Lakeland Industry & Community Association

MAY 2022

Monthly Ambient Air Quality Monitoring Integrated Sampling Report

LICA-202205-INTEGRATED

June 26, 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

June 26, 2022

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

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

Enclosed is the May 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

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 May 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 May 5, 11, 17, 23 and 29.
- **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).
  - Three samples were collected this month: on May 5, 17 and 23. Due to power (outlet) malfunction, no samples were collected on May 11 and May 29.
- **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 May 5, 11, 17, 23 and 29.

    - "Date Sampled" was recorded incorrectly on the sample data sheet for the sample taken on May 29. Instead of 29-Apr-22, 25-Apr-22 was recorded.
- **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 between March 30 and May 1, and were removed between May 29 and May 3.
    - 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.
    - No samples were collected at station 12 and station 28 as the access to the station was not available during the sample media exchange.
    - H2S sample at station 10 was found missing.

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 installed between May 29 and May 3. The media are scheduled to be collected in late June or early July.

Revisions to Alberta's Ambient Air Quality Data Warehouse

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

Deviations from Authorized Monitoring Methods

There were no deviations from authorized monitoring methods.

Certification

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

Lily Lin
Data & Reporting Specialist
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	2022-05-05	2022-05-11	2022-05-17	2022-05-23	2022-05-29
Canister ID	32258	32230	32196	28948	32261
Maximum Reading (ppbv)	3.6	4.7	2.3	2.3	2.7
Parameter	Acetone	Acetone	Acetone	Acetone	Acetone

- **PAHs analytical results**

Sample Date	2022-05-05		2022-05-11		2022-05-17		2022-05-23		2022-05-29	
PUF S/N	TE-06		TE-03		TE-02		TE-08		TE-09	
Volume (Vstd m^3)	330.41		-		330.42		330.42		-	
Maximum Reading	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3
	0.29	0.88	-	-	0.29	0.88	0.86	2.60	-	-
Parameter	Phenanthrene		-		Phenanthrene		Phenanthrene		-	

Note: Due to power (outlet) malfunction, no samples were collected on May 11 and May 29.

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

Sample Date	2022-05-05		2022-05-11		2022-05-17		2022-05-23		2022-05-29	
Filter #	C9460878		C9460897		C9460890		C9460876		C9460888	
Volume (Vstd m^3)	20.8		21.3		21.3		21.1		20.8	
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	0.005	0.000	<0.004	0.000	<0.004	0.000	0.039	0.002	0.030	0.001

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

Sample Date	2022-05-05		2022-05-11		2022-05-17		2022-05-23		2022-05-29	
Filter #	C9460879		C9460898		C9460891		C9460877		C9460889	
Volume (Vstd m^3)	2.31		2.37		2.37		2.34		2.32	
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	0.140	0.061	0.063	0.027	<0.004	0.000	<0.004	0.000	0.031	0.013

- **Passive analytical results**

	H_2S		NO_2		O_3		SO_2	
Minimum (ppb)	0.07	#13	<0.1	#23	23.9	#23	0.1	#22
Maximum (ppb)	0.36	#27	1.9	#10	34.0	#32	0.7	#14
Average (ppb)	0.16	-	0.66	-	29.81	-	0.29	-

ANALYTICAL SAMPLING RESULTS

COLD LAKE SOUTH STATION

VOCS

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - May 2022

Volatile Organic Compounds (VOCs) Results

Sample Date		2022-05-05	2022-05-11	2022-05-17	2022-05-23	2022-05-29
Canister ID		32258	32230	32196	28948	32261
Method		AC-058	AC-058	AC-058	AC-058	AC-058
Maximum Reading (ppbv)		3.6	4.7	2.3	2.3	2.7
Parameter		Acetone	Acetone	Acetone	Acetone	Acetone

Parameter	AAAQOs (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	RDL (ppbv)
1,1,1-Trichloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1,2,2-Tetrachloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1,2-Trichloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1-Dichloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1-Dichloroethylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
1,2,3-Trimethylbenzene		0.06	< 0.05	< 0.05	< 0.05	< 0.05	0.05
1,2,4-Trichlorobenzene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.8
1,2,4-Trimethylbenzene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.05
1,2-Dibromoethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,2-Dichlorobenzene		0.08	0.06	< 0.03	< 0.03	< 0.03	0.03
1,2-Dichloroethane		< 0.03	< 0.03	0.1	0.1	0.10	0.01
1,2-Dichloropropane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
1,3,5-Trimethylbenzene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02
1,3-Butadiene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02
1,3-Dichlorobenzene		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	0.3
1,4-Dichlorobenzene		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	0.4
1,4-Dioxane		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.4
1-Butene		0.1	< 0.06	< 0.06	< 0.06	< 0.06	0.02
1-Hexene		< 0.07	< 0.07	< 0.07	< 0.07	< 0.07	0.02
1-Pentene		0.05	< 0.03	< 0.03	< 0.03	< 0.03	0.01
2,2,4-Trimethylpentane		0.14	< 0.02	0.04	0.04	0.06	0.01
2,2-Dimethylbutane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
2,3,4-Trimethylpentane		0.06	< 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		0.12	< 0.02	0.06	< 0.02	0.08	0.02
2,4-Dimethylpentane		0.06	< 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		0.04	< 0.03	< 0.03	0.03	0.04	0.01
2-Methylpentane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
3-Methylheptane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02
3-Methylhexane		0.05	< 0.02	< 0.02	< 0.02	< 0.02	0.02
3-Methylpentane		0.04	< 0.02	0.03	0.06	0.06	0.01
Acetone	2400	3.6	4.7	2.3	2.3	2.7	0.4
Acrolein	1.9	< 0.3	< 0.3	< 0.3	< 0.3	0.3	0.3
Benzene	9.0	0.09	0.1	0.06	0.09	0.12	0.01
Benzyl chloride		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Bromodichloromethane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02
Bromoform		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Bromomethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
Carbon disulfide	10	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
Carbon tetrachloride		0.1	< 0.02	0.12	0.13	0.12	0.01
Chlorobenzene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Chloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Chloroform		0.02	< 0.02	0.03	0.03	< 0.02	0.02
Chloromethane		0.54	0.61	0.51	0.48	0.67	0.02
cis-1,2-Dichloroethene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
cis-1,3-Dichloropropene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.04
cis-2-Butene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02
cis-2-Pentene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Cyclohexane		0.05	< 0.04	< 0.04	< 0.04	0.07	0.02
Cyclopentane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
Dibromochloromethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
Ethanol		1.7	< 0.5	0.6	1	1.1	0.3
Ethyl acetate		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Ethylbenzene	460	0.03	< 0.03	< 0.03	< 0.03	0.04	0.01
Freon-11		0.24	0.3	0.2	0.2	0.22	0.02
Freon-113		0.09	0.09	0.07	0.07	0.08	0.01
Freon-114		0.05	0.04	0.03	0.03	< 0.03	0.02

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - May 2022

Volatile Organic Compounds (VOCs) Results

Sample Date		2022-05-05	2022-05-11	2022-05-17	2022-05-23	2022-05-29
Canister ID		32258	32230	32196	28948	32261
Method		AC-058	AC-058	AC-058	AC-058	AC-058
Maximum Reading (ppbv)		3.6	4.7	2.3	2.3	2.7
Parameter		Acetone	Acetone	Acetone	Acetone	Acetone

Parameter	AAAQOs (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	RDL (ppbv)
Freon-12		0.5	0.83	0.43	0.44	0.49	0.02
Hexachloro-1,3-butadiene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.5
Isobutane		0.52	0.2	0.26	0.55	0.50	0.02
Isopentane		0.33	0.13	0.16	0.66	0.43	0.03
Isoprene		0.05	< 0.02	0.1	0.11	0.14	0.01
Isopropyl alcohol		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Isopropylbenzene		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.01
m,p-Xylene		0.09	< 0.04	0.06	0.07	0.12	0.03
m-Diethylbenzene		0.06	< 0.02	< 0.02	< 0.02	0.03	0.04
m-Ethyltoluene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.08
Methyl butyl ketone		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	0.5
Methyl ethyl ketone		0.5	< 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		0.02	< 0.02	0.07	0.08	0.12	0.01
Methylcyclopentane		< 0.05	< 0.05	< 0.05	< 0.05	0.1	0.02
Methylene chloride		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
n-Butane		0.51	0.35	0.19	0.91	0.59	0.03
n-Decane		0.2	< 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		0.05	0.09	< 0.04	< 0.04	0.06	0.01
n-Hexane	5960	0.06	0.07	0.04	0.06	0.10	0.01
n-Nonane		0.08	< 0.04	< 0.04	< 0.04	< 0.04	0.01
n-Octane		0.04	< 0.02	< 0.02	< 0.02	0.03	0.02
n-Pentane		0.08	0.08	0.07	0.23	0.16	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		0.05	0.05	< 0.02	< 0.02	< 0.02	0.01
o-Xylene		0.1	< 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	0.1	< 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	0.13	0.12	0.07	0.08	0.14	0.01
trans-1,2-Dichloroethylene		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.01
trans-1,3-Dichloropropylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
trans-2-Butene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
trans-2-Pentene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Trichloroethylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
Vinyl acetate		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Vinyl chloride	51	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02

PAHS

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - May 2022

Polycyclic Aromatic Hydrocarbons (PAHs) Results

Sample Date	2022-05-05		2022-05-11		2022-05-17		2022-05-23		2022-05-29	
PUF S/N	TE-06		TE-03		TE-02		TE-08		TE-09	
Volume (Vstd m^3)	330.41		-		330.42		330.42		-	
Method	AC-066		AC-066		AC-066		AC-066		AC-066	
Maximum Reading	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3
	0.29	0.88	-	-	0.29	0.88	0.86	2.60	-	-
Parameter	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	0.04	0.12	n/a	n/a	0.03	0.09	0.02	0.06	n/a	n/a	0.01
2-Methylnaphthalene	0.11	0.33	n/a	n/a	0.07	0.21	0.03	0.09	n/a	n/a	0.01
3-Methylcholanthrene	< 0.01	0.00	n/a	n/a	< 0.01	0.00	< 0.01	0.00	n/a	n/a	0.01
7,12-Dimethylbenz(a)anthracene	< 0.01	0.00	n/a	n/a	< 0.01	0.00	0.02	0.06	n/a	n/a	0.01
Acenaphthene	< 0.01	0.00	n/a	n/a	0.02	0.06	0.02	0.06	n/a	n/a	0.01
Acenaphthylene	0.01	0.03	n/a	n/a	0.02	0.06	0.07	0.21	n/a	n/a	0.01
Acridine	< 0.01	0.00	n/a	n/a	< 0.01	0.00	< 0.01	0.00	n/a	n/a	0.01
Anthracene	0.03	0.09	n/a	n/a	0.02	0.06	0.16	0.48	n/a	n/a	0.01
Benzo(a)anthracene	< 0.01	0.00	n/a	n/a	< 0.01	0.00	0.04	0.12	n/a	n/a	0.01
Benzo(a)pyrene	< 0.01	0.00	n/a	n/a	< 0.01	0.00	0.02	0.06	n/a	n/a	0.01
Benzo(b,j,k)fluoranthene	< 0.01	0.00	n/a	n/a	< 0.01	0.00	0.10	0.30	n/a	n/a	0.01
Benzo(c)phenanthrene	< 0.01	0.00	n/a	n/a	< 0.01	0.00	0.01	0.03	n/a	n/a	0.01
Benzo(e)pyrene	< 0.01	0.00	n/a	n/a	< 0.01	0.00	0.03	0.09	n/a	n/a	0.01
Benzo(ghi)perylene	< 0.01	0.00	n/a	n/a	< 0.01	0.00	0.04	0.12	n/a	n/a	0.01
Chrysene	< 0.01	0.00	n/a	n/a	< 0.01	0.00	0.07	0.21	n/a	n/a	0.01
Dibenzo(a,h)pyrene	< 0.01	0.00	n/a	n/a	< 0.01	0.00	< 0.01	0.00	n/a	n/a	0.01
Dibenzo(a,i)pyrene	< 0.01	0.00	n/a	n/a	< 0.01	0.00	< 0.01	0.00	n/a	n/a	0.01
Dibenzo(a,l)pyrene	< 0.01	0.00	n/a	n/a	< 0.01	0.00	< 0.01	0.00	n/a	n/a	0.01
Dibenzo(ah)anthracene	< 0.01	0.00	n/a	n/a	< 0.01	0.00	0.01	0.03	n/a	n/a	0.01
Fluoranthene	0.07	0.21	n/a	n/a	0.06	0.18	0.25	0.76	n/a	n/a	0.01
Fluorene	0.05	0.15	n/a	n/a	0.06	0.18	0.14	0.42	n/a	n/a	0.01
Indeno(1,2,3-cd)pyrene	0.02	0.06	n/a	n/a	0.02	0.06	0.05	0.15	n/a	n/a	0.01
Naphthalene	0.05	0.15	n/a	n/a	0.02	0.06	0.03	0.09	n/a	n/a	0.01
Perylene	< 0.01	0.00	n/a	n/a	< 0.01	0.00	< 0.01	0.00	n/a	n/a	0.01
Phenanthrene	0.29	0.88	n/a	n/a	0.29	0.88	0.86	2.60	n/a	n/a	0.01
Pyrene	0.07	0.21	n/a	n/a	0.05	0.15	0.21	0.64	n/a	n/a	0.01
Retene	0.07	0.21	n/a	n/a	0.10	0.30	0.34	1.03	n/a	n/a	0.01

Note: No samples were collected on ay 11 and May 29 due to power malfunction (outlet).

PARTISOLS

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - May 2022

Partisol Results - $PM_{2.5}$

Sample Date		2022-05-05		2022-05-11		2022-05-17		2022-05-23		2022-05-29		
Filter #		C9460878		C9460897		C9460890		C9460876		C9460888		
Volume (Vstd m^3)		20.8		21.3		21.3		21.1		20.8		
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	**0.005**	**0.000**	**<0.004**	**0.000**	**<0.004**	**0.000**	**0.039**	**0.002**	**0.030**	**0.001**	0.004

PM2.5 Mass in ug/m3	**0.240**	**0.188**	**0.188**	**1.848**	**1.442**
RDL in ug/m3	**0.192**	**0.188**	**0.188**	**0.190**	**0.192**

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - May 2022

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

Sample Date	2022-05-05		2022-05-11		2022-05-17		2022-05-23		2022-05-29		
Filter #	C9460879		C9460898		C9460891		C9460877		C9460889		
Volume (Vstd m^3)	2.31		2.37		2.37		2.34		2.32		
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	**0.140**	**0.061**	**0.063**	**0.027**	**<0.004**	**0.000**	**<0.004**	**0.000**	**0.031**	**0.013**	0.004
PM2.5-10 Mass in ug/m3		**60.606**		**26.582**		**1.688**		**1.709**		**13.362**	
RDL in ug/m3		**1.732**		**1.688**		**1.688**		**1.709**		**1.724**	

PASSIVE SAMPLES

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

May 2022

Passive Results

	H_2S		NO_2		O_3		SO_2	
Minimum (ppb)	0.07	#13	<0.1	#23	23.9	#23	0.1	#22
Maximum (ppb)	0.36	#27	1.9	#10	34.0	#32	0.7	#14
Average (ppb)	0.16	-	0.66	-	29.81	-	0.29	-

No.	Station	Sample	Duplicate	Sample	Duplicate	Sample	Duplicate	Sample	Duplicate
3	Therien	0.14		0.7		28.4		0.2	
4	Flat Lake	-		0.5		32.9		0.2	
5	Lake Eliza	0.23		0.4		33.3		0.3	
6	Telegraph Creek	-		1.9		28.4		0.3	
8	Muriel-Kehewin	-		0.5		30.9		0.3	
9	Dupre	-		0.7		27.5		0.2	
10	La Corey	Missing 3		1.9		29.9		0.3	
11	Wolf Lake	0.10		0.4		26.8		0.6	
12	Foster Creek	Missing 2		Missing 2		Missing 2		Missing 2	
13	Primrose	0.07		0.3	0.2	28.7	26.9	0.2	
14	Tamarack	0.17		0.6	0.6	29.9	28.5	0.7	
15	Ardmore	-		0.7		28.4		0.3	
16	Frog Lake	0.11		0.4		29.9		0.2	
17	Clear Range	0.20		0.7		32.1		0.3	
18	Fishing Lake	0.12		0.4		28.2		0.2	
19	Beaverdam	-		0.3		32.0		0.2	
22	Cold Lake South (1)	0.13		0.5		26.8		0.1	
23	Medley-Martineau	-		<0.1		23.9		0.1	0.2
24	Fort George	0.14		1.0		31.0		0.3	0.3
25	Burnt Lake	Missing 1		-		-		-	
26	Mahihkan	0.16		-		-		0.4	0.4
27	Mahkeses	0.36	0.36	-		-		0.5	
28	Town of Bonnyville	-		Missing 2		Missing 2		Missing 2	
29	Cold Lake South (2)	0.13	0.12	0.4		33.1		0.2	
32	St. Lina	0.16		0.2		34.0		0.3	
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.
4 Missing 2: Access to the station was not availble during sample exchange.
5 Missing 3: Sample was found missing.

End of Report

Lakeland Industry & Community Association

MAY 2022

Ambient Air Monitoring

Certified Laboratory Analysis Report

LAB-LICA-202205

Operation and Maintenance:
Bureau Veritas Canada

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

June 25, 2022

Table of Contents

Cold Lake South Station

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

Sample ID 22050071-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/May 5, 2022

RECEIVED
MAY 10 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:**	32258
Station ID:	LICA 01	**Installation Date/Time (mst):**	May 04, 2022 @ 11:11
Sample ID:	LICA/VOC/CLS/May 5, 2022	**Removal Date/Time (mst):**	May 06, 2022@ 20:20

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
May 5, 2022	0:00	23:59	24

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.0	19.8

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: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID 22050071-002 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/PUF/CLS/May 5, 2022

RECEIVED
MAY 10 2022

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	TE-06
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	May 04, 2022 @ 11:12
Field Sample ID:	LICA/PUF/CLS/May 05, 2022	**Removal Date/Time:**	May 06, 2022 @ 20:22

Sample Data Collection Information

Sample Date:	5-May-22	**Average Pressure (mmHg)**	703
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	15.2
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

InnoTech ALBERTA

Canister ID: 32258

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: FEB 10 2022 on: FEB 08 2022

Evacuated: _____ Recertified: MAR 08 2022

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/May 5, 2022

Sampled By: Alex Yakupov

20psi JMP

Starting Vacuum: -27 "Hg

End Vacuum: + 19.8 "Hg/psig

Sample ID 22050071-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/May 5, 2022

InnoTech ALBERTA

Canister ID: TE-06

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/May 5, 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/May 5, 2022
Matrix: Air Filter
CANISTER ID: TE-06
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 05-May-22 0:00
DATE RECEIVED: 10-May-22
REPORT CREATED: 15-Jun-22
REPORT NUMBER: 22050071
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22050071-002	1-Methylnaphthalene		0.04	ug/Filter	0.01	AC-066	09-Jun-22
22050071-002	2-Methylnaphthalene		0.11	ug/Filter	0.01	AC-066	09-Jun-22
22050071-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	09-Jun-22
22050071-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	09-Jun-22
22050071-002	Acenaphthene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	09-Jun-22
22050071-002	Acenaphthylene		0.01	ug/Filter	0.01	AC-066	09-Jun-22
22050071-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	09-Jun-22
22050071-002	Anthracene		0.03	ug/Filter	0.01	AC-066	09-Jun-22
22050071-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	09-Jun-22
22050071-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	09-Jun-22
22050071-002	Benzo(b,j,k)fluoranthene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	09-Jun-22
22050071-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	09-Jun-22
22050071-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	09-Jun-22
22050071-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	09-Jun-22
22050071-002	Chrysene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	09-Jun-22
22050071-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	09-Jun-22
22050071-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	09-Jun-22
22050071-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	09-Jun-22

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

Date: June 15, 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/May 5, 2022	TE-06	Air Filter	05-May-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22050071 **REPORT CREATED:** 15-Jun-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22050071-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	09-Jun-22
22050071-002	Fluoranthene		0.07	ug/Filter	0.01	AC-066	09-Jun-22
22050071-002	Fluorene		0.05	ug/Filter	0.01	AC-066	09-Jun-22
22050071-002	Indeno(1,2,3-cd)pyrene		0.02	ug/Filter	0.01	AC-066	09-Jun-22
22050071-002	Naphthalene		0.05	ug/Filter	0.01	AC-066	09-Jun-22
22050071-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	09-Jun-22
22050071-002	Phenanthrene		0.29	ug/Filter	0.01	AC-066	09-Jun-22
22050071-002	Pyrene		0.07	ug/Filter	0.01	AC-066	09-Jun-22
22050071-002	Retene		0.07	ug/Filter	0.01	AC-066	09-Jun-22

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

Date: June 15, 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/May 5, 2022	32258	Ambient Air	05-May-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22050071 **REPORT CREATED:** 15-Jun-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22050071-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-May-22
22050071-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-May-22
22050071-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-May-22
22050071-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-May-22
22050071-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-May-22
22050071-001	1,2,3-Trimethylbenzene	I	0.06	ppbv	0.05	AC-058	11-May-22
22050071-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	11-May-22
22050071-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-May-22
22050071-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-May-22
22050071-001	1,2-Dichlorobenzene	I	0.08	ppbv	0.03	AC-058	11-May-22
22050071-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-May-22
22050071-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-May-22
22050071-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-May-22
22050071-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-May-22
22050071-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	11-May-22
22050071-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	11-May-22
22050071-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	11-May-22
22050071-001	1-Butene/Isobutylene	I	0.10	ppbv	0.06	AC-058	11-May-22
22050071-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	11-May-22
22050071-001	1-Pentene	I	0.05	ppbv	0.03	AC-058	11-May-22
22050071-001	2,2,4-Trimethylpentane		0.14	ppbv	0.02	AC-058	11-May-22
22050071-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-May-22
22050071-001	2,3,4-Trimethylpentane	I	0.06	ppbv	0.02	AC-058	11-May-22
22050071-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	11-May-22
22050071-001	2,3-Dimethylpentane		0.12	ppbv	0.02	AC-058	11-May-22

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

Date: June 15, 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/May 5, 2022	32258	Ambient Air	05-May-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22050071 **REPORT CREATED:** 15-Jun-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22050071-001	2,4-Dimethylpentane	I	0.06	ppbv	0.03	AC-058	11-May-22
22050071-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-May-22
22050071-001	2-Methylhexane	I	0.04	ppbv	0.03	AC-058	11-May-22
22050071-001	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-May-22
22050071-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-May-22
22050071-001	3-Methylhexane	I	0.05	ppbv	0.02	AC-058	11-May-22
22050071-001	3-Methylpentane	I	0.04	ppbv	0.02	AC-058	11-May-22
22050071-001	Acetone		3.6	ppbv	0.4	AC-058	11-May-22
22050071-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	11-May-22
22050071-001	Benzene	I	0.09	ppbv	0.03	AC-058	11-May-22
22050071-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	11-May-22
22050071-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	11-May-22
22050071-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	11-May-22
22050071-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-May-22
22050071-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	11-May-22
22050071-001	Carbon tetrachloride	I	0.10	ppbv	0.02	AC-058	11-May-22
22050071-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-May-22
22050071-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-May-22
22050071-001	Chloroform	I	0.02	ppbv	0.02	AC-058	11-May-22
22050071-001	Chloromethane		0.54	ppbv	0.04	AC-058	11-May-22
22050071-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-May-22
22050071-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-May-22
22050071-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-May-22
22050071-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-May-22
22050071-001	Cyclohexane	I	0.05	ppbv	0.04	AC-058	11-May-22

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

Date: June 15, 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/May 5, 2022	32258	Ambient Air	05-May-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22050071 **REPORT CREATED:** 15-Jun-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22050071-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-May-22
22050071-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	11-May-22
22050071-001	Ethanol		1.7	ppbv	0.5	AC-058	11-May-22
22050071-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	11-May-22
22050071-001	Ethylbenzene	I	0.03	ppbv	0.03	AC-058	11-May-22
22050071-001	Freon-11		0.24	ppbv	0.02	AC-058	11-May-22
22050071-001	Freon-113	I	0.09	ppbv	0.02	AC-058	11-May-22
22050071-001	Freon-114	I	0.05	ppbv	0.03	AC-058	11-May-22
22050071-001	Freon-12		0.50	ppbv	0.03	AC-058	11-May-22
22050071-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	11-May-22
22050071-001	Isobutane		0.52	ppbv	0.03	AC-058	11-May-22
22050071-001	Isopentane		0.33	ppbv	0.04	AC-058	11-May-22
22050071-001	Isoprene	I	0.05	ppbv	0.02	AC-058	11-May-22
22050071-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	11-May-22
22050071-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	11-May-22
22050071-001	m,p-Xylene	I	0.09	ppbv	0.04	AC-058	11-May-22
22050071-001	m-Diethylbenzene	I	0.06	ppbv	0.02	AC-058	11-May-22
22050071-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-May-22
22050071-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	11-May-22
22050071-001	Methyl ethyl ketone	I	0.5	ppbv	0.3	AC-058	11-May-22
22050071-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	11-May-22
22050071-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	11-May-22
22050071-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	11-May-22
22050071-001	Methylcyclohexane	I	0.02	ppbv	0.02	AC-058	11-May-22
22050071-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	11-May-22

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

Date: June 15, 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/May 5, 2022	32258	Ambient Air	05-May-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22050071 **REPORT CREATED:** 15-Jun-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22050071-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	11-May-22
22050071-001	n-Butane		0.51	ppbv	0.02	AC-058	11-May-22
22050071-001	n-Decane		0.20	ppbv	0.06	AC-058	11-May-22
22050071-001	n-Dodecane	I	0.3	ppbv	0.3	AC-058	11-May-22
22050071-001	n-Heptane	I	0.05	ppbv	0.04	AC-058	11-May-22
22050071-001	n-Hexane	I	0.06	ppbv	0.03	AC-058	11-May-22
22050071-001	n-Octane	I	0.04	ppbv	0.02	AC-058	11-May-22
22050071-001	n-Pentane	I	0.08	ppbv	0.04	AC-058	11-May-22
22050071-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	11-May-22
22050071-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	11-May-22
22050071-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	11-May-22
22050071-001	n-Nonane	I	0.08	ppbv	0.04	AC-058	11-May-22
22050071-001	o-Ethyltoluene	I	0.05	ppbv	0.02	AC-058	11-May-22
22050071-001	o-Xylene	I	0.10	ppbv	0.03	AC-058	11-May-22
22050071-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-May-22
22050071-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	11-May-22
22050071-001	Styrene	I	0.10	ppbv	0.04	AC-058	11-May-22
22050071-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-May-22
22050071-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	11-May-22
22050071-001	Toluene	I	0.13	ppbv	0.03	AC-058	11-May-22
22050071-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	11-May-22
22050071-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-May-22
22050071-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	11-May-22
22050071-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-May-22
22050071-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	11-May-22

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

Date: June 15, 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/May 5, 2022	32258	Ambient Air	05-May-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22050071 **REPORT CREATED:** 15-Jun-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22050071-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	11-May-22
22050071-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	11-May-22

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

Date: June 15, 2022

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

Revision History

Order ID	Ver	Date	Reason
22050071	01	15-Jun-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

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

Qualifiers

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

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: 22050160-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: 32230

RECEIVED
MAY 18 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:**	32230
Station ID:	LICA 01	**Installation Date/Time (mst):**	May 06, 2022 @ 20:25
Sample ID:	LICA/VOC/CLS/May 11, 2022	**Removal Date/Time (mst):**	May 16, 2022@ 20:21

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
May 11, 2022	0:00	23:59	24

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.5	20.1

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	**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: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 22050160-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: 32230

RECEIVED
MAY 18 2022

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	TE-03
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	May 06, 2022 @ 20:28
Field Sample ID:	LICA/PUF/CLS/May 11, 2022	**Removal Date/Time:**	May 16, 2022 @ 20:23

Sample Data Collection Information

Sample Date:	11-May-22	**Average Pressure (mmHg)**	n/a
Start Time (mst):	0:00	**Average Flow (Q_{std})**	n/a
End Time (mst):	23:59	**Average Tempurature (°C)**	n/a
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	n/a

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	

POWER MULFUNCTION (OUTLET), no sample was collected. The PUF DOES NOT require analysis.

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

InnoTech ALBERTA

Canister ID: 32230

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: APR 13 2022

Evacuated: APR 19 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/May 11, 2022

Sampled By: Alex Yampa

Starting Vacuum: -27.5 "Hg

End Vacuum: KG +20.1 "Hg/ psig

InnoTech ALBERTA

Canister ID: TE-03

NO SAMPLE

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/May 11, 2022

Sampled By: Alex Yampa

Starting Vacuum: "Hg

End Pressure: "Hg/ psig

Sample ID: 22050160-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: 32230

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: 32230

Matrix: Ambient Air

CANISTER ID: 28906

PRIORITY: Normal

DESCRIPTION: Cold Lake South

DATE SAMPLED: 11-May-22 0:00

DATE RECEIVED: 18-May-22

REPORT CREATED: 20-May-22

REPORT NUMBER: 22050160

VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22050160-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-May-22
22050160-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-May-22
22050160-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-May-22
22050160-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-May-22
22050160-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-May-22
22050160-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	18-May-22
22050160-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	18-May-22
22050160-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-May-22
22050160-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-May-22
22050160-001	1,2-Dichlorobenzene	I	0.06	ppbv	0.03	AC-058	18-May-22
22050160-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	18-May-22
22050160-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	18-May-22
22050160-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-May-22
22050160-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-May-22
22050160-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	18-May-22
22050160-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	18-May-22
22050160-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	18-May-22
22050160-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	18-May-22

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

Date: May 20, 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
32230	28906	Ambient Air	11-May-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22050160 **REPORT CREATED:** 20-May-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22050160-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	18-May-22
22050160-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-May-22
22050160-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-May-22
22050160-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-May-22
22050160-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-May-22
22050160-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	18-May-22
22050160-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-May-22
22050160-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	18-May-22
22050160-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-May-22
22050160-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	18-May-22
22050160-001	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-May-22
22050160-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	18-May-22
22050160-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-May-22
22050160-001	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-May-22
22050160-001	Acetone		4.7	ppbv	0.4	AC-058	18-May-22
22050160-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	18-May-22
22050160-001	Benzene	I	0.10	ppbv	0.03	AC-058	18-May-22
22050160-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	18-May-22
22050160-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	18-May-22
22050160-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	18-May-22
22050160-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-May-22
22050160-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	18-May-22
22050160-001	Carbon tetrachloride	K, T, U	< 0.02	ppbv	0.02	AC-058	18-May-22
22050160-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-May-22
22050160-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-May-22

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

Date: May 20, 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
32230	28906	Ambient Air	11-May-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22050160 **REPORT CREATED:** 20-May-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22050160-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	18-May-22
22050160-001	Chloromethane		0.61	ppbv	0.04	AC-058	18-May-22
22050160-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-May-22
22050160-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-May-22
22050160-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-May-22
22050160-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-May-22
22050160-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	18-May-22
22050160-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-May-22
22050160-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-May-22
22050160-001	Ethanol	K, T, U	< 0.5	ppbv	0.5	AC-058	18-May-22
22050160-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	18-May-22
22050160-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-May-22
22050160-001	Freon-11		0.30	ppbv	0.02	AC-058	18-May-22
22050160-001	Freon-113	I	0.09	ppbv	0.02	AC-058	18-May-22
22050160-001	Freon-114	I	0.04	ppbv	0.03	AC-058	18-May-22
22050160-001	Freon-12		0.83	ppbv	0.03	AC-058	18-May-22
22050160-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	18-May-22
22050160-001	Isobutane		0.20	ppbv	0.03	AC-058	18-May-22
22050160-001	Isopentane		0.13	ppbv	0.04	AC-058	18-May-22
22050160-001	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-May-22
22050160-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	18-May-22
22050160-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	18-May-22
22050160-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	18-May-22
22050160-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-May-22
22050160-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-May-22

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

Date: May 20, 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
32230	28906	Ambient Air	11-May-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22050160 **REPORT CREATED:** 20-May-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22050160-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	18-May-22
22050160-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	18-May-22
22050160-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	18-May-22
22050160-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	18-May-22
22050160-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	18-May-22
22050160-001	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-May-22
22050160-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	18-May-22
22050160-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	18-May-22
22050160-001	n-Butane		0.35	ppbv	0.02	AC-058	18-May-22
22050160-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	18-May-22
22050160-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	18-May-22
22050160-001	n-Heptane	I	0.09	ppbv	0.04	AC-058	18-May-22
22050160-001	n-Hexane	I	0.07	ppbv	0.03	AC-058	18-May-22
22050160-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	18-May-22
22050160-001	n-Pentane	I	0.08	ppbv	0.04	AC-058	18-May-22
22050160-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	18-May-22
22050160-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	18-May-22
22050160-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	18-May-22
22050160-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	18-May-22
22050160-001	o-Ethyltoluene	I	0.05	ppbv	0.02	AC-058	18-May-22
22050160-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-May-22
22050160-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-May-22
22050160-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	18-May-22
22050160-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	18-May-22
22050160-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-May-22

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

Date: May 20, 2022 Inquiries: (780) 632 8455 E-mail: EAS.Results@innotechalberta.ca

PO Bag 4000
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Canada T9C 1T4
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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
32230	28906	Ambient Air	11-May-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22050160 **REPORT CREATED:** 20-May-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22050160-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	18-May-22
22050160-001	Toluene	I	0.12	ppbv	0.03	AC-058	18-May-22
22050160-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	18-May-22
22050160-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-May-22
22050160-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	18-May-22
22050160-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-May-22
22050160-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	18-May-22
22050160-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	18-May-22
22050160-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	18-May-22

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

Date: May 20, 2022

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

Revision History

Order ID	Ver	Date	Reason
22050160	01	20-May-22	Report created

Methods

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

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

22050160

Power malfunction (outlet), no PUF sample was collected.

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 22050224-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/May 17, 2022

RECEIVED
MAY 25 2022

Maxxam Analytics

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

Client:	LICA	**Sampler S/N:**	6200
Location:	Cold Lake South	**Canister ID:**	32196
Station ID:	LICA 01	**Installation Date/Time (mst):**	May 16, 2022 @ 20:42
Sample ID:	LICA/VOC/CLS/May 17, 2022	**Removal Date/Time (mst):**	May 22, 2022@ 11:24

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
May 17, 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 22050224-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/May 17, 2022

RECEIVED
MAY 25 2022

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	TE-02
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	May 16, 2022 @ 20:44
Field Sample ID:	LICA/PUF/CLS/May 17, 2022	**Removal Date/Time:**	May 22, 2022 @ 11:29

Sample Data Collection Information

Sample Date:	17-May-22	**Average Pressure (mmHg)**	710
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	11.8
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.42

Sample Recovery Checklist

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

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

Sample ID 22050224-003 **Priority:** Normal

RECEIVED
MAY 25 2022

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/May 23, 2022

Maxxam Analytics

Data Sheet Alberta Air FCD AIR FCD-01320 / 2

Client:	LICA	**Sampler S/N:**	6200
Location:	Cold Lake South	**Canister ID:**	28948
Station ID:	LICA 01	**Installation Date/Time (mst):**	May 22, 2022 @ 13:16
Sample ID:	LICA/VOC/CLS/May 23, 2022	**Removal Date/Time (mst):**	May 24, 2022@ 10:47

Date and Time Information

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

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	**Final Pressure (psi)**
-27.0	19.3

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: Alex Yakupov

Collection Technician Signature: Alex Yakupov

AIR F **Sample ID** 22050224-004 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/May 23, 2022

RECEIVED
MAY 25 2022

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	TE-08
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	May 22, 2022 @ 13:18
Field Sample ID:	LICA/PUF/CLS/May 23, 2022	**Removal Date/Time:**	May 24, 2022 @ 10:49

Sample Data Collection Information

Sample Date:	23-May-22	**Average Pressure (mmHg)**	709
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	14.8
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.42

Sample Recovery Checklist

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

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

InnoTech ALBERTA

Canister ID: 32196

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: _____ on: MAR 24 2022

Evacuated: APR 13 2022 Recertified: MAY 03 2022 (date)

Sample ID 22050224-001 Priority: Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/May 17, 2022

Sample ID: LICA/VOC/CLS/May 17, 2022

Sampled By: Alex Yakupov

20psi JWP

Starting Vacuum: -27.9 "Hg

End Vacuum: +19.1 "Hg/psig

InnoTech ALBERTA

Canister ID: TE-02

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: PUF on: _____

Evacuated: _____ Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/PUF/CLS/May 17, 2022

Sampled By: Alex Yakupov

Starting Vacuum: _____ "Hg

End Vacuum: _____ "Hg/ psig

InnoTech ALBERTA

Canister ID: 28948

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: _____ on: FEB 28 2022

Evacuated: MAR 09 2022 Recertified: Mar 24/22

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/May 23, 2022

Sampled By: Alex Yakupov

20psi JWS

Starting Vacuum: -27 "Hg

End Pressure: +19.3 "Hg/ psig

InnoTech ALBERTA

Canister ID: TE-08

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: PUF on: _____

Evacuated: _____ Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/PUF/CLS/May 23 2022

Sampled By: Alex Yakupov

Starting Vacuum: _____ "Hg

End Vacuum: _____ "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/May 17, 2022
Matrix: Air Filter
CANISTER ID: TE-02
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 17-May-22 0:00
DATE RECEIVED: 25-May-22
REPORT CREATED: 15-Jun-22
REPORT NUMBER: 22050224
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22050224-002	1-Methylnaphthalene		0.03	ug/Filter	0.01	AC-066	09-Jun-22
22050224-002	2-Methylnaphthalene		0.07	ug/Filter	0.01	AC-066	09-Jun-22
22050224-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	09-Jun-22
22050224-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	09-Jun-22
22050224-002	Acenaphthene		0.02	ug/Filter	0.01	AC-066	09-Jun-22
22050224-002	Acenaphthylene		0.02	ug/Filter	0.01	AC-066	09-Jun-22
22050224-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	09-Jun-22
22050224-002	Anthracene		0.02	ug/Filter	0.01	AC-066	09-Jun-22
22050224-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	09-Jun-22
22050224-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	09-Jun-22
22050224-002	Benzo(b,j,k)fluoranthene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	09-Jun-22
22050224-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	09-Jun-22
22050224-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	09-Jun-22
22050224-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	09-Jun-22
22050224-002	Chrysene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	09-Jun-22
22050224-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	09-Jun-22
22050224-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	09-Jun-22
22050224-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	09-Jun-22

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

Date: June 15, 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/May 17, 2022	TE-02	Air Filter	17-May-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22050224 **REPORT CREATED:** 15-Jun-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22050224-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	09-Jun-22
22050224-002	Fluoranthene		0.06	ug/Filter	0.01	AC-066	09-Jun-22
22050224-002	Fluorene		0.06	ug/Filter	0.01	AC-066	09-Jun-22
22050224-002	Indeno(1,2,3-cd)pyrene		0.02	ug/Filter	0.01	AC-066	09-Jun-22
22050224-002	Naphthalene		0.02	ug/Filter	0.01	AC-066	09-Jun-22
22050224-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	09-Jun-22
22050224-002	Phenanthrene		0.29	ug/Filter	0.01	AC-066	09-Jun-22
22050224-002	Pyrene		0.05	ug/Filter	0.01	AC-066	09-Jun-22
22050224-002	Retene		0.10	ug/Filter	0.01	AC-066	09-Jun-22

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

Date: June 15, 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/PUF/CLS/May 23, 2022	TE-08	Air Filter	23-May-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22050224 **REPORT CREATED:** 15-Jun-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22050224-004	1-Methylnaphthalene		0.02	ug/Filter	0.01	AC-066	09-Jun-22
22050224-004	2-Methylnaphthalene		0.03	ug/Filter	0.01	AC-066	09-Jun-22
22050224-004	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	09-Jun-22
22050224-004	7,12-Dimethylbenz(a)anthracene		0.02	ug/Filter	0.01	AC-066	09-Jun-22
22050224-004	Acenaphthene		0.02	ug/Filter	0.01	AC-066	09-Jun-22
22050224-004	Acenaphthylene		0.07	ug/Filter	0.01	AC-066	09-Jun-22
22050224-004	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	09-Jun-22
22050224-004	Anthracene		0.16	ug/Filter	0.01	AC-066	09-Jun-22
22050224-004	Benzo(a)anthracene		0.04	ug/Filter	0.01	AC-066	09-Jun-22
22050224-004	Benzo(a)pyrene		0.02	ug/Filter	0.01	AC-066	09-Jun-22
22050224-004	Benzo(b,j,k)fluoranthene		0.10	ug/Filter	0.01	AC-066	09-Jun-22
22050224-004	Benzo(c)phenanthrene		0.01	ug/Filter	0.01	AC-066	09-Jun-22
22050224-004	Benzo(e)pyrene		0.03	ug/Filter	0.01	AC-066	09-Jun-22
22050224-004	Benzo(ghi)perylene		0.04	ug/Filter	0.01	AC-066	09-Jun-22
22050224-004	Chrysene		0.07	ug/Filter	0.01	AC-066	09-Jun-22
22050224-004	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	09-Jun-22
22050224-004	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	09-Jun-22
22050224-004	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	09-Jun-22
22050224-004	Dibenzo(ah)anthracene		0.01	ug/Filter	0.01	AC-066	09-Jun-22
22050224-004	Fluoranthene		0.25	ug/Filter	0.01	AC-066	09-Jun-22
22050224-004	Fluorene		0.14	ug/Filter	0.01	AC-066	09-Jun-22
22050224-004	Indeno(1,2,3-cd)pyrene		0.05	ug/Filter	0.01	AC-066	09-Jun-22
22050224-004	Naphthalene		0.03	ug/Filter	0.01	AC-066	09-Jun-22
22050224-004	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	09-Jun-22
22050224-004	Phenanthrene		0.86	ug/Filter	0.01	AC-066	09-Jun-22

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

Date: June 15, 2022

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/May 23, 2022	TE-08	Air Filter	23-May-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22050224 **REPORT CREATED:** 15-Jun-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22050224-004	Pyrene		0.21	ug/Filter	0.01	AC-066	09-Jun-22
22050224-004	Retene		0.34	ug/Filter	0.01	AC-066	09-Jun-22

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

Date: June 15, 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/May 17, 2022	32196	Ambient Air	17-May-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22050224 **REPORT CREATED:** 15-Jun-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22050224-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	25-May-22
22050224-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	25-May-22
22050224-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-May-22
22050224-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-May-22
22050224-001	1,2-Dichloroethane	I	0.10	ppbv	0.03	AC-058	25-May-22
22050224-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	25-May-22
22050224-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-May-22
22050224-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-May-22
22050224-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	25-May-22
22050224-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	25-May-22
22050224-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	25-May-22
22050224-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	25-May-22
22050224-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	25-May-22
22050224-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-May-22
22050224-001	2,2,4-Trimethylpentane	I	0.04	ppbv	0.02	AC-058	25-May-22
22050224-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	25-May-22
22050224-001	2,3-Dimethylpentane	I	0.06	ppbv	0.02	AC-058	25-May-22

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

Date: June 15, 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/May 17, 2022	32196	Ambient Air	17-May-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22050224 **REPORT CREATED:** 15-Jun-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22050224-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	25-May-22
22050224-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	25-May-22
22050224-001	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	25-May-22
22050224-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-001	3-Methylpentane	I	0.03	ppbv	0.02	AC-058	25-May-22
22050224-001	Acetone		2.3	ppbv	0.4	AC-058	25-May-22
22050224-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	25-May-22
22050224-001	Benzene	I	0.06	ppbv	0.03	AC-058	25-May-22
22050224-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	25-May-22
22050224-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	25-May-22
22050224-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-001	Carbon tetrachloride		0.12	ppbv	0.02	AC-058	25-May-22
22050224-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-001	Chloroform	I	0.03	ppbv	0.02	AC-058	25-May-22
22050224-001	Chloromethane		0.51	ppbv	0.04	AC-058	25-May-22
22050224-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-May-22
22050224-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-May-22
22050224-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	25-May-22

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

Date: June 15, 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/May 17, 2022	32196	Ambient Air	17-May-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22050224 **REPORT CREATED:** 15-Jun-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22050224-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-001	Ethanol	I	0.6	ppbv	0.5	AC-058	25-May-22
22050224-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	25-May-22
22050224-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-May-22
22050224-001	Freon-11		0.20	ppbv	0.02	AC-058	25-May-22
22050224-001	Freon-113	I	0.07	ppbv	0.02	AC-058	25-May-22
22050224-001	Freon-114	I	0.03	ppbv	0.03	AC-058	25-May-22
22050224-001	Freon-12		0.43	ppbv	0.03	AC-058	25-May-22
22050224-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	25-May-22
22050224-001	Isobutane		0.26	ppbv	0.03	AC-058	25-May-22
22050224-001	Isopentane		0.16	ppbv	0.04	AC-058	25-May-22
22050224-001	Isoprene	I	0.10	ppbv	0.02	AC-058	25-May-22
22050224-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	25-May-22
22050224-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	25-May-22
22050224-001	m,p-Xylene	I	0.06	ppbv	0.04	AC-058	25-May-22
22050224-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-May-22
22050224-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	25-May-22
22050224-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	25-May-22
22050224-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	25-May-22
22050224-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	25-May-22
22050224-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	25-May-22
22050224-001	Methylcyclohexane	I	0.07	ppbv	0.02	AC-058	25-May-22
22050224-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	25-May-22

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

Date: June 15, 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/May 17, 2022	32196	Ambient Air	17-May-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22050224 **REPORT CREATED:** 15-Jun-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22050224-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	25-May-22
22050224-001	n-Butane		0.19	ppbv	0.02	AC-058	25-May-22
22050224-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	25-May-22
22050224-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	25-May-22
22050224-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	25-May-22
22050224-001	n-Hexane	I	0.04	ppbv	0.03	AC-058	25-May-22
22050224-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-001	n-Pentane	I	0.07	ppbv	0.04	AC-058	25-May-22
22050224-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	25-May-22
22050224-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	25-May-22
22050224-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	25-May-22
22050224-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	25-May-22
22050224-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-May-22
22050224-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	25-May-22
22050224-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	25-May-22
22050224-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	25-May-22
22050224-001	Toluene	I	0.07	ppbv	0.03	AC-058	25-May-22
22050224-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	25-May-22
22050224-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-May-22
22050224-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22

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

Date: June 15, 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/May 17, 2022	32196	Ambient Air	17-May-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22050224 **REPORT CREATED:** 15-Jun-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22050224-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	25-May-22
22050224-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22

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

Date: June 15, 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/May 23, 2022	28948	Ambient Air	23-May-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22050224 **REPORT CREATED:** 15-Jun-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22050224-003	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-003	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-003	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-003	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-003	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-003	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	25-May-22
22050224-003	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	25-May-22
22050224-003	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-May-22
22050224-003	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-003	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-May-22
22050224-003	1,2-Dichloroethane	I	0.10	ppbv	0.03	AC-058	25-May-22
22050224-003	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	25-May-22
22050224-003	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-May-22
22050224-003	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-May-22
22050224-003	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	25-May-22
22050224-003	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	25-May-22
22050224-003	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	25-May-22
22050224-003	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	25-May-22
22050224-003	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	25-May-22
22050224-003	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-May-22
22050224-003	2,2,4-Trimethylpentane	I	0.04	ppbv	0.02	AC-058	25-May-22
22050224-003	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-003	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-003	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	25-May-22
22050224-003	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22

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

Date: June 15, 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/May 23, 2022	28948	Ambient Air	23-May-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22050224 **REPORT CREATED:** 15-Jun-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22050224-003	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	25-May-22
22050224-003	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-003	2-Methylhexane	I	0.03	ppbv	0.03	AC-058	25-May-22
22050224-003	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-003	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	25-May-22
22050224-003	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-003	3-Methylpentane	I	0.06	ppbv	0.02	AC-058	25-May-22
22050224-003	Acetone		2.3	ppbv	0.4	AC-058	25-May-22
22050224-003	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	25-May-22
22050224-003	Benzene	I	0.09	ppbv	0.03	AC-058	25-May-22
22050224-003	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	25-May-22
22050224-003	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	25-May-22
22050224-003	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-003	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-003	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-003	Carbon tetrachloride		0.13	ppbv	0.02	AC-058	25-May-22
22050224-003	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-003	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-003	Chloroform	I	0.03	ppbv	0.02	AC-058	25-May-22
22050224-003	Chloromethane		0.48	ppbv	0.04	AC-058	25-May-22
22050224-003	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-003	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-May-22
22050224-003	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-May-22
22050224-003	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-003	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	25-May-22

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

Date: June 15, 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/May 23, 2022	28948	Ambient Air	23-May-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22050224 **REPORT CREATED:** 15-Jun-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22050224-003	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-003	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-003	Ethanol	I	1.0	ppbv	0.5	AC-058	25-May-22
22050224-003	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	25-May-22
22050224-003	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-May-22
22050224-003	Freon-11		0.20	ppbv	0.02	AC-058	25-May-22
22050224-003	Freon-113	I	0.07	ppbv	0.02	AC-058	25-May-22
22050224-003	Freon-114	I	0.03	ppbv	0.03	AC-058	25-May-22
22050224-003	Freon-12		0.44	ppbv	0.03	AC-058	25-May-22
22050224-003	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	25-May-22
22050224-003	Isobutane		0.55	ppbv	0.03	AC-058	25-May-22
22050224-003	Isopentane		0.66	ppbv	0.04	AC-058	25-May-22
22050224-003	Isoprene		0.11	ppbv	0.02	AC-058	25-May-22
22050224-003	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	25-May-22
22050224-003	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	25-May-22
22050224-003	m,p-Xylene	I	0.07	ppbv	0.04	AC-058	25-May-22
22050224-003	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-003	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-May-22
22050224-003	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	25-May-22
22050224-003	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	25-May-22
22050224-003	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	25-May-22
22050224-003	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	25-May-22
22050224-003	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	25-May-22
22050224-003	Methylcyclohexane	I	0.08	ppbv	0.02	AC-058	25-May-22
22050224-003	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	25-May-22

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

Date: June 15, 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/May 23, 2022	28948	Ambient Air	23-May-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22050224 **REPORT CREATED:** 15-Jun-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22050224-003	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	25-May-22
22050224-003	n-Butane		0.91	ppbv	0.02	AC-058	25-May-22
22050224-003	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	25-May-22
22050224-003	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	25-May-22
22050224-003	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	25-May-22
22050224-003	n-Hexane	I	0.06	ppbv	0.03	AC-058	25-May-22
22050224-003	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-003	n-Pentane		0.23	ppbv	0.04	AC-058	25-May-22
22050224-003	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	25-May-22
22050224-003	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	25-May-22
22050224-003	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	25-May-22
22050224-003	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	25-May-22
22050224-003	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-003	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-May-22
22050224-003	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-003	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	25-May-22
22050224-003	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	25-May-22
22050224-003	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-003	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	25-May-22
22050224-003	Toluene	I	0.08	ppbv	0.03	AC-058	25-May-22
22050224-003	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	25-May-22
22050224-003	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-003	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	25-May-22
22050224-003	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22
22050224-003	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22

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

Date: June 15, 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/May 23, 2022	28948	Ambient Air	23-May-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22050224 **REPORT CREATED:** 15-Jun-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22050224-003	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	25-May-22
22050224-003	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	25-May-22

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

Date: June 15, 2022

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

Revision History

Order ID	Ver	Date	Reason
22050224	01	15-Jun-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 22060048-001 Priority: Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/May 29, 2022

RECEIVED JUN 07 2022

RECEIVED JUN 07 2022

Maxxam Analytics

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

Client:	LICA	**Sampler S/N:**	6200
Location:	Cold Lake South	**Canister ID:**	32261
Station ID:	LICA 01	**Installation Date/Time (mst):**	May 24, 2022 @ 11:04
Sample ID:	LICA/VOC/CLS/May 29, 2022	**Removal Date/Time (mst):**	June 03 2022@10:35

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
May 29, 2022	0:00	23:59	24

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	**Final Pressure (psi)**
-27.0	9

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: Alex Yakupov

Collection Technician Signature: Chris W.

Sample ID 22060048-001 Priority: Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/May 29, 2022

RECEIVED
JUN 07 2022

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	Puf+ S/N:	TE-09
Location:	Cold Lake South	Motor S/N:	1138/100-1020
Station ID:	LICA 01	Installation Date/Time:	May 24, 2022 @ 11:05
Field Sample ID:	LICA/PUF/CLS/May 29, 2022	Removal Date/Time:	June 03, 2022 @ 11:30

Sample Data Collection Information

Sample Date:	29-May-22	Average Pressure (mmHg)	N/A
Start Time (mst):	0:00	Average Flow (Q_{std})	N/A
End Time (mst):	23:59	Average Tempurature (°C)	N/A
Elapsed Time (Hours):	24	Volume (Vstd m^3)	N/A

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

No sample collected

Deployed By:	Alex Yakupov	
Collected By:	~~Alex Yakupov~~	CHRIS WESTON

InnoTech ALBERTA

Canister ID: 32261

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: APR 13 2022

Evacuated: APR 19 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/MAY 29, 2022

Sampled By:

Starting Vacuum: -27.5 "Hg

End Vacuum: 20 psi JMP 19 "Hg/psig

Sample ID 22060048-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/May 29, 2022

InnoTech ALBERTA

Canister ID: TE-09

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: PUF on:

Evacuated: Recertified:

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

Laboratory Contact Number: 780-632-8403

Sample ID: Not Valid Sample.

Sampled By: LICA/PUF/CLS/May 29, 2022

Starting Vacuum: / "Hg

End Pressure: / "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/VOC/CLS/May 29, 2022
Matrix: Ambient Air
CANISTER ID: 32261
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 29-May-22 0:00
DATE RECEIVED: 07-Jun-22
REPORT CREATED: 13-Jun-22
REPORT NUMBER: 22060048
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22060048-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Jun-22
22060048-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Jun-22
22060048-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Jun-22
22060048-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Jun-22
22060048-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Jun-22
22060048-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	08-Jun-22
22060048-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	08-Jun-22
22060048-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Jun-22
22060048-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Jun-22
22060048-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Jun-22
22060048-001	1,2-Dichloroethane		0.10	ppbv	0.03	AC-058	08-Jun-22
22060048-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Jun-22
22060048-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Jun-22
22060048-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Jun-22
22060048-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	08-Jun-22
22060048-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	08-Jun-22
22060048-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	08-Jun-22
22060048-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	08-Jun-22

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

Date: June 13, 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/May 29, 2022	32261	Ambient Air	29-May-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22060048 **REPORT CREATED:** 13-Jun-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22060048-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	08-Jun-22
22060048-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Jun-22
22060048-001	2,2,4-Trimethylpentane	I	0.06	ppbv	0.02	AC-058	08-Jun-22
22060048-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Jun-22
22060048-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Jun-22
22060048-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	08-Jun-22
22060048-001	2,3-Dimethylpentane	I	0.08	ppbv	0.02	AC-058	08-Jun-22
22060048-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Jun-22
22060048-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Jun-22
22060048-001	2-Methylhexane	I	0.04	ppbv	0.03	AC-058	08-Jun-22
22060048-001	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Jun-22
22060048-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Jun-22
22060048-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Jun-22
22060048-001	3-Methylpentane	I	0.06	ppbv	0.02	AC-058	08-Jun-22
22060048-001	Acetone		2.7	ppbv	0.4	AC-058	08-Jun-22
22060048-001	Acrolein	I	0.3	ppbv	0.3	AC-058	08-Jun-22
22060048-001	Benzene	I	0.12	ppbv	0.03	AC-058	08-Jun-22
22060048-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	08-Jun-22
22060048-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Jun-22
22060048-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Jun-22
22060048-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Jun-22
22060048-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Jun-22
22060048-001	Carbon tetrachloride		0.12	ppbv	0.02	AC-058	08-Jun-22
22060048-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Jun-22
22060048-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Jun-22

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

Date: June 13, 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/May 29, 2022	32261	Ambient Air	29-May-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22060048 **REPORT CREATED:** 13-Jun-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22060048-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Jun-22
22060048-001	Chloromethane		0.67	ppbv	0.04	AC-058	08-Jun-22
22060048-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Jun-22
22060048-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Jun-22
22060048-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Jun-22
22060048-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Jun-22
22060048-001	Cyclohexane	I	0.07	ppbv	0.04	AC-058	08-Jun-22
22060048-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Jun-22
22060048-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Jun-22
22060048-001	Ethanol		1.1	ppbv	0.5	AC-058	08-Jun-22
22060048-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	08-Jun-22
22060048-001	Ethylbenzene	I	0.04	ppbv	0.03	AC-058	08-Jun-22
22060048-001	Freon-11		0.22	ppbv	0.02	AC-058	08-Jun-22
22060048-001	Freon-113	I	0.08	ppbv	0.02	AC-058	08-Jun-22
22060048-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Jun-22
22060048-001	Freon-12		0.49	ppbv	0.03	AC-058	08-Jun-22
22060048-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	08-Jun-22
22060048-001	Isobutane		0.50	ppbv	0.03	AC-058	08-Jun-22
22060048-001	Isopentane		0.43	ppbv	0.04	AC-058	08-Jun-22
22060048-001	Isoprene		0.14	ppbv	0.02	AC-058	08-Jun-22
22060048-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	08-Jun-22
22060048-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	08-Jun-22
22060048-001	m,p-Xylene	I	0.12	ppbv	0.04	AC-058	08-Jun-22
22060048-001	m-Diethylbenzene	I	0.03	ppbv	0.02	AC-058	08-Jun-22
22060048-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Jun-22

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

Date: June 13, 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/May 29, 2022	32261	Ambient Air	29-May-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22060048 **REPORT CREATED:** 13-Jun-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22060048-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	08-Jun-22
22060048-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	08-Jun-22
22060048-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	08-Jun-22
22060048-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	08-Jun-22
22060048-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Jun-22
22060048-001	Methylcyclohexane		0.12	ppbv	0.02	AC-058	08-Jun-22
22060048-001	Methylcyclopentane	I	0.07	ppbv	0.05	AC-058	08-Jun-22
22060048-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	08-Jun-22
22060048-001	n-Butane		0.59	ppbv	0.02	AC-058	08-Jun-22
22060048-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	08-Jun-22
22060048-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	08-Jun-22
22060048-001	n-Heptane	I	0.06	ppbv	0.04	AC-058	08-Jun-22
22060048-001	n-Hexane	I	0.10	ppbv	0.03	AC-058	08-Jun-22
22060048-001	n-Octane	I	0.03	ppbv	0.02	AC-058	08-Jun-22
22060048-001	n-Pentane		0.16	ppbv	0.04	AC-058	08-Jun-22
22060048-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	08-Jun-22
22060048-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	08-Jun-22
22060048-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	08-Jun-22
22060048-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	08-Jun-22
22060048-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Jun-22
22060048-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Jun-22
22060048-001	p-Diethylbenzene	I	0.02	ppbv	0.02	AC-058	08-Jun-22
22060048-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	08-Jun-22
22060048-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	08-Jun-22
22060048-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Jun-22

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

Date: June 13, 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/May 29, 2022	32261	Ambient Air	29-May-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22060048 **REPORT CREATED:** 13-Jun-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22060048-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	08-Jun-22
22060048-001	Toluene	I	0.14	ppbv	0.03	AC-058	08-Jun-22
22060048-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	08-Jun-22
22060048-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Jun-22
22060048-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	08-Jun-22
22060048-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Jun-22
22060048-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Jun-22
22060048-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	08-Jun-22
22060048-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	08-Jun-22

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

Date: June 13, 2022

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

Revision History

Order ID	Ver	Date	Reason
22060048	01	13-Jun-22	Report created

Methods

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

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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(780) 632-8211

Order Comments

22060048

No sample collected on PUF sample.

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(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 Samples

Partisol 2000i-D Sample Data Sheet

Date Sampled:	5-May-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 22050070-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9460878

	FINE (1) (1)	COURSE (2) (2)
Filter Type:	47mm	47mm
Filter #:	C9460878	C9460879
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	15.5	
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): Alex Yakupov Date: 4-May-22

Removed by (Sign/Date) Alex Yakupov Date: 6-May-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 22050070-001 Priority: Normal

Customer ID: LICA

Cust Samp ID: C9460878

RECEIVED
MAY 10 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:

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	C9460878 → C9460879

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
C9460878	Air Filter

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

DATE SAMPLED: 05-May-22 0:00
DATE RECEIVED: 10-May-22
REPORT CREATED: 16-May-22
REPORT NUMBER: 22050070
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22050070-001	Particulate Weight		0.005	mg	0.004	AC-029	11-May-22

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

Date: May 16, 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
C9460879		Air Filter	05-May-22 0:00

DESCRIPTION: Cold Lake South - PM 10 - Coarse

REPORT NUMBER: 22050070 **REPORT CREATED:** 16-May-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22050070-002	Particulate Weight		0.140	mg	0.004	AC-029	11-May-22

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

Date: May 16, 2022

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

Revision History

Order ID	Ver	Date	Reason
22050070	01	16-May-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: 22050159-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9460898

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2000i-D Sample Data Sheet

Date Sampled:	11-May-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 #:	C9460897	C9460898
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	12.1	
Pressure	712	
Std Volume (Instrument)	21.3	2.37

Comments: Weather Conditions, etc.

n/a

Last Audit Date: 25-Mar-22

Install by (Sign/Date): Alex Yakupov Date: 6-May-22

Removed by (Sign/Date) Alex Yakupov Date: 16-May-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: 22050159-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9460898

RECEIVED
MAY 18 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: L Mielenka

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	C9460897 → C9460898

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
C9460897	Air Filter

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

DATE SAMPLED: 11-May-22 0:00
DATE RECEIVED: 18-May-22
REPORT CREATED: 01-Jun-22
REPORT NUMBER: 22050159
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22050159-001	Particulate Weight	K, T, U	< 0.004	mg	0.004	AC-029	24-May-22

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

Date: June 1, 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
C9460898		Air Filter	11-May-22 0:00

DESCRIPTION: Cold Lake South - PM 10 - Coarse

REPORT NUMBER: 22050159 **REPORT CREATED:** 01-Jun-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22050159-002	Particulate Weight		0.063	mg	0.004	AC-029	24-May-22

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

Date: June 1, 2022

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

Revision History

Order ID	Ver	Date	Reason
22050159	01	01-Jun-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:	17-May-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 22050225-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9460890

	FINE (1)	COURSE (2)
Filter Type:	47mm	47mm
Filter #:	C9460890	C9460891
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	10.9	
Pressure	710	
Std Volume (Instrument)	21.3	2.37

Comments: Weather Conditions, etc.

n/a

Last Audit Date: 25-Mar-22

Install by (Sign/Date): Alex Yakupov Date: 16-May-22

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

Partisol 2000i-D Sample Data Sheet

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JNP

Date Sampled:	23-May-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 22050225-003 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9460876

	FINE (1) (3)	COURSE (2) (4)
Filter Type:	47mm	47mm
Filter #:	C9460876	C9460877
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	14	
Pressure	709	
Std Volume (Instrument)	21.1	2.34

Comments: Weather Conditions, etc.

n/a

Last Audit Date: 25-Mar-22

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

Removed by (Sign/Date) Alex Yakupov Date: 24-May-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 22050225-001 Priority: Normal

Customer ID: LICA
Cust Samp ID: C9460890

RECEIVED
MAY 25 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: S Jelenka

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	C9460890 → C9460891

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 22050225-003 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9460876

RECEIVED
MAY 25 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:

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	C9460876 → C9460877

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
C9460876	Air Filter

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

DATE SAMPLED: 23-May-22 0:00
DATE RECEIVED: 25-May-22
REPORT CREATED: 01-Jun-22
REPORT NUMBER: 22050225
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22050225-003	Particulate Weight		0.039	mg	0.004	AC-029	26-May-22

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

Date: June 1, 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
C9460877		Air Filter	23-May-22 0:00

DESCRIPTION: Cold Lake South - PM 10 - Coarse

REPORT NUMBER: 22050225 **REPORT CREATED:** 01-Jun-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22050225-004	Particulate Weight	K, T, U	< 0.004	mg	0.004	AC-029	26-May-22

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

Date: June 1, 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
C9460890		Air Filter	17-May-22 0:00

DESCRIPTION: Cold Lake South - PM 2.5 - Fine

REPORT NUMBER: 22050225 **REPORT CREATED:** 01-Jun-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22050225-001	Particulate Weight	K, T, U	< 0.004	mg	0.004	AC-029	26-May-22

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

Date: June 1, 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
C9460891		Air Filter	17-May-22 0:00

DESCRIPTION: Cold Lake South - PM 10 - Coarse

REPORT NUMBER: 22050225 **REPORT CREATED:** 01-Jun-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22050225-002	Particulate Weight	K, T, U	< 0.004	mg	0.004	AC-029	26-May-22

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

Date: June 1, 2022

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

Revision History

Order ID	Ver	Date	Reason
22050225	01	01-Jun-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:	29-May-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 22060049-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9460888

	FINE (1)	COURSE (2)
Filter Type:	47mm	47mm
Filter #:	C9460888	C9460889
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	13.6	
Pressure	704	
Std Volume (Instrument)	20.8	2.32

Comments: Weather Conditions, etc.

n/a

Last Audit Date: 25-Mar-22

Install by (Sign/Date): Alex Yakupov Date: 24-May-22

Removed by (Sign/Date) [signature] Date: 03- June-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 22060049-001 Priority: Normal

Customer ID: LICA

Cust Samp ID: C9460888

Filter Shipping Record

RECEIVED
JUN 07 2022

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: L Mulenka

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	C9460888 → C9460889

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
C9460888	Air Filter

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

DATE SAMPLED: 29-May-22 0:00
DATE RECEIVED: 07-Jun-22
REPORT CREATED: 09-Jun-22
REPORT NUMBER: 22060049
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22060049-001	Particulate Weight		0.030	mg	0.004	AC-029	08-Jun-22

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

Date: June 9, 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
C9460889		Air Filter	29-May-22 0:00

DESCRIPTION: Cold Lake South - PM 10 - Coarse

REPORT NUMBER: 22060049 **REPORT CREATED:** 09-Jun-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22060049-002	Particulate Weight		0.031	mg	0.004	AC-029	08-Jun-22

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

Date: June 9, 2022

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

Revision History

Order ID	Ver	Date	Reason
22060049	01	09-Jun-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.

Passive Samples

Passive Sampler Field Sheet for LICA, May 2022 sample period

ID	SAMPLER				START (2022)		END (2022)		NOTES
					DATE	TIME	DATE	TIME	
3	H_2S	SO_2	NO_2	O_3	Apr 29	18:26	May 31	18:06	
4	---	SO_2	NO_2	O_3	Apr 29	10:02	June 2	09:50	
5	H_2S	SO_2	NO_2	O_3	May 2	13:42	June 2	10:35	
6	---	SO_2	NO_2	O_3	May 2	16:12	June 2	12:00	
8	---	SO_2	NO_2	O_3	May 2	11:13	June 2	08:51	
9	---	SO_2	NO_2	O_3	Apr 29	12:24	June 1	14:51	
10	H_2S	SO_2	NO_2	O_3	May 3	13:43	May 31	13:45	H2S missing
11	H_2S	SO_2	NO_2	O_3	May 3	14:52	May 31	12:50	
12	H2S	SO2	NO2	O3	May 3	16:02			No site access 05/31/22
13	H_2S	SO_2	NO_2	O_3	Apr 29	17:41	June 1	12:59	
14	H_2S	SO_2	NO_2	O_3	May 3	11:57	June 1	11:32	
15	---	SO_2	NO_2	O_3	Apr 29	10:46	June 1	14:03	
16	H_2S	SO_2	NO_2	O_3	May 2	20:02	June 2		
17	H_2S	SO_2	NO_2	O_3	May 2	16:44	June 2	13:06	
18	H_2S	SO_2	NO_2	O_3	May 2	18:32	June 2	15:46	
19	---	SO_2	NO_2	O_3	May 2	20:42	June 1	17:36	
22	H_2S	SO_2	NO_2	O_3	Apr 29	08:38	May 31	09:38	
23	---	SO_2	NO_2	O_3	Apr 29	09:46	June 1	09:17	
24	H_2S	SO_2	NO_2	O_3	May 2	14:16	June 2	11:20	
25	H2S	SO2	---	---					
26	H_2S	SO_2	---	---	May 3	12:07	June 1	12:15	
27	H_2S	SO_2	---	---	May 3	11:26	June 1	10:56	
28	---	SO_2	NO_2	O_3	Apr 29	11:57			No access 05/01/22
29	H_2S	SO_2	NO_2	O_3	Apr 29	08:41	May 31	09:20	
32	H_2S	SO_2	NO_2	O_3	Apr 29	14:18	May 31	17:02	
40	H_2S	SO_2	NO_2	O_3	Station removed	---	Station removed	---	
DUPLICATES									
13	---	---	NO_2	O_3	Apr 29	17:41	June 1	12:59	
14	---	---	NO_2	O_3	May 3	11:57	June 1	11:32	
23	---	SO2	---	---	Apr 29	09:46	June 1	09:17	
24	---	SO2	---	---	May 2	14:16	June 2	11:20	
26	---	SO2	---	---	May 3	12:07	June 1	12:15	
27	H2S	---	---	---	May 3	11:26	~~May 31~~ June 1	~~09:20~~ 10:56	
29	H_2S	---	---	---	Apr 29	08:41	May 31	09:20	

RECEIVED
JUN 06
@ 0830

24 NO2
2403
18 H2S
28 SO2

Bottle Order #: 662475

INTERNAL SAMPLE CONTAINER REQUEST FORM

Date Ordered: 2022/04/21
Bottle Order #: 662475
Pr.Manager: Customer Service Passives

Date Required: 2022/05/20
Time Required: 05:00 PM
Ship Method:
Ship Courier: Purolator

Quote:
Site
Project #: LICA
PO #:
Attachments: No
Prefix: P

Internal Note:

Ordered By
Company: LAKELAND INDUSTRY AND COMMUNITY ASSOCIATI
Attention: MICHAEL BISAGA
Other Attn:
Phone:
Fax:
Street: PO BOX 8237
5107W- 50TH STREET
City: BONNYVILLE, Alberta
CANADA T9N 2J5

Ship To
Bureau Veritas Edm-Petroleum

6744 - 50 Street

Edmonton, Alberta
Canada T6B3M9 (Client #: 2833)

Total # of Containers	Label ID	Size	Type	Preservative	QC ✓	Analysis	# of Samples	# of Containers / Sample	Addn	QC	Sampling Instructions
PASSIVE EDMONTON											
2	H2S Passive Blank		Plastic	N/A		PARH2S	2	1			Do Not Open, return with samples
20	H2S Passive Sampler		Plastic	N/A		PAH2S	20	1			
2	NO2 Passive Blank		Plastic	N/A		PARNO2	2	1			Do Not Open, return with samples
26	NO2 Passive Sampler		Plastic	N/A		PANO2	26	1			
2	O3 Passive Blank		Plastic	N/A		PARO3	2	1			Do Not Open, return with samples
26	O3 Passive Sampler		Plastic	N/A		PAO3	26	1			
3	SO2 Passive Blank		Plastic	N/A		PARSO2	3	1			Do Not Open, return with samples
30	SO2 Passive Sampler		Plastic	N/A		PASO2	30	1			

Your Project #: MAY 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: 2022/06/21
Report #: R3189224
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C238961
Received: 2022/06/07, 13:57

Sample Matrix: Air
Samples Received: 31

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
H2S Passive Analysis	18	2022/06/17	2022/06/20	PTC SOP-00150	Passive H2S in ATM
NO2 Passive Analysis	24	2022/06/09	2022/06/20	PTC SOP-00148	Passive NO2 in ATM
O3 Passive Analysis	24	2022/06/09	2022/06/20	PTC SOP-00197	EPA 300 R2.1
SO2 Passive Analysis	27	2022/06/13	2022/06/20	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
21 Jun 2022 08:05:15

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 #: C238961
Report Date: 2022/06/21

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		AUM216			AUM217			AUM218		
Sampling Date		2022/04/29 18:26			2022/04/29 10:02			2022/05/02 13:42		
	UNITS	3	RDL	QC Batch	4	RDL	QC Batch	5	RDL	QC Batch
Passive Monitoring										
Calculated H2S	ppb	0.14	0.02	A612823				0.23	0.02	A612823
Calculated NO2	ppb	0.7	0.1	A600664	0.5	0.1	A600664	0.4	0.1	A600664
Calculated O3	ppb	28.4	0.1	A601809	32.9	0.1	A601809	33.3	0.1	A601809
Calculated SO2	ppb	0.2	0.1	A608048	0.2	0.1	A608048	0.3	0.1	A608048
RDL = Reportable Detection Limit										

Bureau Veritas ID		AUM219	AUM220	AUM221			AUM222	AUM223		
Sampling Date		2022/05/02 16:12	2022/05/02 11:13	2022/04/29 12:24			2022/05/03 13:43	2022/05/03 14:52		
	UNITS	6	8	9	RDL	QC Batch	10	11	RDL	QC Batch
Passive Monitoring										
Calculated H2S	ppb						MISSING	0.10	0.02	A612823
Calculated NO2	ppb	1.9	0.5	0.7	0.1	A600664	1.9	0.4	0.1	A600664
Calculated O3	ppb	28.4	30.9	27.5	0.1	A601809	29.9	26.8	0.1	A601809
Calculated SO2	ppb	0.3	0.3	0.2	0.1	A608048	0.3	0.6	0.1	A608048
RDL = Reportable Detection Limit										

Bureau Veritas ID		AUM224		AUM225	AUM226			AUM227		
Sampling Date		2022/05/03 16:02		2022/04/29 17:41	2022/05/03 11:57			2022/04/29 10:46		
	UNITS	12 - NO SITE ACCESS	QC Batch	13	14	RDL	QC Batch	15	RDL	QC Batch
Passive Monitoring										
Calculated H2S	ppb	MISSING	A612823	0.07	0.17	0.02	A612824			
Calculated NO2	ppb	MISSING	A600664	0.3	0.6	0.1	A600664	0.7	0.1	A600664
Calculated O3	ppb	MISSING	A601809	28.7	29.9	0.1	A601809	28.4	0.1	A601809
Calculated SO2	ppb	MISSING	A608048	0.2	0.7	0.1	A608048	0.3	0.1	A608048
RDL = Reportable Detection Limit										

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

Bureau Veritas Job #: C238961
Report Date: 2022/06/21

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		AUM228	AUM229	AUM230			AUM231			AUM232		
Sampling Date		2022/05/02 20:02	2022/05/02 16:44	2022/05/02 18:32			2022/05/02 20:42			2022/04/29 08:38		
	UNITS	16	17	18	RDL	QC Batch	19	RDL	QC Batch	22	RDL	QC Batch
Passive Monitoring												
Calculated H2S	ppb	0.11	0.20	0.12	0.02	A612824				0.13	0.02	A612824
Calculated NO2	ppb	0.4	0.7	0.4	0.1	A600664	0.3	0.1	A601043	0.5	0.1	A601043
Calculated O3	ppb	29.9	32.1	28.2	0.1	A601809	32.0	0.1	A601809	26.8	0.1	A601809
Calculated SO2	ppb	0.2	0.3	0.2	0.1	A608048	0.2	0.1	A608048	0.1	0.1	A608048
RDL = Reportable Detection Limit												

Bureau Veritas ID		AUM233			AUM234			AUM235	AUM236		
Sampling Date		2022/04/29 09:46			2022/05/02 14:16			2022/05/03 12:07	2022/05/03 11:26		
	UNITS	23	RDL	QC Batch	24	RDL	QC Batch	26	27	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb				0.14	0.02	A612824	0.16	0.36	0.02	A612824
Calculated NO2	ppb	<0.1	0.1	A601043	1.0	0.1	A601043				
Calculated O3	ppb	23.9	0.1	A601809	31.0	0.1	A601809				
Calculated SO2	ppb	0.1	0.1	A608048	0.3	0.1	A608048	0.4	0.5	0.1	A608136
RDL = Reportable Detection Limit											

Bureau Veritas ID		AUM237			AUM238	AUM239			AUM243		
Sampling Date		2022/04/29 11:57			2022/04/29 08:41	2022/04/29 14:18			2022/04/29 17:41		
	UNITS	28 - NO SITE ACCESS	RDL	QC Batch	29	32	RDL	QC Batch	13 DUP	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb				0.13	0.16	0.02	A612824			
Calculated NO2	ppb	MISSING	0.1	A601043	0.4	0.2	0.1	A601043	0.2	0.1	A601043
Calculated O3	ppb	MISSING	0.1	A603852	33.1	34.0	0.1	A603852	26.9	0.1	A603852
Calculated SO2	ppb	MISSING	0.1	A608136	0.2	0.3	0.1	A608136			
RDL = Reportable Detection Limit											

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

Bureau Veritas Job #: C238961
Report Date: 2022/06/21

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		AUM244			AUM245	AUM246	AUM247			AUM248		
Sampling Date		2022/05/03 11:57			2022/04/29 09:46	2022/05/02 14:16	2022/05/03 12:09			2022/05/03 11:26		
	UNITS	14 DUP	RDL	QC Batch	23 DUP	24 DUP	26 DUP	RDL	QC Batch	27 DUP	RDL	QC Batch
Passive Monitoring												
Calculated H2S	ppb									0.36	0.02	A612824
Calculated NO2	ppb	0.6	0.1	A601043								
Calculated O3	ppb	28.5	0.1	A603852								
Calculated SO2	ppb				0.2	0.3	0.4	0.1	A608136			
RDL = Reportable Detection Limit												

Bureau Veritas ID		AUM249		
Sampling Date		2022/04/29 08:41		
	UNITS	29 DUP	RDL	QC Batch
Passive Monitoring				
Calculated H2S	ppb	0.12	0.02	A612824
RDL = Reportable Detection Limit				

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GENERAL COMMENTS

Results relate only to the items tested.

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

Bureau Veritas Job #: C238961
Report Date: 2022/06/21

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

QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A600664	XSZ	Spiked Blank	Calculated NO2			97	%	90 - 110
A600664	XSZ	Method Blank	Calculated NO2		<0.1		ppb	
A601043	XSZ	Spiked Blank	Calculated NO2			100	%	90 - 110
A601043	XSZ	Method Blank	Calculated NO2		<0.1		ppb	
A601809	XSZ	Spiked Blank	Calculated O3			99	%	90 - 110
A601809	XSZ	Method Blank	Calculated O3		<0.1		ppb	
A603852	XSZ	Spiked Blank	Calculated O3			100	%	90 - 110
A603852	XSZ	Method Blank	Calculated O3		<0.1		ppb	
A608048	OZ	Spiked Blank	Calculated SO2			100	%	90 - 110
A608048	OZ	Method Blank	Calculated SO2		<0.1		ppb	
A608136	OZ	Spiked Blank	Calculated SO2			99	%	90 - 110
A608136	OZ	Method Blank	Calculated SO2		<0.1		ppb	
A612823	KDE	Spiked Blank	Calculated H2S			101	%	90 - 110
A612824	KDE	Spiked Blank	Calculated H2S			101	%	90 - 110

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

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

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

Bureau Veritas Job #: C238961
Report Date: 2022/06/21

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

VALIDATION SIGNATURE PAGE

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

Yang Liu

Yang Liu, 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