air CS <bureauveritascompassiveair@bvlabs.freshdesk.com>
Cc: Alexander YAKUPOV <alexander.yakupov@bureauveritas.com>
Subject: RE: Final Report-Job#: C359428, Site: BONNYVILLE, AB, Results are attached ...

Be careful with this message: it is coming from an external sender

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HI,

The NO2 result for station #11 and theNMH3 result for station #29 are marked as 'Missing'. These were not noted in the field notes. Can you please clarify the flag of Missing? Do you mean the samples were not in the shipping box when you received it?

Thank you,
Lily

From: PassiveAir@bureauveritas.com <PassiveAir@bureauveritas.com>
Sent: Wednesday, August 16, 2023 8:59 AM
To: LICA Monitoring <monitoring@lica.ca>; air-services-ab@bureauveritas.com; LICA Reception <lica2@lica.ca>
Subject: Final Report-Job#: C359428, Site: BONNYVILLE, AB, Results are attached ...
Importance: High

Thank you for choosing Bureau Veritas for your analytical services. Attached you will find your Certificate of Analysis. Should you have any questions or concerns, please contact your local Customer Service Representative / Project Manager - Customer Service Passives at 780-378-8500. We welcome any feedback you would care to share with us. To do so, please contact us at comments@bureauveritas.com

The information in this e-mail and any attachments is confidential and for the sole use of the intended recipient(s). If you have received this e-mail in error, please accept our apologies for the inconvenience; note that any use of the information is strictly prohibited; notify the sender as soon as possible; and then delete all copies from your system.

Your result File C359428V1-R2023-08-16_08-41-06_R006.pdf; C359428V1-R2023-08-16_08-42-00_A006.csv; C359428V1-R2023-08-16_08-41-06_R006_Att_0_Chain_of_Custody_Form.PDF is attached..

Bureau Veritas
6744 50 Street,
Edmonton, Alberta, T6B 3M9

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Your Project #: JULY 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: 2023/08/16
Report #: R3381107
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C359428

Received: 2023/08/03, 07:30

Sample Matrix: Air
Samples Received: 62

Analyses	Quantity	Date		Laboratory Method	Analytical Method
		Extracted	Analyzed		
H2S Passive Analysis	20	2023/08/11	2023/08/15	PTC SOP-00150	Passive H2S in ATM
HNO3 by Passive Sampler	30	2023/08/04	2023/08/11	PTC SOP-00288	Passive HNO3 in ATM
NH3 by Passive Sampler	28	2023/08/04	2023/08/10	PTC SOP-00157	ASTM D6919
NH3 by Passive Sampler	2	2023/08/04	2023/08/14	PTC SOP-00157	ASTM D6919
NO2 Passive Analysis	25	2023/08/04	2023/08/15	PTC SOP-00148	Passive NO2 in ATM
O3 Passive Analysis	25	2023/08/04	2023/08/15	PTC SOP-00197	EPA 300 R2.1
SO2 Passive Analysis	28	2023/08/04	2023/08/15	PTC SOP-00149	Passive SO2 in ATM

This report shall not be reproduced except in full, without the written approval of the laboratory.
Results relate only to the items tested.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Encryption Key

Rowena Geron
Project Manager Assistant
16 Aug 2023 08:59:18

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

=====
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BUREAU
VERITAS

Bureau Veritas Job #: C359428
Report Date: 2023/08/16

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BWA511			BWA512			BWA513		
Sampling Date		2023/06/30 15:47			2023/07/02 13:20			2023/07/02 14:15		
	UNITS	3	RDL	QC Batch	4	RDL	QC Batch	5	RDL	QC Batch

Passive Monitoring										
Calculated H2S	ppb	0.30	0.02	B067404				0.99	0.02	B067404
Calculated NO2	ppb	0.6	0.1	B069825	0.8	0.1	B069825	0.4	0.1	B069825
Calculated O3	ppb	33.7	0.1	B060150	23.2	0.1	B060150	25.7	0.1	B060150
Calculated SO2	ppb	0.3	0.1	B060475	1.4	0.1	B060475	0.6	0.1	B060475
RDL = Reportable Detection Limit										

Bureau Veritas ID		BWA514	BWA515	BWA516			BWA517	BWA518	BWA519		
Sampling Date		2023/07/02 16:12	2023/07/02 12:14	2023/06/30 12:44			2023/07/03 18:10	2023/07/03 17:15	2023/07/03 16:04		
	UNITS	6	8	9	RDL	QC Batch	10	11	12	RDL	QC Batch

Passive Monitoring											
Calculated H2S	ppb						0.43	0.20	0.20	0.02	B067404
Calculated NO2	ppb	1.9	0.4	0.7	0.1	B069825	2.0	MISSING	0.2	0.1	B069825
Calculated O3	ppb	24.9	28.9	22.5	0.1	B060150	24.0	18.1	27.4	0.1	B060150
Calculated SO2	ppb	0.6	0.4	0.3	0.1	B060475	0.3	0.4	0.2	0.1	B060475
RDL = Reportable Detection Limit											

Bureau Veritas ID		BWA520		BWA521			BWA522			BWA523		
Sampling Date		2023/06/30 17:35		2023/06/30 18:45			2023/06/30 11:40			2023/07/03 10:02		
	UNITS	13	QC Batch	14	RDL	QC Batch	15	RDL	QC Batch	16	RDL	QC Batch

Passive Monitoring												
Calculated H2S	ppb	0.14	B067404	0.43	0.02	B067404				0.27	0.02	B067404
Calculated NO2	ppb	0.3	B069825	1.1	0.1	B069825	0.7	0.1	B069825	0.6	0.1	B069825
Calculated O3	ppb	20.8	B060150	28.7	0.1	B060150	25.6	0.1	B060150	26.0	0.1	B060150
Calculated SO2	ppb	0.2	B060475	0.4	0.1	B060478	0.3	0.1	B060478	0.3	0.1	B060478
RDL = Reportable Detection Limit												



BUREAU VERITAS

Bureau Veritas Job #: C359428
Report Date: 2023/08/16

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BWA524	BWA525			BWA526			BWA527		
Sampling Date		2023/07/02 18:10	2023/07/02 19:35			2023/07/02 21:02			2023/07/03 19:22		
	UNITS	17	18	RDL	QC Batch	19	RDL	QC Batch	22	RDL	QC Batch

Passive Monitoring											
Calculated H2S	ppb	0.53	0.17	0.02	B067404				0.46	0.02	B067404
Calculated NO2	ppb	0.6	0.3	0.1	B069825	0.4	0.1	B069825	0.5	0.1	B069825
Calculated O3	ppb	27.3	20.1	0.1	B060150	28.5	0.1	B060150	24.7	0.1	B060150
Calculated SO2	ppb	0.4	0.2	0.1	B060478	0.3	0.1	B060478	0.4	0.1	B060478
RDL = Reportable Detection Limit											

Bureau Veritas ID		BWA528			BWA529			BWA530	BWA531		
Sampling Date		2023/05/29 11:15			2023/07/02 15:17			2023/06/30 18:24	2023/06/30 19:12		
	UNITS	23	RDL	QC Batch	24	RDL	QC Batch	26	27	RDL	QC Batch

Passive Monitoring											
Calculated H2S	ppb				0.44	0.02	B067404	0.26	1.23	0.02	B067404
Calculated NO2	ppb	0.1	0.1	B069825	0.8	0.1	B069825				
Calculated O3	ppb	21.9	0.1	B060150	27.5	0.1	B060150				
Calculated SO2	ppb	0.2	0.1	B060478	0.4	0.1	B060478	0.6	1.2	0.1	B060478
RDL = Reportable Detection Limit											

Bureau Veritas ID		BWA532		BWA533	BWA534	BWA535			BWA539		
Sampling Date				2023/07/03 19:32	2023/06/30 15:09	2023/07/03 12:32			2023/07/03 16:04		
	UNITS	28	QC Batch	29	32	42	RDL	QC Batch	12 DUP	RDL	QC Batch

Passive Monitoring											
Calculated H2S	ppb	NA	B067404	0.38	0.40	0.34	0.02	B067404			
Calculated NO2	ppb	NA	B069825	0.5	0.3	0.7	0.1	B069827			
Calculated O3	ppb	NA	B060150	30.0	29.4	30.1	0.1	B059033			
Calculated SO2	ppb	NA	B060478	0.4	0.3	0.3	0.1	B060478	0.3	0.1	B060478
RDL = Reportable Detection Limit											



BUREAU
VERITAS

Bureau Veritas Job #: C359428
Report Date: 2023/08/16

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BWA540	BWA541			BWA542	BWA543			BWA544		
Sampling Date		2023/06/30 17:35	2023/06/30 18:45			2023/07/02 19:35	2023/07/02 21:02			2023/06/30 18:45		
	UNITS	13 DUP	14 DUP	RDL	QC Batch	18 DUP	19 DUP	RDL	QC Batch	14 DUP	RDL	QC Batch

Passive Monitoring												
Calculated H2S	ppb									0.46	0.02	B067404
Calculated NO2	ppb					0.3	0.5	0.1	B069827			
Calculated O3	ppb					21.8	28.8	0.1	B059033			
Calculated SO2	ppb	0.2	0.4	0.1	B060478							
RDL = Reportable Detection Limit												

Bureau Veritas ID		BWA575				BWA545	BWA546	BWA547	BWA548		
Sampling Date		2023/07/03 10:02				2023/06/30 15:47	2023/07/02 13:20	2023/07/02 14:15	2023/07/02 16:12		
	UNITS	16 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					3.2	3.5	2.6	4.2	0.1	B060790
Calculated H2S	ppb	0.29	0.02	B067404							
HNO3 by Passive Sampler	ug/m3				0.74	0.65	0.37	0.72	0.04	B060470	
RDL = Reportable Detection Limit											

Bureau Veritas ID		BWA549	BWA550	BWA551	BWA552	BWA553	BWA554		
Sampling Date		2023/07/02 12:14	2023/06/30 12:44	2023/07/03 18:10	2023/07/03 17:15	2023/07/03 16:04	2023/06/30 17:35		
	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	3.0	2.6	2.0	1.3	1.8	14.7	0.1	B060790	
HNO3 by Passive Sampler	ug/m3	0.77	0.75	0.45	1.32	1.25	1.22	0.04	B060470	
RDL = Reportable Detection Limit										

Bureau Veritas ID		BWA555	BWA556	BWA557	BWA558	BWA559	BWA560		
Sampling Date		2023/06/30 18:45	2023/06/30 11:40	2023/07/03 10:02	2023/07/02 18:10	2023/07/02 19:35	2023/07/02 21:02		
	UNITS	14-NH3 HNO3	15-NH3 HNO3	16-NH3 HNO3	17-NH3 HNO3	18-NH3 HNO3	19-NH3 HNO3	RDL	QC Batch

Passive Monitoring										
Ammonia by Passive Sampler	ppb	2.0	2.3	1.7	5.2	1.9	3.9	0.1	B060790	
HNO3 by Passive Sampler	ug/m3	0.39	0.64	0.78	0.25	0.75	0.89	0.04	B060470	
RDL = Reportable Detection Limit										



BUREAU
VERITAS

Bureau Veritas Job #: C359428
Report Date: 2023/08/16

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BWA561	BWA562	BWA563	BWA564		BWA565		
Sampling Date		2023/07/03 19:22	2023/05/29 11:15	2023/07/02 15:17	2023/06/30 18:24		2023/06/30 19:12		
	UNITS	22-NH3 HNO3	23-NH3 HNO3	24-NH3 HNO3	26-NH3 HNO3	QC Batch	27-NH3 HNO3	RDL	QC Batch

Passive Monitoring									
Ammonia by Passive Sampler	ppb	2.3	0.2	3.3	1.3	B060790	2.7	0.1	B060791
HNO3 by Passive Sampler	ug/m3	0.62	0.39	0.85	0.44	B060471	0.90	0.04	B060471
RDL = Reportable Detection Limit									

Bureau Veritas ID		BWA566	BWA567	BWA568	BWA569	BWA570		
Sampling Date			2023/07/03 19:32	2023/06/30 15:09	2023/07/03 12:32	2023/07/02 16:12		
	UNITS	28-NH3 HNO3	29-NH3 HNO3	32-NH3 HNO3	42-NH3 HNO3	6-NH3 HNO3 DUP	RDL	QC Batch

Passive Monitoring									
Ammonia by Passive Sampler	ppb	NA	MISSING	3.6	4.3	3.2	0.1	B060791	
HNO3 by Passive Sampler	ug/m3	NA	0.59	1.20	0.29	0.50	0.04	B060471	
RDL = Reportable Detection Limit									

Bureau Veritas ID		BWA571	BWA572	BWA573	BWA574		
Sampling Date		2023/07/02 12:14					
	UNITS	8-NH3 HNO3 DUP	BLANK 1-NH3 HNO3	BLANK 2-NH3 HNO3	BLANK 3-NH3 HNO3	RDL	QC Batch

Passive Monitoring									
Ammonia by Passive Sampler	ppb	3.4	0.9	1.3	1.7	0.1	B060791		
HNO3 by Passive Sampler	ug/m3	0.82	0.59	0.06	0.08	0.04	B060471		
RDL = Reportable Detection Limit									



**BUREAU
VERITAS**

Bureau Veritas Job #: C359428
Report Date: 2023/08/16

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

GENERAL COMMENTS

Sample BWA554 [13-NH3 HNO3] : Sample was re-tested to confirm the high result for NH3 parameter. --YL6 20230815

Results relate only to the items tested.



QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
B059033	SDK	Spiked Blank	Calculated O3			100	%	90 - 110
B059033	SDK	Method Blank	Calculated O3		<0.1		ppb	
B060150	SDK	Spiked Blank	Calculated O3			96	%	90 - 110
B060150	SDK	Method Blank	Calculated O3		<0.1		ppb	
B060470	OZ	Method Blank	HNO3 by Passive Sampler		<0.04		ug/m3	
B060471	OZ	Method Blank	HNO3 by Passive Sampler		<0.04		ug/m3	
B060475	OZ	Spiked Blank	Calculated SO2			98	%	90 - 110
B060475	OZ	Method Blank	Calculated SO2		<0.1		ppb	
B060478	OZ	Spiked Blank	Calculated SO2			99	%	90 - 110
B060478	OZ	Method Blank	Calculated SO2		<0.1		ppb	
B060790	SDK	Spiked Blank	Ammonia by Passive Sampler			103	%	90 - 110
B060790	SDK	Method Blank	Ammonia by Passive Sampler		<0.1		ppb	
B060791	SDK	Spiked Blank	Ammonia by Passive Sampler			98	%	90 - 110
B060791	SDK	Method Blank	Ammonia by Passive Sampler		<0.1		ppb	
B067404	YYA	Spiked Blank	Calculated H2S			100	%	90 - 110
B069825	SDK	Spiked Blank	Calculated NO2			100	%	90 - 110
B069825	SDK	Method Blank	Calculated NO2		<0.1		ppb	
B069827	SDK	Spiked Blank	Calculated NO2			97	%	90 - 110
B069827	SDK	Method Blank	Calculated NO2		<0.1		ppb	

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

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



BUREAU
VERITAS

Bureau Veritas Job #: C359428
Report Date: 2023/08/16

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
Client Project #: JULY 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, Laboratory Supervisor

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Lac La Biche Station

Non- Methane Hydrocarbons (NMHCs) Canister Samples



Customer ID: LICA
Cust Samp ID: 32247

Bureau Veritas

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

Client: LICA	Sampler S/N: n/a
Location: Lac La Biche	Canister ID: 32247
Station ID: LICA 41	Installation Date/Time (mst): Jul 03, 2023 @ 13:03
Sample ID: LICA/NMHC/LLB/Jul 04, 2023	Removal Date/Time (mst): Jul 6, 2023 @ 10:49

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
July 4, 2023	0:50	n/a	n/a

Canister Pressure/Vacuum

Initial Vacuum (in. Hg)	Final Vacuum (in. Hg)
-27.1	-3.8

Flow Settings

Flow Reading (sccm)	Pot Set Point	Pump Set (psi)
n/a	n/a	n/a

Deployment/Collection and Maintenance Checklist

Initial leak check deployment vacuum (in. Hg) = n/a @ n/a mst
 Final leak check deployment vacuum (in. Hg) = n/a @ n/a mst
 Total leak rate = n/a psi over n/a minutes
 Timer reset to zero prior to sampling? YES (yes/no)

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

Comments:

NMHC Canister # 32247 (exp. Date: **Sep 28, 2023**)

A new installed canister # 32207 (exp. Date: **Sep 28, 2023**)

Deployment Technician Signature:

Alex Yakupov

Collection Technician Signature:

Alex Yakupov



Canister ID: 32247

This cleaned canister meets or exceeds TO-15 Method Specifications

Sample ID: LICA/NNHC/LLB/
Jul 04, 2023

Proofed by: ISA on: MAY 11 2023

Sampled By: Alex Yampov

Evacuated: JUN 21 2023 Recertified: _____

Starting Vacuum: -27.1 "Hg

End Vacuum: KG
-3.8 (Hg) psig

(Use with the number of months since evacuation or recertification date)
Laboratory Contact Number: 780-632-8403

Sample ID: 23070125-001 Priority: Normal



Customer ID: LICA
Cust Samp ID: 32247

<p>RESULTS: Lica Communal Mail Lakeland Industry and Community Assn</p>	<p>CLIENT SAMPLE ID LICA/NMHC/LLB/Jul 04, 2023</p>	<p>Matrix Ambient Air</p>
<p>INVOICE: Maria Cueva PO Box 8237 5107W-50 St Bonnyville AB T9N 2J5</p>	<p>CANISTER ID: 32247 PRIORITY: Normal DESCRIPTION: Lac La Biche</p>	<p>DATE SAMPLED: 04-Jul-23 0:05 DATE RECEIVED: 11-Jul-23 REPORT CREATED: 17-Jul-23 REPORT NUMBER: 23070125 VERSION: Version 01</p>

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23070125-001	1,1,1-Trichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-23
23070125-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-23
23070125-001	1,1,2-Trichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-23
23070125-001	1,1-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-23
23070125-001	1,1-Dichloroethylene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-23
23070125-001	1,2,3-Trimethylbenzene	K, T, U	< 0.07	ppbv	0.07	AC-058	12-Jul-23
23070125-001	1,2,4-Trichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Jul-23
23070125-001	1,2,4-Trimethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jul-23
23070125-001	1,2-Dibromoethane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-23
23070125-001	1,2-Dichlorobenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jul-23
23070125-001	1,2-Dichloroethane	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jul-23
23070125-001	1,2-Dichloropropane	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jul-23
23070125-001	1,3,5-Trimethylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jul-23
23070125-001	1,3-Butadiene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jul-23
23070125-001	1,3-Dichlorobenzene	K, T, U	< 0.5	ppbv	0.5	AC-058	12-Jul-23
23070125-001	1,4-Dichlorobenzene	K, T, U	< 0.5	ppbv	0.5	AC-058	12-Jul-23
23070125-001	1,4-Dioxane	K, T, U	< 0.7	ppbv	0.7	AC-058	12-Jul-23

Report certified by: Andrea Conner, Admin Assistant

Date: July 17, 2023

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On behalf of: Adam Malcolm, Manager, Chemical Testing

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

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CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED	
LICA/NMHC/LLB/Jul 04, 2023	32247	Ambient Air	04-Jul-23	0:05
DESCRIPTION:	Lac La Biche			
REPORT NUMBER:	23070125	REPORT CREATED:	17-Jul-23	VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
23070125-001	1-Butene/Isobutylene	I	0.11	ppbv	0.08	AC-058	12-Jul-23
23070125-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.09	ppbv	0.09	AC-058	12-Jul-23
23070125-001	1-Pentene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jul-23
23070125-001	2,2,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-23
23070125-001	2,2-Dimethylbutane	I	0.04	ppbv	0.03	AC-058	12-Jul-23
23070125-001	2,3,4-Trimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-23
23070125-001	2,3-Dimethylbutane		0.16	ppbv	0.12	AC-058	12-Jul-23
23070125-001	2,3-Dimethylpentane	I	0.07	ppbv	0.03	AC-058	12-Jul-23
23070125-001	2,4-Dimethylpentane	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jul-23
23070125-001	2-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-23
23070125-001	2-Methylhexane	I	0.12	ppbv	0.04	AC-058	12-Jul-23
23070125-001	2-Methylpentane		0.73	ppbv	0.03	AC-058	12-Jul-23
23070125-001	3-Methylheptane	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jul-23
23070125-001	3-Methylhexane	I	0.11	ppbv	0.03	AC-058	12-Jul-23
23070125-001	3-Methylpentane		0.40	ppbv	0.03	AC-058	12-Jul-23
23070125-001	Acetone		0.8	ppbv	0.5	AC-058	12-Jul-23
23070125-001	Acrolein	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Jul-23
23070125-001	Benzene	I	0.07	ppbv	0.04	AC-058	12-Jul-23
23070125-001	Benzyl chloride	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Jul-23
23070125-001	Bromodichloromethane	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jul-23
23070125-001	Bromoform	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-23
23070125-001	Bromomethane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-23
23070125-001	Carbon disulfide	I	0.04	ppbv	0.03	AC-058	12-Jul-23
23070125-001	Carbon tetrachloride	I	0.08	ppbv	0.03	AC-058	12-Jul-23
23070125-001	Chlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-23

Report certified by: Andrea Conner, Admin Assistant

Date: July 17, 2023

On behalf of: Adam Malcolm, Manager, Chemical Testing

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

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LAB-LICA-202307

CLIENT SAMPLE ID LICA/NMHC/LLB/Jul 04, 2023	CANISTER ID 32247	Matrix Ambient Air	DATE SAMPLED 04-Jul-23 0:05
DESCRIPTION: Lac La Biche			
REPORT NUMBER: 23070125	REPORT CREATED: 17-Jul-23		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
23070125-001	Chloroethane	K, T, U	< 0.03 ppbv	0.03	AC-058	12-Jul-23
23070125-001	Chloroform	K, T, U	< 0.03 ppbv	0.03	AC-058	12-Jul-23
23070125-001	Chloromethane		0.38 ppbv	0.05	AC-058	12-Jul-23
23070125-001	cis-1,2-Dichloroethene	K, T, U	< 0.03 ppbv	0.03	AC-058	12-Jul-23
23070125-001	cis-1,3-Dichloropropene	K, T, U	< 0.04 ppbv	0.04	AC-058	12-Jul-23
23070125-001	cis-2-Butene	I	0.05 ppbv	0.04	AC-058	12-Jul-23
23070125-001	cis-2-Pentene	K, T, U	< 0.03 ppbv	0.03	AC-058	12-Jul-23
23070125-001	Cyclohexane	K, T, U	< 0.05 ppbv	0.05	AC-058	12-Jul-23
23070125-001	Cyclopentane		0.14 ppbv	0.03	AC-058	12-Jul-23
23070125-001	Dibromochloromethane	K, T, U	< 0.03 ppbv	0.03	AC-058	12-Jul-23
23070125-001	Ethanol		1.7 ppbv	0.7	AC-058	12-Jul-23
23070125-001	Ethyl acetate	K, T, U	< 0.4 ppbv	0.4	AC-058	12-Jul-23
23070125-001	Ethylbenzene	K, T, U	< 0.04 ppbv	0.04	AC-058	12-Jul-23
23070125-001	Freon-11		0.19 ppbv	0.03	AC-058	12-Jul-23
23070125-001	Freon-113	I	0.04 ppbv	0.03	AC-058	12-Jul-23
23070125-001	Freon-114	K, T, U	< 0.04 ppbv	0.04	AC-058	12-Jul-23
23070125-001	Freon-12		0.45 ppbv	0.04	AC-058	12-Jul-23
23070125-001	Hexachloro-1,3-butadiene	K, T, U	< 0.4 ppbv	0.4	AC-058	12-Jul-23
23070125-001	Isobutane		9.41 ppbv	0.04	AC-058	12-Jul-23
23070125-001	Isopentane		8.38 ppbv	0.05	AC-058	12-Jul-23
23070125-001	Isoprene		0.27 ppbv	0.03	AC-058	12-Jul-23
23070125-001	Isopropyl alcohol	K, T, U	< 0.4 ppbv	0.4	AC-058	12-Jul-23
23070125-001	Isopropylbenzene	K, T, U	< 0.05 ppbv	0.05	AC-058	12-Jul-23
23070125-001	m,p-Xylene	I	0.09 ppbv	0.05	AC-058	12-Jul-23
23070125-001	m-Diethylbenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	12-Jul-23

Report certified by: Andrea Conner, Admin Assistant

Date: July 17, 2023

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On behalf of: Adam Malcolm, Manager, Chemical Testing

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

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CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/NMHC/LLB/Jul 04, 2023	32247	Ambient Air	04-Jul-23 0:05
DESCRIPTION:	Lac La Biche		
REPORT NUMBER:	23070125	REPORT CREATED:	17-Jul-23
			VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
23070125-001	m-Ethyltoluene	K, T, U	< 0.04 ppbv	0.04	AC-058	12-Jul-23
23070125-001	Methyl butyl ketone	K, T, U	< 0.5 ppbv	0.5	AC-058	12-Jul-23
23070125-001	Methyl ethyl ketone	K, T, U	< 0.4 ppbv	0.4	AC-058	12-Jul-23
23070125-001	Methyl isobutyl ketone	K, T, U	< 0.4 ppbv	0.4	AC-058	12-Jul-23
23070125-001	Methyl methacrylate	K, T, U	< 0.11 ppbv	0.11	AC-058	12-Jul-23
23070125-001	Methyl tert butyl ether	K, T, U	< 0.04 ppbv	0.04	AC-058	12-Jul-23
23070125-001	Methylcyclohexane	I	0.07 ppbv	0.03	AC-058	12-Jul-23
23070125-001	Methylcyclopentane		0.40 ppbv	0.07	AC-058	12-Jul-23
23070125-001	Methylene chloride	K, T, U	< 0.4 ppbv	0.4	AC-058	12-Jul-23
23070125-001	n-Butane		13.4 ppbv	0.03	AC-058	12-Jul-23
23070125-001	n-Decane	K, T, U	< 0.08 ppbv	0.08	AC-058	12-Jul-23
23070125-001	n-Dodecane	K, T, U	< 0.4 ppbv	0.4	AC-058	12-Jul-23
23070125-001	n-Heptane	K, T, U	< 0.05 ppbv	0.05	AC-058	12-Jul-23
23070125-001	n-Hexane	I	0.27 ppbv	0.04	AC-058	12-Jul-23
23070125-001	n-Octane	I	0.03 ppbv	0.03	AC-058	12-Jul-23
23070125-001	n-Pentane		1.90 ppbv	0.05	AC-058	12-Jul-23
23070125-001	n-Propylbenzene	K, T, U	< 0.08 ppbv	0.08	AC-058	12-Jul-23
23070125-001	n-Undecane	K, T, U	< 0.7 ppbv	0.7	AC-058	12-Jul-23
23070125-001	Naphthalene	K, T, U	< 0.4 ppbv	0.4	AC-058	12-Jul-23
23070125-001	n-Nonane	K, T, U	< 0.05 ppbv	0.05	AC-058	12-Jul-23
23070125-001	o-Ethyltoluene	K, T, U	< 0.03 ppbv	0.03	AC-058	12-Jul-23
23070125-001	o-Xylene	K, T, U	< 0.04 ppbv	0.04	AC-058	12-Jul-23
23070125-001	p-Diethylbenzene	K, T, U	< 0.03 ppbv	0.03	AC-058	12-Jul-23
23070125-001	p-Ethyltoluene	K, T, U	< 0.05 ppbv	0.05	AC-058	12-Jul-23
23070125-001	Styrene	K, T, U	< 0.05 ppbv	0.05	AC-058	12-Jul-23

Report certified by: Andrea Conner, Admin Assistant

Date: July 17, 2023

On behalf of: Adam Malcolm, Manager, Chemical Testing

Inquiries: (780) 632 8403

E-mail: EAS.Results@innotechalberta.ca

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LAB-LICA-202307

CLIENT SAMPLE ID LICA/NMHC/LLB/Jul 04, 2023	CANISTER ID 32247	Matrix Ambient Air	DATE SAMPLED 04-Jul-23 0:05
DESCRIPTION: Lac La Biche			
REPORT NUMBER: 23070125	REPORT CREATED: 17-Jul-23		VERSION: Version 01

Lab ID	Parameter	Qualifier	Result Units	RDL	Method	Analysis Date
23070125-001	Tetrachloroethylene	K, T, U	< 0.03 ppbv	0.03	AC-058	12-Jul-23
23070125-001	Tetrahydrofuran	K, T, U	< 0.4 ppbv	0.4	AC-058	12-Jul-23
23070125-001	Toluene	I	0.06 ppbv	0.04	AC-058	12-Jul-23
23070125-001	trans-1,2-Dichloroethylene	K, T, U	< 0.08 ppbv	0.08	AC-058	12-Jul-23
23070125-001	trans-1,3-Dichloropropylene	K, T, U	< 0.03 ppbv	0.03	AC-058	12-Jul-23
23070125-001	trans-2-Butene	I	0.07 ppbv	0.04	AC-058	12-Jul-23
23070125-001	trans-2-Pentene	K, T, U	< 0.03 ppbv	0.03	AC-058	12-Jul-23
23070125-001	Trichloroethylene	K, T, U	< 0.03 ppbv	0.03	AC-058	12-Jul-23
23070125-001	Vinyl acetate	K, T, U	< 0.4 ppbv	0.4	AC-058	12-Jul-23
23070125-001	Vinyl chloride	K, T, U	< 0.03 ppbv	0.03	AC-058	12-Jul-23



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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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Revision History

Order ID	Ver	Date	Reason
23070125	01	17-Jul-23	Report created

Methods

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

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

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

Qualifiers

Data Qualifier Translation

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



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

ENVIRONMENTAL ANALYTICAL SERVICES

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Order Comments



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

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Sample Comments



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TEST REPORT

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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