Lakeland Industry & Community Association

DECEMBER 2021

Monthly Ambient Air Quality Monitoring Integrated Sampling Report

LICA-202112-INTEGRATED

January 18, 2022

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January 18, 2022

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

RE: LICA –December 2021 Monthly Ambient Air Quality Monitoring Integrated Sampling Report

Enclosed is the December 2021 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
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This report has been prepared, reviewed and submitted by Michael Bisaga & Lily Lin of the LICA Airshed.

NETWORK STATION SUMMARY

Listing of Air Monitoring Stations and Integrated Sampling Stations

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

Listing of Passive Sampling Stations

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

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 December 2021

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 December 6, 12, 18, 24 and 30.
- **Polycyclic Aromatic Hydrocarbons (PAHs)**
  - Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) where applicable.
  - The PUF sampler is programed to collect a 24-hour sample of air every sixth day as per the North American Pollution Surveillance schedule (NAPS).
  - Five samples were collected this month: on December 6, 12, 18, 24 and 30.
- **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 December 6, 12, 18, 24 and 30.
- **Passives**

- There were no exceedances of the AAAQOs for all monitored parameters at any of the passive stations during this month.
- The passive sample filters were installed at the stations between November 30 and December 2, and were removed between December 29 and December 31.
- A total of 9 duplicate samples were collected: 2 for H2S, 3 for SO2, 2 for NO2 and 2 for O3.
- No samples were collected at station 25. The field technician has not completed the necessary safety orientation for the CNRL Primrose/Burnt Lake site and access is not permitted at this time.

Passive polycyclic aromatic compounds (PACs) Stations

- The PAC sampling program began in December 2019, and is designed to collect a 2-month integrated sample.
- The PAC sample medias for sampling period November and December was removed on December 29. The sample medias for sample period January and February 2022 were also installed on December 29.

Revisions to Alberta's Ambient Air Quality Data Warehouse

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

Deviations from Authorized Monitoring Methods

There were no deviations from authorized monitoring methods.

Certification

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

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

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

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

INTEGRATED SAMPLING RESULTS SUMMARY

COLD LAKE SOUTH STATION

- **VOCs analytical results**

Sample Date	2021-12-06	2021-12-12	2021-12-18	2021-12-24	2021-12-30
Canister ID	32228	29030	28888	32218	28953
Maximum Reading (ppbv)	2.4	2.6	4.49	1.4	1.6
Parameter	Ethanol	Ethanol	n-Butane	Acetone	Acetone

- **PAHs analytical results**

Sample Date	2021-12-06		2021-12-12		2021-12-18		2021-12-24		2021-12-30	
PUF S/N	TE-05		A13-02		P13-01		TE-07		TE-10	
Volume (Vstd m^3)	330.32		330.32		330.36		330.34		330.36	
Maximum Reading	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3
	2.15	6.51	0.72	2.18	0.95	2.88	0.55	1.66	1.49	4.51
Parameter	Naphthalene		Phenanthrene		2-Methylnaphthalene / Naphthalene		Naphthalene		Naphthalene	

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

Sample Date	2021-12-06		2021-12-12		2021-12-18		2021-12-24		2021-12-30	
Filter #	C9269715		P7149331		C9269719		C9463898		C9463660	
Volume (Vstd m^3)	24.1		22.3		24.0		23.7		24.7	
Result	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)	Result (mg)	Result (mg/m^3)
Particulate Matter	0.202	0.008	0.110	0.005	0.131	0.005	0.026	0.001	0.064	0.003

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

Sample Date	2021-12-06		2021-12-12		2021-12-18		2021-12-24		2021-12-30	
Filter #	C9269716		P7149332		C9269720		C9463899		C9264697	
Volume (Vstd m^3)	2.69		2.48		2.67		2.64		2.75	
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	0.044	0.016	0.015	0.006	0.016	0.006	0.012	0.005	0.012	0.004

- **Passive analytical results**

	H_2S		NO_2		O_3		SO_2	
Minimum (ppb)	0.17	#12	1.2	#13	20.3	#23	0.4	#16
Maximum (ppb)	0.88	#27	7.5	#10	32.3	#4	2.0	#26
Average (ppb)	0.27	-	2.91	-	26.35	-	0.68	-

ANALYTICAL SAMPLING RESULTS

COLD LAKE SOUTH STATION

VOCS

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - December 2021

Volatile Organic Compounds (VOCs) Results

Sample Date		2021-12-06	2021-12-12	2021-12-18	2021-12-24	2021-12-30
Canister ID		32228	29030	28888	32218	28953
Method		AC-058	AC-058	AC-058	AC-058	AC-058
Maximum Reading (ppbv)		2.4	2.6	4.49	1.4	1.6
Parameter		Ethanol	Ethanol	n-Butane	Acetone	Acetone

Parameter	AAAQOs (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	RDL (ppbv)
1,1,1-Trichloroethane		< 0.02	0.03	< 0.02	< 0.02	< 0.02	0.02
1,1,2,2-Tetrachloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1,2-Trichloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1-Dichloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1-Dichloroethylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
1,2,3-Trimethylbenzene		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.05
1,2,4-Trichlorobenzene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.8
1,2,4-Trimethylbenzene		0.07	0.1	< 0.03	< 0.03	< 0.03	0.05
1,2-Dibromoethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,2-Dichlorobenzene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
1,2-Dichloroethane		0.04	< 0.03	< 0.03	< 0.03	< 0.03	0.01
1,2-Dichloropropane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
1,3,5-Trimethylbenzene		< 0.03	0.06	< 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	0.6	< 0.5	< 0.5	0.4
1-Butene		0.24	0.19	0.21	0.1	0.14	0.02
1-Hexene		< 0.07	0.15	< 0.07	< 0.07	< 0.07	0.02
1-Pentene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
2,2,4-Trimethylpentane		0.12	0.13	0.13	< 0.02	< 0.02	0.01
2,2-Dimethylbutane		< 0.02	< 0.02	0.11	0.09	0.12	0.01
2,3,4-Trimethylpentane		0.13	0.13	< 0.02	< 0.02	< 0.02	0.01
2,3-Dimethylbutane		0.11	0.12	0.12	< 0.09	0.12	0.02
2,3-Dimethylpentane		0.09	0.12	0.1	< 0.02	0.11	0.02
2,4-Dimethylpentane		0.09	0.1	< 0.03	< 0.03	< 0.03	0.01
2-Methylheptane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
2-Methylhexane		0.1	0.11	< 0.03	< 0.03	< 0.03	0.01
2-Methylpentane		0.15	0.14	0.2	< 0.02	0.13	0.01
3-Methylheptane		< 0.03	0.1	< 0.03	< 0.03	< 0.03	0.02
3-Methylhexane		0.11	0.12	0.12	< 0.02	0.12	0.02
3-Methylpentane		0.14	0.13	0.2	0.1	0.13	0.01
Acetone	2400	1.6	1.4	1.7	1.4	1.6	0.4
Acrolein	1.9	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Benzene	9.0	0.32	0.26	0.24	0.17	0.21	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	0.12	< 0.02	0.01
Carbon tetrachloride		0.16	0.13	0.17	0.17	0.16	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		0.05	0.05	< 0.02	0.03	0.03	0.02
Chloromethane		0.69	0.72	0.74	0.75	0.68	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		0.22	0.25	0.22	0.2	0.31	0.02
Cyclopentane		0.11	0.12	0.12	< 0.02	< 0.02	0.01
Dibromochloromethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
Ethanol		2.4	2.6	2.2	< 0.5	< 0.5	0.3
Ethyl acetate		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Ethylbenzene	460	0.12	0.14	0.2	0.19	0.20	0.01
Freon-11		0.32	0.32	0.33	0.33	0.32	0.02
Freon-113		0.09	0.09	0.08	0.09	0.08	0.01
Freon-114		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - December 2021

Volatile Organic Compounds (VOCs) Results

Sample Date		2021-12-06	2021-12-12	2021-12-18	2021-12-24	2021-12-30
Canister ID		32228	29030	28888	32218	28953
Method		AC-058	AC-058	AC-058	AC-058	AC-058
Maximum Reading (ppbv)		2.4	2.6	4.49	1.4	1.6
Parameter		Ethanol	Ethanol	n-Butane	Acetone	Acetone

Parameter	AAAQOs (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	RDL (ppbv)
Freon-12		0.67	0.72	0.81	0.81	0.74	0.02
Hexachloro-1,3-butadiene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.5
Isobutane		1.34	0.98	2.3	0.46	0.81	0.02
Isopentane		0.89	0.72	1.46	0.37	0.68	0.03
Isoprene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
Isopropyl alcohol		0.4	0.4	0.4	0.4	0.40	0.4
Isopropylbenzene		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.01
m,p-Xylene		0.2	0.24	0.27	0.26	0.28	0.03
m-Diethylbenzene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
m-Ethyltoluene		< 0.03	0.1	< 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		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Methyl isobutyl ketone		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Methyl methacrylate		< 0.08	< 0.08	< 0.08	< 0.08	< 0.08	0.07
Methyl tert butyl ether		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
Methylcyclohexane		0.19	0.17	0.14	0.11	0.24	0.01
Methylcyclopentane		0.14	0.17	0.15	0.1	0.23	0.02
Methylene chloride		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
n-Butane		2.18	1.56	4.49	0.55	1.11	0.03
n-Decane		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.06
n-Dodecane		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
n-Heptane		0.2	0.19	0.2	0.18	0.21	0.01
n-Hexane	5960	0.22	0.2	0.29	0.15	0.21	0.01
n-Nonane		< 0.04	< 0.04	< 0.04	< 0.04	0.12	0.01
n-Octane		0.14	0.14	< 0.02	< 0.02	< 0.02	0.02
n-Pentane		0.63	0.47	0.91	0.33	0.57	0.1
n-Propylbenzene		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.05
n-Undecane		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.5
Naphthalene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.5
o-Ethyltoluene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
o-Xylene		0.12	0.13	0.18	< 0.03	< 0.03	0.01
p-Diethylbenzene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
p-Ethyltoluene		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.07
Styrene	52.0	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.04
Tetrachloroethylene		< 0.02	0.04	< 0.02	< 0.02	< 0.02	0.04
Tetrahydrofuran		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Toluene	499	0.24	0.24	0.23	0.19	0.23	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 - December 2021

Polycyclic Aromatic Hydrocarbons (PAHs) Results

Sample Date	2021-12-06		2021-12-12		2021-12-18		2021-12-24		2021-12-30	
PUF S/N	TE-05		A13-02		P13-01		TE-07		TE-10	
Volume (Vstd m^3)	330.32		330.32		330.36		330.34		330.36	
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
	2.15	6.51	0.72	2.18	0.95	2.88	0.55	1.66	1.49	4.51
Parameter	Naphthalene		Phenanthrene		2-Methylnaphthalene / Naphthalene		Naphthalene		Naphthalene	

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	1.15	3.48	0.37	1.12	0.69	2.09	0.24	0.73	0.84	2.54	0.01
2-Methylnaphthalene	1.67	5.06	0.53	1.60	0.95	2.88	0.36	1.09	1.34	4.06	0.01
3-Methylcholanthrene	0.02	0.06	0.02	0.06	0.02	0.06	0.02	0.06	0.02	0.06	0.01
7,12-Dimethylbenz(a)anthracene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Acenaphthene	0.18	0.54	0.12	0.36	0.14	0.42	0.05	0.15	0.14	0.42	0.01
Acenaphthylene	0.19	0.58	0.38	1.15	0.11	0.33	< 0.01	0.00	0.05	0.15	0.01
Acridine	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Anthracene	0.05	0.15	0.10	0.30	0.05	0.15	0.01	0.03	0.02	0.06	0.01
Benzo(a)anthracene	0.08	0.24	0.05	0.15	0.05	0.15	0.01	0.03	0.04	0.12	0.01
Benzo(a)pyrene	0.07	0.21	0.06	0.18	0.04	0.12	0.01	0.03	0.05	0.15	0.01
Benzo(b,j,k)fluoranthene	0.18	0.54	0.17	0.51	0.13	0.39	0.02	0.06	0.09	0.27	0.01
Benzo(c)phenanthrene	0.03	0.09	0.26	0.79	0.02	0.06	< 0.01	0.00	0.02	0.06	0.01
Benzo(e)pyrene	0.05	0.15	0.04	0.12	0.02	0.06	< 0.01	0.00	0.02	0.06	0.01
Benzo(ghi)perylene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Chrysene	0.14	0.42	0.06	0.18	0.07	0.21	< 0.01	0.00	0.06	0.18	0.01
Dibenzo(a,h)pyrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Dibenzo(a,i)pyrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Dibenzo(a,l)pyrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Dibenzo(ah)anthracene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Fluoranthene	0.18	0.54	0.25	0.76	0.20	0.61	0.02	0.06	0.14	0.42	0.01
Fluorene	0.24	0.73	0.39	1.18	0.24	0.73	0.07	0.21	0.12	0.36	0.01
Indeno(1,2,3-cd)pyrene	0.07	0.21	0.07	0.21	0.05	0.15	0.02	0.06	0.04	0.12	0.01
Naphthalene	2.15	6.51	0.48	1.45	0.95	2.88	0.55	1.66	1.49	4.51	0.01
Perylene	0.01	0.03	0.02	0.06	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Phenanthrene	0.60	1.82	0.72	2.18	0.60	1.82	0.09	0.27	0.31	0.94	0.01
Pyrene	0.15	0.45	0.20	0.61	0.13	0.39	0.01	0.03	0.11	0.33	0.01
Retene	0.42	1.27	0.18	0.54	0.43	1.30	0.08	0.24	0.40	1.21	0.01

PARTISOLS

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - December 2021

Partisol Results - $PM_{2.5}$

Sample Date		**2021-12-06**		**2021-12-12**		**2021-12-18**		**2021-12-24**		**2021-12-30**		
Filter #		**C9269715**		**P7149331**		**C9269719**		**C9463898**		**C9463660**		
Volume (Vstd m^3)		**24.1**		**22.3**		**24.0**		**23.7**		**24.7**		
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	**0.202**	**0.008**	**0.110**	**0.005**	**0.131**	**0.005**	**0.026**	**0.001**	**0.064**	**0.003**	0.004
PM2.5 Mass in ug/m3			**8.382**		**4.933**		**5.458**		**1.097**		**2.591**	
RDL in ug/m3			**0.166**		**0.179**		**0.167**		**0.169**		**0.162**	

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - December 2021

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

Sample Date	2021-12-06		2021-12-12		2021-12-18		2021-12-24		2021-12-30		
Filter #	C9269716		P7149332		C9269720		C9463899		C9264697		
Volume (Vstd m^3)	2.69		2.48		2.67		2.64		2.75		
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	**0.044**	**0.016**	**0.015**	**0.006**	**0.016**	**0.006**	**0.012**	**0.005**	**0.012**	**0.004**	0.004
PM2.5-10 Mass in ug/m3		**16.357**		**6.048**		**5.993**		**4.545**		**4.364**	
RDL in ug/m3		**1.487**		**1.613**		**1.498**		**1.515**		**1.455**	

PASSIVE SAMPLES

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - December 2021

Passive Results

	H_2S		NO_2		O_3		SO_2	
Minimum (ppb)	0.17	#12	1.2	#13	20.3	#23	0.4	#16
Maximum (ppb)	0.88	#27	7.5	#10	32.3	#4	2.0	#26
Average (ppb)	0.27	-	2.91	-	26.35	-	0.68	-

No.	Station	Sample	Duplicate	Sample	Duplicate	Sample	Duplicate	Sample	Duplicate
3	Therien	0.19		2.3	2.2	29.2	29.4	0.6	
4	Flat Lake	-		2.2		32.3		0.7	
5	Lake Eliza	0.24		2.2		28.8		0.7	0.5
6	Telegraph Creek	-		5.9		25.7		0.7	0.6
8	Muriel-Kehewin	-		2.0		31.6		0.7	0.6
9	Dupre	-		3.2		26.6		0.6	
10	La Corey	0.27		7.5		21.0		0.7	
11	Wolf Lake	0.21	0.19	1.5		21.5		0.5	
12	Foster Creek	0.17	0.18	1.5		28.8		0.6	
13	Primrose	0.19		1.2		24.5		0.8	
14	Maskwa	0.32		3.3		23.9		1.9	
15	Ardmore	-		3.4		29.7		0.5	
16	Frog Lake	0.24		2.8		23.6		0.4	
17	Clear Range	0.28		2.4		31.3		0.7	
18	Fishing Lake	0.18		1.5		22.9		0.4	
19	Beaverdam	-		1.6		31.3		0.5	
22	Cold Lake South (1)	0.24		3.4		24.3		0.5	
23	Medley-Martineau	-		1.3		20.3		0.4	
24	Fort George	0.23		3.7		25.5		0.4	
25	Burnt Lake	Missing 1		-		-		Missing 1	
26	Mahihkan	0.30		-		-		0.6	
27	Mahkeses	0.88		-		-		2.0	
28	Town of Bonnyville	-		6.3		24.5		0.5	
29	Cold Lake South (2)	0.22		3.3		23.9		0.4	
32	St. Lina	0.21		1.6	1.8	28.4	28.8	0.4	
Reportable Detection Limit (RDL)		**0.02**		**0.1**		**0.1**		**0.1**	

Note:

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

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

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

End of Report

Lakeland Industry & Community Association

DECEMBER 2021

Ambient Air Monitoring

Certified Laboratory Analysis Report

LAB-LICA-202112

Operation and Maintenance:
Bureau Veritas Canada

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

January 18, 2022

Table of Contents

Cold Lake South Station

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

Sample ID: 21120092-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Dec 06, 2021

RECEIVED
DEC 13 2021

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:**	32228
Station ID:	LICA 01	**Installation Date/Time (mst):**	Dec 02, 2021@ 19:20
Sample ID:	LICA/VOC/CLS/Dec 06, 2021	**Removal Date/Time (mst):**	Dec 08, 2021@ 19:50

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
December 6, 2021	0:00	23:59	24

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.3	20.4

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

Deployment/Collection and Maintenance Checklist

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

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

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

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

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

Date of last audit: November 25, 2021 (due every 3 months)

Last date of sample line purging / replacement: November 25, 2021 (due every 6 months)

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 21120092-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Dec 06, 2021

RECEIVED
DEC 13 2021

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	TE-05
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Dec 02, 2021 @ 19:22
Field Sample ID:	LICA/PUF/CLS/Dec 06, 2021	**Removal Date/Time:**	Dec 08, 2021 @ 20:03

Sample Data Collection Information

Sample Date:	6-Dec-21	**Average Pressure (mmHg)**	709
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	-20.8
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.32

Sample Recovery Checklist

	(circle one)	
Flow Rate 230 slpm +/- 0.2 slpm ?	**YES**	NO
Average temperature appears correct?	**YES**	NO
Average pressure appears correct?	**YES**	NO
Any error messages? (if yes list below)	YES	**NO**
Sample duration 24 hours?	**YES**	NO
Date of last calibration/audit:	**25-Nov-21**	
Other observations?		n/a

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

InnoTech ALBERTA

This cleaned canister meets or exceeds TO-15 Method Specifications

Canister ID: 32228

Proofed by: ISQ4 on: SEP 13 2021

Evacuated: SEP 14 2021 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Dec 6 2021

Sampled By: Alex Yakupov

Starting Vacuum: -27.3 "Hg

End Vacuum: KG +20.4 "Hg/psig

InnoTech ALBERTA

This cleaned canister meets or exceeds TO-15 Method Specifications

Canister ID: TE-06

Proofed by: _____ on: _____

Evacuated: _____ Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/PUF/CLS/Dec 6, 2021

Sampled By: Alex Yakupov

Starting Vacuum: _____ "Hg

End Vacuum: _____ "Hg/psig

Sample ID: 21120092-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Dec 06, 2021

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/Dec 06, 2021
Matrix: Air Filter
CANISTER ID: TE-05
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 06-Dec-21 0:00
DATE RECEIVED: 13-Dec-21
REPORT CREATED: 14-Jan-22
REPORT NUMBER: 21120092
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
21120092-002	1-Methylnaphthalene		1.15	ug/Filter	0.01	AC-066	08-Jan-22
21120092-002	2-Methylnaphthalene		1.67	ug/Filter	0.01	AC-066	08-Jan-22
21120092-002	3-Methylcholanthrene		0.02	ug/Filter	0.01	AC-066	08-Jan-22
21120092-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22
21120092-002	Acenaphthene		0.18	ug/Filter	0.01	AC-066	08-Jan-22
21120092-002	Acenaphthylene		0.19	ug/Filter	0.01	AC-066	08-Jan-22
21120092-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22
21120092-002	Anthracene		0.05	ug/Filter	0.01	AC-066	08-Jan-22
21120092-002	Benzo(a)anthracene		0.08	ug/Filter	0.01	AC-066	08-Jan-22
21120092-002	Benzo(a)pyrene		0.07	ug/Filter	0.01	AC-066	08-Jan-22
21120092-002	Benzo(b,j,k)fluoranthene		0.18	ug/Filter	0.01	AC-066	08-Jan-22
21120092-002	Benzo(c)phenanthrene		0.03	ug/Filter	0.01	AC-066	08-Jan-22
21120092-002	Benzo(e)pyrene		0.05	ug/Filter	0.01	AC-066	08-Jan-22
21120092-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22
21120092-002	Chrysene		0.14	ug/Filter	0.01	AC-066	08-Jan-22
21120092-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22
21120092-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22
21120092-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22

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

Date: January 14, 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/Dec 06, 2021	TE-05	Air Filter	06-Dec-21 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 21120092 **REPORT CREATED:** 14-Jan-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
21120092-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22
21120092-002	Fluoranthene		0.18	ug/Filter	0.01	AC-066	08-Jan-22
21120092-002	Fluorene		0.24	ug/Filter	0.01	AC-066	08-Jan-22
21120092-002	Indeno(1,2,3-cd)pyrene		0.07	ug/Filter	0.01	AC-066	08-Jan-22
21120092-002	Naphthalene		2.15	ug/Filter	0.01	AC-066	08-Jan-22
21120092-002	Perylene		0.01	ug/Filter	0.01	AC-066	08-Jan-22
21120092-002	Phenanthrene		0.60	ug/Filter	0.01	AC-066	08-Jan-22
21120092-002	Pyrene		0.15	ug/Filter	0.01	AC-066	08-Jan-22
21120092-002	Retene		0.42	ug/Filter	0.01	AC-066	08-Jan-22

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

Date: January 14, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 06, 2021	32228	Ambient Air	06-Dec-21 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 21120092 **REPORT CREATED:** 14-Jan-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
21120092-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Dec-21
21120092-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Dec-21
21120092-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Dec-21
21120092-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Dec-21
21120092-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Dec-21
21120092-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	14-Dec-21
21120092-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Dec-21
21120092-001	1,2,4-Trimethylbenzene	I	0.07	ppbv	0.03	AC-058	14-Dec-21
21120092-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Dec-21
21120092-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Dec-21
21120092-001	1,2-Dichloroethane	I	0.04	ppbv	0.03	AC-058	14-Dec-21
21120092-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Dec-21
21120092-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Dec-21
21120092-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Dec-21
21120092-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	14-Dec-21
21120092-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	14-Dec-21
21120092-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	14-Dec-21
21120092-001	1-Butene/Isobutylene		0.24	ppbv	0.06	AC-058	14-Dec-21
21120092-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	14-Dec-21
21120092-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Dec-21
21120092-001	2,2,4-Trimethylpentane		0.12	ppbv	0.02	AC-058	14-Dec-21
21120092-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Dec-21
21120092-001	2,3,4-Trimethylpentane		0.13	ppbv	0.02	AC-058	14-Dec-21
21120092-001	2,3-Dimethylbutane		0.11	ppbv	0.09	AC-058	14-Dec-21
21120092-001	2,3-Dimethylpentane	I	0.09	ppbv	0.02	AC-058	14-Dec-21

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

Date: January 14, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 06, 2021	32228	Ambient Air	06-Dec-21 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 21120092 **REPORT CREATED:** 14-Jan-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
21120092-001	2,4-Dimethylpentane	I	0.09	ppbv	0.03	AC-058	14-Dec-21
21120092-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Dec-21
21120092-001	2-Methylhexane		0.10	ppbv	0.03	AC-058	14-Dec-21
21120092-001	2-Methylpentane		0.15	ppbv	0.02	AC-058	14-Dec-21
21120092-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Dec-21
21120092-001	3-Methylhexane		0.11	ppbv	0.02	AC-058	14-Dec-21
21120092-001	3-Methylpentane		0.14	ppbv	0.02	AC-058	14-Dec-21
21120092-001	Acetone		1.6	ppbv	0.4	AC-058	14-Dec-21
21120092-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Dec-21
21120092-001	Benzene		0.32	ppbv	0.03	AC-058	14-Dec-21
21120092-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Dec-21
21120092-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Dec-21
21120092-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Dec-21
21120092-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Dec-21
21120092-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Dec-21
21120092-001	Carbon tetrachloride		0.16	ppbv	0.02	AC-058	14-Dec-21
21120092-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Dec-21
21120092-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Dec-21
21120092-001	Chloroform	I	0.05	ppbv	0.02	AC-058	14-Dec-21
21120092-001	Chloromethane		0.69	ppbv	0.04	AC-058	14-Dec-21
21120092-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Dec-21
21120092-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Dec-21
21120092-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Dec-21
21120092-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Dec-21
21120092-001	Cyclohexane		0.22	ppbv	0.04	AC-058	14-Dec-21

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

Date: January 14, 2022 Inquiries: (780) 632 8455 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 06, 2021	32228	Ambient Air	06-Dec-21 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 21120092 **REPORT CREATED:** 14-Jan-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
21120092-001	Cyclopentane		0.11	ppbv	0.02	AC-058	14-Dec-21
21120092-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Dec-21
21120092-001	Ethanol		2.4	ppbv	0.5	AC-058	14-Dec-21
21120092-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Dec-21
21120092-001	Ethylbenzene	I	0.12	ppbv	0.03	AC-058	14-Dec-21
21120092-001	Freon-11		0.32	ppbv	0.02	AC-058	14-Dec-21
21120092-001	Freon-113	I	0.09	ppbv	0.02	AC-058	14-Dec-21
21120092-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Dec-21
21120092-001	Freon-12		0.67	ppbv	0.03	AC-058	14-Dec-21
21120092-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Dec-21
21120092-001	Isobutane		1.34	ppbv	0.03	AC-058	14-Dec-21
21120092-001	Isopentane		0.89	ppbv	0.04	AC-058	14-Dec-21
21120092-001	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Dec-21
21120092-001	Isopropyl alcohol	I	0.4	ppbv	0.3	AC-058	14-Dec-21
21120092-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	14-Dec-21
21120092-001	m,p-Xylene	I	0.20	ppbv	0.04	AC-058	14-Dec-21
21120092-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Dec-21
21120092-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Dec-21
21120092-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	14-Dec-21
21120092-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Dec-21
21120092-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Dec-21
21120092-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	14-Dec-21
21120092-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Dec-21
21120092-001	Methylcyclohexane		0.19	ppbv	0.02	AC-058	14-Dec-21
21120092-001	Methylcyclopentane		0.14	ppbv	0.05	AC-058	14-Dec-21

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

Date: January 14, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 06, 2021	32228	Ambient Air	06-Dec-21 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 21120092 **REPORT CREATED:** 14-Jan-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
21120092-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Dec-21
21120092-001	n-Butane		2.18	ppbv	0.02	AC-058	14-Dec-21
21120092-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	14-Dec-21
21120092-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Dec-21
21120092-001	n-Heptane	I	0.20	ppbv	0.04	AC-058	14-Dec-21
21120092-001	n-Hexane		0.22	ppbv	0.03	AC-058	14-Dec-21
21120092-001	n-Octane		0.14	ppbv	0.02	AC-058	14-Dec-21
21120092-001	n-Pentane		0.63	ppbv	0.04	AC-058	14-Dec-21
21120092-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	14-Dec-21
21120092-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	14-Dec-21
21120092-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Dec-21
21120092-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	14-Dec-21
21120092-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Dec-21
21120092-001	o-Xylene	I	0.12	ppbv	0.03	AC-058	14-Dec-21
21120092-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Dec-21
21120092-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	14-Dec-21
21120092-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	14-Dec-21
21120092-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Dec-21
21120092-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Dec-21
21120092-001	Toluene		0.24	ppbv	0.03	AC-058	14-Dec-21
21120092-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	14-Dec-21
21120092-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Dec-21
21120092-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	14-Dec-21
21120092-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Dec-21
21120092-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Dec-21

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

Date: January 14, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 06, 2021	32228	Ambient Air	06-Dec-21 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 21120092 **REPORT CREATED:** 14-Jan-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
21120092-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	14-Dec-21
21120092-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	14-Dec-21

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

Date: January 14, 2022

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

Revision History

Order ID	Ver	Date	Reason
21120092	01	14-Jan-22	Report created

Methods

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

Qualifiers

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

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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: 21120119-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Dec 12, 2021

RECEIVED
DEC 15 2021

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:**	29030
Station ID:	LICA 01	**Installation Date/Time (mst):**	Dec 08, 2021@ 20:21
Sample ID:	LICA/VOC/CLS/Dec 12, 2021	**Removal Date/Time (mst):**	Dec 13, 2021@ 19:17

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
December 12, 2021	0:00	23:59	24

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	**Final Pressure (psi)**
-27.2	18.5

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

Deployment/Collection and Maintenance Checklist

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

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: November 25, 2021 (due every 3 months)

Last date of sample line purging / replacement: November 25, 2021 (due every 6 months)

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 21120119-002 Priority: Normal

Customer ID: LICA

Cust Samp ID: LICA/PUF/CLS/Dec 12, 2021

RECEIVED
DEC 15 2021

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	A13-02
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Dec 08, 2021 @ 20:24
Field Sample ID:	LICA/PUF/CLS/Dec 12, 2021	**Removal Date/Time:**	Dec 13, 2021 @ 19:21

Sample Data Collection Information

Sample Date:	12-Dec-21	**Average Pressure (mmHg)**	699
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	-5.7
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.32

Sample Recovery Checklist

	(circle one)	
Flow Rate 230 slpm +/- 0.2 slpm ?	**YES**	NO
Average temperature appears correct?	**YES**	NO
Average pressure appears correct?	**YES**	NO
Any error messages? (if yes list below)	YES	**NO**
Sample duration 24 hours?	**YES**	NO
Date of last calibration/audit:	**25-Nov-21**	
Other observations?		n/a

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

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Canister ID: 29030

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: SEP 13 2021

Evacuated: SEP 14 2021 Recertified: OCT 07 2021

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Dec 12, 2021

Sampled By: Alex Yakupov

Starting Vacuum: -27.2 "Hg

End Vacuum: +18.5 "Hg/psig KG 18

InnoTech ALBERTA

Canister ID: A13-02

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: on:

Evacuated: Recertified:

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

Laboratory Contact Number: 780-632-8403

PUF

Sample ID: LICA/PUF/CLS/Dec 12, 2021

Sampled By: Alex Yakupov

Starting Vacuum: "Hg

End Vacuum: "Hg/psig

Sample ID: 21120119-001 Priority: Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Dec 12, 2021

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID: LICA/PUF/CLS/Dec 12, 2021
Matrix: Air Filter
CANISTER ID: A13-02
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 12-Dec-21 0:00
DATE RECEIVED: 15-Dec-21
REPORT CREATED: 14-Jan-22
REPORT NUMBER: 21120119
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
21120119-002	1-Methylnaphthalene		0.37	ug/Filter	0.01	AC-066	08-Jan-22
21120119-002	2-Methylnaphthalene		0.53	ug/Filter	0.01	AC-066	08-Jan-22
21120119-002	3-Methylcholanthrene		0.02	ug/Filter	0.01	AC-066	08-Jan-22
21120119-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22
21120119-002	Acenaphthene		0.12	ug/Filter	0.01	AC-066	08-Jan-22
21120119-002	Acenaphthylene		0.38	ug/Filter	0.01	AC-066	08-Jan-22
21120119-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22
21120119-002	Anthracene		0.10	ug/Filter	0.01	AC-066	08-Jan-22
21120119-002	Benzo(a)anthracene		0.05	ug/Filter	0.01	AC-066	08-Jan-22
21120119-002	Benzo(a)pyrene		0.06	ug/Filter	0.01	AC-066	08-Jan-22
21120119-002	Benzo(b,j,k)fluoranthene		0.17	ug/Filter	0.01	AC-066	08-Jan-22
21120119-002	Benzo(c)phenanthrene		0.26	ug/Filter	0.01	AC-066	08-Jan-22
21120119-002	Benzo(e)pyrene		0.04	ug/Filter	0.01	AC-066	08-Jan-22
21120119-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22
21120119-002	Chrysene		0.06	ug/Filter	0.01	AC-066	08-Jan-22
21120119-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22
21120119-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22
21120119-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22

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

Date: January 14, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Dec 12, 2021	A13-02	Air Filter	12-Dec-21 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 21120119 **REPORT CREATED:** 14-Jan-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
21120119-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22
21120119-002	Fluoranthene		0.25	ug/Filter	0.01	AC-066	08-Jan-22
21120119-002	Fluorene		0.39	ug/Filter	0.01	AC-066	08-Jan-22
21120119-002	Indeno(1,2,3-cd)pyrene		0.07	ug/Filter	0.01	AC-066	08-Jan-22
21120119-002	Naphthalene		0.48	ug/Filter	0.01	AC-066	08-Jan-22
21120119-002	Perylene		0.02	ug/Filter	0.01	AC-066	08-Jan-22
21120119-002	Phenanthrene		0.72	ug/Filter	0.01	AC-066	08-Jan-22
21120119-002	Pyrene		0.20	ug/Filter	0.01	AC-066	08-Jan-22
21120119-002	Retene		0.18	ug/Filter	0.01	AC-066	08-Jan-22

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

Date: January 14, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 12, 2021	29030	Ambient Air	12-Dec-21 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 21120119 **REPORT CREATED:** 14-Jan-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
21120119-001	1,1,1-Trichloroethane	I	0.03	ppbv	0.02	AC-058	16-Dec-21
21120119-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Dec-21
21120119-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Dec-21
21120119-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Dec-21
21120119-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Dec-21
21120119-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	16-Dec-21
21120119-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	16-Dec-21
21120119-001	1,2,4-Trimethylbenzene	I	0.10	ppbv	0.03	AC-058	16-Dec-21
21120119-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Dec-21
21120119-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Dec-21
21120119-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Dec-21
21120119-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Dec-21
21120119-001	1,3,5-Trimethylbenzene	I	0.06	ppbv	0.03	AC-058	16-Dec-21
21120119-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Dec-21
21120119-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	16-Dec-21
21120119-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	16-Dec-21
21120119-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	16-Dec-21
21120119-001	1-Butene/Isobutylene	I	0.19	ppbv	0.06	AC-058	16-Dec-21
21120119-001	1-Hexene/2-Methyl-1-pentene	I	0.15	ppbv	0.07	AC-058	16-Dec-21
21120119-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Dec-21
21120119-001	2,2,4-Trimethylpentane		0.13	ppbv	0.02	AC-058	16-Dec-21
21120119-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Dec-21
21120119-001	2,3,4-Trimethylpentane		0.13	ppbv	0.02	AC-058	16-Dec-21
21120119-001	2,3-Dimethylbutane		0.12	ppbv	0.09	AC-058	16-Dec-21
21120119-001	2,3-Dimethylpentane		0.12	ppbv	0.02	AC-058	16-Dec-21

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 12, 2021	29030	Ambient Air	12-Dec-21 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 21120119 **REPORT CREATED:** 14-Jan-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
21120119-001	2,4-Dimethylpentane	I	0.10	ppbv	0.03	AC-058	16-Dec-21
21120119-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Dec-21
21120119-001	2-Methylhexane		0.11	ppbv	0.03	AC-058	16-Dec-21
21120119-001	2-Methylpentane		0.14	ppbv	0.02	AC-058	16-Dec-21
21120119-001	3-Methylheptane		0.10	ppbv	0.03	AC-058	16-Dec-21
21120119-001	3-Methylhexane		0.12	ppbv	0.02	AC-058	16-Dec-21
21120119-001	3-Methylpentane		0.13	ppbv	0.02	AC-058	16-Dec-21
21120119-001	Acetone		1.4	ppbv	0.4	AC-058	16-Dec-21
21120119-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	16-Dec-21
21120119-001	Benzene		0.26	ppbv	0.03	AC-058	16-Dec-21
21120119-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	16-Dec-21
21120119-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Dec-21
21120119-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Dec-21
21120119-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Dec-21
21120119-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Dec-21
21120119-001	Carbon tetrachloride		0.13	ppbv	0.02	AC-058	16-Dec-21
21120119-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Dec-21
21120119-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Dec-21
21120119-001	Chloroform	I	0.05	ppbv	0.02	AC-058	16-Dec-21
21120119-001	Chloromethane		0.72	ppbv	0.04	AC-058	16-Dec-21
21120119-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Dec-21
21120119-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Dec-21
21120119-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Dec-21
21120119-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Dec-21
21120119-001	Cyclohexane		0.25	ppbv	0.04	AC-058	16-Dec-21

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

Date: January 14, 2022 Inquiries: (780) 632 8455 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 12, 2021	29030	Ambient Air	12-Dec-21 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 21120119 **REPORT CREATED:** 14-Jan-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
21120119-001	Cyclopentane		0.12	ppbv	0.02	AC-058	16-Dec-21
21120119-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Dec-21
21120119-001	Ethanol		2.6	ppbv	0.5	AC-058	16-Dec-21
21120119-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	16-Dec-21
21120119-001	Ethylbenzene	I	0.14	ppbv	0.03	AC-058	16-Dec-21
21120119-001	Freon-11		0.32	ppbv	0.02	AC-058	16-Dec-21
21120119-001	Freon-113	I	0.09	ppbv	0.02	AC-058	16-Dec-21
21120119-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Dec-21
21120119-001	Freon-12		0.72	ppbv	0.03	AC-058	16-Dec-21
21120119-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	16-Dec-21
21120119-001	Isobutane		0.98	ppbv	0.03	AC-058	16-Dec-21
21120119-001	Isopentane		0.72	ppbv	0.04	AC-058	16-Dec-21
21120119-001	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Dec-21
21120119-001	Isopropyl alcohol	I	0.4	ppbv	0.3	AC-058	16-Dec-21
21120119-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	16-Dec-21
21120119-001	m,p-Xylene	I	0.24	ppbv	0.04	AC-058	16-Dec-21
21120119-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Dec-21
21120119-001	m-Ethyltoluene	I	0.10	ppbv	0.03	AC-058	16-Dec-21
21120119-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	16-Dec-21
21120119-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	16-Dec-21
21120119-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	16-Dec-21
21120119-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	16-Dec-21
21120119-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Dec-21
21120119-001	Methylcyclohexane		0.17	ppbv	0.02	AC-058	16-Dec-21
21120119-001	Methylcyclopentane		0.17	ppbv	0.05	AC-058	16-Dec-21

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

Date: January 14, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 12, 2021	29030	Ambient Air	12-Dec-21 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 21120119 **REPORT CREATED:** 14-Jan-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
21120119-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	16-Dec-21
21120119-001	n-Butane		1.56	ppbv	0.02	AC-058	16-Dec-21
21120119-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	16-Dec-21
21120119-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	16-Dec-21
21120119-001	n-Heptane	I	0.19	ppbv	0.04	AC-058	16-Dec-21
21120119-001	n-Hexane		0.20	ppbv	0.03	AC-058	16-Dec-21
21120119-001	n-Octane		0.14	ppbv	0.02	AC-058	16-Dec-21
21120119-001	n-Pentane		0.47	ppbv	0.04	AC-058	16-Dec-21
21120119-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	16-Dec-21
21120119-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	16-Dec-21
21120119-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	16-Dec-21
21120119-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	16-Dec-21
21120119-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Dec-21
21120119-001	o-Xylene	I	0.13	ppbv	0.03	AC-058	16-Dec-21
21120119-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Dec-21
21120119-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	16-Dec-21
21120119-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	16-Dec-21
21120119-001	Tetrachloroethylene	I	0.04	ppbv	0.02	AC-058	16-Dec-21
21120119-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	16-Dec-21
21120119-001	Toluene		0.24	ppbv	0.03	AC-058	16-Dec-21
21120119-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	16-Dec-21
21120119-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Dec-21
21120119-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	16-Dec-21
21120119-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Dec-21
21120119-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Dec-21

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

Date: January 14, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 12, 2021	29030	Ambient Air	12-Dec-21 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 21120119 **REPORT CREATED:** 14-Jan-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
21120119-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	16-Dec-21
21120119-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	16-Dec-21

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

Date: January 14, 2022

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

Revision History

Order ID	Ver	Date	Reason
21120119	01	14-Jan-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: 22010007-001 Priority: Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Dec 18, 2021

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JAN 04 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:**	28888
Station ID:	LICA 01	**Installation Date/Time (mst):**	Dec 13, 2021@ 19:26
Sample ID:	LICA/VOC/CLS/Dec 18, 2021	**Removal Date/Time (mst):**	Dec 21, 2021@ 15:54

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
December 18, 2021	0:00	23:59	24

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	**Final Pressure (psi)**
-27.5	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: November 25, 2021 (due every 3 months)

Last date of sample line purging / replacement: November 25, 2021 (due every 6 months)

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 22010007-002 Priority: Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Dec 18, 2021

RECEIVED
JAN 04 2022

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	Puf+ S/N:	P13-01
Location:	Cold Lake South	Motor S/N:	1138/100-1020
Station ID:	LICA 01	Installation Date/Time:	Dec 13, 2021 @ 20:24
Field Sample ID:	LICA/PUF/CLS/Dec 18, 2021	Removal Date/Time:	Dec 21, 2021 @ 19:56

Sample Data Collection Information

Sample Date:	18-Dec-21	Average Pressure (mmHg)	713
Start Time (mst):	0:00	Average Flow (Q_{std})	229
End Time (mst):	23:59	Average Tempurature (°C)	-21.9
Elapsed Time (Hours):	24	Volume (Vstd m^3)	330.36

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-Nov-21	
Other observations?		n/a

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

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Canister ID: 28868

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: NOV 10 2021

Evacuated: NOV 17 2021 Recertified: NOV 19 2021

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Dec 18, 2021

Sampled By: Alex Yakupov

Starting Vacuum: -27.5 "Hg

End Vacuum: KG +19.1 "Hg/psig

InnoTech ALBERTA

Canister ID: P13-01 PUF

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: _____ on: _____

Evacuated: _____ Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/PUF/CLS/Dec 18, 2021

Sampled By: Alex Yakupov

Starting Vacuum: _____ "Hg

End Vacuum: _____ "Hg/psig

Sample ID: 22010007-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Dec 18, 2021

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID: LICA/PUF/CLS/Dec 18, 2021
Matrix: Air Filter
CANISTER ID: P13-01
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 18-Dec-21 0:00
DATE RECEIVED: 04-Jan-22
REPORT CREATED: 14-Jan-22
REPORT NUMBER: 22010007
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22010007-002	1-Methylnaphthalene		0.69	ug/Filter	0.01	AC-066	08-Jan-22
22010007-002	2-Methylnaphthalene		0.95	ug/Filter	0.01	AC-066	08-Jan-22
22010007-002	3-Methylcholanthrene		0.02	ug/Filter	0.01	AC-066	08-Jan-22
22010007-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22
22010007-002	Acenaphthene		0.14	ug/Filter	0.01	AC-066	08-Jan-22
22010007-002	Acenaphthylene		0.11	ug/Filter	0.01	AC-066	08-Jan-22
22010007-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22
22010007-002	Anthracene		0.05	ug/Filter	0.01	AC-066	08-Jan-22
22010007-002	Benzo(a)anthracene		0.05	ug/Filter	0.01	AC-066	08-Jan-22
22010007-002	Benzo(a)pyrene		0.04	ug/Filter	0.01	AC-066	08-Jan-22
22010007-002	Benzo(b,j,k)fluoranthene		0.13	ug/Filter	0.01	AC-066	08-Jan-22
22010007-002	Benzo(c)phenanthrene		0.02	ug/Filter	0.01	AC-066	08-Jan-22
22010007-002	Benzo(e)pyrene		0.02	ug/Filter	0.01	AC-066	08-Jan-22
22010007-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22
22010007-002	Chrysene		0.07	ug/Filter	0.01	AC-066	08-Jan-22
22010007-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22
22010007-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22
22010007-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22

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

Date: January 14, 2022

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Dec 18, 2021	P13-01	Air Filter	18-Dec-21 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22010007 **REPORT CREATED:** 14-Jan-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22010007-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22
22010007-002	Fluoranthene		0.20	ug/Filter	0.01	AC-066	08-Jan-22
22010007-002	Fluorene		0.24	ug/Filter	0.01	AC-066	08-Jan-22
22010007-002	Indeno(1,2,3-cd)pyrene		0.05	ug/Filter	0.01	AC-066	08-Jan-22
22010007-002	Naphthalene		0.95	ug/Filter	0.01	AC-066	08-Jan-22
22010007-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22
22010007-002	Phenanthrene		0.60	ug/Filter	0.01	AC-066	08-Jan-22
22010007-002	Pyrene		0.13	ug/Filter	0.01	AC-066	08-Jan-22
22010007-002	Retene		0.43	ug/Filter	0.01	AC-066	08-Jan-22

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

Date: January 14, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 18, 2021	28888	Ambient Air	18-Dec-21 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22010007 **REPORT CREATED:** 14-Jan-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22010007-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-22
22010007-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-22
22010007-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-22
22010007-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-22
22010007-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-22
22010007-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	05-Jan-22
22010007-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-22
22010007-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-22
22010007-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-22
22010007-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-22
22010007-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-22
22010007-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-22
22010007-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-22
22010007-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-22
22010007-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Jan-22
22010007-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Jan-22
22010007-001	1,4-Dioxane	I	0.6	ppbv	0.5	AC-058	05-Jan-22
22010007-001	1-Butene/Isobutylene		0.21	ppbv	0.06	AC-058	05-Jan-22
22010007-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	05-Jan-22
22010007-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-22
22010007-001	2,2,4-Trimethylpentane		0.13	ppbv	0.02	AC-058	05-Jan-22
22010007-001	2,2-Dimethylbutane		0.11	ppbv	0.02	AC-058	05-Jan-22
22010007-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-22
22010007-001	2,3-Dimethylbutane		0.12	ppbv	0.09	AC-058	05-Jan-22
22010007-001	2,3-Dimethylpentane	I	0.10	ppbv	0.02	AC-058	05-Jan-22

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

Date: January 14, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 18, 2021	28888	Ambient Air	18-Dec-21 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22010007 **REPORT CREATED:** 14-Jan-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22010007-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-22
22010007-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-22
22010007-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-22
22010007-001	2-Methylpentane		0.20	ppbv	0.02	AC-058	05-Jan-22
22010007-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-22
22010007-001	3-Methylhexane		0.12	ppbv	0.02	AC-058	05-Jan-22
22010007-001	3-Methylpentane		0.20	ppbv	0.02	AC-058	05-Jan-22
22010007-001	Acetone		1.7	ppbv	0.4	AC-058	05-Jan-22
22010007-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-22
22010007-001	Benzene		0.24	ppbv	0.03	AC-058	05-Jan-22
22010007-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-22
22010007-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-22
22010007-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-22
22010007-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-22
22010007-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-22
22010007-001	Carbon tetrachloride		0.17	ppbv	0.02	AC-058	05-Jan-22
22010007-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-22
22010007-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-22
22010007-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-22
22010007-001	Chloromethane		0.74	ppbv	0.04	AC-058	05-Jan-22
22010007-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-22
22010007-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-22
22010007-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-22
22010007-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-22
22010007-001	Cyclohexane		0.22	ppbv	0.04	AC-058	05-Jan-22

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

Date: January 14, 2022 Inquiries: (780) 632 8455 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 18, 2021	28888	Ambient Air	18-Dec-21 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22010007 **REPORT CREATED:** 14-Jan-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22010007-001	Cyclopentane		0.12	ppbv	0.02	AC-058	05-Jan-22
22010007-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-22
22010007-001	Ethanol		2.2	ppbv	0.5	AC-058	05-Jan-22
22010007-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-22
22010007-001	Ethylbenzene	I	0.20	ppbv	0.03	AC-058	05-Jan-22
22010007-001	Freon-11		0.33	ppbv	0.02	AC-058	05-Jan-22
22010007-001	Freon-113	I	0.08	ppbv	0.02	AC-058	05-Jan-22
22010007-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-22
22010007-001	Freon-12		0.81	ppbv	0.03	AC-058	05-Jan-22
22010007-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-22
22010007-001	Isobutane		2.30	ppbv	0.03	AC-058	05-Jan-22
22010007-001	Isopentane		1.46	ppbv	0.04	AC-058	05-Jan-22
22010007-001	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-22
22010007-001	Isopropyl alcohol	I	0.4	ppbv	0.3	AC-058	05-Jan-22
22010007-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jan-22
22010007-001	m,p-Xylene	I	0.27	ppbv	0.04	AC-058	05-Jan-22
22010007-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-22
22010007-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-22
22010007-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	05-Jan-22
22010007-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-22
22010007-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-22
22010007-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	05-Jan-22
22010007-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-22
22010007-001	Methylcyclohexane		0.14	ppbv	0.02	AC-058	05-Jan-22
22010007-001	Methylcyclopentane		0.15	ppbv	0.05	AC-058	05-Jan-22

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

Date: January 14, 2022

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 18, 2021	28888	Ambient Air	18-Dec-21 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22010007 **REPORT CREATED:** 14-Jan-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22010007-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-22
22010007-001	n-Butane		4.49	ppbv	0.02	AC-058	05-Jan-22
22010007-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Jan-22
22010007-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-22
22010007-001	n-Heptane		0.20	ppbv	0.04	AC-058	05-Jan-22
22010007-001	n-Hexane		0.29	ppbv	0.03	AC-058	05-Jan-22
22010007-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-22
22010007-001	n-Pentane		0.91	ppbv	0.04	AC-058	05-Jan-22
22010007-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Jan-22
22010007-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	05-Jan-22
22010007-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-22
22010007-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jan-22
22010007-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-22
22010007-001	o-Xylene	I	0.18	ppbv	0.03	AC-058	05-Jan-22
22010007-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-22
22010007-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jan-22
22010007-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	05-Jan-22
22010007-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-22
22010007-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-22
22010007-001	Toluene		0.23	ppbv	0.03	AC-058	05-Jan-22
22010007-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	05-Jan-22
22010007-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-22
22010007-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	05-Jan-22
22010007-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-22
22010007-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-22

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

Date: January 14, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 18, 2021	28888	Ambient Air	18-Dec-21 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22010007 **REPORT CREATED:** 14-Jan-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22010007-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	05-Jan-22
22010007-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	05-Jan-22

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

Date: January 14, 2022

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

Revision History

Order ID	Ver	Date	Reason
22010007	01	14-Jan-22	Report created

Methods

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

Qualifiers

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

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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: 22010017-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Dec 24, 2021

RECEIVED
JAN 05 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:**	32218
Station ID:	LICA 01	**Installation Date/Time (mst):**	Dec 21, 2021@ 16:05
Sample ID:	LICA/VOC/CLS/Dec 24, 2021	**Removal Date/Time (mst):**	Dec 29, 2021@ 20:51

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
December 24, 2021	0:00	23:59	24

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.6	18.5

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

Deployment/Collection and Maintenance Checklist

Initial leak check deployment vacuum (in. Hg) =	n/a	@	n/a	mst	**Leak rate must be 0.0 psi over a minimum of 5 minutes or repair is required**
Final leak check deployment vacuum (in. Hg) =	n/a	@	n/a	mst	
Total leak rate =	n/a	psi over	n/a	minutes	
Timer reset to zero prior to sampling?	YES	(yes/no)			
Date of last audit:	November 25, 2021	(due every 3 months)			
Last date of sample line purging / replacement:	November 25, 2021	(due every 6 months)			

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 22010017-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Dec 24, 2021

RECEIVED
JAN 05 2022

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	TE-07
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Dec 21, 2021 @ 16:06
Field Sample ID:	LICA/PUF/CLS/Dec 24, 2021	**Removal Date/Time:**	Dec 29, 2021 @ 20:53

Sample Data Collection Information

Sample Date:	24-Dec-21	**Average Pressure (mmHg)**	707
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	-21.8
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.34

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-Nov-21**	
Other observations?		n/a

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

InnoTech ALBERTA

Canister ID: 32218

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: 1804 on: NOV 10 2021

Evacuated: NOV 17 2021 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Dec 24, 2021

Sampled By: Alex Yampov

Starting Vacuum: -27.6 "Hg

End Vacuum: KG 4 18.5 "Hg/psig

InnoTech ALBERTA

Canister ID: TE-07 PUF

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: _____ on: _____

Evacuated: _____ Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/PUF/CLS/Dec 24, 2021

Sampled By: Alex Yampov

Starting Vacuum: _____ "Hg

End Vacuum: _____ "Hg/ psig

Sample ID: 22010017-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Dec 24, 2021

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID: LICA/PUF/CLS/Dec 24, 2021

Matrix: Air Filter

CANISTER ID: TE-07

PRIORITY: Normal

DESCRIPTION: Cold Lake South

DATE SAMPLED: 24-Dec-21 0:00

DATE RECEIVED: 05-Jan-22

REPORT CREATED: 14-Jan-22

REPORT NUMBER: 22010017

VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22010017-002	1-Methylnaphthalene		0.24	ug/Filter	0.01	AC-066	08-Jan-22
22010017-002	2-Methylnaphthalene		0.36	ug/Filter	0.01	AC-066	08-Jan-22
22010017-002	3-Methylcholanthrene		0.02	ug/Filter	0.01	AC-066	08-Jan-22
22010017-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22
22010017-002	Acenaphthene		0.05	ug/Filter	0.01	AC-066	08-Jan-22
22010017-002	Acenaphthylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22
22010017-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22
22010017-002	Anthracene		0.01	ug/Filter	0.01	AC-066	08-Jan-22
22010017-002	Benzo(a)anthracene		0.01	ug/Filter	0.01	AC-066	08-Jan-22
22010017-002	Benzo(a)pyrene		0.01	ug/Filter	0.01	AC-066	08-Jan-22
22010017-002	Benzo(b,j,k)fluoranthene		0.02	ug/Filter	0.01	AC-066	08-Jan-22
22010017-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22
22010017-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22
22010017-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22
22010017-002	Chrysene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22
22010017-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22
22010017-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22
22010017-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22

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

Date: January 14, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Dec 24, 2021	TE-07	Air Filter	24-Dec-21 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22010017 **REPORT CREATED:** 14-Jan-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22010017-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22
22010017-002	Fluoranthene		0.02	ug/Filter	0.01	AC-066	08-Jan-22
22010017-002	Fluorene		0.07	ug/Filter	0.01	AC-066	08-Jan-22
22010017-002	Indeno(1,2,3-cd)pyrene		0.02	ug/Filter	0.01	AC-066	08-Jan-22
22010017-002	Naphthalene		0.55	ug/Filter	0.01	AC-066	08-Jan-22
22010017-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22
22010017-002	Phenanthrene		0.09	ug/Filter	0.01	AC-066	08-Jan-22
22010017-002	Pyrene		0.01	ug/Filter	0.01	AC-066	08-Jan-22
22010017-002	Retene		0.08	ug/Filter	0.01	AC-066	08-Jan-22

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

Date: January 14, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 24, 2021	32218	Ambient Air	24-Dec-21 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22010017 **REPORT CREATED:** 14-Jan-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22010017-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010017-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010017-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010017-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010017-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010017-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	06-Jan-22
22010017-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jan-22
22010017-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jan-22
22010017-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010017-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jan-22
22010017-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jan-22
22010017-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jan-22
22010017-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jan-22
22010017-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jan-22
22010017-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Jan-22
22010017-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Jan-22
22010017-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	06-Jan-22
22010017-001	1-Butene/Isobutylene	I	0.10	ppbv	0.06	AC-058	06-Jan-22
22010017-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	06-Jan-22
22010017-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jan-22
22010017-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010017-001	2,2-Dimethylbutane	I	0.09	ppbv	0.02	AC-058	06-Jan-22
22010017-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010017-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	06-Jan-22
22010017-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22

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

Date: January 14, 2022

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 24, 2021	32218	Ambient Air	24-Dec-21 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22010017 **REPORT CREATED:** 14-Jan-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22010017-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jan-22
22010017-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010017-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jan-22
22010017-001	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010017-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jan-22
22010017-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010017-001	3-Methylpentane	I	0.10	ppbv	0.02	AC-058	06-Jan-22
22010017-001	Acetone		1.4	ppbv	0.4	AC-058	06-Jan-22
22010017-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jan-22
22010017-001	Benzene	I	0.17	ppbv	0.03	AC-058	06-Jan-22
22010017-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jan-22
22010017-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jan-22
22010017-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010017-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010017-001	Carbon disulfide		0.12	ppbv	0.02	AC-058	06-Jan-22
22010017-001	Carbon tetrachloride		0.17	ppbv	0.02	AC-058	06-Jan-22
22010017-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010017-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010017-001	Chloroform	I	0.03	ppbv	0.02	AC-058	06-Jan-22
22010017-001	Chloromethane		0.75	ppbv	0.04	AC-058	06-Jan-22
22010017-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010017-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jan-22
22010017-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jan-22
22010017-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010017-001	Cyclohexane	I	0.20	ppbv	0.04	AC-058	06-Jan-22

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

Date: January 14, 2022 Inquiries: (780) 632 8455 E-mail: EAS.Results@innotechalberta.ca

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 24, 2021	32218	Ambient Air	24-Dec-21 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22010017 **REPORT CREATED:** 14-Jan-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22010017-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010017-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010017-001	Ethanol	K, T, U	< 0.5	ppbv	0.5	AC-058	06-Jan-22
22010017-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jan-22
22010017-001	Ethylbenzene	I	0.19	ppbv	0.03	AC-058	06-Jan-22
22010017-001	Freon-11		0.33	ppbv	0.02	AC-058	06-Jan-22
22010017-001	Freon-113	I	0.09	ppbv	0.02	AC-058	06-Jan-22
22010017-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jan-22
22010017-001	Freon-12		0.81	ppbv	0.03	AC-058	06-Jan-22
22010017-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jan-22
22010017-001	Isobutane		0.46	ppbv	0.03	AC-058	06-Jan-22
22010017-001	Isopentane		0.37	ppbv	0.04	AC-058	06-Jan-22
22010017-001	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010017-001	Isopropyl alcohol	I	0.4	ppbv	0.3	AC-058	06-Jan-22
22010017-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Jan-22
22010017-001	m,p-Xylene	I	0.26	ppbv	0.04	AC-058	06-Jan-22
22010017-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010017-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jan-22
22010017-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Jan-22
22010017-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jan-22
22010017-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jan-22
22010017-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	06-Jan-22
22010017-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jan-22
22010017-001	Methylcyclohexane		0.11	ppbv	0.02	AC-058	06-Jan-22
22010017-001	Methylcyclopentane		0.10	ppbv	0.05	AC-058	06-Jan-22

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

Date: January 14, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 24, 2021	32218	Ambient Air	24-Dec-21 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22010017 **REPORT CREATED:** 14-Jan-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22010017-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jan-22
22010017-001	n-Butane		0.55	ppbv	0.02	AC-058	06-Jan-22
22010017-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	06-Jan-22
22010017-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jan-22
22010017-001	n-Heptane	I	0.18	ppbv	0.04	AC-058	06-Jan-22
22010017-001	n-Hexane	I	0.15	ppbv	0.03	AC-058	06-Jan-22
22010017-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010017-001	n-Pentane		0.33	ppbv	0.04	AC-058	06-Jan-22
22010017-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	06-Jan-22
22010017-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	06-Jan-22
22010017-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jan-22
22010017-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Jan-22
22010017-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010017-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jan-22
22010017-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010017-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Jan-22
22010017-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Jan-22
22010017-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010017-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jan-22
22010017-001	Toluene	I	0.19	ppbv	0.03	AC-058	06-Jan-22
22010017-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	06-Jan-22
22010017-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010017-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jan-22
22010017-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010017-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22

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

Date: January 14, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 24, 2021	32218	Ambient Air	24-Dec-21 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22010017 **REPORT CREATED:** 14-Jan-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22010017-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jan-22
22010017-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22

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

Date: January 14, 2022

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

Revision History

Order ID	Ver	Date	Reason
22010017	01	14-Jan-22	Report created

Methods

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

Qualifiers

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

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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: 22010024-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Dec 30, 2021

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JAN 06 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:**	28953
Station ID:	LICA 01	**Installation Date/Time (mst):**	Dec 29, 2021@ 21:02
Sample ID:	LICA/VOC/CLS/Dec 30, 2021	**Removal Date/Time (mst):**	Jan 04, 2022@ 15:15

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
December 30, 2021	0:00	23:59	24

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.1	18.4

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

Deployment/Collection and Maintenance Checklist

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

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

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

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

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

Date of last audit: November 25, 2021 (due every 3 months)

Last date of sample line purging / replacement: November 25, 2021 (due every 6 months)

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

ample ID: 22010024-002 Priority: Normal

ustomer ID: LICA

ust Samp ID: LICA/PUF/CLS/Dec 30, 2021

RECEIVED
JAN 06 2022

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	TE-10
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Dec 29, 2021 @ 21:03
Field Sample ID:	LICA/PUF/CLS/Dec 30, 2021	**Removal Date/Time:**	Jan 04, 2022 @ 15:17

Sample Data Collection Information

Sample Date:	30-Dec-21	**Average Pressure (mmHg)**	712
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	-29.7
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.36

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-Nov-21	
Other observations?		n/a

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

InnoTech ALBERTA

Canister ID: 28953

This cleaned canister meets or exceeds TO-15 Method Specifications ~~NOV 23 2021~~ JD NOV 24 2021

Proofed by: BB 4 on: NOV 24 2021

Evacuated: NOV 24 2021 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Dec 30, 2021

Sampled By: Alex Yampov

Starting Vacuum: -27.1 "Hg

End Vacuum: KG +18.4 "Hg/psig

InnoTech ALBERTA

Canister ID: TE 10

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: _____ on: _____

Evacuated: _____ Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/PUF/CLS/Dec 30, 2021

Sampled By: Alex Yampov

Starting Vacuum: _____ "Hg

End Vacuum: _____ "Hg/psig

Sample ID: 22010024-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Dec 30, 2021

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID: LICA/PUF/CLS/Dec 30, 2021
Matrix: Air Filter
CANISTER ID: TE-10
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 30-Dec-21 0:00
DATE RECEIVED: 06-Jan-22
REPORT CREATED: 14-Jan-22
REPORT NUMBER: 22010024
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22010024-002	1-Methylnaphthalene		0.84	ug/Filter	0.01	AC-066	08-Jan-22
22010024-002	2-Methylnaphthalene		1.34	ug/Filter	0.01	AC-066	08-Jan-22
22010024-002	3-Methylcholanthrene		0.02	ug/Filter	0.01	AC-066	08-Jan-22
22010024-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22
22010024-002	Acenaphthene		0.14	ug/Filter	0.01	AC-066	08-Jan-22
22010024-002	Acenaphthylene		0.05	ug/Filter	0.01	AC-066	08-Jan-22
22010024-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22
22010024-002	Anthracene		0.02	ug/Filter	0.01	AC-066	08-Jan-22
22010024-002	Benzo(a)anthracene		0.04	ug/Filter	0.01	AC-066	08-Jan-22
22010024-002	Benzo(a)pyrene		0.05	ug/Filter	0.01	AC-066	08-Jan-22
22010024-002	Benzo(b,j,k)fluoranthene		0.09	ug/Filter	0.01	AC-066	08-Jan-22
22010024-002	Benzo(c)phenanthrene		0.02	ug/Filter	0.01	AC-066	08-Jan-22
22010024-002	Benzo(e)pyrene		0.02	ug/Filter	0.01	AC-066	08-Jan-22
22010024-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22
22010024-002	Chrysene		0.06	ug/Filter	0.01	AC-066	08-Jan-22
22010024-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22
22010024-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22
22010024-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22

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

Date: January 14, 2022

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

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Dec 30, 2021	TE-10	Air Filter	30-Dec-21 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22010024 **REPORT CREATED:** 14-Jan-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22010024-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22
22010024-002	Fluoranthene		0.14	ug/Filter	0.01	AC-066	08-Jan-22
22010024-002	Fluorene		0.12	ug/Filter	0.01	AC-066	08-Jan-22
22010024-002	Indeno(1,2,3-cd)pyrene		0.04	ug/Filter	0.01	AC-066	08-Jan-22
22010024-002	Naphthalene		1.49	ug/Filter	0.01	AC-066	08-Jan-22
22010024-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	08-Jan-22
22010024-002	Phenanthrene		0.31	ug/Filter	0.01	AC-066	08-Jan-22
22010024-002	Pyrene		0.11	ug/Filter	0.01	AC-066	08-Jan-22
22010024-002	Retene		0.40	ug/Filter	0.01	AC-066	08-Jan-22

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

Date: January 14, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 30, 2021	28953	Ambient Air	30-Dec-21 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22010024 **REPORT CREATED:** 14-Jan-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22010024-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010024-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010024-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010024-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010024-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010024-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	06-Jan-22
22010024-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jan-22
22010024-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jan-22
22010024-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010024-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jan-22
22010024-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jan-22
22010024-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jan-22
22010024-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jan-22
22010024-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jan-22
22010024-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Jan-22
22010024-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Jan-22
22010024-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	06-Jan-22
22010024-001	1-Butene/Isobutylene	I	0.14	ppbv	0.06	AC-058	06-Jan-22
22010024-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	06-Jan-22
22010024-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jan-22
22010024-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010024-001	2,2-Dimethylbutane		0.12	ppbv	0.02	AC-058	06-Jan-22
22010024-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010024-001	2,3-Dimethylbutane		0.12	ppbv	0.09	AC-058	06-Jan-22
22010024-001	2,3-Dimethylpentane		0.11	ppbv	0.02	AC-058	06-Jan-22

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

Date: January 14, 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/Dec 30, 2021	28953	Ambient Air	30-Dec-21 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22010024 **REPORT CREATED:** 14-Jan-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22010024-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jan-22
22010024-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010024-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jan-22
22010024-001	2-Methylpentane		0.13	ppbv	0.02	AC-058	06-Jan-22
22010024-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jan-22
22010024-001	3-Methylhexane		0.12	ppbv	0.02	AC-058	06-Jan-22
22010024-001	3-Methylpentane		0.13	ppbv	0.02	AC-058	06-Jan-22
22010024-001	Acetone		1.6	ppbv	0.4	AC-058	06-Jan-22
22010024-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jan-22
22010024-001	Benzene		0.21	ppbv	0.03	AC-058	06-Jan-22
22010024-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jan-22
22010024-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jan-22
22010024-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010024-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010024-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010024-001	Carbon tetrachloride		0.16	ppbv	0.02	AC-058	06-Jan-22
22010024-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010024-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010024-001	Chloroform	I	0.03	ppbv	0.02	AC-058	06-Jan-22
22010024-001	Chloromethane		0.68	ppbv	0.04	AC-058	06-Jan-22
22010024-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010024-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jan-22
22010024-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jan-22
22010024-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010024-001	Cyclohexane		0.31	ppbv	0.04	AC-058	06-Jan-22

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

Date: January 14, 2022 Inquiries: (780) 632 8455 E-mail: EAS.Results@innotechalberta.ca

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(780) 632-8211

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 30, 2021	28953	Ambient Air	30-Dec-21 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22010024 **REPORT CREATED:** 14-Jan-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22010024-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010024-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010024-001	Ethanol	K, T, U	< 0.5	ppbv	0.5	AC-058	06-Jan-22
22010024-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jan-22
22010024-001	Ethylbenzene		0.20	ppbv	0.03	AC-058	06-Jan-22
22010024-001	Freon-11		0.32	ppbv	0.02	AC-058	06-Jan-22
22010024-001	Freon-113	I	0.08	ppbv	0.02	AC-058	06-Jan-22
22010024-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jan-22
22010024-001	Freon-12		0.74	ppbv	0.03	AC-058	06-Jan-22
22010024-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jan-22
22010024-001	Isobutane		0.81	ppbv	0.03	AC-058	06-Jan-22
22010024-001	Isopentane		0.68	ppbv	0.04	AC-058	06-Jan-22
22010024-001	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010024-001	Isopropyl alcohol	I	0.4	ppbv	0.3	AC-058	06-Jan-22
22010024-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Jan-22
22010024-001	m,p-Xylene	I	0.28	ppbv	0.04	AC-058	06-Jan-22
22010024-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010024-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jan-22
22010024-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	06-Jan-22
22010024-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jan-22
22010024-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jan-22
22010024-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	06-Jan-22
22010024-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jan-22
22010024-001	Methylcyclohexane		0.24	ppbv	0.02	AC-058	06-Jan-22
22010024-001	Methylcyclopentane		0.23	ppbv	0.05	AC-058	06-Jan-22

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

Date: January 14, 2022

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

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Vegreville, Alberta
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(780) 632-8211

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 30, 2021	28953	Ambient Air	30-Dec-21 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22010024 **REPORT CREATED:** 14-Jan-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22010024-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jan-22
22010024-001	n-Butane		1.11	ppbv	0.02	AC-058	06-Jan-22
22010024-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	06-Jan-22
22010024-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jan-22
22010024-001	n-Heptane		0.21	ppbv	0.04	AC-058	06-Jan-22
22010024-001	n-Hexane		0.21	ppbv	0.03	AC-058	06-Jan-22
22010024-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010024-001	n-Pentane		0.57	ppbv	0.04	AC-058	06-Jan-22
22010024-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	06-Jan-22
22010024-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	06-Jan-22
22010024-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jan-22
22010024-001	n-Nonane		0.12	ppbv	0.04	AC-058	06-Jan-22
22010024-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010024-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jan-22
22010024-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010024-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Jan-22
22010024-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	06-Jan-22
22010024-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010024-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jan-22
22010024-001	Toluene		0.23	ppbv	0.03	AC-058	06-Jan-22
22010024-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	06-Jan-22
22010024-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010024-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	06-Jan-22
22010024-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22
22010024-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22

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

Date: January 14, 2022

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

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Vegreville, Alberta
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(780) 632-8211

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Dec 30, 2021	28953	Ambient Air	30-Dec-21 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22010024 **REPORT CREATED:** 14-Jan-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22010024-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	06-Jan-22
22010024-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	06-Jan-22

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

Date: January 14, 2022

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

Revision History

Order ID	Ver	Date	Reason
22010024	01	14-Jan-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.

Partisol Samples

Sample ID: 21120091-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9269715

2000i-D Sample Data Sheet

RECEIVED
DEC 13 2021

Date Sampled:	12/6/2021
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 #:	C9269715	C9269716
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	-21	
Pressure	710	
Std Volume (Instrument)	24.1	2.69

Comments: Weather Conditions, etc.

n/a

Last Audit Date: 25-Nov-21

Install by (Sign/Date): Alex Yakupov Date: 2-Dec-21

Removed by (Sign/Date) Alex Yakupov Date: 8-Dec-21

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: 21120091-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9269715

RECEIVED
DEC 13 2021

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: OCT 01 2021

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	C9269715 → C9269716

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: C9269715

Matrix: Air Filter

CANISTER ID:

PRIORITY: Normal

DESCRIPTION: Cold Lake South - PM 2.5 - Fine

DATE SAMPLED: 06-Dec-21 0:00

DATE RECEIVED: 13-Dec-21

REPORT CREATED: 17-Dec-21

REPORT NUMBER: 21120091

VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
21120091-001	Particulate Weight		0.202	mg	0.004	AC-029	15-Dec-21

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

Date: December 17, 2021

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

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
C9269716		Air Filter	06-Dec-21 0:00

DESCRIPTION: Cold Lake South - PM 10 - Coarse

REPORT NUMBER: 21120091 **REPORT CREATED:** 17-Dec-21 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
21120091-002	Particulate Weight		0.044	mg	0.004	AC-029	15-Dec-21

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

Date: December 17, 2021

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

Revision History

Order ID	Ver	Date	Reason
21120091	01	17-Dec-21	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: 21120118-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: P7149331

2000i-D Sample Data Sheet

Date Sampled:	12/12/2021
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 #:	P7149331	P7149332
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	-6.4	
Pressure	697	
Std Volume (Instrument)	22.3	2.48

Comments: Weather Conditions, etc.

n/a

Last Audit Date: 25-Nov-21

Install by (Sign/Date): Alex Yakupov Date: 8-Dec-21

Removed by (Sign/Date) Alex Yakupov Date: 13-Dec-21

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: 21120118-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: P7143392

RECEIVED
DEC 15 2021

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: OCT 01 2021

Project: LICA/Bureau Veritas Labs

Prepared by: S Mulenka

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	P7149331 → P7149332

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
P7143392	Air Filter

CANISTER ID:
PRIORITY: Normal
DESCRIPTION: Cold Lake South - PM 10 - Coarse

DATE SAMPLED: 12-Dec-21 0:00
DATE RECEIVED: 15-Dec-21
REPORT CREATED: 04-Jan-22
REPORT NUMBER: 21120118
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
21120118-002	Particulate Weight		0.015	mg	0.004	AC-029	17-Dec-21

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

Date: January 4, 2022

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

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Vegreville, Alberta
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(780) 632-8211

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
P7149331		Air Filter	12-Dec-21 0:00

DESCRIPTION: Cold Lake South - PM 2.5 - Fine

REPORT NUMBER: 21120118 **REPORT CREATED:** 04-Jan-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
21120118-001	Particulate Weight		0.110	mg	0.004	AC-029	17-Dec-21

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

Date: January 4, 2022

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

Revision History

Order ID	Ver	Date	Reason
21120118	01	04-Jan-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: 22010006-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9269719

I 2000i-D Sample Data Sheet

RECEIVED
JAN 04 2022

Date Sampled:	12/18/2021
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 #:	C9269719	C9269720
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	-22	
Pressure	716	
Std Volume (Instrument)	24	2.67

Comments: Weather Conditions, etc.

n/a

Last Audit Date: 25-Nov-21

Install by (Sign/Date): Alex Yakupov Date: 13-Dec-21

Removed by (Sign/Date) Alex Yakupov Date: 21-Dec-21

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: 22010006-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9269720

RECEIVED
JAN 04 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: OCT 01 2021

Project: LICA/Bureau Veritas Labs

Prepared by: S Mulenka

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	C9269719 → C9269720

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
C9269719	Air Filter

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

DATE SAMPLED: 18-Dec-21 0:00
DATE RECEIVED: 04-Jan-22
REPORT CREATED: 06-Jan-22
REPORT NUMBER: 22010006
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22010006-001	Particulate Weight		0.131	mg	0.004	AC-029	05-Jan-22

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

Date: January 6, 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
C9269720		Air Filter	18-Dec-21 0:00

DESCRIPTION: Cold Lake South - PM 10 - Coarse

REPORT NUMBER: 22010006 **REPORT CREATED:** 06-Jan-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22010006-002	Particulate Weight		0.016	mg	0.004	AC-029	05-Jan-22

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

Date: January 6, 2022

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

Revision History

Order ID	Ver	Date	Reason
22010006	01	06-Jan-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: 22010016-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9463898

2000i-D Sample Data Sheet

RECEIVED
JAN 05 2022

Date Sampled:	12/24/2021
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 #:	C9463898	C9463899
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	-22	
Pressure	707	
Std Volume (Instrument)	23.7	2.64

Comments: Weather Conditions, etc.

n/a

Last Audit Date: 25-Nov-21

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

Removed by (Sign/Date) Alex Yakupov Date: 29-Dec-21

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: 22010016-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9463899

RECEIVED
JAN 05 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: Nov 4-2021

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	C9463898 → C9463899

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
C9463898	Air Filter

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

DATE SAMPLED: 24-Dec-21 0:00
DATE RECEIVED: 05-Jan-22
REPORT CREATED: 07-Jan-22
REPORT NUMBER: 22010016
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22010016-001	Particulate Weight		0.026	mg	0.004	AC-029	06-Jan-22

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

Date: January 7, 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
C9463899		Air Filter	24-Dec-21 0:00

DESCRIPTION: Cold Lake South - PM 10 - Coarse

REPORT NUMBER: 22010016 **REPORT CREATED:** 07-Jan-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22010016-002	Particulate Weight		0.012	mg	0.004	AC-029	06-Jan-22

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

Date: January 7, 2022

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

Revision History

Order ID	Ver	Date	Reason
22010016	01	07-Jan-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

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

Qualifiers

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

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

Order Comments

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: 22010023-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9463660

I 2000i-D Sample Data Sheet

Date Sampled:	12/30/2021
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 #:	C9463660	C9264697
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	-29	
Pressure	711	
Std Volume (Instrument)	24.7	2.75

Comments: Weather Conditions, etc.

n/a

Last Audit Date: 25-Nov-21

Install by (Sign/Date): Alex Yakupov Date: 29-Dec-21

Removed by (Sign/Date) Alex Yakupov Date: 4-Jan-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

ample ID: 22010023-002 **Priority:** Normal

ustomer ID: LICA
ust Samp ID: C9264697

Filter Shipping Record

Date: SEP 13 2021

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

Project: LICA/Bureau Veritas Labs

Prepared by:

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	1	C9463660
	1	C9264697

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
C9264697	Air Filter

CANISTER ID:
PRIORITY: Normal
DESCRIPTION: Cold Lake South - PM 10 - Coarse

DATE SAMPLED: 30-Dec-21 0:00
DATE RECEIVED: 06-Jan-22
REPORT CREATED: 12-Jan-22
REPORT NUMBER: 22010023
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22010023-002	Particulate Weight		0.012	mg	0.004	AC-029	10-Jan-22

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

Date: January 12, 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
C9463660		Air Filter	30-Dec-21 0:00

DESCRIPTION: Cold Lake South - PM 2.5 - Fine

REPORT NUMBER: 22010023 **REPORT CREATED:** 12-Jan-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22010023-001	Particulate Weight		0.064	mg	0.004	AC-029	10-Jan-22

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

Date: January 12, 2022

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

Revision History

Order ID	Ver	Date	Reason
22010023	01	12-Jan-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

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.

Passive Samples

Passive Sampler Field Sheet for LICA, Dec 2021 sample period

ID	SAMPLER				START		END		NOTES
					DATE	TIME	DATE	TIME	
3	H_2S	SO_2	NO_2	O_3	Nov 30/21	20:12	Dec 29/21	18:05	
4	---	SO_2	NO_2	O_3	Dec 1/21	14:08	Dec 30/21	14:06	
5	H_2S	SO_2	NO_2	O_3	Dec 1/21	15:25	Dec 30/21	15:28	
6	---	SO_2	NO_2	O_3	Dec 1/21	16:43	Dec 30/21	16:52	
8	---	SO_2	NO_2	O_3	Dec 1/21	13:02	Dec 30/21	11:43	
9	---	SO_2	NO_2	O_3	Dec 1/21	12:05	Dec 30/21	10:23	
10	H_2S	SO_2	NO_2	O_3	Dec 2/21	15:46	Dec 31/21	13:42	
11	H_2S	SO_2	NO_2	O_3	Dec 2/21	15:17	Dec 31/21	14:30	
12	H2S	SO2	NO2	O3	Dec 2/21	14:12	Dec 31/21	15:44	
13	H_2S	SO_2	NO_2	O_3	Nov 30/21	16:09	Dec 29/21	14:47	
14	H_2S	SO_2	NO_2	O_3	Nov 30/21	14:32	Dec 29/21	13:25	Isotop water sample collected (13:26)
15	---	SO_2	NO_2	O_3	Dec 1/21	10:38	Dec 29/21	15:50	
16	H_2S	SO_2	NO_2	O_3	Dec 1/21	19:22	Dec 30/21	18:48	
17	H_2S	SO_2	NO_2	O_3	Dec 1/21	17:45	Dec 30/21	17:49	
18	H_2S	SO_2	NO_2	O_3	Dec 2/21	10:48	Dec 31/21	12:17	
19	---	SO_2	NO_2	O_3	Dec 1/21	20:13	Dec 31/21	11:05	
22	H_2S	SO_2	NO_2	O_3	Nov 30/21	08:56	Dec 29/21	21:15	
23	---	SO_2	NO_2	O_3	Nov 30/21	12:55	Dec 29/21	11:13	
24	H_2S	SO_2	NO_2	O_3	Dec 1/21	16:07	Dec 30/21	16:03	
25	H2S	SO2	---	---					
26	H_2S	SO_2	---	---	Nov 30/21	15:32	Dec 29/21	12:50	
27	H_2S	SO_2	---	---	Nov 30/21	14:06	Dec 29/21	13:57	
28	---	SO_2	NO_2	O_3	Dec 1/21	11:44	Dec 30/21	10:03	
29	H_2S	SO_2	NO_2	O_3	Nov 30/21	09:12	Dec 29/21	21:31	
32	H_2S	SO_2	NO_2	O_3	Nov 30/21	19:10	Dec 30/21	12:38	
40	H_2S	SO_2	NO_2	O_3	Station removed	---	Station removed	---	
DUPLICATES									
3	---	---	NO_2	O_3	Nov 30/21	20:12	Dec 29/21	18:05	
32	---	---	NO_2	O_3	Nov 30/21	19:10	Dec 30/21	12:38	
5	---	SO2	---	---	Dec 1/21	15:25	Dec 30/21	15:25	
6	---	SO2	---	---	Dec 1/21	16:43	Dec 30/21	16:52	
8	---	SO2	---	---	Dec 1/21	13:02	Dec 30/21	11:43	
11	H2S	---	---	---	Dec 2/21	15:17	Dec 31/21	14:30	
12	H_2S	---	---	---	Dec 2/21	14:12	Dec 31/21	15:44	

RECEIVED
JAN 06 2022

33 SO2
22 H2S
28 O3
28 NO2
CO 7:30

Your Project #: DEC 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: 2022/01/17
Report #: R3122831
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BV LABS JOB #: C202543
Received: 2022/01/06, 07:30

Sample Matrix: Air
Samples Received: 31

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
H2S Passive Analysis	18	2022/01/17	2022/01/17	PTC SOP-00150	Passive H2S in ATM
NO2 Passive Analysis	24	2022/01/17	2022/01/17	PTC SOP-00148	Passive NO2 in ATM
O3 Passive Analysis	24	2022/01/17	2022/01/17	PTC SOP-00197	EPA 300 R2.1
SO2 Passive Analysis	27	2022/01/17	2022/01/17	PTC SOP-00149	Passive SO2 in ATM

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

Encryption Key

Kristen Sywolos
Customer Service Supervisor/Oil & Gas Division
18 Jan 2022 10:49:38

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

==========

BV Labs 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 Laboratories Edmonton: 6744 - 50th Street T6B 3M9 Telephone (780) 378-8500 Fax (780) 378-8699

Bureau Veritas Job #: C202543
Report Date: 2022/01/17

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		ANC422			ANC423			ANC424		
Sampling Date		2021/11/30 20:12			2021/12/01 14:08			2021/12/01 15:25		
	UNITS	3	RDL	QC Batch	4	RDL	QC Batch	5	RDL	QC Batch
Passive Monitoring										
Calculated H2S	ppb	0.19	0.02	A473476				0.24	0.02	A473476
Calculated NO2	ppb	2.3	0.1	A464882	2.2	0.1	A465314	2.2	0.1	A465314
Calculated O3	ppb	29.2	0.1	A468037	32.3	0.1	A468037	28.8	0.1	A468037
Calculated SO2	ppb	0.6	0.1	A467389	0.7	0.1	A467389	0.7	0.1	A467389
RDL = Reportable Detection Limit										

Bureau Veritas ID		ANC425	ANC426	ANC427			ANC428	ANC429	ANC430		
Sampling Date		2021/12/01 16:43	2021/12/01 13:02	2021/12/01 12:05			2021/12/02 15:46	2021/12/02 15:17	2021/12/02 14:12		
	UNITS	6	8	9	RDL	QC Batch	10	11	12	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb						0.27	0.21	0.17	0.02	A473476
Calculated NO2	ppb	5.9	2.0	3.2	0.1	A465314	7.5	1.5	1.5	0.1	A465321
Calculated O3	ppb	25.7	31.6	26.6	0.1	A468037	21.0	21.5	28.8	0.1	A468037
Calculated SO2	ppb	0.7	0.7	0.6	0.1	A467389	0.7	0.5	0.6	0.1	A467389
RDL = Reportable Detection Limit											

Bureau Veritas ID		ANC431		ANC433			ANC434			ANC435		
Sampling Date		2021/11/30 16:09		2021/11/30 14:32			2021/12/01 10:38			2021/12/01 19:22		
	UNITS	13	QC Batch	14	RDL	QC Batch	15	RDL	QC Batch	16	RDL	QC Batch
Passive Monitoring												
Calculated H2S	ppb	0.19	A473476	0.32	0.02	A473476				0.24	0.02	A473476
Calculated NO2	ppb	1.2	A465321	3.3	0.1	A465321	3.4	0.1	A465321	2.8	0.1	A465321
Calculated O3	ppb	24.5	A468037	23.9	0.1	A468037	29.7	0.1	A468037	23.6	0.1	A468037
Calculated SO2	ppb	0.8	A467389	1.9	0.1	A467647	0.5	0.1	A467647	0.4	0.1	A467647
RDL = Reportable Detection Limit												

Bureau Veritas ID		ANC436		ANC437			ANC438			ANC439		
Sampling Date		2021/12/01 17:45		2021/12/02 10:48			2021/12/01 20:13			2021/11/30 08:56		
	UNITS	17	QC Batch	18	RDL	QC Batch	19	RDL	QC Batch	22	RDL	QC Batch
Passive Monitoring												
Calculated H2S	ppb	0.28	A473476	0.18	0.02	A473476				0.24	0.02	A473476
Calculated NO2	ppb	2.4	A465321	1.5	0.1	A466107	1.6	0.1	A466107	3.4	0.1	A466107
Calculated O3	ppb	31.3	A468037	22.9	0.1	A468037	31.3	0.1	A468037	24.3	0.1	A468037
Calculated SO2	ppb	0.7	A467647	0.4	0.1	A467647	0.5	0.1	A467647	0.5	0.1	A467647
RDL = Reportable Detection Limit												

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		ANC442			ANC444			ANC445	ANC446		
Sampling Date		2021/11/30 12:55			2021/12/01 16:07			2021/11/30 15:32	2021/11/30 14:06		
	UNITS	23	RDL	QC Batch	24	RDL	QC Batch	26	27	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb				0.23	0.02	A473476	0.30	0.88	0.02	A473476
Calculated NO2	ppb	1.3	0.1	A466107	3.7	0.1	A466107				
Calculated O3	ppb	20.3	0.1	A468039	25.5	0.1	A468037				
Calculated SO2	ppb	0.4	0.1	A467647	0.4	0.1	A467647	0.6	2.0	0.1	A467647
RDL = Reportable Detection Limit											

Bureau Veritas ID		ANC447			ANC448		ANC449			ANC455		
Sampling Date		2021/12/01 11:44			2021/11/30 09:12		2021/11/30 19:10			2021/11/30 20:12		
	UNITS	28	RDL	QC Batch	29	QC Batch	32	RDL	QC Batch	3 DUP	RDL	QC Batch
Passive Monitoring												
Calculated H2S	ppb				0.22	A473476	0.21	0.02	A473476			
Calculated NO2	ppb	6.3	0.1	A466107	3.3	A466107	1.6	0.1	A468041	2.2	0.1	A468041
Calculated O3	ppb	24.5	0.1	A468037	23.9	A468039	28.4	0.1	A468039	29.4	0.1	A468039
Calculated SO2	ppb	0.5	0.1	A467647	0.4	A467647	0.4	0.1	A467647			
RDL = Reportable Detection Limit												

Bureau Veritas ID		ANC456			ANC450	ANC451	ANC457			ANC458		
Sampling Date		2021/11/30 19:10			2021/12/01 15:25	2021/12/01 16:43	2021/12/01 13:02			2021/12/02 15:17		
	UNITS	32 DUP	RDL	QC Batch	5 DUP	6 DUP	8 DUP	RDL	QC Batch	11 DUP	RDL	QC Batch
Passive Monitoring												
Calculated H2S	ppb									0.19	0.02	A473476
Calculated NO2	ppb	1.8	0.1	A468041								
Calculated O3	ppb	28.8	0.1	A468039								
Calculated SO2	ppb				0.5	0.6	0.6	0.1	A467647			
RDL = Reportable Detection Limit												

Bureau Veritas ID		ANC459		
Sampling Date		2021/12/02 14:12		
	UNITS	12 DUP	RDL	QC Batch
Passive Monitoring				
Calculated H2S	ppb	0.18	0.02	A473476
RDL = Reportable Detection Limit				

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

GENERAL COMMENTS

Sample ANC422 [3] : O3 SAMPLE IS RECEIVED WITH BROKEN BARRIER.

Sample ANC437 [18] : O3 SAMPLE IS RECEIVED WITH BROKEN BARRIER.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A464882	XSZ	Spiked Blank	Calculated NO2			100	%	90 - 110
A464882	XSZ	Method Blank	Calculated NO2		<0.1		ppb	
A465314	XSZ	Spiked Blank	Calculated NO2			99	%	90 - 110
A465314	XSZ	Method Blank	Calculated NO2		<0.1		ppb	
A465321	XSZ	Spiked Blank	Calculated NO2			99	%	90 - 110
A465321	XSZ	Method Blank	Calculated NO2		<0.1		ppb	
A466107	XSZ	Spiked Blank	Calculated NO2			96	%	90 - 110
A466107	XSZ	Method Blank	Calculated NO2		<0.1		ppb	
A467389	SS6	Spiked Blank	Calculated SO2			99	%	90 - 110
A467389	SS6	Method Blank	Calculated SO2		<0.1		ppb	
A467647	SS6	Spiked Blank	Calculated SO2			101	%	90 - 110
A467647	SS6	Method Blank	Calculated SO2		<0.1		ppb	
A468037	XSZ	Spiked Blank	Calculated O3			100	%	90 - 110
A468037	XSZ	Method Blank	Calculated O3		<0.1		ppb	
A468039	XSZ	Spiked Blank	Calculated O3			100	%	90 - 110
A468039	XSZ	Method Blank	Calculated O3		<0.1		ppb	
A468041	XSZ	Spiked Blank	Calculated NO2			95	%	90 - 110
A468041	XSZ	Method Blank	Calculated NO2		<0.1		ppb	
A473476	KDE	Spiked Blank	Calculated H2S			100	%	90 - 110

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

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

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VALIDATION SIGNATURE PAGE

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

Yang Liu

Yang Liu, Analyst II

BV Labs 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