Lakeland Industry & Community Association

JUNE 2022

Monthly Ambient Air Quality Monitoring Integrated Sampling Report

LICA-202206-INTEGRATED

July 30, 2022

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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

July 30, 2022

Alberta Environment and Parks (AEP)
11th Floor, Oxbridge Place
9820 106 Street
Edmonton, AB, T5K 2J6

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

Enclosed is the June 2022 Monthly Ambient Air Quality Monitoring Integrated Sampling Report for the Lakeland Industry and Community Association's (LICA) regional air quality monitoring network. This report summarizes monitoring data for samples collected using integrated methods including volatile organic compounds, polycyclic aromatic hydrocarbons, polycyclic aromatic compounds, particulate matter, ozone, hydrogen sulphide, sulphur dioxide, and nitrogen dioxide.

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

Monitoring Notes during the Month of June 2022

Cold Lake South Station

- **Volatile Organic Compounds (VOCs)**
  - Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) where applicable.
  - The VOC sampler is programed to collect a 24-hour sample of air every sixth day as per the North American Pollution Surveillance schedule (NAPS).
  - Five samples were collected this month: on June 4, 10, 16, 22 and 28.
- **Polycyclic Aromatic Hydrocarbons (PAHs)**
  - Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) where applicable.
  - 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 June 4, 10, 16, 22 and 28. The instrument was found out of power during the sample media collection on June 14, which indicated not a full 24-hour sample was collected on the June 10's run. June 10's data should be used with caution.
- **Partisols**
  - 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).

    - Five samples were collected this month: on June 4, 10, 16, 22 and 28.
- **Passives**
    - There were no exceedances of the AAAQOs for all monitored parameters at any of the passive stations during this month.
    - The passive sample filters were installed at the stations May 31 and June 2, and were removed between June 28 and June 30.
    - A total of 9 duplicate samples were collected: 2 for H2S, 3 for SO2, 2 for NO2 and 2 for O3.
    - 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.

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 May/June were removed between June 28 and June 30. The media for July/August were installed at the same time. The media are scheduled to be collected in late 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	2022-06-04	2022-06-10	2022-06-16	2022-06-22	2022-06-28
Canister ID	32273	28886	29029	32272	28932
Maximum Reading (ppbv)	7.8	2.5	3.4	5.5	10.2
Parameter	Acetone	Acetone	Ethanol	Acetone	Acetone

- **PAHs analytical results**

Sample Date	2022-06-04		2022-06-10		2022-06-16		2022-06-22		2022-06-28	
PUF S/N	A13-02		TE-01		TE-07		P13-01		9801	
Volume (Vstd m^3)	330.2		307.44		330.32		330.41		330.40	
Maximum Reading	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3
	0.25	0.76	0.21	0.68	0.33	1.00	0.38	1.15	0.27	0.82
Parameter	Phenanthrene		Phenanthrene		Phenanthrene		Phenanthrene		Phenanthrene	

Note: The PUF sampler was found out of power during the sample media collection on June 14, which indicated not a full 24-hour sample was collected on the June 10's run. June 10's data should be used with caution.

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

Sample Date	2022-06-04		2022-06-10		2022-06-16		2022-06-22		2022-06-28	
Filter #	C9460881		C9460899		C9460895		C9460882		C9460873	
Volume (Vstd m^3)	20.6		20.8		20.8		21.4		21.5	
Result	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)
Particulate Matter	0.094	0.005	0.109	0.005	0.121	0.006	0.218	0.010	0.036	0.002

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

Sample Date	2022-06-04		2022-06-10		2022-06-16		2022-06-22		2022-06-28	
Filter #	C9460880		C9460900		C9460896		C9460883		C9460887	
Volume (Vstd m^3)	2.30		2.31		2.31		2.40		2.39	
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)
PM2.5-10 Mass	0.031	0.013	<0.004	0.000	0.009	0.004	0.150	0.063	0.009	0.004

- **Passive analytical results**

	H_2S		NO_2		O_3		SO_2	
Minimum (ppb)	0.06	#13	0.1	#23	23.5	#16	0.1	#23
Maximum (ppb)	0.58	#27	3.3	#6	43.4	#17	0.7	#14
Average (ppb)	0.27	-	0.92	-	29.67	-	0.33	-

ANALYTICAL SAMPLING RESULTS

COLD LAKE SOUTH STATION

VOCS

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - June 2022

Volatile Organic Compounds (VOCs) Results

Sample Date		2022-06-04	2022-06-10	2022-06-16	2022-06-22	2022-06-28
Canister ID		32273	28886	29029	32272	28932
Method		AC-058	AC-058	AC-058	AC-058	AC-058
Maximum Reading (ppbv)		7.8	2.5	3.4	5.5	10.2
Parameter		Acetone	Acetone	Ethanol	Acetone	Acetone

Parameter	AAAQOs (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	RDL (ppbv)
1,1,1-Trichloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1,2,2-Tetrachloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1,2-Trichloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1-Dichloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1-Dichloroethylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
1,2,3-Trimethylbenzene		0.08	< 0.05	< 0.05	< 0.05	< 0.05	0.05
1,2,4-Trichlorobenzene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.8
1,2,4-Trimethylbenzene		0.07	< 0.03	< 0.03	< 0.03	< 0.03	0.05
1,2-Dibromoethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,2-Dichlorobenzene		0.09	< 0.03	< 0.03	< 0.03	< 0.03	0.03
1,2-Dichloroethane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
1,2-Dichloropropane		0.06	< 0.03	< 0.03	< 0.03	< 0.03	0.01
1,3,5-Trimethylbenzene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02
1,3-Butadiene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02
1,3-Dichlorobenzene		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	0.3
1,4-Dichlorobenzene		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	0.4
1,4-Dioxane		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.4
1-Butene		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.02
1-Hexene		0.1	< 0.07	< 0.07	< 0.07	< 0.07	0.02
1-Pentene		< 0.03	< 0.03	< 0.03	< 0.03	0.07	0.01
2,2,4-Trimethylpentane		0.08	0.02	< 0.02	< 0.02	< 0.02	0.01
2,2-Dimethylbutane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
2,3,4-Trimethylpentane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
2,3-Dimethylbutane		< 0.09	< 0.09	< 0.09	< 0.09	< 0.09	0.02
2,3-Dimethylpentane		0.11	0.02	< 0.02	< 0.02	< 0.02	0.02
2,4-Dimethylpentane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
2-Methylheptane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
2-Methylhexane		0.12	< 0.03	< 0.03	< 0.03	< 0.03	0.01
2-Methylpentane		0.06	0.02	< 0.02	< 0.02	< 0.02	0.01
3-Methylheptane		0.07	< 0.03	< 0.03	< 0.03	< 0.03	0.02
3-Methylhexane		0.18	0.03	< 0.02	< 0.02	< 0.02	0.02
3-Methylpentane		0.05	0.03	< 0.02	< 0.02	< 0.02	0.01
Acetone	2400	7.8	2.5	3.1	5.5	10.2	0.4
Acrolein	1.9	< 0.3	< 0.3	< 0.3	< 0.3	0.3	0.3
Benzene	9.0	0.08	0.05	0.05	< 0.03	< 0.03	0.01
Benzyl chloride		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Bromodichloromethane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02
Bromoform		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Bromomethane		0.05	< 0.02	< 0.02	< 0.02	0.05	0.01
Carbon disulfide	10	0.07	< 0.02	< 0.02	< 0.02	< 0.02	0.01
Carbon tetrachloride		0.09	0.04	0.03	0.18	0.05	0.01
Chlorobenzene		0.06	< 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		1.03	0.52	0.64	< 0.04	0.48	0.02
cis-1,2-Dichloroethene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
cis-1,3-Dichloropropene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.04
cis-2-Butene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02
cis-2-Pentene		0.04	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Cyclohexane		0.13	< 0.04	< 0.04	< 0.04	< 0.04	0.02
Cyclopentane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
Dibromochloromethane		0.07	< 0.02	< 0.02	< 0.02	< 0.02	0.01
Ethanol		4.7	1	3.4	< 0.5	2.5	0.3
Ethyl acetate		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Ethylbenzene	460	0.05	< 0.03	< 0.03	< 0.03	< 0.03	0.01
Freon-11		0.35	0.12	0.15	0.23	0.73	0.02
Freon-113		0.09	0.04	0.04	< 0.02	0.08	0.01
Freon-114		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - June 2022

Volatile Organic Compounds (VOCs) Results

Sample Date		2022-06-04	2022-06-10	2022-06-16	2022-06-22	2022-06-28
Canister ID		32273	28886	29029	32272	28932
Method		AC-058	AC-058	AC-058	AC-058	AC-058
Maximum Reading (ppbv)		7.8	2.5	3.4	5.5	10.2
Parameter		Acetone	Acetone	Ethanol	Acetone	Acetone

Parameter	AAAQOs (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	RDL (ppbv)
Freon-12		1.29	0.43	0.47	< 0.03	0.48	0.02
Hexachloro-1,3-butadiene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.5
Isobutane		0.38	0.31	0.09	0.63	0.08	0.02
Isopentane		0.37	0.25	0.05	< 0.04	0.29	0.03
Isoprene		0.21	0.05	0.13	0.51	0.33	0.01
Isopropyl alcohol		< 0.3	< 0.3	0.5	< 0.3	< 0.3	0.4
Isopropylbenzene		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.01
m,p-Xylene		0.06	< 0.04	< 0.04	0.17	< 0.04	0.03
m-Diethylbenzene		0.06	< 0.02	< 0.02	< 0.02	< 0.02	0.04
m-Ethyltoluene		0.08	< 0.03	< 0.03	< 0.03	< 0.03	0.08
Methyl butyl ketone		1.9	< 0.4	< 0.4	< 0.4	< 0.4	0.5
Methyl ethyl ketone		0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Methyl isobutyl ketone		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Methyl methacrylate		< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	0.07
Methyl tert butyl ether		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
Methylcyclohexane		0.16	< 0.02	< 0.02	< 0.02	< 0.02	0.01
Methylcyclopentane		0.07	< 0.05	< 0.05	< 0.05	< 0.05	0.02
Methylene chloride		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
n-Butane		0.54	0.47	0.1	0.31	0.19	0.03
n-Decane		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.06
n-Dodecane		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
n-Heptane		0.22	< 0.04	< 0.04	< 0.04	< 0.04	0.01
n-Hexane	5960	0.07	0.04	< 0.03	< 0.03	< 0.03	0.01
n-Nonane		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.01
n-Octane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
n-Pentane		0.11	0.29	0.05	0.14	0.10	0.1
n-Propylbenzene		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.05
n-Undecane		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.5
Naphthalene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.5
o-Ethyltoluene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
o-Xylene		0.08	< 0.03	< 0.03	< 0.03	< 0.03	0.01
p-Diethylbenzene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
p-Ethyltoluene		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.07
Styrene	52.0	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.04
Tetrachloroethylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
Tetrahydrofuran		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Toluene	499	0.09	0.03	< 0.03	0.12	0.22	0.01
trans-1,2-Dichloroethylene		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.01
trans-1,3-Dichloropropylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
trans-2-Butene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
trans-2-Pentene		0.03	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Trichloroethylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
Vinyl acetate		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Vinyl chloride	51	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02

PAHS

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - June 2022

Polycyclic Aromatic Hydrocarbons (PAHs) Results

Sample Date	2022-06-04		2022-06-10		2022-06-16		2022-06-22		2022-06-28	
PUF S/N	A13-02		TE-01		TE-07		P13-01		9801	
Volume (Vstd m^3)	330.2		307.44		330.32		330.41		330.40	
Method	AC-066		AC-066		AC-066		AC-066		AC-066	
Maximum Reading	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3
	0.25	0.76	0.21	0.68	0.33	1.00	0.38	1.15	0.27	0.82
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	0.01	0.03	0.02	0.07	0.03	0.09	< 0.01	0.00	0.02	0.06	0.01
2-Methylnaphthalene	0.02	0.06	0.02	0.07	0.04	0.12	< 0.01	0.00	0.04	0.12	0.01
3-Methylcholanthrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
7,12-Dimethylbenz(a)anthracene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Acenaphthene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.02	0.06	0.01	0.03	0.01
Acenaphthylene	0.02	0.06	< 0.01	0.00	0.01	0.03	0.01	0.03	0.03	0.09	0.01
Acridine	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Anthracene	0.02	0.06	0.03	0.10	0.02	0.06	0.03	0.09	0.04	0.12	0.01
Benzo(a)anthracene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Benzo(a)pyrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Benzo(b,j,k)fluoranthene	0.01	0.03	< 0.01	0.00	0.02	0.06	0.01	0.03	0.02	0.06	0.01
Benzo(c)phenanthrene	0.10	0.30	< 0.01	0.00	< 0.01	0.00	0.11	0.33	0.24	0.73	0.01
Benzo(e)pyrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Benzo(ghi)perylene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Chrysene	< 0.01	0.00	< 0.01	0.00	0.01	0.03	< 0.01	0.00	< 0.01	0.00	0.01
Dibenzo(a,h)pyrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Dibenzo(a,i)pyrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Dibenzo(a,l)pyrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Dibenzo(ah)anthracene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Fluoranthene	0.06	0.18	0.04	0.13	0.06	0.18	0.07	0.21	0.06	0.18	0.01
Fluorene	0.04	0.12	0.03	0.10	0.02	0.06	0.04	0.12	0.06	0.18	0.01
Indeno(1,2,3-cd)pyrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Naphthalene	0.01	0.03	< 0.01	0.00	0.04	0.12	< 0.01	0.00	0.01	0.03	0.01
Perylene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Phenanthrene	0.25	0.76	0.21	0.68	0.33	1.00	0.38	1.15	0.27	0.82	0.01
Pyrene	0.05	0.15	0.03	0.10	0.04	0.12	0.05	0.15	0.05	0.15	0.01
Retene	0.11	0.33	0.02	0.07	0.26	0.79	0.18	0.54	0.13	0.39	0.01

PARTISOLS

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - June 2022

Partisol Results - $PM_{2.5}$

Sample Date		2022-06-04		2022-06-10		2022-06-16		2022-06-22		2022-06-28		
Filter #		C9460881		C9460899		C9460895		C9460882		C9460873		
Volume (Vstd m^3)		20.6		20.8		20.8		21.4		21.5		
Method		AC-029		AC-029		AC-029		AC-029		AC-029		
Parameter	**AAAQO (mg/m3)**	**Result (mg)**	**Result (mg/m^3)**	**Result (mg)**	**Result (mg/m^3)**	**Result (mg)**	**Result (mg/m^3)**	**Result (mg)**	**Result (mg/m^3)**	**Result (mg)**	**Result (mg/m^3)**	**RDL (mg)**
Particulate Matter	0.029	**0.094**	**0.005**	**0.109**	**0.005**	**0.121**	**0.006**	**0.218**	**0.010**	**0.036**	**0.002**	0.004

PM2.5 Mass in ug/m3			**4.563**		**5.240**		**5.817**		**10.187**		**1.674**	
RDL in ug/m3			**0.194**		**0.192**		**0.192**		**0.187**		**0.186**	

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - June 2022

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

Sample Date	**2022-06-04**	**2022-06-10**	**2022-06-16**	**2022-06-22**	**2022-06-28**
Filter #	**C9460880**	**C9460900**	**C9460896**	**C9460883**	**C9460887**
Volume (Vstd m^3)	**2.30**	**2.31**	**2.31**	**2.40**	**2.39**
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	**0.031**	**0.013**	**<0.004**	**0.000**	**0.009**	**0.004**	**0.150**	**0.063**	**0.009**	**0.004**	0.004

PM2.5-10 Mass in ug/m3	**13.478**	**1.732**	**3.896**	**62.500**	**3.766**
RDL in ug/m3	**1.739**	**1.732**	**1.732**	**1.667**	**1.674**

PASSIVE SAMPLES

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

June 2022

Passive Results

	H_2S		NO_2		O_3		SO_2	
Minimum (ppb)	0.06	#13	0.1	#23	23.5	#16	0.1	#23
Maximum (ppb)	0.58	#27	3.3	#6	43.4	#17	0.7	#14
Average (ppb)	0.27	-	0.92	-	29.67	-	0.33	-

No.	Station	Sample	Duplicate	Sample	Duplicate	Sample	Duplicate	Sample	Duplicate
3	Therien	0.34		0.8		25.5		0.3	
4	Flat Lake	-		0.9		30.7		0.3	
5	Lake Eliza	0.50		0.7		34.0		0.3	
6	Telegraph Creek	-		3.3		30.3		0.5	
8	Muriel-Kehewin	-		0.6		32.8		0.5	
9	Dupre	-		1.5		27.7		0.3	
10	La Corey	0.31		2.1		28.3		0.3	
11	Wolf Lake	0.12		0.4		23.8		0.3	
12	Foster Creek	0.08		0.2		26.2		0.2	
13	Primrose	0.06		0.3		26.8		0.2	
14	Tamarack	0.30		0.7		34.6		0.7	
15	Ardmore	-		1.7	1.2	25.8	28.6	0.4	
16	Frog Lake	0.21		0.6	0.6	23.5	32.7	0.3	
17	Clear Range	0.34		1.0		43.4		0.4	
18	Fishing Lake	0.15		0.7		23.6		0.2	
19	Beaverdam	-		0.6		30.8		0.2	
22	Cold Lake South (1)	0.21		0.7		29.5		0.3	
23	Medley-Martineau	-		0.1		27.8		0.1	0.3
24	Fort George	0.26		1.0		32.8		0.3	
25	Burnt Lake	Missing 1		-		-		Missing 1	
26	Mahihkan	0.17		-		-		0.5	
27	Mahkeses	0.58		-		-		0.6	0.7
28	Town of Bonnyville	-		1.8		26.6		0.3	
29	Cold Lake South (2)	0.21		0.4		32.9		0.3	
32	St. Lina	0.37	0.38	0.4		34.1		0.3	
42	Lac La Biche	0.36	0.37	0.7		30.9		0.2	
Reportable Detection Limit (RDL)		**0.02**		**0.1**		**0.1**		**0.1**	

Note:

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

2 Missing 1: Access to the station was not possible due to lack of permit to access the stations.

3 Blank (Duplicate): no duplicate sample was taken.

End of Report

Lakeland Industry & Community Association

JUNE 2022

Ambient Air Monitoring

Certified Laboratory Analysis Report

LAB-LICA-202206

Operation and Maintenance:
Bureau Veritas Canada

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

July 27, 2022

Table of Contents

Cold Lake South Station

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

Sample ID: 22060136-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/June 4, 2022

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JUN 14 2022

Maxxam Analytics

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

Client:	LICA	**Sampler S/N:**	6200
Location:	Cold Lake South	**Canister ID:**	32273
Station ID:	LICA 01	**Installation Date/Time (mst):**	June 3, 2022 @ 10:40
Sample ID:	LICA/VOC/CLS/June 4, 2022	**Removal Date/Time (mst):**	June 7, 2022@ 18:12

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
June 4, 2022	0:00	23:59	24

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.0	19.5

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

Deployment/Collection and Maintenance Checklist

Initial leak check deployment vacuum (in. Hg) =	n/a	@	n/a	mst	**Leak rate must be 0.0 psi over a minimum of 5 minutes or repair is required**
Final leak check deployment vacuum (in. Hg) =	n/a	@	n/a	mst	
Total leak rate =	n/a	psi over	n/a	minutes	
Timer reset to zero prior to sampling?	YES	(yes/no)			
Date of last audit:	March 25, 2022	(due every 3 months)			
Last date of sample line purging / replacement:	March 25, 2022	(due every 6 months)			

Comments: n/a

Deployment Technician Signature: Christopher Wesson

Collection Technician Signature: Ferdinand Roy

ample ID: 22060136-002 Priority: Normal

ustomer ID: LICA

ust Samp ID: LICA/PUF/CLS/June 4, 2022

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JUN 14 2022

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	A13-02
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	June 3, 2022 @ 11:36
Field Sample ID:	LICA/PUF/CLS/June 4, 2022	**Removal Date/Time:**	June 7, 2022 @ 19:23

Sample Data Collection Information

Sample Date:	4-Jun-22	**Average Pressure (mmHg)**	709
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	19.6
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.2

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
Date of last calibration/audit:	**25-Mar-22**	
Other observations?		n/a

Deployed By:	Christopher Wesson
Collected By:	Ferdinand Roy

InnoTech ALBERTA

Canister ID: ~~28913~~ 32273 CO 3 Nov 03, 2022

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: _____ on: 22Feb22

Evacuated: FEB 2 5 2022 Recertified: MAR 0 8 2022

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

Laboratory Contact Number: 780-632-8403

Sample ID: ~~32273~~ LICA/VOC/CLS/June 4, 2022

Sampled By: Ferdinand Roy

Starting Vacuum: -27 "Hg

End Vacuum: 19.5 "Hg/psig KG 21

InnoTech ALBERTA

Canister ID: A13-02

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: _____ on: _____

Evacuated: _____ Recertified: _____

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

Laboratory Contact Number: 780-632-8403

PUF

Sample ID: LICA/PUF/CLS/June 4, 202

Sampled By: Ferdinand Roy

Starting Vacuum: _____ "Hg

End Vacuum: _____ "Hg/psig

Sample ID: 22060136-002 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/PUF/CLS/June 4, 2022

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID: LICA/PUF/CLS/June 4, 2022
Matrix: Air Filter
CANISTER ID: A13-02
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 04-Jun-22 0:00
DATE RECEIVED: 14-Jun-22
REPORT CREATED: 21-Jul-22
REPORT NUMBER: 22060136
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22060136-002	1-Methylnaphthalene		0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060136-002	2-Methylnaphthalene		0.02	ug/Filter	0.01	AC-066	16-Jul-22
22060136-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060136-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060136-002	Acenaphthene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060136-002	Acenaphthylene		0.02	ug/Filter	0.01	AC-066	16-Jul-22
22060136-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060136-002	Anthracene		0.02	ug/Filter	0.01	AC-066	16-Jul-22
22060136-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060136-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060136-002	Benzo(b,j,k)fluoranthene		0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060136-002	Benzo(c)phenanthrene		0.10	ug/Filter	0.01	AC-066	16-Jul-22
22060136-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060136-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060136-002	Chrysene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060136-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060136-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060136-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 21, 2022

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/June 4, 2022	A13-02	Air Filter	04-Jun-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22060136 **REPORT CREATED:** 21-Jul-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22060136-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060136-002	Fluoranthene		0.06	ug/Filter	0.01	AC-066	16-Jul-22
22060136-002	Fluorene		0.04	ug/Filter	0.01	AC-066	16-Jul-22
22060136-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060136-002	Naphthalene		0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060136-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060136-002	Phenanthrene		0.25	ug/Filter	0.01	AC-066	16-Jul-22
22060136-002	Pyrene		0.05	ug/Filter	0.01	AC-066	16-Jul-22
22060136-002	Retene		0.11	ug/Filter	0.01	AC-066	16-Jul-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 21, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/June 4, 2022	32273	Ambient Air	04-Jun-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22060136 **REPORT CREATED:** 21-Jul-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22060136-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Jun-22
22060136-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Jun-22
22060136-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Jun-22
22060136-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Jun-22
22060136-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Jun-22
22060136-001	1,2,3-Trimethylbenzene	I	0.08	ppbv	0.05	AC-058	14-Jun-22
22060136-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Jun-22
22060136-001	1,2,4-Trimethylbenzene	I	0.07	ppbv	0.03	AC-058	14-Jun-22
22060136-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Jun-22
22060136-001	1,2-Dichlorobenzene	I	0.09	ppbv	0.03	AC-058	14-Jun-22
22060136-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Jun-22
22060136-001	1,2-Dichloropropane	I	0.06	ppbv	0.03	AC-058	14-Jun-22
22060136-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Jun-22
22060136-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Jun-22
22060136-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	14-Jun-22
22060136-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	14-Jun-22
22060136-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	14-Jun-22
22060136-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	14-Jun-22
22060136-001	1-Hexene/2-Methyl-1-pentene	I	0.10	ppbv	0.07	AC-058	14-Jun-22
22060136-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Jun-22
22060136-001	2,2,4-Trimethylpentane	I	0.08	ppbv	0.02	AC-058	14-Jun-22
22060136-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Jun-22
22060136-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Jun-22
22060136-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	14-Jun-22
22060136-001	2,3-Dimethylpentane		0.11	ppbv	0.02	AC-058	14-Jun-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 21, 2022

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/June 4, 2022	32273	Ambient Air	04-Jun-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22060136 **REPORT CREATED:** 21-Jul-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22060136-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Jun-22
22060136-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Jun-22
22060136-001	2-Methylhexane		0.12	ppbv	0.03	AC-058	14-Jun-22
22060136-001	2-Methylpentane	I	0.06	ppbv	0.02	AC-058	14-Jun-22
22060136-001	3-Methylheptane	I	0.07	ppbv	0.03	AC-058	14-Jun-22
22060136-001	3-Methylhexane		0.18	ppbv	0.02	AC-058	14-Jun-22
22060136-001	3-Methylpentane	I	0.05	ppbv	0.02	AC-058	14-Jun-22
22060136-001	Acetone		7.8	ppbv	0.4	AC-058	14-Jun-22
22060136-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Jun-22
22060136-001	Benzene	I	0.08	ppbv	0.03	AC-058	14-Jun-22
22060136-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Jun-22
22060136-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Jun-22
22060136-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Jun-22
22060136-001	Bromomethane	I	0.05	ppbv	0.02	AC-058	14-Jun-22
22060136-001	Carbon disulfide	I	0.07	ppbv	0.02	AC-058	14-Jun-22
22060136-001	Carbon tetrachloride	I	0.09	ppbv	0.02	AC-058	14-Jun-22
22060136-001	Chlorobenzene	I	0.06	ppbv	0.02	AC-058	14-Jun-22
22060136-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Jun-22
22060136-001	Chloroform	I	0.02	ppbv	0.02	AC-058	14-Jun-22
22060136-001	Chloromethane		1.03	ppbv	0.04	AC-058	14-Jun-22
22060136-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Jun-22
22060136-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Jun-22
22060136-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Jun-22
22060136-001	cis-2-Pentene	I	0.04	ppbv	0.02	AC-058	14-Jun-22
22060136-001	Cyclohexane	I	0.13	ppbv	0.04	AC-058	14-Jun-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 21, 2022

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/June 4, 2022	32273	Ambient Air	04-Jun-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22060136 **REPORT CREATED:** 21-Jul-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22060136-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Jun-22
22060136-001	Dibromochloromethane	I	0.07	ppbv	0.02	AC-058	14-Jun-22
22060136-001	Ethanol		4.7	ppbv	0.5	AC-058	14-Jun-22
22060136-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Jun-22
22060136-001	Ethylbenzene	I	0.05	ppbv	0.03	AC-058	14-Jun-22
22060136-001	Freon-11		0.35	ppbv	0.02	AC-058	14-Jun-22
22060136-001	Freon-113	I	0.09	ppbv	0.02	AC-058	14-Jun-22
22060136-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Jun-22
22060136-001	Freon-12		1.29	ppbv	0.03	AC-058	14-Jun-22
22060136-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Jun-22
22060136-001	Isobutane		0.38	ppbv	0.03	AC-058	14-Jun-22
22060136-001	Isopentane		0.37	ppbv	0.04	AC-058	14-Jun-22
22060136-001	Isoprene		0.21	ppbv	0.02	AC-058	14-Jun-22
22060136-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Jun-22
22060136-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	14-Jun-22
22060136-001	m,p-Xylene	I	0.06	ppbv	0.04	AC-058	14-Jun-22
22060136-001	m-Diethylbenzene	I	0.06	ppbv	0.02	AC-058	14-Jun-22
22060136-001	m-Ethyltoluene	I	0.08	ppbv	0.03	AC-058	14-Jun-22
22060136-001	Methyl butyl ketone		1.9	ppbv	0.4	AC-058	14-Jun-22
22060136-001	Methyl ethyl ketone	I	0.3	ppbv	0.3	AC-058	14-Jun-22
22060136-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Jun-22
22060136-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	14-Jun-22
22060136-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Jun-22
22060136-001	Methylcyclohexane		0.16	ppbv	0.02	AC-058	14-Jun-22
22060136-001	Methylcyclopentane	I	0.07	ppbv	0.05	AC-058	14-Jun-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 21, 2022

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/June 4, 2022	32273	Ambient Air	04-Jun-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22060136 **REPORT CREATED:** 21-Jul-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22060136-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Jun-22
22060136-001	n-Butane		0.54	ppbv	0.02	AC-058	14-Jun-22
22060136-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	14-Jun-22
22060136-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Jun-22
22060136-001	n-Heptane		0.22	ppbv	0.04	AC-058	14-Jun-22
22060136-001	n-Hexane	I	0.07	ppbv	0.03	AC-058	14-Jun-22
22060136-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Jun-22
22060136-001	n-Pentane		0.11	ppbv	0.04	AC-058	14-Jun-22
22060136-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	14-Jun-22
22060136-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	14-Jun-22
22060136-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Jun-22
22060136-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	14-Jun-22
22060136-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Jun-22
22060136-001	o-Xylene	I	0.08	ppbv	0.03	AC-058	14-Jun-22
22060136-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Jun-22
22060136-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	14-Jun-22
22060136-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	14-Jun-22
22060136-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Jun-22
22060136-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Jun-22
22060136-001	Toluene	I	0.09	ppbv	0.03	AC-058	14-Jun-22
22060136-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	14-Jun-22
22060136-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Jun-22
22060136-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Jun-22
22060136-001	trans-2-Pentene	I	0.03	ppbv	0.02	AC-058	14-Jun-22
22060136-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Jun-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 21, 2022

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/June 4, 2022	32273	Ambient Air	04-Jun-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22060136 **REPORT CREATED:** 21-Jul-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22060136-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Jun-22
22060136-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Jun-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 21, 2022

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

Revision History

Order ID	Ver	Date	Reason
22060136	01	21-Jul-22	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

Qualifiers

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

Order Comments

Sample Comments

Result Comments

Note:

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

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

Sample ID 22060203-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/June 10, 2022

RECEIVED
JUN 17 2022

Maxxam Analytics

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

Client:	LICA	**Sampler S/N:**	6200
Location:	Cold Lake South	**Canister ID:**	28886
Station ID:	LICA 01	**Installation Date/Time (mst):**	Jun 07, 2022 @ 18:14
Sample ID:	LICA/VOC/CLS/Jun 10, 2022	**Removal Date/Time (mst):**	June 14, 2022@ 17:24

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
June 10, 2022	0:00	23:59	24

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.6	19.1

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

Deployment/Collection and Maintenance Checklist

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

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

Total leak rate = n/a psi over n/a minutes

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

Timer reset to zero prior to sampling? YES (yes/no)

Date of last audit: March 25, 2022 (due every 3 months)

Last date of sample line purging / replacement: March 25, 2022 (due every 6 months)

Comments: n/a

Deployment Technician Signature: Ferdinand Roy

Collection Technician Signature: Alex Yakupov

AIR **Sample ID** 22060203-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/June 10, 2022

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JUN 17 2022

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	TE-01
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Jun 07, 2022 @ 19:23
Field Sample ID:	LICA/PUF/CLS/Jun 10, 2022	**Removal Date/Time:**	June 14, 2022 @ 17:30

Sample Data Collection Information

Sample Date:	10-Jun-22	**Average Pressure (mmHg)**	703
Start Time (mst):	0:00	**Average Flow (Q_{std})**	214
End Time (mst):	23:59	**Average Tempurature (°C)**	17.3
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	307.44

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
Date of last calibration/audit:	**25-Mar-22**	
Other observations?		n/a

Deployed By:	Ferdinand Roy
Collected By:	Alex Yakupov

InnoTech ALBERTA

Canister ID: 28886

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: _____ on: MAR 24 2022

Evacuated: APR 13 2022 Recertified: MAY 03 2022

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Jun 10, 2022

Sampled By: Alex Yakupov

20psi JWP

Starting Vacuum:	End Vacuum:
-27.6 "Hg	+19.1 "Hg/psig

Sample ID 22060203-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/June 10, 2022

InnoTech ALBERTA

Canister ID: TE-01

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: _____ on: _____

Evacuated: _____ Recertified: _____

PUF

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/PUF/CLS/Jun 10, 2022

Sampled By: Alex Yakupov

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID: LICA/PUF/CLS/June 10, 2022
Matrix: Air Filter
CANISTER ID: Te-01
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 10-Jun-22 0:00
DATE RECEIVED: 17-Jun-22
REPORT CREATED: 21-Jul-22
REPORT NUMBER: 22060203
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22060203-002	1-Methylnaphthalene		0.02	ug/Filter	0.01	AC-066	16-Jul-22
22060203-002	2-Methylnaphthalene		0.02	ug/Filter	0.01	AC-066	16-Jul-22
22060203-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060203-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060203-002	Acenaphthene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060203-002	Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060203-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060203-002	Anthracene		0.03	ug/Filter	0.01	AC-066	16-Jul-22
22060203-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060203-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060203-002	Benzo(b,j,k)fluoranthene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060203-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060203-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060203-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060203-002	Chrysene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060203-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060203-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060203-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 21, 2022

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/June 10, 2022	Te-01	Air Filter	10-Jun-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22060203 **REPORT CREATED:** 21-Jul-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22060203-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060203-002	Fluoranthene		0.04	ug/Filter	0.01	AC-066	16-Jul-22
22060203-002	Fluorene		0.03	ug/Filter	0.01	AC-066	16-Jul-22
22060203-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060203-002	Naphthalene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060203-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060203-002	Phenanthrene		0.21	ug/Filter	0.01	AC-066	16-Jul-22
22060203-002	Pyrene		0.03	ug/Filter	0.01	AC-066	16-Jul-22
22060203-002	Retene		0.02	ug/Filter	0.01	AC-066	16-Jul-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 21, 2022

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/June 10, 2022	28886	Ambient Air	10-Jun-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22060203 **REPORT CREATED:** 21-Jul-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22060203-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jun-22
22060203-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jun-22
22060203-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jun-22
22060203-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jun-22
22060203-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jun-22
22060203-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	21-Jun-22
22060203-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	21-Jun-22
22060203-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Jun-22
22060203-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jun-22
22060203-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Jun-22
22060203-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Jun-22
22060203-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Jun-22
22060203-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Jun-22
22060203-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Jun-22
22060203-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	21-Jun-22
22060203-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	21-Jun-22
22060203-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	21-Jun-22
22060203-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	21-Jun-22
22060203-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	21-Jun-22
22060203-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Jun-22
22060203-001	2,2,4-Trimethylpentane	I	0.02	ppbv	0.02	AC-058	21-Jun-22
22060203-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jun-22
22060203-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jun-22
22060203-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	21-Jun-22
22060203-001	2,3-Dimethylpentane	I	0.02	ppbv	0.02	AC-058	21-Jun-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 21, 2022

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/June 10, 2022	28886	Ambient Air	10-Jun-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22060203 **REPORT CREATED:** 21-Jul-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22060203-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Jun-22
22060203-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jun-22
22060203-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Jun-22
22060203-001	2-Methylpentane	I	0.02	ppbv	0.02	AC-058	21-Jun-22
22060203-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Jun-22
22060203-001	3-Methylhexane	I	0.03	ppbv	0.02	AC-058	21-Jun-22
22060203-001	3-Methylpentane	I	0.03	ppbv	0.02	AC-058	21-Jun-22
22060203-001	Acetone		2.5	ppbv	0.4	AC-058	21-Jun-22
22060203-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	21-Jun-22
22060203-001	Benzene	I	0.05	ppbv	0.03	AC-058	21-Jun-22
22060203-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	21-Jun-22
22060203-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Jun-22
22060203-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jun-22
22060203-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jun-22
22060203-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jun-22
22060203-001	Carbon tetrachloride	I	0.04	ppbv	0.02	AC-058	21-Jun-22
22060203-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jun-22
22060203-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jun-22
22060203-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jun-22
22060203-001	Chloromethane		0.52	ppbv	0.04	AC-058	21-Jun-22
22060203-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jun-22
22060203-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Jun-22
22060203-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Jun-22
22060203-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jun-22
22060203-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	21-Jun-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 21, 2022

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/June 10, 2022	28886	Ambient Air	10-Jun-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22060203 **REPORT CREATED:** 21-Jul-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22060203-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jun-22
22060203-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jun-22
22060203-001	Ethanol	I	1.0	ppbv	0.5	AC-058	21-Jun-22
22060203-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	21-Jun-22
22060203-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Jun-22
22060203-001	Freon-11		0.12	ppbv	0.02	AC-058	21-Jun-22
22060203-001	Freon-113	I	0.04	ppbv	0.02	AC-058	21-Jun-22
22060203-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Jun-22
22060203-001	Freon-12		0.43	ppbv	0.03	AC-058	21-Jun-22
22060203-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	21-Jun-22
22060203-001	Isobutane		0.31	ppbv	0.03	AC-058	21-Jun-22
22060203-001	Isopentane		0.25	ppbv	0.04	AC-058	21-Jun-22
22060203-001	Isoprene	I	0.05	ppbv	0.02	AC-058	21-Jun-22
22060203-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	21-Jun-22
22060203-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	21-Jun-22
22060203-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	21-Jun-22
22060203-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jun-22
22060203-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Jun-22
22060203-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	21-Jun-22
22060203-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	21-Jun-22
22060203-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	21-Jun-22
22060203-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	21-Jun-22
22060203-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Jun-22
22060203-001	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jun-22
22060203-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	21-Jun-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 21, 2022

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/June 10, 2022	28886	Ambient Air	10-Jun-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22060203 **REPORT CREATED:** 21-Jul-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22060203-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	21-Jun-22
22060203-001	n-Butane		0.47	ppbv	0.02	AC-058	21-Jun-22
22060203-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	21-Jun-22
22060203-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	21-Jun-22
22060203-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	21-Jun-22
22060203-001	n-Hexane	I	0.04	ppbv	0.03	AC-058	21-Jun-22
22060203-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jun-22
22060203-001	n-Pentane		0.29	ppbv	0.04	AC-058	21-Jun-22
22060203-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	21-Jun-22
22060203-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	21-Jun-22
22060203-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	21-Jun-22
22060203-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	21-Jun-22
22060203-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jun-22
22060203-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Jun-22
22060203-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jun-22
22060203-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	21-Jun-22
22060203-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	21-Jun-22
22060203-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jun-22
22060203-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	21-Jun-22
22060203-001	Toluene	I	0.03	ppbv	0.03	AC-058	21-Jun-22
22060203-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	21-Jun-22
22060203-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jun-22
22060203-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	21-Jun-22
22060203-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jun-22
22060203-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jun-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 21, 2022

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/June 10, 2022	28886	Ambient Air	10-Jun-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22060203 **REPORT CREATED:** 21-Jul-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22060203-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	21-Jun-22
22060203-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	21-Jun-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 21, 2022

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

Revision History

Order ID	Ver	Date	Reason
22060203	01	21-Jul-22	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

Qualifiers

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

Order Comments

Sample Comments

Result Comments

Note:

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

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

Sample ID: 22060256-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/June 16, 2022

Maxxam Analytics

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

Client:	LICA	**Sampler S/N:**	6200
Location:	Cold Lake South	**Canister ID:**	29029
Station ID:	LICA 01	**Installation Date/Time (mst):**	Jun 14, 2022 @ 17:42
Sample ID:	LICA/VOC/CLS/Jun 16, 2022	**Removal Date/Time (mst):**	June 20, 2022@ 18:57

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
June 16, 2022	0:00	23:59	24

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.9	19.1

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

Deployment/Collection and Maintenance Checklist

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

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

Total leak rate = n/a psi over n/a minutes

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

Timer reset to zero prior to sampling? YES (yes/no)

Date of last audit: March 25, 2022 (due every 3 months)

Last date of sample line purging / replacement: March 25, 2022 (due every 6 months)

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 22060256-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/June 16, 2022

RECEIVED
JUN 22 2022

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	TE-07
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Jun 14, 2022 @ 17:44
Field Sample ID:	LICA/PUF/CLS/Jun 16, 2022	**Removal Date/Time:**	June 20, 2022 @ 19:01

Sample Data Collection Information

Sample Date:	16-Jun-22	**Average Pressure (mmHg)**	711
Start Time (mst):	0:00	**Average Flow (Q_{std})**	299
End Time (mst):	23:59	**Average Tempurature (°C)**	18.2
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.32

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
Date of last calibration/audit:	**25-Mar-22**	
Other observations?		n/a

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

InnoTech ALBERTA

Canister ID: 29029

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: _____ on: MAR 24 2022

Evacuated: APR 13 2022 Recertified: MAY 03 2022

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CCS/Jun 16, 2022

Sampled By: Alex Yacunov

Starting Vacuum: -27.9 "Hg

End Vacuum: -19.1 "Hg/psig 20 KG

InnoTech ALBERTA

Canister ID: TE-07

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: PVF on: _____

Evacuated: _____ Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/PUF/CCS/Jun 16, 2022

Sampled By: Alex Yacunov

Starting Vacuum: _____ "Hg

End Pressure: _____ "Hg/ psig

Sample ID: 22060256-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/June 16, 2022

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID: LICA/PUF/CLS/June 16, 2022
Matrix: Air Filter
CANISTER ID: TE-07
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 16-Jun-22 0:00
DATE RECEIVED: 22-Jun-22
REPORT CREATED: 21-Jul-22
REPORT NUMBER: 22060256
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22060256-002	1-Methylnaphthalene		0.03	ug/Filter	0.01	AC-066	16-Jul-22
22060256-002	2-Methylnaphthalene		0.04	ug/Filter	0.01	AC-066	16-Jul-22
22060256-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060256-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060256-002	Acenaphthene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060256-002	Acenaphthylene		0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060256-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060256-002	Anthracene		0.02	ug/Filter	0.01	AC-066	16-Jul-22
22060256-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060256-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060256-002	Benzo(b,j,k)fluoranthene		0.02	ug/Filter	0.01	AC-066	16-Jul-22
22060256-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060256-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060256-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060256-002	Chrysene		0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060256-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060256-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060256-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 21, 2022

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/June 16, 2022	TE-07	Air Filter	16-Jun-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22060256 **REPORT CREATED:** 21-Jul-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22060256-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060256-002	Fluoranthene		0.06	ug/Filter	0.01	AC-066	16-Jul-22
22060256-002	Fluorene		0.02	ug/Filter	0.01	AC-066	16-Jul-22
22060256-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060256-002	Naphthalene		0.04	ug/Filter	0.01	AC-066	16-Jul-22
22060256-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22060256-002	Phenanthrene		0.33	ug/Filter	0.01	AC-066	16-Jul-22
22060256-002	Pyrene		0.04	ug/Filter	0.01	AC-066	16-Jul-22
22060256-002	Retene		0.26	ug/Filter	0.01	AC-066	16-Jul-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 21, 2022

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/June 16, 2022	29029	Ambient Air	16-Jun-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22060256 **REPORT CREATED:** 21-Jul-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22060256-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Jun-22
22060256-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Jun-22
22060256-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Jun-22
22060256-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Jun-22
22060256-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Jun-22
22060256-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	28-Jun-22
22060256-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	28-Jun-22
22060256-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Jun-22
22060256-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Jun-22
22060256-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Jun-22
22060256-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Jun-22
22060256-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Jun-22
22060256-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Jun-22
22060256-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Jun-22
22060256-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	28-Jun-22
22060256-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	28-Jun-22
22060256-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	28-Jun-22
22060256-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	28-Jun-22
22060256-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	28-Jun-22
22060256-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Jun-22
22060256-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Jun-22
22060256-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Jun-22
22060256-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Jun-22
22060256-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	28-Jun-22
22060256-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Jun-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 21, 2022

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/June 16, 2022	29029	Ambient Air	16-Jun-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22060256 **REPORT CREATED:** 21-Jul-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22060256-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Jun-22
22060256-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Jun-22
22060256-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Jun-22
22060256-001	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Jun-22
22060256-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Jun-22
22060256-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Jun-22
22060256-001	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Jun-22
22060256-001	Acetone		3.1	ppbv	0.4	AC-058	28-Jun-22
22060256-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	28-Jun-22
22060256-001	Benzene	I	0.05	ppbv	0.03	AC-058	28-Jun-22
22060256-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	28-Jun-22
22060256-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Jun-22
22060256-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Jun-22
22060256-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Jun-22
22060256-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Jun-22
22060256-001	Carbon tetrachloride	I	0.03	ppbv	0.02	AC-058	28-Jun-22
22060256-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Jun-22
22060256-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Jun-22
22060256-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Jun-22
22060256-001	Chloromethane		0.64	ppbv	0.04	AC-058	28-Jun-22
22060256-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Jun-22
22060256-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Jun-22
22060256-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Jun-22
22060256-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Jun-22
22060256-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	28-Jun-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 21, 2022

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/June 16, 2022	29029	Ambient Air	16-Jun-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22060256 **REPORT CREATED:** 21-Jul-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22060256-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Jun-22
22060256-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Jun-22
22060256-001	Ethanol		3.4	ppbv	0.5	AC-058	28-Jun-22
22060256-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	28-Jun-22
22060256-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Jun-22
22060256-001	Freon-11		0.15	ppbv	0.02	AC-058	28-Jun-22
22060256-001	Freon-113	I	0.04	ppbv	0.02	AC-058	28-Jun-22
22060256-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Jun-22
22060256-001	Freon-12		0.47	ppbv	0.03	AC-058	28-Jun-22
22060256-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	28-Jun-22
22060256-001	Isobutane	I	0.09	ppbv	0.03	AC-058	28-Jun-22
22060256-001	Isopentane	I	0.05	ppbv	0.04	AC-058	28-Jun-22
22060256-001	Isoprene		0.13	ppbv	0.02	AC-058	28-Jun-22
22060256-001	Isopropyl alcohol		0.5	ppbv	0.3	AC-058	28-Jun-22
22060256-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	28-Jun-22
22060256-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	28-Jun-22
22060256-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Jun-22
22060256-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Jun-22
22060256-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	28-Jun-22
22060256-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	28-Jun-22
22060256-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	28-Jun-22
22060256-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	28-Jun-22
22060256-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Jun-22
22060256-001	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Jun-22
22060256-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	28-Jun-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 21, 2022

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/June 16, 2022	29029	Ambient Air	16-Jun-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22060256 **REPORT CREATED:** 21-Jul-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22060256-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	28-Jun-22
22060256-001	n-Butane	I	0.10	ppbv	0.02	AC-058	28-Jun-22
22060256-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	28-Jun-22
22060256-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	28-Jun-22
22060256-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	28-Jun-22
22060256-001	n-Hexane	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Jun-22
22060256-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Jun-22
22060256-001	n-Pentane	I	0.05	ppbv	0.04	AC-058	28-Jun-22
22060256-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	28-Jun-22
22060256-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	28-Jun-22
22060256-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	28-Jun-22
22060256-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	28-Jun-22
22060256-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Jun-22
22060256-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Jun-22
22060256-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Jun-22
22060256-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	28-Jun-22
22060256-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	28-Jun-22
22060256-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Jun-22
22060256-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	28-Jun-22
22060256-001	Toluene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Jun-22
22060256-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	28-Jun-22
22060256-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Jun-22
22060256-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	28-Jun-22
22060256-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Jun-22
22060256-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Jun-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 21, 2022

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/June 16, 2022	29029	Ambient Air	16-Jun-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22060256 **REPORT CREATED:** 21-Jul-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22060256-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	28-Jun-22
22060256-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	28-Jun-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 21, 2022

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

Revision History

Order ID	Ver	Date	Reason
22060256	01	21-Jul-22	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

Qualifiers

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

Order Comments

Sample Comments

Result Comments

Note:

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

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

Sample ID: 22070079-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/June 22, 2022

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JUL 08 2022

Maxxam Analytics

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

Client:	LICA	**Sampler S/N:**	6200
Location:	Cold Lake South	**Canister ID:**	32272
Station ID:	LICA 01	**Installation Date/Time (mst):**	Jun 20, 2022 @ 19:05
Sample ID:	LICA/VOC/CLS/Jun 22, 2022	**Removal Date/Time (mst):**	June 27, 2022@ 20:34

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
June 22, 2022	0:00	23:59	24

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.0	19.4

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

Deployment/Collection and Maintenance Checklist

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

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

Total leak rate = n/a psi over n/a minutes

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

Timer reset to zero prior to sampling? YES (yes/no)

Date of last audit: March 25, 2022 (due every 3 months)

Last date of sample line purging / replacement: March 25, 2022 (due every 6 months)

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 22070079-002 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/PUF/CLS/June 22, 2022

RECEIVED
JUL 08 2022

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	P13-01
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Jun 20, 2022 @ 19:07
Field Sample ID:	LICA/PUF/CLS/Jun 22, 2022	**Removal Date/Time:**	June 27, 2022 @ 20:32

Sample Data Collection Information

Sample Date:	22-Jun-22	**Average Pressure (mmHg)**	714
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	21.7
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.41

Sample Recovery Checklist

	(circle one)	
Flow Rate 230 slpm +/- 0.2 slpm ?	**YES**	NO
Average temperature appears correct?	**YES**	NO
Average pressure appears correct?	**YES**	NO
Any error messages? (if yes list below)	YES	**NO**
Sample duration 24 hours?	**YES**	NO
Date of last calibration/audit:	**25-Mar-22**	
Other observations?		n/a

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

Sample ID: 22070079-003 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/June 28, 2022

RECEIVED
JUL 08 2022

Maxxam Analytics

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

Client:	LICA	**Sampler S/N:**	6200
Location:	Cold Lake South	**Canister ID:**	28932
Station ID:	LICA 01	**Installation Date/Time (mst):**	Jun 27, 2022 @ 20:39
Sample ID:	LICA/VOC/CLS/Jun 28, 2022	**Removal Date/Time (mst):**	Jul 03, 2022@ 22:42

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
June 28, 2022	0:00	23:59	24

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	**Final Pressure (psi)**
-27.0	19.0

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

Deployment/Collection and Maintenance Checklist

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

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

Total leak rate = n/a psi over n/a minutes

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

Timer reset to zero prior to sampling? YES (yes/no)

Date of last audit: March 25, 2022 (due every 3 months)

Last date of sample line purging / replacement: March 25, 2022 (due every 6 months)

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 22070079-004 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/PUF/CLS/June 28, 2022

RECEIVED
JUL 08 2022

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	9801
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Jun 27, 2022 @ 20:44
Field Sample ID:	LICA/PUF/CLS/Jun 28, 2022	**Removal Date/Time:**	Jul 03, 2022 @ 22:46

Sample Data Collection Information

Sample Date:	28-Jun-22	**Average Pressure (mmHg)**	714
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	17.8
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.4

Sample Recovery Checklist

	(circle one)	
Flow Rate 230 slpm +/- 0.2 slpm ?	YES	NO
Average temperature appears correct?	YES	NO
Average pressure appears correct?	YES	NO
Any error messages? (if yes list below)	YES	NO
Sample duration 24 hours?	YES	NO
Date of last calibration/audit:	**25-Mar-22**	
Other observations?		n/a

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

Sample ID: 22070079-001 Priority: Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/June 22, 2022

InnoTech ALBERTA

Canister ID: 32272

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: _____ on: FEB 0 8 2022

Evacuated: FEB 1 0 2022 Recertified: MAR 0 8 2022

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CCS/Jun 22/2022

Sampled By: Alex Yampor

Starting Vacuum: -27 "Hg

End Vacuum: +19.4 "Hg/psig 20 KG

InnoTech ALBERTA

Canister ID: P13-01

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: _____ on: _____

Evacuated: _____ Recertified: _____

PUF

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/PUF/CCS/Jun 22/2022

Sampled By: Alex Yampor

Starting Vacuum: _____ "Hg

End Vacuum: _____ "Hg/psig

InnoTech ALBERTA

Canister ID: 28932

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ on: MAY 0 4 2022

Evacuated: MAY 0 5 2022 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Jun 28, 2022

Sampled By: Alex Yakupov

Starting Vacuum: -27.0 "Hg

End Vacuum: +19.0 "Hg/psig 20 KG

InnoTech ALBERTA

Canister ID: PUF 9801

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: _____ on: _____

Evacuated: _____ Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/PUF/CCS/Jun 28, 2022

Sampled By: Alex Yakupov

Starting Vacuum: _____ "Hg

End Vacuum: _____ "Hg/ psig

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID: LICA/PUF/CLS/June 22, 2022
Matrix: Air Filter
CANISTER ID: P13-01
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 22-Jun-22 0:00
DATE RECEIVED: 08-Jul-22
REPORT CREATED: 25-Jul-22
REPORT NUMBER: 22070079
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22070079-002	1-Methylnaphthalene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22070079-002	2-Methylnaphthalene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22070079-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22070079-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22070079-002	Acenaphthene		0.02	ug/Filter	0.01	AC-066	16-Jul-22
22070079-002	Acenaphthylene		0.01	ug/Filter	0.01	AC-066	16-Jul-22
22070079-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22070079-002	Anthracene		0.03	ug/Filter	0.01	AC-066	16-Jul-22
22070079-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22070079-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22070079-002	Benzo(b,j,k)fluoranthene		0.01	ug/Filter	0.01	AC-066	16-Jul-22
22070079-002	Benzo(c)phenanthrene		0.11	ug/Filter	0.01	AC-066	16-Jul-22
22070079-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22070079-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22070079-002	Chrysene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22070079-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22070079-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22070079-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 25, 2022

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

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

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22070079 **REPORT CREATED:** 25-Jul-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22070079-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22070079-002	Fluoranthene		0.07	ug/Filter	0.01	AC-066	16-Jul-22
22070079-002	Fluorene		0.04	ug/Filter	0.01	AC-066	16-Jul-22
22070079-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22070079-002	Naphthalene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22070079-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22070079-002	Phenanthrene		0.38	ug/Filter	0.01	AC-066	16-Jul-22
22070079-002	Pyrene		0.05	ug/Filter	0.01	AC-066	16-Jul-22
22070079-002	Retene		0.18	ug/Filter	0.01	AC-066	16-Jul-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 25, 2022

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/June 28, 2022	9801	Air Filter	28-Jun-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22070079 **REPORT CREATED:** 25-Jul-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22070079-004	1-Methylnaphthalene		0.02	ug/Filter	0.01	AC-066	16-Jul-22
22070079-004	2-Methylnaphthalene		0.04	ug/Filter	0.01	AC-066	16-Jul-22
22070079-004	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22070079-004	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22070079-004	Acenaphthene		0.01	ug/Filter	0.01	AC-066	16-Jul-22
22070079-004	Acenaphthylene		0.03	ug/Filter	0.01	AC-066	16-Jul-22
22070079-004	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22070079-004	Anthracene		0.04	ug/Filter	0.01	AC-066	16-Jul-22
22070079-004	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22070079-004	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22070079-004	Benzo(b,j,k)fluoranthene		0.02	ug/Filter	0.01	AC-066	16-Jul-22
22070079-004	Benzo(c)phenanthrene		0.24	ug/Filter	0.01	AC-066	16-Jul-22
22070079-004	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22070079-004	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22070079-004	Chrysene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22070079-004	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22070079-004	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22070079-004	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22070079-004	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22070079-004	Fluoranthene		0.06	ug/Filter	0.01	AC-066	16-Jul-22
22070079-004	Fluorene		0.06	ug/Filter	0.01	AC-066	16-Jul-22
22070079-004	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22070079-004	Naphthalene		0.01	ug/Filter	0.01	AC-066	16-Jul-22
22070079-004	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Jul-22
22070079-004	Phenanthrene		0.27	ug/Filter	0.01	AC-066	16-Jul-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 25, 2022 Inquiries: (780) 632 8455 E-mail: EAS.Results@innotechalberta.ca

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/June 28, 2022	9801	Air Filter	28-Jun-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22070079 **REPORT CREATED:** 25-Jul-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22070079-004	Pyrene		0.05	ug/Filter	0.01	AC-066	16-Jul-22
22070079-004	Retene		0.13	ug/Filter	0.01	AC-066	16-Jul-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 25, 2022

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/June 22, 2022	32272	Ambient Air	22-Jun-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22070079 **REPORT CREATED:** 25-Jul-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22070079-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jul-22
22070079-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jul-22
22070079-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jul-22
22070079-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jul-22
22070079-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jul-22
22070079-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	11-Jul-22
22070079-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Jul-22
22070079-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jul-22
22070079-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jul-22
22070079-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jul-22
22070079-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jul-22
22070079-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jul-22
22070079-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jul-22
22070079-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jul-22
22070079-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	11-Jul-22
22070079-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	11-Jul-22
22070079-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	11-Jul-22
22070079-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	11-Jul-22
22070079-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	11-Jul-22
22070079-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jul-22
22070079-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jul-22
22070079-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jul-22
22070079-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jul-22
22070079-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	11-Jul-22
22070079-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jul-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 25, 2022

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/June 22, 2022	32272	Ambient Air	22-Jun-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22070079 **REPORT CREATED:** 25-Jul-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22070079-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jul-22
22070079-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jul-22
22070079-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jul-22
22070079-001	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jul-22
22070079-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jul-22
22070079-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jul-22
22070079-001	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jul-22
22070079-001	Acetone		5.5	ppbv	0.4	AC-058	11-Jul-22
22070079-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Jul-22
22070079-001	Benzene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jul-22
22070079-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Jul-22
22070079-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jul-22
22070079-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jul-22
22070079-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jul-22
22070079-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jul-22
22070079-001	Carbon tetrachloride		0.18	ppbv	0.02	AC-058	11-Jul-22
22070079-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jul-22
22070079-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jul-22
22070079-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jul-22
22070079-001	Chloromethane	K, T, U	< 0.04	ppbv	0.04	AC-058	11-Jul-22
22070079-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jul-22
22070079-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jul-22
22070079-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jul-22
22070079-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jul-22
22070079-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	11-Jul-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 25, 2022 Inquiries: (780) 632 8455 E-mail: EAS.Results@innotechalberta.ca

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/June 22, 2022	32272	Ambient Air	22-Jun-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22070079 **REPORT CREATED:** 25-Jul-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22070079-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jul-22
22070079-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jul-22
22070079-001	Ethanol	K, T, U	< 0.5	ppbv	0.5	AC-058	11-Jul-22
22070079-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Jul-22
22070079-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jul-22
22070079-001	Freon-11		0.23	ppbv	0.02	AC-058	11-Jul-22
22070079-001	Freon-113	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jul-22
22070079-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jul-22
22070079-001	Freon-12	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jul-22
22070079-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Jul-22
22070079-001	Isobutane		0.63	ppbv	0.03	AC-058	11-Jul-22
22070079-001	Isopentane	K, T, U	< 0.04	ppbv	0.04	AC-058	11-Jul-22
22070079-001	Isoprene		0.51	ppbv	0.02	AC-058	11-Jul-22
22070079-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Jul-22
22070079-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	11-Jul-22
22070079-001	m,p-Xylene	I	0.17	ppbv	0.04	AC-058	11-Jul-22
22070079-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jul-22
22070079-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jul-22
22070079-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	11-Jul-22
22070079-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Jul-22
22070079-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Jul-22
22070079-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	11-Jul-22
22070079-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jul-22
22070079-001	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jul-22
22070079-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	11-Jul-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 25, 2022

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/June 22, 2022	32272	Ambient Air	22-Jun-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22070079 **REPORT CREATED:** 25-Jul-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22070079-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Jul-22
22070079-001	n-Butane		0.31	ppbv	0.02	AC-058	11-Jul-22
22070079-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	11-Jul-22
22070079-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Jul-22
22070079-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	11-Jul-22
22070079-001	n-Hexane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jul-22
22070079-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jul-22
22070079-001	n-Pentane		0.14	ppbv	0.04	AC-058	11-Jul-22
22070079-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	11-Jul-22
22070079-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	11-Jul-22
22070079-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Jul-22
22070079-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	11-Jul-22
22070079-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jul-22
22070079-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jul-22
22070079-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jul-22
22070079-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	11-Jul-22
22070079-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	11-Jul-22
22070079-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jul-22
22070079-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Jul-22
22070079-001	Toluene	I	0.12	ppbv	0.03	AC-058	11-Jul-22
22070079-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	11-Jul-22
22070079-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jul-22
22070079-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-Jul-22
22070079-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jul-22
22070079-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jul-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 25, 2022

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/June 22, 2022	32272	Ambient Air	22-Jun-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22070079 **REPORT CREATED:** 25-Jul-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22070079-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	11-Jul-22
22070079-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	11-Jul-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 25, 2022

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/June 28, 2022	28932	Ambient Air	28-Jun-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22070079 **REPORT CREATED:** 25-Jul-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22070079-003	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-22
22070079-003	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-22
22070079-003	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-22
22070079-003	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-22
22070079-003	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-22
22070079-003	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	12-Jul-22
22070079-003	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jul-22
22070079-003	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-22
22070079-003	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-22
22070079-003	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-22
22070079-003	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-22
22070079-003	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-22
22070079-003	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-22
22070079-003	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-22
22070079-003	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Jul-22
22070079-003	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Jul-22
22070079-003	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	12-Jul-22
22070079-003	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	12-Jul-22
22070079-003	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	12-Jul-22
22070079-003	1-Pentene	I	0.07	ppbv	0.03	AC-058	12-Jul-22
22070079-003	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-22
22070079-003	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-22
22070079-003	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-22
22070079-003	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	12-Jul-22
22070079-003	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 25, 2022

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/June 28, 2022	28932	Ambient Air	28-Jun-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22070079 **REPORT CREATED:** 25-Jul-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22070079-003	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-22
22070079-003	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-22
22070079-003	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-22
22070079-003	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-22
22070079-003	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-22
22070079-003	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-22
22070079-003	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-22
22070079-003	Acetone		10.2	ppbv	0.4	AC-058	12-Jul-22
22070079-003	Acrolein	I	0.3	ppbv	0.3	AC-058	12-Jul-22
22070079-003	Benzene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-22
22070079-003	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jul-22
22070079-003	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-22
22070079-003	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-22
22070079-003	Bromomethane	I	0.05	ppbv	0.02	AC-058	12-Jul-22
22070079-003	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-22
22070079-003	Carbon tetrachloride	I	0.05	ppbv	0.02	AC-058	12-Jul-22
22070079-003	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-22
22070079-003	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-22
22070079-003	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-22
22070079-003	Chloromethane		0.48	ppbv	0.04	AC-058	12-Jul-22
22070079-003	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-22
22070079-003	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-22
22070079-003	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-22
22070079-003	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-22
22070079-003	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jul-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 25, 2022

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/June 28, 2022	28932	Ambient Air	28-Jun-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22070079 **REPORT CREATED:** 25-Jul-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22070079-003	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-22
22070079-003	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-22
22070079-003	Ethanol		2.5	ppbv	0.5	AC-058	12-Jul-22
22070079-003	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jul-22
22070079-003	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-22
22070079-003	Freon-11		0.73	ppbv	0.02	AC-058	12-Jul-22
22070079-003	Freon-113	I	0.08	ppbv	0.02	AC-058	12-Jul-22
22070079-003	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-22
22070079-003	Freon-12		0.48	ppbv	0.03	AC-058	12-Jul-22
22070079-003	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jul-22
22070079-003	Isobutane	I	0.08	ppbv	0.03	AC-058	12-Jul-22
22070079-003	Isopentane		0.29	ppbv	0.04	AC-058	12-Jul-22
22070079-003	Isoprene		0.33	ppbv	0.02	AC-058	12-Jul-22
22070079-003	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jul-22
22070079-003	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jul-22
22070079-003	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jul-22
22070079-003	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-22
22070079-003	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-22
22070079-003	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	12-Jul-22
22070079-003	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jul-22
22070079-003	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jul-22
22070079-003	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	12-Jul-22
22070079-003	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-22
22070079-003	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-22
22070079-003	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	12-Jul-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 25, 2022

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/June 28, 2022	28932	Ambient Air	28-Jun-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22070079 **REPORT CREATED:** 25-Jul-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22070079-003	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jul-22
22070079-003	n-Butane		0.19	ppbv	0.02	AC-058	12-Jul-22
22070079-003	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	12-Jul-22
22070079-003	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jul-22
22070079-003	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jul-22
22070079-003	n-Hexane	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-22
22070079-003	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-22
22070079-003	n-Pentane	I	0.10	ppbv	0.04	AC-058	12-Jul-22
22070079-003	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	12-Jul-22
22070079-003	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	12-Jul-22
22070079-003	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jul-22
22070079-003	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jul-22
22070079-003	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-22
22070079-003	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-22
22070079-003	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-22
22070079-003	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jul-22
22070079-003	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	12-Jul-22
22070079-003	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-22
22070079-003	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jul-22
22070079-003	Toluene		0.22	ppbv	0.03	AC-058	12-Jul-22
22070079-003	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	12-Jul-22
22070079-003	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-22
22070079-003	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	12-Jul-22
22070079-003	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-22
22070079-003	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 25, 2022

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/June 28, 2022	28932	Ambient Air	28-Jun-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22070079 **REPORT CREATED:** 25-Jul-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22070079-003	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	12-Jul-22
22070079-003	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	12-Jul-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 25, 2022

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

Revision History

Order ID	Ver	Date	Reason
22070079	01	25-Jul-22	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

Qualifiers

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

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

Order Comments

Sample Comments

Result Comments

Note:

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

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

Partisol Samples

Sample ID: 22060135-001 Priority: Normal

Customer ID: LICA
Cust Samp ID: C9460881

2000i-D Sample Data Sheet

RECEIVED
JUN 14 2022

Date Sampled:	4-Jun-22
Location:	Cold Lake South
Parameter:	PM 2.5 / PM 10
Start Time	0:00
End Time	23:59
Valid Time	24 hours
Total Time	24 hours
Status	Done

	FINE (1)	COURSE (2)
Filter Type:	47mm	47mm
Filter #:	C9460881	C9460880
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	18.1	
Pressure	709.6	
Std Volume (Instrument)	20.6	2.3

Comments: Weather Conditions, etc.

n/a

Last Audit Date: 25-Mar-22

Install by (Sign/Date): Christopher Wesson Date: 3-Jun-22

Removed by (Sign/Date) Ferdinand Roy Date: 7-Jun-22

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

Sample ID: 22060135-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9460880

RECEIVED
JUN 14 2022

Filter Shipping Record

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

Date: MARCH 9 2022

Project: LICA/Bureau Veritas Labs

Prepared by: S Mulenka

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	C9460880 → C9460881

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: C9460880
Matrix: Air Filter
CANISTER ID:
PRIORITY: Normal
DESCRIPTION: Cold Lake South - PM 10 - Coarse
DATE SAMPLED: 04-Jun-22 0:00
DATE RECEIVED: 14-Jun-22
REPORT CREATED: 04-Jul-22
REPORT NUMBER: 22060135
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22060135-002	Particulate Weight		0.031	mg	0.004	AC-029	20-Jun-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 4, 2022

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
C9460881		Air Filter	04-Jun-22 0:00

DESCRIPTION: Cold Lake South - PM 2.5 - Fine

REPORT NUMBER: 22060135 **REPORT CREATED:** 04-Jul-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22060135-001	Particulate Weight		0.094	mg	0.004	AC-029	20-Jun-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 4, 2022

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

Revision History

Order ID	Ver	Date	Reason
22060135	01	04-Jul-22	Report created

Methods

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

Qualifiers

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

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

Order Comments

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

Sample Comments

Result Comments

Note:

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

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

Partisol 2000i-D Sample Data Sheet

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

Sample ID 22060204-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9460899

	FINE (1)	COURSE (2)
Filter Type:	47mm	47mm
Filter #:	C9460899	C9460900
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	17.9	
Pressure	703	
Std Volume (Instrument)	20.8	2.31

Comments: Weather Conditions, etc.

n/a

Last Audit Date: 25-Mar-22

Install by (Sign/Date): Ferdinand Roy Date: 7-Jun-22

Removed by (Sign/Date) Alex Yakupov Date: 14-Jun-22

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

Sample ID 22060204-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9460899

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: April 5-2022

Project: LICA/Bureau Veritas Labs

Prepared by:

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	C9460899 → C9460900

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: C9460899
Matrix: Air Filter
CANISTER ID:
PRIORITY: Normal
DESCRIPTION: Cold Lake South - Fine - PM 2.5
DATE SAMPLED: 10-Jun-22 0:00
DATE RECEIVED: 17-Jun-22
REPORT CREATED: 04-Jul-22
REPORT NUMBER: 22060204
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22060204-001	Particulate Weight		0.109	mg	0.004	AC-029	20-Jun-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 4, 2022

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
C9460900		Air Filter	10-Jun-22 0:00

DESCRIPTION: Cold Lake South - Coarse - PM 10

REPORT NUMBER: 22060204 **REPORT CREATED:** 04-Jul-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22060204-002	Particulate Weight	K, T, U	< 0.004	mg	0.004	AC-029	20-Jun-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 4, 2022

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

Revision History

Order ID	Ver	Date	Reason
22060204	01	04-Jul-22	Report created

Methods

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

Qualifiers

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

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

Order Comments

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

Sample Comments

Result Comments

Note:

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

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

LICA Monitoring

From: LICA Monitoring
Sent: July 27, 2022 1:11 PM
To: Alexander YAKUPOV
Cc: Christopher Wesson; Helen Moore
Subject: RE: CLS PUF June 10

Thanks Alex. Can you ensure this such critical information are documented in the COC in the future as it could affect the validity of the analytical results?

Michael Bisaga
Environment Monitoring Program Manager
(c)780.266.7068

Lily Lin
Data and Reporting Specialist
(c)587.225.2248

From: Alexander YAKUPOV <alexander.yakupov@bureauveritas.com>
Sent: Wednesday, July 27, 2022 1:05 PM
To: LICA Monitoring <monitoring@lica.ca>
Cc: Christopher Wesson <christopher.wesson@bureauveritas.com>; Helen Moore <helen.moore@bureauveritas.com>
Subject: Re: CLS PUF June 10

Hi Lily,
Yes, the volume is correct.
There was a thunderstorm, and a jumper on the outlet to which the PUF was connected, disconnected the instrument at some point.
I found the instrument out of power.
That's why overall volume is not close to usual.

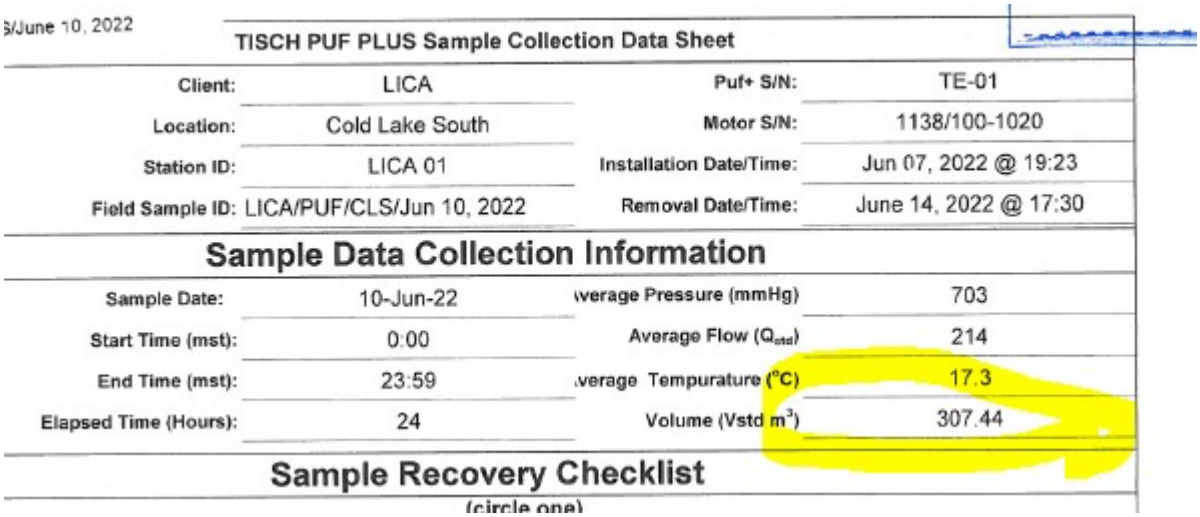
Thank you,
Alex

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: LICA Monitoring <monitoring@lica.ca>
Sent: Wednesday, July 27, 2022 12:59:45 PM
To: Alexander YAKUPOV <alexander.yakupov@bureauveritas.com>
Cc: Christopher Wesson <christopher.wesson@bureauveritas.com>; Helen Moore <helen.moore@bureauveritas.com>
Subject: CLS PUF June 10

Hi Alex,

Can you please confirm the Volume for the June 10's PUF sample was recorded correctly? The volume was much lower than the normal recorded values, so just need a confirmation from you. Also, if there were any obvious observations noticed during sample collection that might cause the low volume, please let me know.



s/June 10, 2022

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	Puf+ S/N:	TE-01
Location:	Cold Lake South	Motor S/N:	1138/100-1020
Station ID:	LICA 01	Installation Date/Time:	Jun 07, 2022 @ 19:23
Field Sample ID:	LICA/PUF/CLS/Jun 10, 2022	Removal Date/Time:	June 14, 2022 @ 17:30

Sample Data Collection Information

Sample Date:	10-Jun-22	verage Pressure (mmHg)	703
Start Time (mst):	0:00	Average Flow (Q_{std})	214
End Time (mst):	23:59	verage Tempurature (°C)	17.3
Elapsed Time (Hours):	24	Volume (Vstd m^3)	307.44

Sample Recovery Checklist

(circle one)

Thanks,
Lily

Michael Bisaga
Environment Monitoring Program Manager
(c)780.266.7068

Lily Lin
Data and Reporting Specialist
(c)587.225.2248

LICA - Environmental Stewards
Box 8237, 5107W - 50 Street
Bonnyville, AB T9N 2J5
(t)780.812.2182 (f)780.812.2186

www.lica.ca

Sample ID: 22060255-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9460895

RECEIVED
JUN 22 2022

I 2000i-D Sample Data Sheet

Date Sampled:	16-Jun-22
Location:	Cold Lake South
Parameter:	PM 2.5 / PM 10
Start Time	0:00
End Time	23:59
Valid Time	24 hours
Total Time	24 hours
Status	Done

	FINE (1)	COURSE (2)
Filter Type:	47mm	47mm
Filter #:	C9460895	C9460896
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	18	
Pressure	711	
Std Volume (Instrument)	20.8	2.31

Comments: Weather Conditions, etc.

n/a

Last Audit Date: 25-Mar-22

Install by (Sign/Date): Alex Yakupov Date: 14-Jun-22

Removed by (Sign/Date) Alex Yakupov Date: 20-Jun-22

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

Sample ID: 22060255-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9460896

RECEIVED
JUN 22 2022

Filter Shipping Record

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

Date: April 5 2022

Project: LICA/Bureau Veritas Labs

Prepared by:

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	C9460895 → C9460896

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	Matrix
C9460895	Air Filter

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

DATE SAMPLED: 16-Jun-22 0:00
DATE RECEIVED: 22-Jun-22
REPORT CREATED: 04-Jul-22
REPORT NUMBER: 22060255
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22060255-001	Particulate Weight		0.121	mg	0.004	AC-029	27-Jun-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 4, 2022

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
C9460896		Air Filter	16-Jun-22 0:00

DESCRIPTION: Cold Lake South - PM 10 - Coarse

REPORT NUMBER: 22060255 **REPORT CREATED:** 04-Jul-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22060255-002	Particulate Weight		0.009	mg	0.004	AC-029	27-Jun-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 4, 2022

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

Revision History

Order ID	Ver	Date	Reason
22060255	01	04-Jul-22	Report created

Methods

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

Qualifiers

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

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

Order Comments

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

Sample Comments

Result Comments

Note:

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

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

Sample ID: 22070078-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9460882

RECEIVED
JUL 08 2022

ol 2000i-D Sample Data Sheet

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

	FINE (1) 1	COURSE (2) 2
Filter Type:	47mm	47mm
Filter #:	C9460882	C9460883
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	21.6	
Pressure	714	
Std Volume (Instrument)	21.4	2.4

Comments: Weather Conditions, etc.

n/a

Last Audit Date: 25-Mar-22

Install by (Sign/Date): Alex Yakupov Date: 20-Jun-22

Removed by (Sign/Date) Alex Yakupov Date: 27-Jun-22

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

Sample ID: 22070078-003 Priority: Normal

Customer ID: LICA
Cust Samp ID: C9460873

RECEIVED
JUL 08 2022

I 2000i-D Sample Data Sheet

Date Sampled:	28-Jun-22
Location:	Cold Lake South
Parameter:	PM 2.5 / PM 10
Start Time	0:00
End Time	23:59
Valid Time	24 hours
Total Time	24 hours
Status	Done

	FINE (1) 3	COURSE (2) 4
Filter Type:	47mm	47mm
Filter #:	C9460873	C9460887
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	17.6	
Pressure	714	
Std Volume (Instrument)	21.5	2.39

Comments: Weather Conditions, etc.

n/a

Last Audit Date: 25-Mar-22

Install by (Sign/Date): Alex Yakupov Date: 27-Jun-22

Removed by (Sign/Date) Alex Yakupov Date: 3-Jul-22

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

Sample ID: 22070078-002 Priority: Normal

Customer ID: LICA
Cust Samp ID: C9460882

RECEIVED
JUL 08 2022

Filter Shipping Record

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

Date: MARCH 9 2022

Project: LICA/Bureau Veritas Labs

Prepared by: S Mulenka

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	C9460882 → C9460883

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

Sample ID: 22070078-004 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9460887

RECEIVED
JUL 08 2022

Filter Shipping Record

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

Date: April 5 -2022

Project: LICA/Bureau Veritas Labs

Prepared by:

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	1	C9460873
	1	C9460887

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID: C9460873
Matrix: Air Filter
CANISTER ID:
PRIORITY: Normal
DESCRIPTION: Cold Lake South - PM 2.5 - Fine
DATE SAMPLED: 28-Jun-22 0:00
DATE RECEIVED: 08-Jul-22
REPORT CREATED: 28-Jul-22
REPORT NUMBER: 22070078
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22070078-003	Particulate Weight		0.036	mg	0.004	AC-029	14-Jul-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 28, 2022

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
C9460882		Air Filter	22-Jun-22 0:00

DESCRIPTION: Cold Lake South - PM 2.5 - Fine

REPORT NUMBER: 22070078 **REPORT CREATED:** 28-Jul-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22070078-001	Particulate Weight		0.218	mg	0.004	AC-029	14-Jul-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 28, 2022

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
C9460883		Air Filter	22-Jun-22 0:00

DESCRIPTION: Cold Lake South - PM 10 - Coarse

REPORT NUMBER: 22070078 **REPORT CREATED:** 28-Jul-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22070078-002	Particulate Weight		0.150	mg	0.004	AC-029	14-Jul-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 28, 2022

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
C9460887		Air Filter	28-Jun-22 0:00

DESCRIPTION: Cold Lake South - PM 10 - Coarse

REPORT NUMBER: 22070078 **REPORT CREATED:** 28-Jul-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22070078-004	Particulate Weight		0.009	mg	0.004	AC-029	14-Jul-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: A. Prefontaine, Manager, Chemical Testing

Date: July 28, 2022

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

Revision History

Order ID	Ver	Date	Reason
22070078	01	28-Jul-22	Report created

Methods

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

Qualifiers

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

Order Comments

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

Sample Comments

Result Comments

Note:

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

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

Passive Samples

Passive Sampler Field Sheet for LICA, June 2022 sample period

ID	SAMPLER				START		END		NOTES
					DATE	TIME	DATE	TIME	
3	H_2S	SO_2	NO_2	O_3	May 31	18:56	Jun 28	19:10	
4	---	SO_2	NO_2	O_3	June 2	09:50	Jun 29	14:25	
5	H_2S	SO_2	NO_2	O_3	June 2	10:35	Jun 29	15:42	
6	---	SO_2	NO_2	O_3	June 2	12:00	Jun 29	17:12	
8	---	SO_2	NO_2	O_3	June 2	08:57	Jun 29	13:30	
9	---	SO_2	NO_2	O_3	June 1	14:51	Jun 28	18:25	
10	H_2S	SO_2	NO_2	O_3	May 31	13:45	Jun 30	15:16	
11	H_2S	SO_2	NO_2	O_3	May 31	12:50	Jun 30	14:10	
12	H2S	SO2	NO2	O3	No access to site	12:59	Jun 30	12:20	No site access 05/31/22
13	H_2S	SO_2	NO_2	O_3	June 1		Jun 28	16:10	
14	H_2S	SO_2	NO_2	O_3	June 1	11:32	Jun 28	15:05	water isotope sample was taken
15	---	SO_2	NO_2	O_3	June 1	14:03	Jun 28	17:04	
16	H_2S	SO_2	NO_2	O_3	June 2	17:03	Jun 29	20:40	
17	H_2S	SO_2	NO_2	O_3	June 2	13:56	Jun 29	18:17	
18	H_2S	SO_2	NO_2	O_3	June 2	15:46	Jun 29	19:45	
19	---	SO_2	NO_2	O_3	June 1	17:36	Jun 30	9:43	
22	H_2S	SO_2	NO_2	O_3	May 31	09:38	June 28	12:17	
23	---	SO_2	NO_2	O_3	June 1	09:17	June 28	13:37	
24	H_2S	SO_2	NO_2	O_3	June 2	11:20	June 29	16:28	
25	H2S	SO2	---	---					
26	H_2S	SO_2	---	---	June 1	12:15	Jun 28	15:24	
27	H_2S	SO_2	---	---	June 1	10:56	Jun 28	14:35	
28	---	SO_2	NO_2	O_3	Gate was closed		Jun 28	18:09	No access 06/01/22
29	H_2S	SO_2	NO_2	O_3	May 31	09:20	Jun 28	12:30	
32	H_2S	SO_2	NO_2	O_3	May 31	17:02	Jun 28	20:34	
42	H_2S	SO_2	NO_2	O_3	May 31	15:30	Jun 29	11:01	
DUPLICATES									
15	---	---	NO_2	O_3	June 1	14:03	Jun 28	17:04	
16	---	---	NO_2	O_3	June 2	17:03	Jun 29	20:40	
23	---	SO2	---	---	June 1	09:17	Jun 28	13:37	
27	---	SO2	---	---	June 1	10:56	Jun 28	14:35	
28	---	SO2	---	---	Gate was closed		n/a	n/a	No access 06/01/22
32	H2S	---	---	---	May 31	17:02	Jun 28	20:34	
42	H_2S	---	---	---	May 31	15:34	Jun 29	11:01	

22 H_2S 32 SO_2
28 O_3 AA 22-07-06
28 NO_2 @ 08:50

Your Project #: JUNE 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: 2022/07/15
Report #: R3200377
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C248205
Received: 2022/07/06, 08:10

Sample Matrix: Air
Samples Received: 32

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
H2S Passive Analysis	19	2022/07/14	2022/07/14	PTC SOP-00150	Passive H2S in ATM
NO2 Passive Analysis	25	2022/07/07	2022/07/14	PTC SOP-00148	Passive NO2 in ATM
O3 Passive Analysis	25	2022/07/11	2022/07/14	PTC SOP-00197	EPA 300 R2.1
SO2 Passive Analysis	28	2022/07/07	2022/07/14	PTC SOP-00149	Passive SO2 in ATM

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

Encryption Key

Belma Elefante
Customer Service Associate
15 Jul 2022 08:22:34

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

==========

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports.
For Service Group specific validation please refer to the Validation Signature Page.

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

Bureau Veritas Job #: C248205
Report Date: 2022/07/15

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		AWQ610			AWQ611			AWQ612		
Sampling Date		2022/05/31 18:06			2022/06/02 09:50			2022/06/02 10:35		
	UNITS	3	RDL	QC Batch	4	RDL	QC Batch	5	RDL	QC Batch
Passive Monitoring										
Calculated H2S	ppb	0.34	0.02	A643577				0.50	0.02	A643577
Calculated NO2	ppb	0.8	0.1	A634154	0.9	0.1	A634154	0.7	0.1	A634154
Calculated O3	ppb	25.5	0.1	A639078	30.7	0.1	A639078	34.0	0.1	A639078
Calculated SO2	ppb	0.3	0.1	A635931	0.3	0.1	A635931	0.3	0.1	A635931
RDL = Reportable Detection Limit										

Bureau Veritas ID		AWQ613	AWQ614	AWQ615			AWQ616		AWQ617		
Sampling Date		2022/06/02 12:00	2022/06/02 08:50	2022/06/01 14:51			2022/05/31 13:45		2022/05/31 12:50		
	UNITS	6	8	9	RDL	QC Batch	10	QC Batch	11	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb						0.31	A643577	0.12	0.02	A643577
Calculated NO2	ppb	3.3	0.6	1.5	0.1	A634154	2.1	A634154	0.4	0.1	A635985
Calculated O3	ppb	30.3	32.8	27.7	0.1	A639078	28.3	A639078	23.8	0.1	A639078
Calculated SO2	ppb	0.5	0.5	0.3	0.1	A635931	0.3	A635931	0.3	0.1	A635931
RDL = Reportable Detection Limit											

Bureau Veritas ID		AWQ618	AWQ619	AWQ620			AWQ621			AWQ622		
Sampling Date		2022/05/03 00:00	2022/06/01 12:59	2022/06/01 11:32			2022/06/01 14:03			2022/06/02 17:03		
	UNITS	12	13	14	RDL	QC Batch	15	RDL	QC Batch	16	RDL	QC Batch
Passive Monitoring												
Calculated H2S	ppb	0.08	0.06	0.30	0.02	A643577				0.21	0.02	A641332
Calculated NO2	ppb	0.2	0.3	0.7	0.1	A635985	1.7	0.1	A635985	0.6	0.1	A635985
Calculated O3	ppb	26.2	26.8	34.6	0.1	A639078	25.8	0.1	A639078	23.5	0.1	A639078
Calculated SO2	ppb	0.2	0.2	0.7	0.1	A635931	0.4	0.1	A635931	0.3	0.1	A635931
RDL = Reportable Detection Limit												

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		AWQ623	AWQ624			AWQ625			AWQ626		
Sampling Date		2022/06/02 13:06	2022/06/02 15:46			2022/06/01 17:36			2022/05/31 09:38		
	UNITS	17	18	RDL	QC Batch	19	RDL	QC Batch	22	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb	0.34	0.15	0.02	A641332				0.21	0.02	A641332
Calculated NO2	ppb	1.0	0.7	0.1	A635985	0.6	0.1	A635985	0.7	0.1	A635985
Calculated O3	ppb	43.4	23.6	0.1	A639078	30.8	0.1	A639078	29.5	0.1	A639078
Calculated SO2	ppb	0.4	0.2	0.1	A635931	0.2	0.1	A635931	0.3	0.1	A635931
RDL = Reportable Detection Limit											

Bureau Veritas ID		AWQ627			AWQ628			AWQ651		AWQ660		
Sampling Date		2022/06/01 09:17			2022/06/02 11:20			2022/06/01 12:15		2022/06/01 10:56		
	UNITS	23	RDL	QC Batch	24	RDL	QC Batch	26	QC Batch	27	RDL	QC Batch
Passive Monitoring												
Calculated H2S	ppb				0.26	0.02	A641332	0.17	A641332	0.58	0.02	A641332
Calculated NO2	ppb	0.1	0.1	A635985	1.0	0.1	A635985					
Calculated O3	ppb	27.8	0.1	A639078	32.8	0.1	A639078					
Calculated SO2	ppb	0.1	0.1	A635931	0.3	0.1	A635931	0.5	A635931	0.6	0.1	A635935
RDL = Reportable Detection Limit												

Bureau Veritas ID		AWQ661			AWQ662	AWQ663	AWR358			AWQ667		
Sampling Date		2022/04/29 00:00			2022/05/31 09:20	2022/05/31 17:02	2022/05/31 15:30			2022/06/01 14:03		
	UNITS	28	RDL	QC Batch	29	32	42	RDL	QC Batch	15 DUP	RDL	QC Batch
Passive Monitoring												
Calculated H2S	ppb				0.21	0.37	0.36	0.02	A641332			
Calculated NO2	ppb	1.8	0.1	A635985	0.4	0.4	0.7	0.1	A635985	1.2	0.1	A635985
Calculated O3	ppb	26.6	0.1	A639078	32.9	34.1	30.9	0.1	A639080	28.6	0.1	A639080
Calculated SO2	ppb	0.3	0.1	A635935	0.3	0.3	0.2	0.1	A635935			
RDL = Reportable Detection Limit												

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RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		AWQ668			AWQ669	AWQ670	AWQ671		
Sampling Date		2022/06/02 17:03			2022/06/01 09:17	2022/06/01 10:56	2022/04/29 00:00		
	UNITS	16 DUP	RDL	QC Batch	23 DUP	27 DUP	28 DUP - NO ACCESS	RDL	QC Batch
Passive Monitoring									
Calculated NO2	ppb	0.6	0.1	A635985					
Calculated O3	ppb	32.7	0.1	A639080					
Calculated SO2	ppb				0.3	0.7	MISSING	0.1	A635935
RDL = Reportable Detection Limit									

Bureau Veritas ID		AWQ672	AWQ673		
Sampling Date		2022/05/31 17:02	2022/05/31 15:34		
	UNITS	32 DUP	42 DUP	RDL	QC Batch
Passive Monitoring					
Calculated H2S	ppb	0.38	0.37	0.02	A641332
RDL = Reportable Detection Limit					

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GENERAL COMMENTS

Sample AWQ618 [12] : H2S Sample 12 (AWQ618) was labelled for MAY/22. --KDE 2022/07/14

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A634154	XSZ	Spiked Blank	Calculated NO2			99	%	90 - 110
A634154	XSZ	Method Blank	Calculated NO2		<0.1		ppb	
A635931	OZ	Spiked Blank	Calculated SO2			97	%	90 - 110
A635931	OZ	Method Blank	Calculated SO2		<0.1		ppb	
A635935	OZ	Spiked Blank	Calculated SO2			100	%	90 - 110
A635935	OZ	Method Blank	Calculated SO2		<0.1		ppb	
A635985	XSZ	Spiked Blank	Calculated NO2			101	%	90 - 110
A635985	XSZ	Method Blank	Calculated NO2		<0.1		ppb	
A639078	XSZ	Spiked Blank	Calculated O3			100	%	90 - 110
A639078	XSZ	Method Blank	Calculated O3		<0.1		ppb	
A639080	XSZ	Spiked Blank	Calculated O3			1..02	%	90 - 110
A639080	XSZ	Method Blank	Calculated O3		<0.1		ppb	
A641332	KDE	Spiked Blank	Calculated H2S			99	%	90 - 110
A643577	KDE	Spiked Blank	Calculated H2S			100	%	90 - 110

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

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

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Client Project #: JUNE PASSIVES
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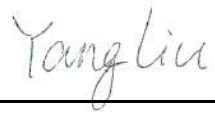
VALIDATION SIGNATURE PAGE

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



Yang Liu, Analyst II

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation please refer to the Validation Signature Page.

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End of Report