Lakeland Industry & Community Association

NOVEMBER 2022

Monthly Ambient Air Quality Monitoring Integrated Sampling Report

LICA-202211-INTEGRATED

December 21, 2022

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Table of Contents

NETWORK STATION SUMMARY 5
Listing of Air Monitoring Stations and Integrated Sampling Stations 5
Listing of Passive Sampling Stations 5
Listing of Passive Aromatic Compounds Stations 6
List of Contractors who performed the air monitoring activities 6
Monitoring Notes during the Month of November 2022 6
Cold Lake South Station 6
Lac La Biche Station 7
Passive polycyclic aromatic compounds (PACs) Stations 7
Revisions to Alberta's Ambient Air Quality Data Warehouse 7
Deviations from Authorized Monitoring Methods 7
Certification 8
INTEGRATED SAMPLING RESULTS SUMMARY 9
COLD LAKE SOUTH STATION 9
LAC LA BICHE STATION 11
ANALYTICAL SAMPLING RESULTS 12
COLD LAKE SOUTH STATION 13
VOCS 14
PAHS 17
PARTISOLS 19
PASSIVE SAMPLES 22
End of Report 24

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December 21, 2022

Alberta Environment and Protected Areas (EPA)
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Edmonton, AB, T5K 2J6

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

Enclosed is the November 2022 Monthly Ambient Air Quality Monitoring Integrated Sampling Report for the Lakeland Industry and Community Association's (LICA) regional air quality monitoring network. This report summarizes monitoring data for samples collected using integrated methods including volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), polycyclic aromatic compounds (PAHs), particulate matter ($PM_{2.5}$ and $PM_{2.5-10}$), ozone (O_3), hydrogen sulphide (H_2S), sulphur dioxide (SO_2), nitrogen dioxide (NO_2), ammonia (NH_3) and nitric acid (HNO_3).

The representative of the Person Responsible for this monitoring program is

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

NETWORK STATION SUMMARY

Listing of Air Monitoring Stations and Integrated Sampling Stations

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

Listing of Passive Sampling Stations

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

Listing of Passive Aromatic Compounds Stations

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

List of Contractors who performed the air monitoring activities

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

Monitoring Notes during the Month of November 2022

Cold Lake South Station

- **Volatile Organic Compounds (VOCs)**
  - Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) where applicable.
  - The VOC sampler is programed to collect a 24-hour sample of air every sixth day as per the North American Pollution Surveillance schedule (NAPS).
  - Five samples were collected this month: on November 1, 7, 13, 19 and 25.
- **Polycyclic Aromatic Hydrocarbons (PAHs)**
  - The PUF sampler is programed to collect a 24-hour sample of air every sixth day as per the North American Pollution Surveillance schedule (NAPS).
  - Five samples were collected this month: on November 1, 7, 13, 19 and 25.
- **Partisols**
  - Measured parameters were below Alberta Ambient Air Quality Objectives (AAAQOs) where applicable.
  - The Partisol sampler is programed to collect a 24-hour sample of air every sixth day as per the North American Pollution Surveillance schedule (NAPS).
  - Five samples were collected this month: on November 1, 7, 13, 19 and 25.

- **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 September 28 and September 30, and were removed between November 2 and November 4.
    - A total of 13 duplicate samples were collected: 2 for H2S, 3 for SO2, 2 for NO2, 2 for O3, 2 for NMH3 and 2 for HNO3.
    - A total of 6 blank samples were collected: 3 for NMH3 and 3 for HNO3.
    - No samples were collected at station 25. The field technician has not completed the necessary safety orientation for the CNRL Primrose/Burnt Lake site and access is not permitted at this time.

Lac La Biche Station

- **Non-methane Hydrocarbons (NMHC) Canisters**
    - The canister sampling program collects a 1-hour sample of air when the continuously measured non-methane hydrocarbon (NMHC) concentration reaches a specified trigger point. The current trigger point is 0.3 ppm, and is based on real-time monitoring data that are averaged over a 5-minute period.
    - No canister events were recorded this month.

Passive polycyclic aromatic compounds (PACs) Stations

- The PAC sampling program began in December 2019, and is designed to collect a 2-month integrated sample.
- The media for the November / December monitoring period were installed between October 2 and November 4. They will be exchanged in late December or early January 2023.

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, with the exception of the HNO3 data. The VVC code for the HNO3 is missing in the EPA ETS system. LICA has made a request to add the parameter of HNO3 to the ETS system. Data will be submitted once the VVC code becomes available.

Michael Bisaga
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INTEGRATED SAMPLING RESULTS SUMMARY

COLD LAKE SOUTH STATION

- **VOCs analytical results**

Sample Date	2022-11-01	2022-11-07	2022-11-13	2022-11-19	2022-11-25
Canister ID	29032	28948	29031	32207	28882
Maximum Reading (ppbv)	1.0	0.66	3.3	1.4	1.3
Parameter	Acetone	Freon-12	Ethanol	Acetone	Ethanol

- **PAHs analytical results**

Sample Date	2022-11-01		2022-11-07		2022-11-13		2022-11-19		2022-11-25	
PUF S/N	TE-06		TE-09		TE-03		A13-02		9802	
Volume (Vstd m^3)	330.41		330.40		330.41		330.38		330.38	
Maximum Reading	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3
	0.26	0.79	0.26	0.79	1.26	3.81	1.70	5.15	0.87	2.63
Parameter	Phenanthrene		Phenanthrene		Retene		Retene		Phenanthrene	

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

Sample Date	2022-11-01		2022-11-07		2022-11-13		2022-11-19		2022-11-25	
Filter #	C1162116		C1162138		C1162140		C9697003		C9694341	
Volume (Vstd m^3)	22.0		23.6		22.7		22.9		22.1	
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	0.009	0.000	<0.004	0.000	0.415	0.018	0.115	0.005	0.130	0.006

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

Sample Date	2022-11-01		2022-11-07		2022-11-13		2022-11-19		2022-11-25	
Filter #	C1162117		C1162139		C1162141		C9697004		C9694342	
Volume (Vstd m^3)	2.44		2.63		2.52		2.55		2.46	
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	0.020	0.008	<0.004	0.000	0.029	0.012	0.053	0.021	0.028	0.011

- **Passive analytical results**

	H_2S		**NO_2**		**O_3**		**SO_2**		**NM3**		**HNO3**	
	Unit (ppb)		**Unit (ppb)**		**Unit (ppb)**		**Unit (ppb)**		**Unit (ppb)**		**Unit (ug/m3)**	
Minimum	0.11	#13	0.9	#24	23.1	#13	0.3	#23	0.2	#32	0.76	#9
Maximum	0.48	#26	7.2	#11	40.6	#17	2.2	#27	2.6	#3	3.79	#28
Average	0.19	-	2.80	-	32.78	-	0.66	-	0.94	-	1.54	-

LAC LA BICHE STATION

- **NMHC canister sample analytical results**

No canister samples were collected this month.

ANALYTICAL SAMPLING RESULTS

COLD LAKE SOUTH STATION

VOCS

Sample Date		2022-11-01	2022-11-07	2022-11-13	2022-11-19	2022-11-25
Canister ID		29032	28948	29031	32207	28882
Method		AC-058	AC-058	AC-058	AC-058	AC-058
Maximum Reading (ppbv)		1.0	0.66	3.3	1.4	1.3
Parameter		Acetone	Freon-12	Ethanol	Acetone	Ethanol

Parameter	AAAQOs (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	RDL (ppbv)
1,1,1-Trichloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1,2,2-Tetrachloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1,2-Trichloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1-Dichloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,1-Dichloroethylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
1,2,3-Trimethylbenzene		< 0.05	< 0.05	< 0.05	< 0.05	< 0.05	0.05
1,2,4-Trichlorobenzene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.8
1,2,4-Trimethylbenzene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.05
1,2-Dibromoethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
1,2-Dichlorobenzene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.03
1,2-Dichloroethane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
1,2-Dichloropropane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
1,3,5-Trimethylbenzene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02
1,3-Butadiene		< 0.03	< 0.03	< 0.03	< 0.03	0.04	0.02
1,3-Dichlorobenzene		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	0.3
1,4-Dichlorobenzene		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	0.4
1,4-Dioxane		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.4
1-Butene		< 0.06	0.12	0.08	< 0.06	0.11	0.02
1-Hexene		< 0.07	< 0.07	< 0.07	< 0.07	< 0.07	0.02
1-Pentene		< 0.03	< 0.03	< 0.03	< 0.03	0.04	0.01
2,2,4-Trimethylpentane		< 0.02	< 0.02	0.02	< 0.02	0.05	0.01
2,2-Dimethylbutane		< 0.02	< 0.02	0.02	< 0.02	0.02	0.01
2,3,4-Trimethylpentane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
2,3-Dimethylbutane		< 0.09	< 0.09	< 0.09	< 0.09	< 0.09	0.02
2,3-Dimethylpentane		< 0.02	< 0.02	0.04	0.02	0.05	0.02
2,4-Dimethylpentane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
2-Methylheptane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
2-Methylhexane		< 0.03	< 0.03	0.05	< 0.03	0.04	0.01
2-Methylpentane		< 0.02	< 0.02	0.11	0.06	0.08	0.01
3-Methylheptane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02
3-Methylhexane		< 0.02	< 0.02	0.06	0.03	0.05	0.02
3-Methylpentane		< 0.02	< 0.02	0.1	0.05	0.06	0.01
Acetone	2400	1.0	0.6	1.5	1.4	0.9	0.4
Acrolein	1.9	< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
Benzene	9.0	0.05	0.04	0.27	0.17	0.20	0.01
Benzyl chloride		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Bromodichloromethane		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02
Bromoform		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Bromomethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
Carbon disulfide	10	< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
Carbon tetrachloride		0.07	0.1	0.08	0.08	0.08	0.01
Chlorobenzene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Chloroethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Chloroform		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Chloromethane		0.37	0.59	0.55	0.55	0.75	0.02
cis-1,2-Dichloroethene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
cis-1,3-Dichloropropene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.04
cis-2-Butene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02
cis-2-Pentene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.02
Cyclohexane		< 0.04	< 0.04	0.09	0.05	0.08	0.02
Cyclopentane		< 0.02	< 0.02	0.05	0.03	< 0.02	0.01
Dibromochloromethane		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
Ethanol		1.0	< 0.5	3.3	1.4	1.3	0.3
Ethyl acetate		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Ethylbenzene	460	< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
Freon-11		0.19	0.21	0.26	0.27	0.19	0.02
Freon-113		0.06	0.09	0.07	0.08	0.07	0.01
Freon-114		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.02

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - November 2022

Volatile Organic Compounds (VOCs) Results

Sample Date		2022-11-01	2022-11-07	2022-11-13	2022-11-19	2022-11-25
Canister ID		29032	28948	29031	32207	28882
Method		AC-058	AC-058	AC-058	AC-058	AC-058
Maximum Reading (ppbv)		1.0	0.66	3.3	1.4	1.3
Parameter		Acetone	Freon-12	Ethanol	Acetone	Ethanol

Parameter	AAAQOs (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	Result (ppbv)	RDL (ppbv)
Freon-12		0.5	0.66	0.55	0.54	0.70	0.02
Hexachloro-1,3-butadiene		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.5
Isobutane		0.43	0.19	1.53	0.55	0.89	0.02
Isopentane		0.11	0.08	1.12	0.43	0.42	0.03
Isoprene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
Isopropyl alcohol		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Isopropylbenzene		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.01
m,p-Xylene		< 0.04	< 0.04	< 0.04	< 0.04	0.05	0.03
m-Diethylbenzene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
m-Ethyltoluene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.08
Methyl butyl ketone		< 0.4	< 0.4	< 0.4	< 0.4	< 0.4	0.5
Methyl ethyl ketone		< 0.3	< 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		< 0.02	< 0.02	0.11	0.06	0.10	0.01
Methylcyclopentane		< 0.05	< 0.05	0.12	0.06	0.1	0.02
Methylene chloride		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.3
n-Butane		0.24	0.23	1.79	0.63	1.10	0.03
n-Decane		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.06
n-Dodecane		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
n-Heptane		< 0.04	< 0.04	0.06	< 0.04	0.05	0.01
n-Hexane	5960	< 0.03	< 0.03	0.21	0.08	0.11	0.01
n-Nonane		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.01
n-Octane		< 0.02	< 0.02	0.02	< 0.02	< 0.02	0.02
n-Pentane		0.05	0.13	0.78	0.27	0.39	0.1
n-Propylbenzene		< 0.06	< 0.06	< 0.06	< 0.06	< 0.06	0.05
n-Undecane		< 0.5	< 0.5	< 0.5	< 0.5	< 0.5	0.5
Naphthalene		0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.5
o-Ethyltoluene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.01
o-Xylene		< 0.03	< 0.03	< 0.03	< 0.03	< 0.03	0.01
p-Diethylbenzene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
p-Ethyltoluene		< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.07
Styrene	52.0	< 0.04	< 0.04	< 0.04	< 0.04	< 0.04	0.04
Tetrachloroethylene		< 0.02	< 0.02	< 0.02	< 0.02	< 0.02	0.04
Tetrahydrofuran		< 0.3	< 0.3	< 0.3	< 0.3	< 0.3	0.4
Toluene	499	< 0.03	< 0.03	0.11	0.07	0.13	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 - November 2022

Polycyclic Aromatic Hydrocarbons (PAHs) Results

Sample Date	2022-11-01		2022-11-07		2022-11-13		2022-11-19		2022-11-25	
PUF S/N	TE-06		TE-09		TE-03		A13-02		9802	
Volume (Vstd m^3)	330.41		330.40		330.41		330.38		330.38	
Method	AC-066		AC-066		AC-066		AC-066		AC-066	
Maximum Reading	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3	ug	ng/m3
	0.26	0.79	0.26	0.79	1.26	3.81	1.70	5.15	0.87	2.63
Parameter	Phenanthrene		Phenanthrene		Retene		Retene		Phenanthrene	

Parameter	Result (ug)	Result (ng/m^3)	Result (ug)	Result (ng/m^3)	Result (ug)	Result (ng/m^3)	Result (ug)	Result (ng/m^3)	Result (ug)	Result (ng/m^3)	RDL (ug)
1-Methylnaphthalene	0.02	0.06	0.08	0.24	0.43	1.30	0.30	0.91	0.38	1.15	0.01
2-Methylnaphthalene	0.03	0.09	0.12	0.36	0.50	1.51	0.40	1.21	0.48	1.45	0.01
3-Methylcholanthrene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
7,12-Dimethylbenz(a)anthracene	< 0.01	0.00	0.07	0.21	0.13	0.39	0.13	0.39	< 0.01	0.00	0.01
Acenaphthene	0.06	0.18	0.05	0.15	0.15	0.45	0.13	0.39	0.14	0.42	0.01
Acenaphthylene	0.09	0.27	0.06	0.18	0.16	0.48	0.06	0.18	0.09	0.27	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	0.04	0.12	0.03	0.09	0.12	0.36	0.05	0.15	0.10	0.30	0.01
Benzo(a)anthracene	0.01	0.03	0.08	0.24	0.10	0.30	0.10	0.30	0.09	0.27	0.01
Benzo(a)pyrene	< 0.01	0.00	< 0.01	0.00	0.02	0.06	0.01	0.03	< 0.01	0.00	0.01
Benzo(b,j,k)fluoranthene	0.06	0.18	0.03	0.09	0.18	0.54	0.11	0.33	0.10	0.30	0.01
Benzo(c)phenanthrene	< 0.01	0.00	0.03	0.09	0.04	0.12	0.03	0.09	0.04	0.12	0.01
Benzo(e)pyrene	0.01	0.03	< 0.01	0.00	0.04	0.12	0.02	0.06	0.06	0.18	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	0.04	0.12	0.05	0.15	0.27	0.82	0.19	0.58	0.25	0.76	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	0.03	< 0.01	0.00	0.04	0.12	0.01
Dibenzo(ah)anthracene	0.06	0.18	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Fluoranthene	0.09	0.27	0.12	0.36	0.29	0.88	0.16	0.48	0.18	0.54	0.01
Fluorene	0.12	0.36	0.15	0.45	0.58	1.76	0.36	1.09	0.50	1.51	0.01
Indeno(1,2,3-cd)pyrene	0.01	0.03	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Naphthalene	0.05	0.15	0.12	0.36	0.44	1.33	0.45	1.36	0.66	2.00	0.01
Perylene	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	< 0.01	0.00	0.01
Phenanthrene	0.26	0.79	0.26	0.79	1.14	3.45	0.62	1.88	0.87	2.63	0.01
Pyrene	0.14	0.42	0.13	0.39	0.22	0.67	0.14	0.42	0.15	0.45	0.01
Retene	0.08	0.24	0.11	0.33	1.26	3.81	1.70	5.15	0.75	2.27	0.01

PARTISOLS

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - November 2022

Partisol Results - $PM_{2.5}$

Sample Date		2022-11-01		2022-11-07		2022-11-13		2022-11-19		2022-11-25		
Filter #		C1162116		C1162138		C1162140		C9697003		C9694341		
Volume (Vstd m^3)		22.0		23.6		22.7		22.9		22.1		
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	**0.009**	**0.000**	**<0.004**	**0.000**	**0.415**	**0.018**	**0.115**	**0.005**	**0.130**	**0.006**	0.004
PM2.5 Mass in ug/m3			**0.409**		**0.169**		**18.282**		**5.022**		**5.882**	
RDL in ug/m3			**0.182**		**0.169**		**0.176**		**0.175**		**0.181**	

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

Cold Lake South Station - November 2022

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

Sample Date	**2022-11-01**	**2022-11-07**	**2022-11-13**	**2022-11-19**	**2022-11-25**
Filter #	**C1162117**	**C1162139**	**C1162141**	**C9697004**	**C9694342**
Volume (Vstd m^3)	**2.44**	**2.63**	**2.52**	**2.55**	**2.46**
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	**0.020**	**0.008**	**<0.004**	**0.000**	**0.029**	**0.012**	**0.053**	**0.021**	**0.028**	**0.011**	0.004

PM2.5-10 Mass in ug/m3	**8.197**	**1.521**	**11.508**	**20.784**	**11.382**
RDL in ug/m3	**1.639**	**1.521**	**1.587**	**1.569**	**1.626**

PASSIVE SAMPLES

LAKELAND INDUSTRY & COMMUNITY ASSOCIATION

November 2022

Passive Results

	H_2S		NO_2		O_3		SO_2		NH3		HNO3	
	in ppb		in ppb		in ppb		in ppb		in ppb		in ug/m3	
Minimum	0.11	#13	0.9	#24	23.1	#13	0.3	#23	0.2	#32	0.76	#9
Maximum	0.48	#26	7.2	#11	40.6	#17	2.2	#27	2.6	#3	3.79	#28
Average	0.19	-	2.80	-	32.78	-	0.66	-	0.94	-	1.54	-

No.	Station	Sample	Duplicate	Sample	Duplicate	Sample	Duplicate	Sample	Duplicate	Sample	Duplicate	Sample	Duplicate
3	Therien	0.14		2.1		33.5		0.6		2.6		1.38	
4	Flat Lake	-		2.1		36.6		0.6		1.7		0.98	
5	Lake Eliza	0.20		2.3		37.4		0.4		0.7		0.93	
6	Telegraph Creek	-		2.7		36.1		0.5		0.8		1.28	
8	Muriel-Kehewin	-		4.7		33.5		0.6		1.3		1.48	
9	Dupre	-		2.2		31.1		0.4		0.5		0.76	
10	La Corey	0.14		2.4		25.4		0.6		0.5		3.23	
11	Wolf Lake	0.13		7.2		25.5		0.4		0.5		1.04	
12	Foster Creek	0.15		1.9		36.3		0.6		0.3		1.13	
13	Primrose	0.11		1.3		23.1		0.7	0.8	0.6	0.5	1.15	1.16
14	Tamarack	0.22		1.6		39.2		1.9	2.1	0.7		1.26	
15	Ardmore	-		3.2		31.1		0.6	0.5	0.7	1.0	1.54	1.92
16	Frog Lake	0.17		3.4		37.0		0.6		0.8		1.74	
17	Clear Range	0.20	0.19	3.9		40.6		0.6		0.6		2.13	
18	Fishing Lake	0.13	0.15	1.8		31.7		0.5		1.2		1.12	
19	Beaverdam	-		2.4		38.4		0.6		1.2		1.13	
22	Cold Lake South (1)	0.14		1.8		29.8		0.4		1.6		1.06	
23	Medley-Martineau	-		2.6		26.9		0.3		0.7		0.94	
24	Fort George	0.16		0.9		37.2		0.4		0.8		1.60	
25	Burnt Lake	Missing 1		-		-		Missing 1		-		-	
26	Mahihkan	0.48		-		-		0.8		0.6		2.15	
27	Mahkeses	0.48		-		-		2.2		0.8		1.96	
28	Town of Bonnyville	0.12		5.0		30.8		0.5		2.1		3.79	
29	Cold Lake South (2)	0.15		3.4		26.9		0.5		0.9		1.57	
32	St. Lina	0.16		1.6	1.7	34.0	36.5	0.7		0.2		1.19	
42	Lac La Biche	0.15		3.9	4.1	31.8	32.1	0.4		1.2		1.84	
-	BLANK 1	-		-	-	-	-	-		0.3		0.10	
-	BLANK 2	-		-	-	-	-	-		0.3		0.34	
-	BLANK 3	-		-	-	-	-	-		0.3		0.20	
Reportable Detection Limit (RDL)	**0.02**		**0.1**		**0.1**		**0.1**		**0.1**		**0.04**	

Note:

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

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

End of Report

Lakeland Industry & Community Association

NOVEMBER 2022

Ambient Air Monitoring

Certified Laboratory Analysis Report

LAB-LICA-202211

Operation and Maintenance:
Bureau Veritas Canada

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

December 19, 2022

Table of Contents

Cold Lake South Station 3

Volatile Organic Compounds (VOCs) & Polycyclic Aromatic Hydrocarbons (PAHs) Samples 4

Partisol Samples 88

Passive Samples 138

End of Report 150

Cold Lake South Station

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

Sample ID: 22110066-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Oct 26, 2022

RECEIVED
NOV 08 2022

Bureau Veritas

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

Client:	LICA	**Sampler S/N:**	6200
Location:	Cold Lake South	**Canister ID:**	H2802
Station ID:	LICA 01	**Installation Date/Time (mst):**	Oct 24, 2022 @ 14:02
Sample ID:	LICA/VOC/CLS/Oct 26, 2022	**Removal Date/Time (mst):**	Oct 31, 2022@ 17:45

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
October 26, 2022	0:00	23:59	24

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.1	18.8

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

Deployment/Collection and Maintenance Checklist

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

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 22110066-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Oct 26, 2022

RECEIVED
NOV 08 2022

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	P13-01
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Oct 24, 2022 @ 14:05
Field Sample ID:	LICA/PUF/CLS/Oct 26, 2022	**Removal Date/Time:**	Oct 31, 2022 @ 17:47

Sample Data Collection Information

Sample Date:	26-Oct-22	**Average Pressure (mmHg)**	704
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	3.1
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.41

Sample Recovery Checklist

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

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

Sample ID: 22110066-003 Priority: Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Nov 01, 2022

RECEIVED
NOV 08 2022

Bureau Veritas

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

Client:	LICA	**Sampler S/N:**	6200
Location:	Cold Lake South	**Canister ID:**	29032
Station ID:	LICA 01	**Installation Date/Time (mst):**	Oct 31, 2022 @ 17:45
Sample ID:	LICA/VOC/CLS/Nov 01, 2022	**Removal Date/Time (mst):**	Nov 04, 2022@ 20:34

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
November 1, 2022	00:00	23:59	24

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.1	16.7

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)			

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 22110066-004 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Nov 01, 2022

RECEIVED
NOV 08 2022

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	TE-06
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Oct 31, 2022 @ 17:47
Field Sample ID:	LICA/PUF/CLS/Nov 01, 2022	**Removal Date/Time:**	Nov 04, 2022 @ 20:35

Sample Data Collection Information

Sample Date:	01-Nov-22	**Average Pressure (mmHg)**	707
Start Time (mst):	00:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	2.2
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.41

Sample Recovery Checklist

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

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

InnoTech ALBERTA

Canister ID: I-12802

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: SEP 06 2022

Evacuated: SEP 12 2022 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Oct 26, 2022

Sampled By: Alex Yakupov

Starting Vacuum: -27.1 "Hg

End Pressure: KG 18.8 "Hg/ psig

InnoTech ALBERTA

Canister ID: 813-01

This cleaned canister meets or exceeds TO-15 Method Specifications

PUF

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/Oct 26 2022

Sampled By: Alex Yakupov

Starting Vacuum: _____ "Hg

End Vacuum: _____ "Hg/ psig

InnoTech ALBERTA

Canister ID: 29032

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: JUL 15 2022

Evacuated: SEP 21 2022 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Nov 1, 2022

Sampled By: Alex Yakupov

Starting Vacuum: -27.1 "Hg

End Vacuum: KG 18 +16.7 "Hg/psig

InnoTech ALBERTA

Canister ID: TE-06

This cleaned canister meets or exceeds TO-15 Method Specifications

PUF

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/Nov 1, 2022

Sampled By: Alex Yakupov

Starting Vacuum: _____ "Hg

End Pressure: _____ "Hg/ psig

Sample ID: 22110066-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Oct 26, 2022

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID: LICA/PUF/CLS/Nov 01, 2022
Matrix: Air Filter
CANISTER ID: TE-06
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 01-Nov-22 0:00
DATE RECEIVED: 08-Nov-22
REPORT CREATED: 18-Nov-22
REPORT NUMBER: 22110066
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110066-004	1-Methylnaphthalene		0.02	ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	2-Methylnaphthalene		0.03	ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Acenaphthene		0.06	ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Acenaphthylene		0.09	ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Anthracene		0.04	ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Benzo(a)anthracene		0.01	ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Benzo(b,j,k)fluoranthene		0.06	ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Benzo(e)pyrene		0.01	ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Chrysene		0.04	ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 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/Nov 01, 2022	TE-06	Air Filter	01-Nov-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22110066 **REPORT CREATED:** 18-Nov-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110066-004	Dibenzo(ah)anthracene		0.06	ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Fluoranthene		0.09	ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Fluorene		0.12	ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Indeno(1,2,3-cd)pyrene		0.01	ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Naphthalene		0.05	ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Phenanthrene		0.26	ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Pyrene		0.14	ug/Filter	0.01	AC-066	16-Nov-22
22110066-004	Retene		0.08	ug/Filter	0.01	AC-066	16-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 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/Oct 26, 2022	P13-01	Air Filter	26-Oct-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22110066 **REPORT CREATED:** 18-Nov-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110066-002	1-Methylnaphthalene		0.06	ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	2-Methylnaphthalene		0.08	ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Acenaphthene		0.03	ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Acenaphthylene		0.09	ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Anthracene		0.01	ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Benzo(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Benzo(b,j,k)fluoranthene		0.02	ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Benzo(c)phenanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Chrysene		0.01	ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Dibenzo(ah)anthracene		0.02	ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Fluoranthene		0.03	ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Fluorene		0.07	ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Naphthalene		0.07	ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Phenanthrene		0.09	ug/Filter	0.01	AC-066	16-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 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/Oct 26, 2022	P13-01	Air Filter	26-Oct-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22110066 **REPORT CREATED:** 18-Nov-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110066-002	Pyrene		0.04	ug/Filter	0.01	AC-066	16-Nov-22
22110066-002	Retene		0.03	ug/Filter	0.01	AC-066	16-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 01, 2022	29032	Ambient Air	01-Nov-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22110066 **REPORT CREATED:** 18-Nov-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110066-003	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-003	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-003	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-003	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-003	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-003	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	10-Nov-22
22110066-003	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	10-Nov-22
22110066-003	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-003	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-003	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-003	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-003	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-003	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-003	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-003	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	10-Nov-22
22110066-003	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	10-Nov-22
22110066-003	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	10-Nov-22
22110066-003	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	10-Nov-22
22110066-003	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	10-Nov-22
22110066-003	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-003	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-003	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-003	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-003	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	10-Nov-22
22110066-003	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 01, 2022	29032	Ambient Air	01-Nov-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22110066 **REPORT CREATED:** 18-Nov-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110066-003	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-003	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-003	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-003	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-003	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-003	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-003	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-003	Acetone		1.0	ppbv	0.4	AC-058	10-Nov-22
22110066-003	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	10-Nov-22
22110066-003	Benzene	I	0.05	ppbv	0.03	AC-058	10-Nov-22
22110066-003	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	10-Nov-22
22110066-003	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-003	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-003	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-003	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-003	Carbon tetrachloride	I	0.07	ppbv	0.02	AC-058	10-Nov-22
22110066-003	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-003	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-003	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-003	Chloromethane		0.37	ppbv	0.04	AC-058	10-Nov-22
22110066-003	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-003	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-003	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-003	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-003	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	10-Nov-22

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 01, 2022	29032	Ambient Air	01-Nov-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22110066 **REPORT CREATED:** 18-Nov-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110066-003	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-003	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-003	Ethanol		1.0	ppbv	0.5	AC-058	10-Nov-22
22110066-003	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	10-Nov-22
22110066-003	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-003	Freon-11		0.19	ppbv	0.02	AC-058	10-Nov-22
22110066-003	Freon-113	I	0.06	ppbv	0.02	AC-058	10-Nov-22
22110066-003	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-003	Freon-12		0.50	ppbv	0.03	AC-058	10-Nov-22
22110066-003	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	10-Nov-22
22110066-003	Isobutane		0.43	ppbv	0.03	AC-058	10-Nov-22
22110066-003	Isopentane		0.11	ppbv	0.04	AC-058	10-Nov-22
22110066-003	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-003	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	10-Nov-22
22110066-003	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	10-Nov-22
22110066-003	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	10-Nov-22
22110066-003	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-003	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-003	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	10-Nov-22
22110066-003	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	10-Nov-22
22110066-003	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	10-Nov-22
22110066-003	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	10-Nov-22
22110066-003	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-003	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-003	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	10-Nov-22

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 01, 2022	29032	Ambient Air	01-Nov-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22110066 **REPORT CREATED:** 18-Nov-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110066-003	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	10-Nov-22
22110066-003	n-Butane		0.24	ppbv	0.02	AC-058	10-Nov-22
22110066-003	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	10-Nov-22
22110066-003	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	10-Nov-22
22110066-003	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	10-Nov-22
22110066-003	n-Hexane	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-003	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-003	n-Pentane	I	0.05	ppbv	0.04	AC-058	10-Nov-22
22110066-003	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	10-Nov-22
22110066-003	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	10-Nov-22
22110066-003	Naphthalene	I	0.3	ppbv	0.3	AC-058	10-Nov-22
22110066-003	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	10-Nov-22
22110066-003	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-003	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-003	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-003	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	10-Nov-22
22110066-003	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	10-Nov-22
22110066-003	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-003	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	10-Nov-22
22110066-003	Toluene	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-003	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	10-Nov-22
22110066-003	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-003	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-003	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-003	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 01, 2022	29032	Ambient Air	01-Nov-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22110066 **REPORT CREATED:** 18-Nov-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110066-003	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	10-Nov-22
22110066-003	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 26, 2022	H2802	Ambient Air	26-Oct-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22110066 **REPORT CREATED:** 18-Nov-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110066-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	10-Nov-22
22110066-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	10-Nov-22
22110066-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	10-Nov-22
22110066-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	10-Nov-22
22110066-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	10-Nov-22
22110066-001	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	10-Nov-22
22110066-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	10-Nov-22
22110066-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	10-Nov-22
22110066-001	2,3-Dimethylpentane	I	0.02	ppbv	0.02	AC-058	10-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 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/Oct 26, 2022	H2802	Ambient Air	26-Oct-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22110066 **REPORT CREATED:** 18-Nov-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110066-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-001	2-Methylpentane	I	0.05	ppbv	0.02	AC-058	10-Nov-22
22110066-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-001	3-Methylhexane	I	0.03	ppbv	0.02	AC-058	10-Nov-22
22110066-001	3-Methylpentane	I	0.04	ppbv	0.02	AC-058	10-Nov-22
22110066-001	Acetone		0.9	ppbv	0.4	AC-058	10-Nov-22
22110066-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	10-Nov-22
22110066-001	Benzene	I	0.07	ppbv	0.03	AC-058	10-Nov-22
22110066-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	10-Nov-22
22110066-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-001	Carbon tetrachloride	I	0.06	ppbv	0.02	AC-058	10-Nov-22
22110066-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-001	Chloromethane		0.36	ppbv	0.04	AC-058	10-Nov-22
22110066-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	10-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 26, 2022	H2802	Ambient Air	26-Oct-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22110066 **REPORT CREATED:** 18-Nov-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110066-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-001	Ethanol		2.1	ppbv	0.5	AC-058	10-Nov-22
22110066-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	10-Nov-22
22110066-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-001	Freon-11		0.22	ppbv	0.02	AC-058	10-Nov-22
22110066-001	Freon-113	I	0.06	ppbv	0.02	AC-058	10-Nov-22
22110066-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-001	Freon-12		0.54	ppbv	0.03	AC-058	10-Nov-22
22110066-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	10-Nov-22
22110066-001	Isobutane		0.76	ppbv	0.03	AC-058	10-Nov-22
22110066-001	Isopentane		0.39	ppbv	0.04	AC-058	10-Nov-22
22110066-001	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	10-Nov-22
22110066-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	10-Nov-22
22110066-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	10-Nov-22
22110066-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	10-Nov-22
22110066-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	10-Nov-22
22110066-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	10-Nov-22
22110066-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	10-Nov-22
22110066-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-001	Methylcyclohexane	I	0.04	ppbv	0.02	AC-058	10-Nov-22
22110066-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	10-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Oct 26, 2022	H2802	Ambient Air	26-Oct-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22110066 **REPORT CREATED:** 18-Nov-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110066-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	10-Nov-22
22110066-001	n-Butane		0.82	ppbv	0.02	AC-058	10-Nov-22
22110066-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	10-Nov-22
22110066-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	10-Nov-22
22110066-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	10-Nov-22
22110066-001	n-Hexane	I	0.08	ppbv	0.03	AC-058	10-Nov-22
22110066-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-001	n-Pentane		0.24	ppbv	0.04	AC-058	10-Nov-22
22110066-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	10-Nov-22
22110066-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	10-Nov-22
22110066-001	Naphthalene	I	0.3	ppbv	0.3	AC-058	10-Nov-22
22110066-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	10-Nov-22
22110066-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	10-Nov-22
22110066-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	10-Nov-22
22110066-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	10-Nov-22
22110066-001	Toluene	I	0.07	ppbv	0.03	AC-058	10-Nov-22
22110066-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	10-Nov-22
22110066-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	10-Nov-22
22110066-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22
22110066-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 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/Oct 26, 2022	H2802	Ambient Air	26-Oct-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22110066 **REPORT CREATED:** 18-Nov-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110066-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	10-Nov-22
22110066-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	10-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022

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

Revision History

Order ID	Ver	Date	Reason
22110066	01	18-Nov-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

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Sample Comments

Result Comments

Note:

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

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

Sample ID: 22110170-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Nov 07, 2022

RECEIVED
NOV 18 2022

Bureau Veritas

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

Client:	LICA	**Sampler S/N:**	6200
Location:	Cold Lake South	**Canister ID:**	28948
Station ID:	LICA 01	**Installation Date/Time (mst):**	Nov 04, 2022 @ 20:44
Sample ID:	LICA/VOC/CLS/Nov 07, 2022	**Removal Date/Time (mst):**	Nov 10, 2022@ 18:29

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
November 7, 2022	0:00	23:59	24

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	**Final Pressure (psi)**
-27.1	19.5

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

Deployment/Collection and Maintenance Checklist

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

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 22110170-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Nov 07, 2022

RECEIVED
NOV 18 2022

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	TE-09
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Nov 04, 2022 @ 20:46
Field Sample ID:	LICA/PUF/CLS/Nov 07, 2022	**Removal Date/Time:**	Nov 10, 2022 @ 18:32

Sample Data Collection Information

Sample Date:	7-Nov-22	**Average Pressure (mmHg)**	725
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	-11.7
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.4

Sample Recovery Checklist

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

Deployed By: Alex Yakupov

Collected By: Alex Yakupov

InnoTech ALBERTA

Canister ID: 28948

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: ISQ4 on: JUL 14 2022

Evacuated: SEP 21 2022 Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: _____

Sampled By: _____

Starting Vacuum: -27.1 "Hg

End Vacuum: 19 "Hg/psig

InnoTech ALBERTA

Canister ID: TE-09

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: PUF on: _____

Evacuated: _____ Recertified: _____

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

Laboratory Contact Number: 780-632-8403

Sample ID: _____

Sampled By: _____

Starting Vacuum: _____ "Hg

End Pressure: _____ "Hg/ psig

Sample ID: 22110170-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Nov 07, 2022

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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/Nov 07, 2022
Matrix: Air Filter
CANISTER ID: TE-09
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 07-Nov-22 0:00
DATE RECEIVED: 18-Nov-22
REPORT CREATED: 21-Dec-22
REPORT NUMBER: 22110170
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110170-002	1-Methylnaphthalene		0.08	ug/Filter	0.01	AC-066	11-Dec-22
22110170-002	2-Methylnaphthalene		0.12	ug/Filter	0.01	AC-066	11-Dec-22
22110170-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Dec-22
22110170-002	7,12-Dimethylbenz(a)anthracene		0.07	ug/Filter	0.01	AC-066	11-Dec-22
22110170-002	Acenaphthene		0.05	ug/Filter	0.01	AC-066	11-Dec-22
22110170-002	Acenaphthylene		0.06	ug/Filter	0.01	AC-066	11-Dec-22
22110170-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Dec-22
22110170-002	Anthracene		0.03	ug/Filter	0.01	AC-066	11-Dec-22
22110170-002	Benzo(a)anthracene		0.08	ug/Filter	0.01	AC-066	11-Dec-22
22110170-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Dec-22
22110170-002	Benzo(b,j,k)fluoranthene		0.03	ug/Filter	0.01	AC-066	11-Dec-22
22110170-002	Benzo(c)phenanthrene		0.03	ug/Filter	0.01	AC-066	11-Dec-22
22110170-002	Benzo(e)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Dec-22
22110170-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Dec-22
22110170-002	Chrysene		0.05	ug/Filter	0.01	AC-066	11-Dec-22
22110170-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Dec-22
22110170-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Dec-22
22110170-002	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Dec-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: December 21, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Nov 07, 2022	TE-09	Air Filter	07-Nov-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22110170 **REPORT CREATED:** 21-Dec-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110170-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Dec-22
22110170-002	Fluoranthene		0.12	ug/Filter	0.01	AC-066	11-Dec-22
22110170-002	Fluorene		0.15	ug/Filter	0.01	AC-066	11-Dec-22
22110170-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Dec-22
22110170-002	Naphthalene		0.12	ug/Filter	0.01	AC-066	11-Dec-22
22110170-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Dec-22
22110170-002	Phenanthrene		0.26	ug/Filter	0.01	AC-066	11-Dec-22
22110170-002	Pyrene		0.13	ug/Filter	0.01	AC-066	11-Dec-22
22110170-002	Retene		0.11	ug/Filter	0.01	AC-066	11-Dec-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: December 21, 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/Nov 07, 2022	28949	Ambient Air	07-Nov-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22110170 **REPORT CREATED:** 21-Dec-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110170-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Nov-22
22110170-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Nov-22
22110170-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Nov-22
22110170-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Nov-22
22110170-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Nov-22
22110170-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	22-Nov-22
22110170-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Nov-22
22110170-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Nov-22
22110170-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Nov-22
22110170-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Nov-22
22110170-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Nov-22
22110170-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Nov-22
22110170-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Nov-22
22110170-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Nov-22
22110170-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Nov-22
22110170-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Nov-22
22110170-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	22-Nov-22
22110170-001	1-Butene/Isobutylene	I	0.12	ppbv	0.06	AC-058	22-Nov-22
22110170-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	22-Nov-22
22110170-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Nov-22
22110170-001	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Nov-22
22110170-001	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Nov-22
22110170-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Nov-22
22110170-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	22-Nov-22
22110170-001	2,3-Dimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: December 21, 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/Nov 07, 2022	28949	Ambient Air	07-Nov-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22110170 **REPORT CREATED:** 21-Dec-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110170-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Nov-22
22110170-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Nov-22
22110170-001	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Nov-22
22110170-001	2-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Nov-22
22110170-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Nov-22
22110170-001	3-Methylhexane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Nov-22
22110170-001	3-Methylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Nov-22
22110170-001	Acetone		0.6	ppbv	0.4	AC-058	22-Nov-22
22110170-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Nov-22
22110170-001	Benzene	I	0.04	ppbv	0.03	AC-058	22-Nov-22
22110170-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Nov-22
22110170-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Nov-22
22110170-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Nov-22
22110170-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Nov-22
22110170-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Nov-22
22110170-001	Carbon tetrachloride		0.10	ppbv	0.02	AC-058	22-Nov-22
22110170-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Nov-22
22110170-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Nov-22
22110170-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Nov-22
22110170-001	Chloromethane		0.59	ppbv	0.04	AC-058	22-Nov-22
22110170-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Nov-22
22110170-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Nov-22
22110170-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Nov-22
22110170-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Nov-22
22110170-001	Cyclohexane	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: December 21, 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/Nov 07, 2022	28949	Ambient Air	07-Nov-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22110170 **REPORT CREATED:** 21-Dec-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110170-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Nov-22
22110170-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Nov-22
22110170-001	Ethanol	K, T, U	< 0.5	ppbv	0.5	AC-058	22-Nov-22
22110170-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Nov-22
22110170-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Nov-22
22110170-001	Freon-11		0.21	ppbv	0.02	AC-058	22-Nov-22
22110170-001	Freon-113	I	0.09	ppbv	0.02	AC-058	22-Nov-22
22110170-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Nov-22
22110170-001	Freon-12		0.66	ppbv	0.03	AC-058	22-Nov-22
22110170-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Nov-22
22110170-001	Isobutane		0.19	ppbv	0.03	AC-058	22-Nov-22
22110170-001	Isopentane	I	0.08	ppbv	0.04	AC-058	22-Nov-22
22110170-001	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Nov-22
22110170-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Nov-22
22110170-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Nov-22
22110170-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Nov-22
22110170-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Nov-22
22110170-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Nov-22
22110170-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	22-Nov-22
22110170-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Nov-22
22110170-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Nov-22
22110170-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	22-Nov-22
22110170-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Nov-22
22110170-001	Methylcyclohexane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Nov-22
22110170-001	Methylcyclopentane	K, T, U	< 0.05	ppbv	0.05	AC-058	22-Nov-22

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 07, 2022	28949	Ambient Air	07-Nov-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22110170 **REPORT CREATED:** 21-Dec-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110170-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Nov-22
22110170-001	n-Butane		0.23	ppbv	0.02	AC-058	22-Nov-22
22110170-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	22-Nov-22
22110170-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Nov-22
22110170-001	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Nov-22
22110170-001	n-Hexane	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Nov-22
22110170-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Nov-22
22110170-001	n-Pentane		0.13	ppbv	0.04	AC-058	22-Nov-22
22110170-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	22-Nov-22
22110170-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	22-Nov-22
22110170-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Nov-22
22110170-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Nov-22
22110170-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Nov-22
22110170-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Nov-22
22110170-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Nov-22
22110170-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Nov-22
22110170-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	22-Nov-22
22110170-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Nov-22
22110170-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Nov-22
22110170-001	Toluene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Nov-22
22110170-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	22-Nov-22
22110170-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Nov-22
22110170-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	22-Nov-22
22110170-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Nov-22
22110170-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: December 21, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 07, 2022	28949	Ambient Air	07-Nov-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22110170 **REPORT CREATED:** 21-Dec-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110170-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	22-Nov-22
22110170-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	22-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: December 21, 2022 Inquiries: (780) 632 8455 E-mail: EAS.Results@innotechalberta.ca

Revision History

Order ID	Ver	Date	Reason
22110170	01	21-Dec-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: 22110196-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Nov 13, 2022

RECEIVED
NOV 23 2022

Bureau Veritas

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

Client:	LICA	**Sampler S/N:**	6200
Location:	Cold Lake South	**Canister ID:**	29031
Station ID:	LICA 01	**Installation Date/Time (mst):**	Nov 10, 2022 @ 18:43
Sample ID:	LICA/VOC/CLS/Nov 13, 2022	**Removal Date/Time (mst):**	Nov 18, 2022@ 20:48

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
November 13, 2022	0:00	23:59	24

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.1	19.6

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)			

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 22110196-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Nov 13, 2022

RECEIVED
NOV 23 2022

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	TE-03
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Nov 10, 2022 @ 18:49
Field Sample ID:	LICA/PUF/CLS/Nov 13, 2022	**Removal Date/Time:**	Nov 18, 2022 @ 20:54

Sample Data Collection Information

Sample Date:	13-Nov-22	**Average Pressure (mmHg)**	715
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	-2.5
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.41

Sample Recovery Checklist

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

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

Sample ID: 22110196-003 Priority: Normal

RECEIVED
NOV 23 2022

Customer ID: LICA

Bureau Veritas

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

Client:	LICA	**Sampler S/N:**	6200
Location:	Cold Lake South	**Canister ID:**	32207
Station ID:	LICA 01	**Installation Date/Time (mst):**	Nov 18, 2022 @ 20:49
Sample ID:	LICA/VOC/CLS/Nov 19, 2022	**Removal Date/Time (mst):**	Nov 21, 2022@ 14:33

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
November 19, 2022	0:00	23:59	24

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.1	19.5

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

Deployment/Collection and Maintenance Checklist

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

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 22110196-004 Priority: Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Nov 19, 2022

RECEIVED
NOV 23 2022

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	A13-02
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Nov 18, 2022 @ 20:55
Field Sample ID:	LICA/PUF/CLS/Nov 19, 2022	**Removal Date/Time:**	Nov 21, 2022 @ 14:35

Sample Data Collection Information

Sample Date:	19-Nov-22	**Average Pressure (mmHg)**	712
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	-6.9
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.38

Sample Recovery Checklist

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

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

InnoTech ALBERTA

This cleaned canister meets or exceeds TO-15 Method Specifications

Canister ID: 29031

Proofed by: Markes on: SEP 07 2022

Evacuated: _____ Recertified: OCT 19 2022

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Nov 13, 2022

Sampled By: Alex Yampa

Starting Vacuum: -27.1 "Hg

End Pressure: KG 4.96 "Hg/psig

InnoTech ALBERTA

This cleaned canister meets or exceeds TO-15 Method Specifications

Canister ID: TE-03

PUF

fed by: _____ on: _____

ed: _____ Recertified: _____

within: 3 months from evacuation or recertification date)

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/PUF/CLS/Nov 13 2022

Sampled By: Alex Yampa

Starting Vacuum: _____ "Hg

End Vacuum: _____ "Hg/psig

InnoTech ALBERTA

This cleaned canister meets or exceeds TO-15 Method Specifications

Canister ID: 32207

Proofed by: ISQ4 on: SEP 19 2022

Evacuated: _____ Recertified: OCT 19 2022

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Nov 19, 2022

Sampled By: Alex Yampa

Starting Vacuum: -27.1 "Hg

End Vacuum: KG 19.5 "Hg/psig

InnoTech ALBERTA

This cleaned canister meets or exceeds TO-15 Method Specifications

Canister ID: A13-02

PUF

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/Nov 19 2022

Sampled By: Alex Yampa

Starting Vacuum: _____ "Hg

End Vacuum: _____ "Hg/psig

Sample ID: 22110196-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Nov 13, 2022

{00004818;6}

TERMS AND CONDITIONS

The attached document entitled "**Chain of Custody Form**" is subject to the following Terms and Conditions, unless otherwise specified on the Quotation. InnoTech Alberta's commencement of the Services shall be deemed acceptance of the terms and conditions by the Client.

1. Any proposal contained herein is prepared for the consideration of the Client only. Its contents may not be used or disclosed to any other party without prior written consent of the INNOTECH ALBERTA INC. (hereinafter referred to as "InnoTech Alberta").

2. InnoTech Alberta will perform the Services in accordance with normal professional standards.

3. The delivery time for performance of the Services (as set out on the front page of this Quotation) is approximate and may be changed by InnoTech Alberta giving written notice to the Client.

4. InnoTech Alberta will exercise due care and proficiency in testing items submitted by a Client. InnoTech Alberta shall not, however, be liable to the Client for any damage or loss caused to the item being tested or for any damage, loss or expense caused by any delay in carrying out the test, including any damage, loss or expense resulting from InnoTech Alberta's negligence. InnoTech Alberta shall not be responsible for any damage, which is a natural or necessary result of any testing procedure.

5. For the purposes of this Quotation, Intellectual Property means all information, data, artistic and literary works, concepts, designs, processes, software, algorithms and inventions, including, without limitation, those that could be the subject of patent, copyright, industrial design, trade secret or other forms of protection. Intellectual Property which was owned by either InnoTech Alberta or the Client prior to the signing of this Agreement remains the property of that party. Nothing in this Agreement shall operate as a license, permission or grant of any other rights to either InnoTech Alberta's or the Client's Intellectual Property.

6. All data, reports and other information relating to the Services shall be treated by InnoTech Alberta as the confidential property of the Client, and InnoTech Alberta will use reasonable efforts to ensure that its employees, contractors and agents will not disclose the same to any other person, firm or corporation during the term of this Agreement and for a period of five (5) years after the date of termination of the Agreement. The obligation of confidentiality set out herein shall not apply to any information that was in InnoTech Alberta's possession prior to receipt from the Client or which is or becomes part of the public domain through no act or failure on the part of InnoTech Alberta. The obligation of confidentiality set out in this Section shall not prevent the disclosure of information to any level of government having jurisdiction to make lawful demand therefor, or required to be disclosed by any applicable law. Any records required to be maintained by InnoTech Alberta pursuant to this Agreement are subject to the protection and access provisions of the Freedom of Information and Protection of Privacy Act (Alberta).

7. The reported results of any InnoTech Alberta tests or evaluations performed on samples or items provided by the Client shall be interpreted as being specific to the sample or item tested. InnoTech Alberta makes no representation that any similar or related untested samples or items would produce the same results.

8. The Client shall not use InnoTech Alberta's name in any advertising material, sale offer, news releases, public statements or announcements, whether written or oral relating to the Services or the results thereof, without the prior written consent of InnoTech Alberta.

9. Records, test data, reports and samples, except where shipped to the Client after completion of the work shall be retained by InnoTech Alberta according to InnoTech Alberta's approved Records Retention and Disposition Schedule.

10. Prices quoted are in Canadian Dollars unless otherwise stated in writing and are exclusive of any provincial, municipal, sales, use or goods and services tax.

11. Prices quoted do not include shipping, insurance or cost of consumables. The Client shall be responsible for all costs incurred by InnoTech Alberta in collecting any item for testing and returning the item to the Client after testing and shall be responsible for all necessary incidental costs incurred by InnoTech Alberta in providing the Services. InnoTech Alberta will not be responsible for any damage or loss to items during shipping and it is the responsibility of the Client to arrange and pay for any insurance it deems necessary.

12. Any test samples or other materials supplied by the Client to InnoTech Alberta may, at InnoTech Alberta's option, be returned by InnoTech Alberta to the Client. The Client shall:

(a) be responsible for all costs associated with the handling, transportation and disposal of such materials;

(b) reimburse InnoTech Alberta for any costs incurred by InnoTech Alberta associated with the handling, transportation and disposal of such materials; and

(c) indemnify and hold InnoTech Alberta harmless from any and all claims, damages or actions associated with the handling, transportation and disposal of such materials.

13. The Client shall pay all invoices rendered by InnoTech Alberta to the Client within thirty (30) days from the date of invoice, without deduction or set-off.

14. If the Client fails to pay any amount under this Agreement, such unpaid amount shall bear interest at a rate per month equal to one (1%) percent (or 12.6825% per annum) with interest on overdue interest at the same rate.

15. InnoTech Alberta makes no representation, warranties or conditions, either expressed or implied, statutory or otherwise and does not warrant the quality, state, merchantability or fitness for any purpose of any goods or products to be delivered pursuant to this Agreement. The Client accepts the results of these Services or items tested as is, and acknowledges that any use or interpretation of the information contained is at the Client's own risk.

16. In no event shall InnoTech Alberta be liable for any indirect or consequential damage or loss suffered by the Client, including loss of anticipated profits.

17. The Client shall indemnify and hold harmless InnoTech Alberta from any and all claims, demands, actions and costs (including legal costs on a solicitor-client basis) that may arise out of:

(a) any dangerous defect or content in the item being tested, whether apparent or not, which dangerous defect or content was not disclosed in writing to InnoTech Alberta by the Client at the time the item was submitted for testing;

(b) differences between those items actually tested and items previously or subsequently produced which are purported to be identical to the item tested; or

(c) any use of the tested item or any item incorporating the tested item, whether by the Client or a third party following its return to the Client.

The hold harmless shall survive this Agreement.

18. The Client shall, at its own expense and without limiting its liabilities herein, be responsible for insuring its operation in an amount not less than $2,000,000 inclusive per occurrence, insuring against bodily injury, and property damage including loss of use thereof. Further, the Client is responsible for insuring all owned property directly or indirectly related to this Agreement and InnoTech Alberta shall have no liability for any loss or damage to such property.

19. InnoTech Alberta shall maintain the following insurance: (i) commercial general liability insurance (including cross liability, severability of interests, non-owned automobile liability) in the amount of two million dollars ($2,000,000.00) per occurrence, and; (ii) professional liability and errors and omissions insurance in the amount of one million dollars ($1,000,000.00) per claim, and two million dollars ($2,000,000.00) in the aggregate. In addition, InnoTech Alberta shall maintain all workers' compensation coverage required by applicable laws. Notwithstanding the foregoing, InnoTech Alberta reserves the right to supplement or add insurance coverage from time to time as may be required in its sole discretion. InnoTech Alberta may provide certificates of insurance for coverages outlined in (i) and (ii) above.

20. The Client agrees to comply with all InnoTech Alberta Safety & Security regulations in effect while on InnoTech Alberta premises.

21. This Agreement represents the entire agreement between the parties and shall supersede all prior agreements relative to this transaction.

22. If a party's performance of any of its obligations under this Agreement (excepting only an obligation to pay) is delayed, rendered impossible or impractical, or prevented in whole or in part due to circumstances beyond its reasonable control, including but not limited to acts of God, war, terrorism, labour disputes, pandemics or epidemics, global health emergencies, or governmental action, that party will not be in breach of this Agreement due to the delay or failure in performance occasioned by such event.

23. InnoTech Alberta may assign this Quotation to an "affiliated" (as that term is defined at Section 2 of the Business Corporations Act (Alberta)) or successor entity on written notice to the Client.

24. This Quotation and rights and parties thereto shall be governed by and construed according to the laws of the Province of Alberta. The parties hereby submit to the jurisdiction of the Courts of Alberta.

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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/Nov 13, 2022
Matrix: Air Filter
CANISTER ID: TE-03
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 13-Nov-22 0:00
DATE RECEIVED: 23-Nov-22
REPORT CREATED: 21-Dec-22
REPORT NUMBER: 22110196
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110196-002	1-Methylnaphthalene		0.43	ug/Filter	0.01	AC-066	10-Dec-22
22110196-002	2-Methylnaphthalene		0.50	ug/Filter	0.01	AC-066	10-Dec-22
22110196-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Dec-22
22110196-002	7,12-Dimethylbenz(a)anthracene		0.13	ug/Filter	0.01	AC-066	10-Dec-22
22110196-002	Acenaphthene		0.15	ug/Filter	0.01	AC-066	10-Dec-22
22110196-002	Acenaphthylene		0.16	ug/Filter	0.01	AC-066	10-Dec-22
22110196-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Dec-22
22110196-002	Anthracene		0.12	ug/Filter	0.01	AC-066	10-Dec-22
22110196-002	Benzo(a)anthracene		0.10	ug/Filter	0.01	AC-066	10-Dec-22
22110196-002	Benzo(a)pyrene		0.02	ug/Filter	0.01	AC-066	10-Dec-22
22110196-002	Benzo(b,j,k)fluoranthene		0.18	ug/Filter	0.01	AC-066	10-Dec-22
22110196-002	Benzo(c)phenanthrene		0.04	ug/Filter	0.01	AC-066	10-Dec-22
22110196-002	Benzo(e)pyrene		0.04	ug/Filter	0.01	AC-066	10-Dec-22
22110196-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Dec-22
22110196-002	Chrysene		0.27	ug/Filter	0.01	AC-066	10-Dec-22
22110196-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Dec-22
22110196-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Dec-22
22110196-002	Dibenzo(a,l)pyrene		0.01	ug/Filter	0.01	AC-066	10-Dec-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: December 21, 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/Nov 13, 2022	TE-03	Air Filter	13-Nov-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22110196 **REPORT CREATED:** 21-Dec-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110196-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Dec-22
22110196-002	Fluoranthene		0.29	ug/Filter	0.01	AC-066	10-Dec-22
22110196-002	Fluorene		0.58	ug/Filter	0.01	AC-066	10-Dec-22
22110196-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Dec-22
22110196-002	Naphthalene		0.44	ug/Filter	0.01	AC-066	10-Dec-22
22110196-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Dec-22
22110196-002	Phenanthrene		1.14	ug/Filter	0.01	AC-066	10-Dec-22
22110196-002	Pyrene		0.22	ug/Filter	0.01	AC-066	10-Dec-22
22110196-002	Retene		1.26	ug/Filter	0.01	AC-066	10-Dec-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Nov 19, 2022	A13-02	Air Filter	19-Nov-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22110196 **REPORT CREATED:** 21-Dec-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110196-004	1-Methylnaphthalene		0.30	ug/Filter	0.01	AC-066	11-Dec-22
22110196-004	2-Methylnaphthalene		0.40	ug/Filter	0.01	AC-066	11-Dec-22
22110196-004	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Dec-22
22110196-004	7,12-Dimethylbenz(a)anthracene		0.13	ug/Filter	0.01	AC-066	11-Dec-22
22110196-004	Acenaphthene		0.13	ug/Filter	0.01	AC-066	11-Dec-22
22110196-004	Acenaphthylene		0.06	ug/Filter	0.01	AC-066	11-Dec-22
22110196-004	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Dec-22
22110196-004	Anthracene		0.05	ug/Filter	0.01	AC-066	11-Dec-22
22110196-004	Benzo(a)anthracene		0.10	ug/Filter	0.01	AC-066	11-Dec-22
22110196-004	Benzo(a)pyrene		0.01	ug/Filter	0.01	AC-066	11-Dec-22
22110196-004	Benzo(b,j,k)fluoranthene		0.11	ug/Filter	0.01	AC-066	11-Dec-22
22110196-004	Benzo(c)phenanthrene		0.03	ug/Filter	0.01	AC-066	11-Dec-22
22110196-004	Benzo(e)pyrene		0.02	ug/Filter	0.01	AC-066	11-Dec-22
22110196-004	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Dec-22
22110196-004	Chrysene		0.19	ug/Filter	0.01	AC-066	11-Dec-22
22110196-004	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Dec-22
22110196-004	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Dec-22
22110196-004	Dibenzo(a,l)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Dec-22
22110196-004	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Dec-22
22110196-004	Fluoranthene		0.16	ug/Filter	0.01	AC-066	11-Dec-22
22110196-004	Fluorene		0.36	ug/Filter	0.01	AC-066	11-Dec-22
22110196-004	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Dec-22
22110196-004	Naphthalene		0.45	ug/Filter	0.01	AC-066	11-Dec-22
22110196-004	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	11-Dec-22
22110196-004	Phenanthrene		0.62	ug/Filter	0.01	AC-066	11-Dec-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: December 21, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/PUF/CLS/Nov 19, 2022	A13-02	Air Filter	19-Nov-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22110196 **REPORT CREATED:** 21-Dec-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110196-004	Pyrene		0.14	ug/Filter	0.01	AC-066	11-Dec-22
22110196-004	Retene		1.70	ug/Filter	0.01	AC-066	11-Dec-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: December 21, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 13, 2022	29031	Ambient Air	13-Nov-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22110196 **REPORT CREATED:** 21-Dec-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110196-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	29-Nov-22
22110196-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Nov-22
22110196-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Nov-22
22110196-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Nov-22
22110196-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Nov-22
22110196-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Nov-22
22110196-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Nov-22
22110196-001	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Nov-22
22110196-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Nov-22
22110196-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Nov-22
22110196-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	29-Nov-22
22110196-001	1-Butene/Isobutylene	I	0.08	ppbv	0.06	AC-058	29-Nov-22
22110196-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	29-Nov-22
22110196-001	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Nov-22
22110196-001	2,2,4-Trimethylpentane	I	0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-001	2,2-Dimethylbutane	I	0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	29-Nov-22
22110196-001	2,3-Dimethylpentane	I	0.04	ppbv	0.02	AC-058	29-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: December 21, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 13, 2022	29031	Ambient Air	13-Nov-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22110196 **REPORT CREATED:** 21-Dec-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110196-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Nov-22
22110196-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-001	2-Methylhexane	I	0.05	ppbv	0.03	AC-058	29-Nov-22
22110196-001	2-Methylpentane		0.11	ppbv	0.02	AC-058	29-Nov-22
22110196-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Nov-22
22110196-001	3-Methylhexane	I	0.06	ppbv	0.02	AC-058	29-Nov-22
22110196-001	3-Methylpentane		0.10	ppbv	0.02	AC-058	29-Nov-22
22110196-001	Acetone		1.5	ppbv	0.4	AC-058	29-Nov-22
22110196-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Nov-22
22110196-001	Benzene		0.27	ppbv	0.03	AC-058	29-Nov-22
22110196-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Nov-22
22110196-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Nov-22
22110196-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-001	Carbon tetrachloride	I	0.08	ppbv	0.02	AC-058	29-Nov-22
22110196-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-001	Chloromethane		0.55	ppbv	0.04	AC-058	29-Nov-22
22110196-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Nov-22
22110196-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Nov-22
22110196-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-001	Cyclohexane	I	0.09	ppbv	0.04	AC-058	29-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: December 21, 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/Nov 13, 2022	29031	Ambient Air	13-Nov-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22110196 **REPORT CREATED:** 21-Dec-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110196-001	Cyclopentane	I	0.05	ppbv	0.02	AC-058	29-Nov-22
22110196-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-001	Ethanol		3.3	ppbv	0.5	AC-058	29-Nov-22
22110196-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Nov-22
22110196-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Nov-22
22110196-001	Freon-11		0.26	ppbv	0.02	AC-058	29-Nov-22
22110196-001	Freon-113	I	0.07	ppbv	0.02	AC-058	29-Nov-22
22110196-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Nov-22
22110196-001	Freon-12		0.55	ppbv	0.03	AC-058	29-Nov-22
22110196-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Nov-22
22110196-001	Isobutane		1.53	ppbv	0.03	AC-058	29-Nov-22
22110196-001	Isopentane		1.12	ppbv	0.04	AC-058	29-Nov-22
22110196-001	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Nov-22
22110196-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Nov-22
22110196-001	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Nov-22
22110196-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Nov-22
22110196-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Nov-22
22110196-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Nov-22
22110196-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Nov-22
22110196-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	29-Nov-22
22110196-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Nov-22
22110196-001	Methylcyclohexane		0.11	ppbv	0.02	AC-058	29-Nov-22
22110196-001	Methylcyclopentane		0.12	ppbv	0.05	AC-058	29-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: December 21, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 13, 2022	29031	Ambient Air	13-Nov-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22110196 **REPORT CREATED:** 21-Dec-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110196-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Nov-22
22110196-001	n-Butane		1.79	ppbv	0.02	AC-058	29-Nov-22
22110196-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	29-Nov-22
22110196-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Nov-22
22110196-001	n-Heptane	I	0.06	ppbv	0.04	AC-058	29-Nov-22
22110196-001	n-Hexane		0.21	ppbv	0.03	AC-058	29-Nov-22
22110196-001	n-Octane	I	0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-001	n-Pentane		0.78	ppbv	0.04	AC-058	29-Nov-22
22110196-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	29-Nov-22
22110196-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	29-Nov-22
22110196-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Nov-22
22110196-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Nov-22
22110196-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Nov-22
22110196-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Nov-22
22110196-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Nov-22
22110196-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Nov-22
22110196-001	Toluene	I	0.11	ppbv	0.03	AC-058	29-Nov-22
22110196-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	29-Nov-22
22110196-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Nov-22
22110196-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: December 21, 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/Nov 13, 2022	29031	Ambient Air	13-Nov-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22110196 **REPORT CREATED:** 21-Dec-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110196-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Nov-22
22110196-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 19, 2022	32207	Ambient Air	19-Nov-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22110196 **REPORT CREATED:** 21-Dec-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110196-003	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-003	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-003	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-003	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-003	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-003	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	29-Nov-22
22110196-003	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Nov-22
22110196-003	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Nov-22
22110196-003	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-003	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Nov-22
22110196-003	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Nov-22
22110196-003	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Nov-22
22110196-003	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Nov-22
22110196-003	1,3-Butadiene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Nov-22
22110196-003	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Nov-22
22110196-003	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Nov-22
22110196-003	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	29-Nov-22
22110196-003	1-Butene/Isobutylene	K, T, U	< 0.06	ppbv	0.06	AC-058	29-Nov-22
22110196-003	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	29-Nov-22
22110196-003	1-Pentene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Nov-22
22110196-003	2,2,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-003	2,2-Dimethylbutane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-003	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-003	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	29-Nov-22
22110196-003	2,3-Dimethylpentane	I	0.02	ppbv	0.02	AC-058	29-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: December 21, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 19, 2022	32207	Ambient Air	19-Nov-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22110196 **REPORT CREATED:** 21-Dec-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110196-003	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Nov-22
22110196-003	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-003	2-Methylhexane	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Nov-22
22110196-003	2-Methylpentane	I	0.06	ppbv	0.02	AC-058	29-Nov-22
22110196-003	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Nov-22
22110196-003	3-Methylhexane	I	0.03	ppbv	0.02	AC-058	29-Nov-22
22110196-003	3-Methylpentane	I	0.05	ppbv	0.02	AC-058	29-Nov-22
22110196-003	Acetone		1.4	ppbv	0.4	AC-058	29-Nov-22
22110196-003	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Nov-22
22110196-003	Benzene	I	0.17	ppbv	0.03	AC-058	29-Nov-22
22110196-003	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Nov-22
22110196-003	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Nov-22
22110196-003	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-003	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-003	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-003	Carbon tetrachloride	I	0.08	ppbv	0.02	AC-058	29-Nov-22
22110196-003	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-003	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-003	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-003	Chloromethane		0.55	ppbv	0.04	AC-058	29-Nov-22
22110196-003	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-003	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Nov-22
22110196-003	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Nov-22
22110196-003	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-003	Cyclohexane	I	0.05	ppbv	0.04	AC-058	29-Nov-22

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TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 19, 2022	32207	Ambient Air	19-Nov-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22110196 **REPORT CREATED:** 21-Dec-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110196-003	Cyclopentane	I	0.03	ppbv	0.02	AC-058	29-Nov-22
22110196-003	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-003	Ethanol		1.4	ppbv	0.5	AC-058	29-Nov-22
22110196-003	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Nov-22
22110196-003	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Nov-22
22110196-003	Freon-11		0.27	ppbv	0.02	AC-058	29-Nov-22
22110196-003	Freon-113	I	0.08	ppbv	0.02	AC-058	29-Nov-22
22110196-003	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Nov-22
22110196-003	Freon-12		0.54	ppbv	0.03	AC-058	29-Nov-22
22110196-003	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Nov-22
22110196-003	Isobutane		0.55	ppbv	0.03	AC-058	29-Nov-22
22110196-003	Isopentane		0.43	ppbv	0.04	AC-058	29-Nov-22
22110196-003	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-003	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Nov-22
22110196-003	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Nov-22
22110196-003	m,p-Xylene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Nov-22
22110196-003	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-003	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Nov-22
22110196-003	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	29-Nov-22
22110196-003	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Nov-22
22110196-003	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Nov-22
22110196-003	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	29-Nov-22
22110196-003	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Nov-22
22110196-003	Methylcyclohexane	I	0.06	ppbv	0.02	AC-058	29-Nov-22
22110196-003	Methylcyclopentane	I	0.06	ppbv	0.05	AC-058	29-Nov-22

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TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 19, 2022	32207	Ambient Air	19-Nov-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22110196 **REPORT CREATED:** 21-Dec-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110196-003	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Nov-22
22110196-003	n-Butane		0.63	ppbv	0.02	AC-058	29-Nov-22
22110196-003	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	29-Nov-22
22110196-003	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Nov-22
22110196-003	n-Heptane	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Nov-22
22110196-003	n-Hexane	I	0.08	ppbv	0.03	AC-058	29-Nov-22
22110196-003	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-003	n-Pentane		0.27	ppbv	0.04	AC-058	29-Nov-22
22110196-003	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	29-Nov-22
22110196-003	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	29-Nov-22
22110196-003	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Nov-22
22110196-003	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Nov-22
22110196-003	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-003	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Nov-22
22110196-003	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-003	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Nov-22
22110196-003	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	29-Nov-22
22110196-003	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-003	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Nov-22
22110196-003	Toluene	I	0.07	ppbv	0.03	AC-058	29-Nov-22
22110196-003	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	29-Nov-22
22110196-003	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-003	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	29-Nov-22
22110196-003	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22
22110196-003	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 19, 2022	32207	Ambient Air	19-Nov-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22110196 **REPORT CREATED:** 21-Dec-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110196-003	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	29-Nov-22
22110196-003	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	29-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: December 21, 2022

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Revision History

Order ID	Ver	Date	Reason
22110196	01	21-Dec-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: 22110217-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/VOC/CLS/Nov 25, 2022

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NOV 30 2022

Bureau Veritas

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

Client:	LICA	**Sampler S/N:**	6200
Location:	Cold Lake South	**Canister ID:**	28882
Station ID:	LICA 01	**Installation Date/Time (mst):**	Nov 21, 2022 @ 14:41
Sample ID:	LICA/VOC/CLS/Nov 25, 2022	**Removal Date/Time (mst):**	Nov 29, 2022@ 09:52

Date and Time Information

Sample Date:	Start Time (mst)	End Time (mst)	Elapsed Time (hours)
November 25, 2022	0:00	23:59	24

Canister Pressure/Vacuum	
Initial Vacuum (in. Hg)	Final Pressure (psi)
-27.1	19.2

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)			

Comments: n/a

Deployment Technician Signature: Alex Yakupov

Collection Technician Signature: Alex Yakupov

Sample ID: 22110217-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: LICA/PUF/CLS/Nov 25, 2022

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NOV 30 2022

TISCH PUF PLUS Sample Collection Data Sheet

Client:	LICA	**Puf+ S/N:**	9802
Location:	Cold Lake South	**Motor S/N:**	1138/100-1020
Station ID:	LICA 01	**Installation Date/Time:**	Nov 21, 2022 @ 14:42
Field Sample ID:	LICA/PUF/CLS/Nov 25, 2022	**Removal Date/Time:**	Nov 29, 2022 @ 09:54

Sample Data Collection Information

Sample Date:	25-Nov-22	**Average Pressure (mmHg)**	704
Start Time (mst):	0:00	**Average Flow (Q_{std})**	229
End Time (mst):	23:59	**Average Tempurature (°C)**	-0.3
Elapsed Time (Hours):	24	**Volume (Vstd m^3)**	330.38

Sample Recovery Checklist

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

Deployed By:	Alex Yakupov
Collected By:	Alex Yakupov

InnoTech ALBERTA

Canister ID: 28882

This cleaned canister meets or exceeds TO-15 Method Specifications

Proofed by: JB04 on: SEP 28 2022

Evacuated: SEP 28 2022 Recertified: NOV 07 2022

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

Laboratory Contact Number: 780-632-8403

Sample ID: LICA/VOC/CLS/Nov 25, 2022

Sampled By: Alex Yakupov

Starting Vacuum: -27.1 "Hg

End Vacuum: KG +19.2 "Hg/psig

InnoTech ALBERTA

Canister ID: 9807

This cleaned canister meets or exceeds TO-15 Method Specifications

PUF

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/Nov 25, 2022

Sampled By: Alex Yakupov

Starting Vacuum: "Hg

End Pressure: "Hg/ psig

Sample ID: 22110217-001 **Priority:** Normal

Customer ID: LICA

Cust Samp ID: LICA/VOC/CLS/Nov 25, 2022

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID: LICA/PUF/CLS/Nov 25, 2022
Matrix: Air Filter
CANISTER ID: 9802
PRIORITY: Normal
DESCRIPTION: Cold Lake South
DATE SAMPLED: 25-Nov-22 0:00
DATE RECEIVED: 30-Nov-22
REPORT CREATED: 21-Dec-22
REPORT NUMBER: 22110217
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110217-002	1-Methylnaphthalene		0.38	ug/Filter	0.01	AC-066	10-Dec-22
22110217-002	2-Methylnaphthalene		0.48	ug/Filter	0.01	AC-066	10-Dec-22
22110217-002	3-Methylcholanthrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Dec-22
22110217-002	7,12-Dimethylbenz(a)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Dec-22
22110217-002	Acenaphthene		0.14	ug/Filter	0.01	AC-066	10-Dec-22
22110217-002	Acenaphthylene		0.09	ug/Filter	0.01	AC-066	10-Dec-22
22110217-002	Acridine	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Dec-22
22110217-002	Anthracene		0.10	ug/Filter	0.01	AC-066	10-Dec-22
22110217-002	Benzo(a)anthracene		0.09	ug/Filter	0.01	AC-066	10-Dec-22
22110217-002	Benzo(a)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Dec-22
22110217-002	Benzo(b,j,k)fluoranthene		0.10	ug/Filter	0.01	AC-066	10-Dec-22
22110217-002	Benzo(c)phenanthrene		0.04	ug/Filter	0.01	AC-066	10-Dec-22
22110217-002	Benzo(e)pyrene		0.06	ug/Filter	0.01	AC-066	10-Dec-22
22110217-002	Benzo(ghi)perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Dec-22
22110217-002	Chrysene		0.25	ug/Filter	0.01	AC-066	10-Dec-22
22110217-002	Dibenzo(a,h)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Dec-22
22110217-002	Dibenzo(a,i)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Dec-22
22110217-002	Dibenzo(a,l)pyrene		0.04	ug/Filter	0.01	AC-066	10-Dec-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: December 21, 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/Nov 25, 2022	9802	Air Filter	25-Nov-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22110217 **REPORT CREATED:** 21-Dec-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110217-002	Dibenzo(ah)anthracene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Dec-22
22110217-002	Fluoranthene		0.18	ug/Filter	0.01	AC-066	10-Dec-22
22110217-002	Fluorene		0.50	ug/Filter	0.01	AC-066	10-Dec-22
22110217-002	Indeno(1,2,3-cd)pyrene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Dec-22
22110217-002	Naphthalene		0.66	ug/Filter	0.01	AC-066	10-Dec-22
22110217-002	Perylene	K, T, U	< 0.01	ug/Filter	0.01	AC-066	10-Dec-22
22110217-002	Phenanthrene		0.87	ug/Filter	0.01	AC-066	10-Dec-22
22110217-002	Pyrene		0.15	ug/Filter	0.01	AC-066	10-Dec-22
22110217-002	Retene		0.75	ug/Filter	0.01	AC-066	10-Dec-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 25, 2022	28882	Ambient Air	25-Nov-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22110217 **REPORT CREATED:** 21-Dec-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110217-001	1,1,1-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Dec-22
22110217-001	1,1,2,2-Tetrachloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Dec-22
22110217-001	1,1,2-Trichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Dec-22
22110217-001	1,1-Dichloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Dec-22
22110217-001	1,1-Dichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Dec-22
22110217-001	1,2,3-Trimethylbenzene	K, T, U	< 0.05	ppbv	0.05	AC-058	02-Dec-22
22110217-001	1,2,4-Trichlorobenzene	K, T, U	< 0.3	ppbv	0.3	AC-058	02-Dec-22
22110217-001	1,2,4-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Dec-22
22110217-001	1,2-Dibromoethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Dec-22
22110217-001	1,2-Dichlorobenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Dec-22
22110217-001	1,2-Dichloroethane	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Dec-22
22110217-001	1,2-Dichloropropane	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Dec-22
22110217-001	1,3,5-Trimethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Dec-22
22110217-001	1,3-Butadiene	I	0.04	ppbv	0.03	AC-058	02-Dec-22
22110217-001	1,3-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	02-Dec-22
22110217-001	1,4-Dichlorobenzene	K, T, U	< 0.4	ppbv	0.4	AC-058	02-Dec-22
22110217-001	1,4-Dioxane	K, T, U	< 0.5	ppbv	0.5	AC-058	02-Dec-22
22110217-001	1-Butene/Isobutylene	I	0.11	ppbv	0.06	AC-058	02-Dec-22
22110217-001	1-Hexene/2-Methyl-1-pentene	K, T, U	< 0.07	ppbv	0.07	AC-058	02-Dec-22
22110217-001	1-Pentene	I	0.04	ppbv	0.03	AC-058	02-Dec-22
22110217-001	2,2,4-Trimethylpentane	I	0.05	ppbv	0.02	AC-058	02-Dec-22
22110217-001	2,2-Dimethylbutane	I	0.02	ppbv	0.02	AC-058	02-Dec-22
22110217-001	2,3,4-Trimethylpentane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Dec-22
22110217-001	2,3-Dimethylbutane	K, T, U	< 0.09	ppbv	0.09	AC-058	02-Dec-22
22110217-001	2,3-Dimethylpentane	I	0.05	ppbv	0.02	AC-058	02-Dec-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: December 21, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 25, 2022	28882	Ambient Air	25-Nov-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22110217 **REPORT CREATED:** 21-Dec-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110217-001	2,4-Dimethylpentane	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Dec-22
22110217-001	2-Methylheptane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Dec-22
22110217-001	2-Methylhexane	I	0.04	ppbv	0.03	AC-058	02-Dec-22
22110217-001	2-Methylpentane	I	0.08	ppbv	0.02	AC-058	02-Dec-22
22110217-001	3-Methylheptane	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Dec-22
22110217-001	3-Methylhexane	I	0.05	ppbv	0.02	AC-058	02-Dec-22
22110217-001	3-Methylpentane	I	0.06	ppbv	0.02	AC-058	02-Dec-22
22110217-001	Acetone		0.9	ppbv	0.4	AC-058	02-Dec-22
22110217-001	Acrolein	K, T, U	< 0.3	ppbv	0.3	AC-058	02-Dec-22
22110217-001	Benzene	I	0.20	ppbv	0.03	AC-058	02-Dec-22
22110217-001	Benzyl chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	02-Dec-22
22110217-001	Bromodichloromethane	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Dec-22
22110217-001	Bromoform	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Dec-22
22110217-001	Bromomethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Dec-22
22110217-001	Carbon disulfide	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Dec-22
22110217-001	Carbon tetrachloride	I	0.08	ppbv	0.02	AC-058	02-Dec-22
22110217-001	Chlorobenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Dec-22
22110217-001	Chloroethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Dec-22
22110217-001	Chloroform	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Dec-22
22110217-001	Chloromethane		0.75	ppbv	0.04	AC-058	02-Dec-22
22110217-001	cis-1,2-Dichloroethene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Dec-22
22110217-001	cis-1,3-Dichloropropene	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Dec-22
22110217-001	cis-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Dec-22
22110217-001	cis-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Dec-22
22110217-001	Cyclohexane	I	0.08	ppbv	0.04	AC-058	02-Dec-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 25, 2022	28882	Ambient Air	25-Nov-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22110217 **REPORT CREATED:** 21-Dec-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110217-001	Cyclopentane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Dec-22
22110217-001	Dibromochloromethane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Dec-22
22110217-001	Ethanol		1.3	ppbv	0.5	AC-058	02-Dec-22
22110217-001	Ethyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	02-Dec-22
22110217-001	Ethylbenzene	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Dec-22
22110217-001	Freon-11		0.19	ppbv	0.02	AC-058	02-Dec-22
22110217-001	Freon-113	I	0.07	ppbv	0.02	AC-058	02-Dec-22
22110217-001	Freon-114	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Dec-22
22110217-001	Freon-12		0.70	ppbv	0.03	AC-058	02-Dec-22
22110217-001	Hexachloro-1,3-butadiene	K, T, U	< 0.3	ppbv	0.3	AC-058	02-Dec-22
22110217-001	Isobutane		0.89	ppbv	0.03	AC-058	02-Dec-22
22110217-001	Isopentane		0.42	ppbv	0.04	AC-058	02-Dec-22
22110217-001	Isoprene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Dec-22
22110217-001	Isopropyl alcohol	K, T, U	< 0.3	ppbv	0.3	AC-058	02-Dec-22
22110217-001	Isopropylbenzene	K, T, U	< 0.04	ppbv	0.04	AC-058	02-Dec-22
22110217-001	m,p-Xylene	I	0.05	ppbv	0.04	AC-058	02-Dec-22
22110217-001	m-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Dec-22
22110217-001	m-Ethyltoluene	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Dec-22
22110217-001	Methyl butyl ketone	K, T, U	< 0.4	ppbv	0.4	AC-058	02-Dec-22
22110217-001	Methyl ethyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	02-Dec-22
22110217-001	Methyl isobutyl ketone	K, T, U	< 0.3	ppbv	0.3	AC-058	02-Dec-22
22110217-001	Methyl methacrylate	K, T, U	< 0.08	ppbv	0.08	AC-058	02-Dec-22
22110217-001	Methyl tert butyl ether	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Dec-22
22110217-001	Methylcyclohexane	I	0.10	ppbv	0.02	AC-058	02-Dec-22
22110217-001	Methylcyclopentane		0.10	ppbv	0.05	AC-058	02-Dec-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: December 21, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 25, 2022	28882	Ambient Air	25-Nov-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22110217 **REPORT CREATED:** 21-Dec-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110217-001	Methylene chloride	K, T, U	< 0.3	ppbv	0.3	AC-058	02-Dec-22
22110217-001	n-Butane		1.10	ppbv	0.02	AC-058	02-Dec-22
22110217-001	n-Decane	K, T, U	< 0.06	ppbv	0.06	AC-058	02-Dec-22
22110217-001	n-Dodecane	K, T, U	< 0.3	ppbv	0.3	AC-058	02-Dec-22
22110217-001	n-Heptane	I	0.05	ppbv	0.04	AC-058	02-Dec-22
22110217-001	n-Hexane	I	0.11	ppbv	0.03	AC-058	02-Dec-22
22110217-001	n-Octane	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Dec-22
22110217-001	n-Pentane		0.39	ppbv	0.04	AC-058	02-Dec-22
22110217-001	n-Propylbenzene	K, T, U	< 0.06	ppbv	0.06	AC-058	02-Dec-22
22110217-001	n-Undecane	K, T, U	< 0.5	ppbv	0.5	AC-058	02-Dec-22
22110217-001	Naphthalene	K, T, U	< 0.3	ppbv	0.3	AC-058	02-Dec-22
22110217-001	n-Nonane	K, T, U	< 0.04	ppbv	0.04	AC-058	02-Dec-22
22110217-001	o-Ethyltoluene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Dec-22
22110217-001	o-Xylene	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Dec-22
22110217-001	p-Diethylbenzene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Dec-22
22110217-001	p-Ethyltoluene	K, T, U	< 0.04	ppbv	0.04	AC-058	02-Dec-22
22110217-001	Styrene	K, T, U	< 0.04	ppbv	0.04	AC-058	02-Dec-22
22110217-001	Tetrachloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Dec-22
22110217-001	Tetrahydrofuran	K, T, U	< 0.3	ppbv	0.3	AC-058	02-Dec-22
22110217-001	Toluene	I	0.13	ppbv	0.03	AC-058	02-Dec-22
22110217-001	trans-1,2-Dichloroethylene	K, T, U	< 0.06	ppbv	0.06	AC-058	02-Dec-22
22110217-001	trans-1,3-Dichloropropylene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Dec-22
22110217-001	trans-2-Butene	K, T, U	< 0.03	ppbv	0.03	AC-058	02-Dec-22
22110217-001	trans-2-Pentene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Dec-22
22110217-001	Trichloroethylene	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Dec-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: December 21, 2022

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ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

CLIENT SAMPLE ID	CANISTER ID	Matrix	DATE SAMPLED
LICA/VOC/CLS/Nov 25, 2022	28882	Ambient Air	25-Nov-22 0:00

DESCRIPTION: Cold Lake South

REPORT NUMBER: 22110217 **REPORT CREATED:** 21-Dec-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110217-001	Vinyl acetate	K, T, U	< 0.3	ppbv	0.3	AC-058	02-Dec-22
22110217-001	Vinyl chloride	K, T, U	< 0.02	ppbv	0.02	AC-058	02-Dec-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: December 21, 2022

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

Revision History

Order ID	Ver	Date	Reason
22110217	01	21-Dec-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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Canada T9C 1T4
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Order Comments

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(780) 632-8211

Sample Comments

Result Comments

Note:

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

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

Partisol Samples

Sample ID: 22110065-001 Priority: Normal

Customer ID: LICA
Cust Samp ID: C9697009

RECEIVED
NOV 08 2022

l 2000i-D Sample Data Sheet

Date Sampled:	26-Oct-22
Location:	Cold Lake South
Parameter:	PM 2.5 / PM 10
Start Time	0:00
End Time	23:59
Valid Time	24 hours
Total Time	24 hours
Status	Done

	FINE (1) [1]	COURSE (2) [2]
Filter Type:	47mm	47mm
Filter #:	C9697009	C9697010
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	1.3	
Pressure	703	
Std Volume (Instrument)	21.8	2.43

Comments: Weather Conditions, etc.

n/a

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

Removed by (Sign/Date) Alex Yakupov Date: 31-Oct-22

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

Sample ID: 22110065-003 Priority: Normal

Customer ID: LICA
Cust Samp ID: C1162116

RECEIVED
NOV 08 2022

2000i-D Sample Data Sheet

Date Sampled:	01-Nov-22
Location:	Cold Lake South
Parameter:	PM 2.5 / PM 10
Start Time	00:00
End Time	23:59
Valid Time	24 hours
Total Time	24 hours
Status	Done

	FINE (1) 3	COURSE (2) 4
Filter Type:	47mm	47mm
Filter #:	C1162116	C1162117
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	1.1	
Pressure	706	
Std Volume (Instrument)	22	2.44

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date): Alex Yakupov Date: 31-Oct-22

Removed by (Sign/Date) Alex Yakupov Date: 04-Nov-22

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

Sample ID: 22110065-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9697010

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: July 26/22

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	C1164230 → C1164231

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

RECEIVED
NOV 08 2022

Sample ID: 22110065-004 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C1162117

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: August 16/22

Project: LICA/Bureau Veritas Labs

Prepared by: A Mulenka

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	C1162116 → C1162117

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: C1162116
Matrix: Air Filter
CANISTER ID:
PRIORITY: Normal
DESCRIPTION: Cold Lake South - Fine - PM 2.5
DATE SAMPLED: 01-Nov-22 0:00
DATE RECEIVED: 08-Nov-22
REPORT CREATED: 18-Nov-22
REPORT NUMBER: 22110065
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110065-003	Particulate Weight		0.009	mg	0.004	AC-029	10-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 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
C1162117		Air Filter	01-Nov-22 0:00

DESCRIPTION: Cold Lake South - Coarse - PM 10

REPORT NUMBER: 22110065 **REPORT CREATED:** 18-Nov-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110065-004	Particulate Weight		0.020	mg	0.004	AC-029	10-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 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
C9697009		Air Filter	26-Oct-22 0:00

DESCRIPTION: Cold Lake South - Fine - PM 2.5

REPORT NUMBER: 22110065 **REPORT CREATED:** 18-Nov-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110065-001	Particulate Weight		0.040	mg	0.004	AC-029	10-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 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
C9697010		Air Filter	26-Oct-22 0:00

DESCRIPTION: Cold Lake South - Coarse - PM 10

REPORT NUMBER: 22110065 **REPORT CREATED:** 18-Nov-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110065-002	Particulate Weight		0.055	mg	0.004	AC-029	10-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 18, 2022

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

Revision History

Order ID	Ver	Date	Reason
22110065	01	18-Nov-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

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: 22110169-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C1162138

;ol 2000i-D Sample Data Sheet

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NOV 18 2022

Date Sampled:	7-Nov-22
Location:	Cold Lake South
Parameter:	PM 2.5 / PM 10
Start Time	0:00
End Time	23:59
Valid Time	24 hours
Total Time	24 hours
Status	Done

	FINE (1)	COURSE (2)
Filter Type:	47mm	47mm
Filter #:	C1162138	C1162139
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	-11	
Pressure	724	
Std Volume (Instrument)	23.6	2.63

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date): Alex Yakupov Date: 4-Nov-22

Removed by (Sign/Date): Alex Yakupov Date: 10-Nov-22

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

Sample ID: 22110169-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C1162139

RECEIVED
NOV 18 2022

Filter Shipping Record

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

Date: August 16/22

Project: LICA/Bureau Veritas Labs

Prepared by: S Mudenka

For information contact:
EAS.Reception@albertainnovates.ca

Filter Size	# of Filters (in cassettes)	Filter IDs
47 mm	2	C1162138 → C1162139

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
C1162138	Air Filter

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

DATE SAMPLED: 07-Nov-22 0:00
DATE RECEIVED: 18-Nov-22
REPORT CREATED: 30-Nov-22
REPORT NUMBER: 22110169
VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110169-001	Particulate Weight	K, T, U	< 0.004	mg	0.004	AC-029	22-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 30, 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
C1162139		Air Filter	07-Nov-22 0:00

DESCRIPTION: Cold Lake South - Coarse - PM 10

REPORT NUMBER: 22110169 **REPORT CREATED:** 30-Nov-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110169-002	Particulate Weight	K, T, U	< 0.004	mg	0.004	AC-029	22-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 30, 2022

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

Revision History

Order ID	Ver	Date	Reason
22110169	01	30-Nov-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: 22110195-001 Priority: Normal

Customer ID: LICA
Cust Samp ID: C1162140

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l 2000i-D Sample Data Sheet

Date Sampled:	13-Nov-22
Location:	Cold Lake South
Parameter:	PM 2.5 / PM 10
Start Time	0:00
End Time	23:59
Valid Time	24 hours
Total Time	24 hours
Status	Done

	FINE (1) 1	COURSE (2) 2
Filter Type:	47mm	47mm
Filter #:	C1162140	C1162141
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	-4	
Pressure	714	
Std Volume (Instrument)	22.7	2.52

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date): Alex Yakupov Date: 10-Nov-22

Removed by (Sign/Date) Alex Yakupov Date: 18-Nov-22

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

Sample ID: 22110195-003 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9697003

RECEIVED
NOV 23 2022

I 2000i-D Sample Data Sheet

Date Sampled:	19-Nov-22
Location:	Cold Lake South
Parameter:	PM 2.5 / PM 10
Start Time	0:00
End Time	23:59
Valid Time	24 hours
Total Time	24 hours
Status	Done

	FINE (1) 3	COURSE (2) 4
Filter Type:	47mm	47mm
Filter #:	C9697003	C9697004
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	-8.6	
Pressure	710	
Std Volume (Instrument)	22.9	2.55

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date): Alex Yakupov Date: 18-Nov-22

Removed by (Sign/Date) Alex Yakupov Date: 21-Nov-22

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

Sample ID: 22110195-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C1162141

RECEIVED
NOV 23 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: August 16/22

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	C1162140 → C1162141

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

Sample ID: 22110195-004 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9697004

Filter Shipping Record

RECEIVED
NOV 23 2022

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

Date: Sept 16/22

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	C9697003 → C9697004

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

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TERMS AND CONDITIONS

The attached document entitled "**Chain of Custody Form**" is subject to the following Terms and Conditions, unless otherwise specified on the Quotation. InnoTech Alberta's commencement of the Services shall be deemed acceptance of the terms and conditions by the Client.

1. Any proposal contained herein is prepared for the consideration of the Client only. Its contents may not be used or disclosed to any other party without prior written consent of the INNOTECH ALBERTA INC. (hereinafter referred to as "InnoTech Alberta").

2. InnoTech Alberta will perform the Services in accordance with normal professional standards.

3. The delivery time for performance of the Services (as set out on the front page of this Quotation) is approximate and may be changed by InnoTech Alberta giving written notice to the Client.

4. InnoTech Alberta will exercise due care and proficiency in testing items submitted by a Client. InnoTech Alberta shall not, however, be liable to the Client for any damage or loss caused to the item being tested or for any damage, loss or expense caused by any delay in carrying out the test, including any damage, loss or expense resulting from InnoTech Alberta's negligence. InnoTech Alberta shall not be responsible for any damage, which is a natural or necessary result of any testing procedure.

5. For the purposes of this Quotation, Intellectual Property means all information, data, artistic and literary works, concepts, designs, processes, software, algorithms and inventions, including, without limitation, those that could be the subject of patent, copyright, industrial design, trade secret or other forms of protection. Intellectual Property which was owned by either InnoTech Alberta or the Client prior to the signing of this Agreement remains the property of that party. Nothing in this Agreement shall operate as a license, permission or grant of any other rights to either InnoTech Alberta's or the Client's Intellectual Property.

6. All data, reports and other information relating to the Services shall be treated by InnoTech Alberta as the confidential property of the Client, and InnoTech Alberta will use reasonable efforts to ensure that its employees, contractors and agents will not disclose the same to any other person, firm or corporation during the term of this Agreement and for a period of five (5) years after the date of termination of the Agreement. The obligation of confidentiality set out herein shall not apply to any information that was in InnoTech Alberta's possession prior to receipt from the Client or which is or becomes part of the public domain through no act or failure on the part of InnoTech Alberta. The obligation of confidentiality set out in this Section shall not prevent the disclosure of information to any level of government having jurisdiction to make lawful demand therefor, or required to be disclosed by any applicable law. Any records required to be maintained by InnoTech Alberta pursuant to this Agreement are subject to the protection and access provisions of the Freedom of Information and Protection of Privacy Act (Alberta).

7. The reported results of any InnoTech Alberta tests or evaluations performed on samples or items provided by the Client shall be interpreted as being specific to the sample or item tested. InnoTech Alberta makes no representation that any similar or related untested samples or items would produce the same results.

8. The Client shall not use InnoTech Alberta's name in any advertising material, sale offer, news releases, public statements or announcements, whether written or oral relating to the Services or the results thereof, without the prior written consent of InnoTech Alberta.

9. Records, test data, reports and samples, except where shipped to the Client after completion of the work shall be retained by InnoTech Alberta according to InnoTech Alberta's approved Records Retention and Disposition Schedule.

10. Prices quoted are in Canadian Dollars unless otherwise stated in writing and are exclusive of any provincial, municipal, sales, use or goods and services tax.

11. Prices quoted do not include shipping, insurance or cost of consumables. The Client shall be responsible for all costs incurred by InnoTech Alberta in collecting any item for testing and returning the item to the Client after testing and shall be responsible for all necessary incidental costs incurred by InnoTech Alberta in providing the Services. InnoTech Alberta will not be responsible for any damage or loss to items during shipping and it is the responsibility of the Client to arrange and pay for any insurance it deems necessary.

12. Any test samples or other materials supplied by the Client to InnoTech Alberta may, at InnoTech Alberta's option, be returned by InnoTech Alberta to the Client. The Client shall:

(a) be responsible for all costs associated with the handling, transportation and disposal of such materials;

(b) reimburse InnoTech Alberta for any costs incurred by InnoTech Alberta associated with the handling, transportation and disposal of such materials; and

(c) indemnify and hold InnoTech Alberta harmless from any and all claims, damages or actions associated with the handling, transportation and disposal of such materials.

13. The Client shall pay all invoices rendered by InnoTech Alberta to the Client within thirty (30) days from the date of invoice, without deduction or set-off.

14. If the Client fails to pay any amount under this Agreement, such unpaid amount shall bear interest at a rate per month equal to one (1%) percent (or 12.6825% per annum) with interest on overdue interest at the same rate.

15. InnoTech Alberta makes no representation, warranties or conditions, either expressed or implied, statutory or otherwise and does not warrant the quality, state, merchantability or fitness for any purpose of any goods or products to be delivered pursuant to this Agreement. The Client accepts the results of these Services or items tested as is, and acknowledges that any use or interpretation of the information contained is at the Client's own risk.

16. In no event shall InnoTech Alberta be liable for any indirect or consequential damage or loss suffered by the Client, including loss of anticipated profits.

17. The Client shall indemnify and hold harmless InnoTech Alberta from any and all claims, demands, actions and costs (including legal costs on a solicitor-client basis) that may arise out of:

(a) any dangerous defect or content in the item being tested, whether apparent or not, which dangerous defect or content was not disclosed in writing to InnoTech Alberta by the Client at the time the item was submitted for testing;

(b) differences between those items actually tested and items previously or subsequently produced which are purported to be identical to the item tested; or

(c) any use of the tested item or any item incorporating the tested item, whether by the Client or a third party following its return to the Client.

The hold harmless shall survive this Agreement.

18. The Client shall, at its own expense and without limiting its liabilities herein, be responsible for insuring its operation in an amount not less than $2,000,000 inclusive per occurrence, insuring against bodily injury, and property damage including loss of use thereof. Further, the Client is responsible for insuring all owned property directly or indirectly related to this Agreement and InnoTech Alberta shall have no liability for any loss or damage to such property.

19. InnoTech Alberta shall maintain the following insurance: (i) commercial general liability insurance (including cross liability, severability of interests, non-owned automobile liability) in the amount of two million dollars ($2,000,000.00) per occurrence, and; (ii) professional liability and errors and omissions insurance in the amount of one million dollars ($1,000,000.00) per claim, and two million dollars ($2,000,000.00) in the aggregate. In addition, InnoTech Alberta shall maintain all workers' compensation coverage required by applicable laws. Notwithstanding the foregoing, InnoTech Alberta reserves the right to supplement or add insurance coverage from time to time as may be required in its sole discretion. InnoTech Alberta may provide certificates of insurance for coverages outlined in (i) and (ii) above.

20. The Client agrees to comply with all InnoTech Alberta Safety & Security regulations in effect while on InnoTech Alberta premises.

21. This Agreement represents the entire agreement between the parties and shall supersede all prior agreements relative to this transaction.

22. If a party's performance of any of its obligations under this Agreement (excepting only an obligation to pay) is delayed, rendered impossible or impractical, or prevented in whole or in part due to circumstances beyond its reasonable control, including but not limited to acts of God, war, terrorism, labour disputes, pandemics or epidemics, global health emergencies, or governmental action, that party will not be in breach of this Agreement due to the delay or failure in performance occasioned by such event.

23. InnoTech Alberta may assign this Quotation to an "affiliated" (as that term is defined at Section 2 of the Business Corporations Act (Alberta)) or successor entity on written notice to the Client.

24. This Quotation and rights and parties thereto shall be governed by and construed according to the laws of the Province of Alberta. The parties hereby submit to the jurisdiction of the Courts of Alberta.

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

ENVIRONMENTAL ANALYTICAL SERVICES

TEST REPORT

RESULTS: Lica Communal Mail
Lakeland Industry and Community Assn

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

CLIENT SAMPLE ID: C1162140

Matrix: Air Filter

CANISTER ID:

PRIORITY: Normal

DESCRIPTION: Cold Lake South - Fine - PM 2.5

DATE SAMPLED: 13-Nov-22 0:00

DATE RECEIVED: 23-Nov-22

REPORT CREATED: 30-Nov-22

REPORT NUMBER: 22110195

VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110195-001	Particulate Weight		0.415	mg	0.004	AC-029	25-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 30, 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
C1162141		Air Filter	13-Nov-22 0:00

DESCRIPTION: Cold Lake South - Coarse - PM 10

REPORT NUMBER: 22110195 **REPORT CREATED:** 30-Nov-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110195-002	Particulate Weight		0.029	mg	0.004	AC-029	25-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 30, 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
C9697003		Air Filter	19-Nov-22 0:00

DESCRIPTION: Cold Lake South - Fine - PM 2.5

REPORT NUMBER: 22110195 **REPORT CREATED:** 30-Nov-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110195-003	Particulate Weight		0.115	mg	0.004	AC-029	25-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 30, 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
C9697004		Air Filter	19-Nov-22 0:00

DESCRIPTION: Cold Lake South - Coarse - PM 10

REPORT NUMBER: 22110195 **REPORT CREATED:** 30-Nov-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110195-004	Particulate Weight		0.053	mg	0.004	AC-029	25-Nov-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: November 30, 2022

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

Revision History

Order ID	Ver	Date	Reason
22110195	01	30-Nov-22	Report created

Methods

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

Qualifiers

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

Order Comments

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: 22110216-001 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9694341

RECEIVED
NOV 30 2022

ol 2000i-D Sample Data Sheet

Date Sampled:	25-Nov-22
Location:	Cold Lake South
Parameter:	PM 2.5 / PM 10
Start Time	0:00
End Time	23:59
Valid Time	24 hours
Total Time	24 hours
Status	Done

	FINE (1)	COURSE (2)
Filter Type:	47mm	47mm
Filter #:	C9694341	C9694342
Average Flow Rate	15	1.67
Sample Volume	21.6	2.41
Temperature	-2	
Pressure	703	
Std Volume (Instrument)	22.1	2.46

Comments: Weather Conditions, etc.

n/a

Install by (Sign/Date):	Alex Yakupov	Date:	21-Nov-22
Removed by (Sign/Date)	Alex Yakupov	Date:	29-Nov-22

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

Sample ID: 22110216-002 **Priority:** Normal

Customer ID: LICA
Cust Samp ID: C9694342

RECEIVED
NOV 30 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: November 7/22

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	C9694341 → C9694342

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: C9694341

Matrix: Air Filter

CANISTER ID:

PRIORITY: Normal

DESCRIPTION: Cold Lake South - Fine - PM 2.5

DATE SAMPLED: 25-Nov-22 0:00

DATE RECEIVED: 30-Nov-22

REPORT CREATED: 05-Dec-22

REPORT NUMBER: 22110216

VERSION: Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110216-001	Particulate Weight		0.130	mg	0.004	AC-029	01-Dec-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: December 5, 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
C9694342		Air Filter	25-Nov-22 0:00

DESCRIPTION: Cold Lake South - Coarse - PM 10

REPORT NUMBER: 22110216 **REPORT CREATED:** 05-Dec-22 **VERSION:** Version 01

Lab ID	Parameter	Qualifier	Result	Units	RDL	Method	Analysis Date
22110216-002	Particulate Weight		0.028	mg	0.004	AC-029	01-Dec-22

Report certified by: Rebecca Dasilva, Account Coordinator On behalf of: Adam Malcolm, Manager, Chemical Testing

Date: December 5, 2022

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

Revision History

Order ID	Ver	Date	Reason
22110216	01	05-Dec-22	Report created

Methods

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

Qualifiers

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

Order Comments

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

Sample Comments

Result Comments

Note:

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

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

Passive Samples

Passive Sampler Field Sheet for LICA, NOV 2022 sample period

C293553

ID	SAMPLER						START		END		NOTES
							DATE	TIME	DATE	TIME	
3	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Nov 2	18:30	Nov 30	19:30	
4	---	SO_2	NO_2	O_3	HNO3	NH3	Nov 3	14:35	Dec 1	13:06	
5	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Nov 3	15:25	Dec 1	14:11	
6	---	SO_2	NO_2	O_3	HNO3	NH3	Nov 3	17:04	Dec 1	15:40	
8	---	SO_2	NO_2	O_3	HNO3	NH3	Nov 3	13:05	Dec 1	12:01	
9	---	SO_2	NO_2	O_3	HNO3	NH3	Nov 3	11:25	Dec 1	10:35	
10	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Nov 4	19:20	Dec 3	15:45	
11	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Nov 4	18:44	Dec 3	15:15	
12	H2S	SO2	NO2	O3	HNO3	NH3	Nov 4	17:40	Dec 3	14:07	
13	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Nov 2	16:32	Nov 30	15:53	
14	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Nov 2	15:17	Nov 30	14:32	water isotope sample taken
15	---	SO_2	NO_2	O_3	HNO3	NH3	Nov 3	9:54	Dec 1	09:24	
16	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Nov 4	11:55	Dec 1	19:25	
17	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Nov 3	18:04	Dec 1	17:32	
18	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Nov 3	20:15	Dec 1	18:16	
19	---	SO_2	NO_2	O_3	HNO3	NH3	Nov 4	11:09	Dec 1	20:05	
22	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Nov 2	10:38	Nov 30	10:54	
23	---	SO_2	NO_2	O_3	HNO3	NH3	Nov 2	13:02	Nov 30	12:35	
24	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Nov 3	16:12	Dec 1	14:50	
25	H2S	SO2	---	---							
26	H_2S	SO_2	---	---	HNO3	NH3	Nov 2	15:45	Nov 30	15:15	
27	H_2S	SO_2	---	---	HNO3	NH3	Nov 2	14:35	Nov 30	14:00	
28	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Nov 3	10:58	Dec 1	11:09	
29	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Nov 2	10:54	Nov 30	11:21	
32	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Nov 2	19:50	Nov 30	18:34	
42	H_2S	SO_2	NO_2	O_3	HNO3	NH3	Nov 4	14:37	Dec 2	11:24	
							DUPLICATES				
32	---	---	NO_2	O_3	---	---	Nov 2	19:50	Nov 30	18:34	
42	---	---	NO_2	O_3	---	---	Nov 4	14:37	Dec 2	11:24	
13	---	SO2	---	---	HNO3	NH3	Nov 2	16:32	Nov 30	15:53	
14	---	SO2	---	---	---	---	Nov 2	15:17	Nov 30	14:32	
15	---	SO2	---	---	HNO3	NH3	Nov 3	09:54	Dec 1	09:24	
17	H2S	---	---	---	---	---	Nov 3	18:04	Dec 1	17:32	
18	H_2S	---	---	---	---	---	Nov 3	20:15	Dec 1	18:16	

DS 22-12-06 00:30

33 SO_2 30 O_3 23 H_2S 32 HNO_3 28 NO_2 32 NH_3

Your Project #: NOVEMBER 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: 2022/12/15
Report #: R3278261
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C295846
Received: 2022/12/06, 07:30

Sample Matrix: Air
Samples Received: 92

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
H2S Passive Analysis	20	2022/12/07	2022/12/15	PTC SOP-00150	Passive H2S in ATM
HNO3 by Passive Sampler	30	2022/12/08	2022/12/15	PTC SOP-00288	Passive HNO3 in ATM
NH3 by Passive Sampler	30	2022/12/08	2022/12/15	PTC SOP-00157	ASTM D6919
NO2 Passive Analysis	25	2022/12/07	2022/12/15	PTC SOP-00148	Passive NO2 in ATM
O3 Passive Analysis	25	2022/12/07	2022/12/15	PTC SOP-00197	EPA 300 R2.1
SO2 Passive Analysis	28	2022/12/07	2022/12/15	PTC SOP-00149	Passive SO2 in ATM

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

Encryption Key

Belma Elefante
Customer Service Associate
15 Dec 2022 15:54:50

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

==========

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

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

Bureau Veritas Job #: C295846
Report Date: 2022/12/15

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BIK474			BIK475			BIK476		
Sampling Date		2022/11/02 18:35			2022/11/03 14:35			2022/11/03 15:25		
	UNITS	3	RDL	QC Batch	4	RDL	QC Batch	5	RDL	QC Batch
Passive Monitoring										
Calculated H2S	ppb	0.14	0.02	A822902				0.20	0.02	A822902
Calculated NO2	ppb	2.1	0.1	A821534	2.1	0.1	A821534	2.3	0.1	A821534
Calculated O3	ppb	33.5	0.1	A820901	36.6	0.1	A820901	37.4	0.1	A820901
Calculated SO2	ppb	0.6	0.1	A821645	0.6	0.1	A821645	0.4	0.1	A821645
RDL = Reportable Detection Limit										

Bureau Veritas ID		BIK477	BIK478	BIK479			BIK480	BIK481	BIK482		
Sampling Date		2022/11/03 17:04	2022/11/03 13:05	2022/11/03 11:25			2022/11/04 19:20	2022/11/04 18:44	2022/11/04 17:40		
	UNITS	6	8	9	RDL	QC Batch	10	11	12	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb						0.14	0.13	0.15	0.02	A822902
Calculated NO2	ppb	2.7	4.7	2.2	0.1	A821534	2.4	7.2	1.9	0.1	A821534
Calculated O3	ppb	36.1	33.5	31.1	0.1	A820901	25.4	25.5	36.3	0.1	A821820
Calculated SO2	ppb	0.5	0.6	0.4	0.1	A821645	0.6	0.4	0.6	0.1	A821645
RDL = Reportable Detection Limit											

Bureau Veritas ID		BIK483	BIK484			BIK485			BIK486		
Sampling Date		2022/11/02 16:32	2022/11/02 15:10			2022/11/03 09:54			2022/11/04 11:55		
	UNITS	13	14	RDL	QC Batch	15	RDL	QC Batch	16	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb	0.11	0.22	0.02	A822902				0.17	0.02	A822902
Calculated NO2	ppb	1.3	1.6	0.1	A821534	3.2	0.1	A821534	3.4	0.1	A821534
Calculated O3	ppb	23.1	39.2	0.1	A821820	31.1	0.1	A821820	37.0	0.1	A821820
Calculated SO2	ppb	0.7	1.9	0.1	A821645	0.6	0.1	A821645	0.6	0.1	A821645
RDL = Reportable Detection Limit											

Bureau Veritas ID		BIK487	BIK488			BIK489			BIK490		
Sampling Date		2022/11/03 18:04	2022/11/03 20:15			2022/11/04 11:09			2022/11/02 10:38		
	UNITS	17	18	RDL	QC Batch	19	RDL	QC Batch	22	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb	0.20	0.13	0.02	A822902				0.14	0.02	A822902
Calculated NO2	ppb	3.9	1.8	0.1	A821534	2.4	0.1	A821534	1.8	0.1	A821534
Calculated O3	ppb	40.6	31.7	0.1	A821820	38.4	0.1	A821820	29.8	0.1	A821820
Calculated SO2	ppb	0.6	0.5	0.1	A821645	0.6	0.1	A821645	0.4	0.1	A821645
RDL = Reportable Detection Limit											

Bureau Veritas Job #: C295846
Report Date: 2022/12/15

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BIK491			BIK492			BIK493		BIK494		
Sampling Date		2022/11/02 13:02			2022/11/03 16:12			2022/11/02 15:45		2022/11/02 14:35		
	UNITS	23	RDL	QC Batch	24	RDL	QC Batch	26	QC Batch	27	RDL	QC Batch
Passive Monitoring												
Calculated H2S	ppb				0.16	0.02	A822902	0.48	A822905	0.48	0.02	A822905
Calculated NO2	ppb	2.6	0.1	A821534	0.9	0.1	A821534					
Calculated O3	ppb	26.9	0.1	A821820	37.2	0.1	A821820					
Calculated SO2	ppb	0.3	0.1	A821645	0.4	0.1	A821645	0.8	A821645	2.2	0.1	A821668
RDL = Reportable Detection Limit												

Bureau Veritas ID		BIK495		BIK496	BIK497	BIK498			BIK502		
Sampling Date		2022/11/03 10:58		2022/11/02 10:54	2022/11/02 19:50	2022/11/04 14:37			2022/11/02 16:32		
	UNITS	28	QC Batch	29	32	42	RDL	QC Batch	13 DUP	RDL	QC Batch
Passive Monitoring											
Calculated H2S	ppb	0.12	A822905	0.15	0.16	0.15	0.02	A822905			
Calculated NO2	ppb	5.0	A821534	3.4	1.6	3.9	0.1	A821537			
Calculated O3	ppb	30.8	A821820	26.9	34.0	31.8	0.1	A821820			
Calculated SO2	ppb	0.5	A821668	0.5	0.7	0.4	0.1	A821668	0.8	0.1	A821668
RDL = Reportable Detection Limit											

Bureau Veritas ID		BIK503	BIK504			BIK505		BIK506		
Sampling Date		2022/11/02 15:17	2022/11/03 09:54			2022/11/02 19:50		2022/11/04 14:37		
	UNITS	14 DUP	15 DUP	RDL	QC Batch	32 DUP	QC Batch	42 DUP	RDL	QC Batch
Passive Monitoring										
Calculated NO2	ppb					1.7	A821537	4.1	0.1	A821537
Calculated O3	ppb					36.5	A821820	32.1	0.1	A821823
Calculated SO2	ppb	2.1	0.5	0.1	A821668					
RDL = Reportable Detection Limit										

Bureau Veritas ID		BIK507	BIK508			BIK509			BIK510		
Sampling Date		2022/11/03 18:04	2022/11/03 01:54			2022/11/02 18:35			2022/11/02 18:35		
	UNITS	17 DUP	18 DUP	RDL	QC Batch	3-NH3	RDL	QC Batch	3-HNO3	RDL	QC Batch
Passive Monitoring											
Ammonia by Passive Sampler	ppb					2.6	0.1	A823082			
Calculated H2S	ppb	0.19	0.15	0.02	A822905						
HNO3 by Passive Sampler	ug/m3								1.38	0.04	A823925
RDL = Reportable Detection Limit											

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

Bureau Veritas Job #: C295846
Report Date: 2022/12/15

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BIK511			BIK512			BIK513		
Sampling Date		2022/11/03 14:35			2022/11/03 14:35			2022/11/03 15:25		
	UNITS	4-NH3	RDL	QC Batch	4-HNO3	RDL	QC Batch	5-NH3	RDL	QC Batch
Passive Monitoring										
Ammonia by Passive Sampler	ppb	1.7	0.1	A823082				0.7	0.1	A823082
HNO3 by Passive Sampler	ug/m3				0.98	0.04	A823925			
RDL = Reportable Detection Limit										

Bureau Veritas ID		BIK514			BIK515			BIK516		
Sampling Date		2022/11/03 15:25			2022/11/03 17:04			2022/11/03 17:04		
	UNITS	5-HNO3	RDL	QC Batch	6-NH3	RDL	QC Batch	6-HNO3	RDL	QC Batch
Passive Monitoring										
Ammonia by Passive Sampler	ppb				0.8	0.1	A823082			
HNO3 by Passive Sampler	ug/m3	0.93	0.04	A823925				1.28	0.04	A823925
RDL = Reportable Detection Limit										

Bureau Veritas ID		BIK517			BIK518			BIK519		
Sampling Date		2022/11/03 13:05			2022/11/03 13:05			2022/11/03 11:25		
	UNITS	8-NH3	RDL	QC Batch	8-HNO3	RDL	QC Batch	9-NH3	RDL	QC Batch
Passive Monitoring										
Ammonia by Passive Sampler	ppb	1.3	0.1	A823082				0.5	0.1	A823082
HNO3 by Passive Sampler	ug/m3				1.48	0.04	A823925			
RDL = Reportable Detection Limit										

Bureau Veritas ID		BIK529			BIK530			BIK531		
Sampling Date		2022/11/03 11:25			2022/11/04 19:20			2022/11/04 19:20		
	UNITS	9-HNO3	RDL	QC Batch	10-NH3	RDL	QC Batch	10-HNO3	RDL	QC Batch
Passive Monitoring										
Ammonia by Passive Sampler	ppb				0.5	0.1	A823082			
HNO3 by Passive Sampler	ug/m3	0.76	0.04	A823925				3.23	0.04	A823925
RDL = Reportable Detection Limit										

Bureau Veritas ID		BIK532			BIK533			BIK534		
Sampling Date		2022/11/04 18:44			2022/11/04 18:44			2022/11/04 17:40		
	UNITS	11-NH3	RDL	QC Batch	11-HNO3	RDL	QC Batch	12-NH3	RDL	QC Batch
Passive Monitoring										
Ammonia by Passive Sampler	ppb	0.5	0.1	A823082				0.3	0.1	A823082
HNO3 by Passive Sampler	ug/m3				1.04	0.04	A823925			
RDL = Reportable Detection Limit										

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BIK535			BIK536			BIK537		
Sampling Date		2022/11/04 17:40			2022/11/02 16:32			2022/11/02 16:32		
	UNITS	12-HNO3	RDL	QC Batch	13-NH3	RDL	QC Batch	13-HNO3	RDL	QC Batch
Passive Monitoring										
Ammonia by Passive Sampler	ppb				0.6	0.1	A823082			
HNO3 by Passive Sampler	ug/m3	1.13	0.04	A823925				1.15	0.04	A823925
RDL = Reportable Detection Limit										

Bureau Veritas ID		BIK538			BIK539			BIK540		
Sampling Date		2022/11/02 15:10			2022/11/02 15:10			2022/11/03 09:54		
	UNITS	14-NH3	RDL	QC Batch	14-HNO3	RDL	QC Batch	15-NH3	RDL	QC Batch
Passive Monitoring										
Ammonia by Passive Sampler	ppb	0.7	0.1	A823082				0.7	0.1	A823082
HNO3 by Passive Sampler	ug/m3				1.26	0.04	A823925			
RDL = Reportable Detection Limit										

Bureau Veritas ID		BIK541			BIK543			BIK544		
Sampling Date		2022/11/03 09:54			2022/11/04 11:55			2022/11/04 11:55		
	UNITS	15-HNO3	RDL	QC Batch	16-NH3	RDL	QC Batch	16-HNO3	RDL	QC Batch
Passive Monitoring										
Ammonia by Passive Sampler	ppb				0.8	0.1	A823082			
HNO3 by Passive Sampler	ug/m3	1.54	0.04	A823925				1.74	0.04	A823925
RDL = Reportable Detection Limit										

Bureau Veritas ID		BIK545			BIK546			BIK547		
Sampling Date		2022/11/03 18:04			2022/11/03 18:04			2022/11/03 20:15		
	UNITS	17-NH3	RDL	QC Batch	17-HNO3	RDL	QC Batch	18-NH3	RDL	QC Batch
Passive Monitoring										
Ammonia by Passive Sampler	ppb	0.6	0.1	A823082				1.2	0.1	A823082
HNO3 by Passive Sampler	ug/m3				2.13	0.04	A823925			
RDL = Reportable Detection Limit										

Bureau Veritas ID		BIK548			BIK549			BIK550		
Sampling Date		2022/11/03 20:15			2022/11/04 11:09			2022/11/04 11:09		
	UNITS	18-HNO3	RDL	QC Batch	19-NH3	RDL	QC Batch	19-HNO3	RDL	QC Batch
Passive Monitoring										
Ammonia by Passive Sampler	ppb				1.2	0.1	A823082			
HNO3 by Passive Sampler	ug/m3	1.12	0.04	A823925				1.13	0.04	A823925
RDL = Reportable Detection Limit										

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Bureau Veritas Job #: C295846
Report Date: 2022/12/15

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

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BIK551			BIK552			BIK553		
Sampling Date		2022/11/02 10:38			2022/11/02 10:38			2022/11/02 13:02		
	UNITS	22-NH3	RDL	QC Batch	22-HNO3	RDL	QC Batch	23-NH3	RDL	QC Batch
Passive Monitoring										
Ammonia by Passive Sampler	ppb	1.6	0.1	A823082				0.7	0.1	A823082
HNO3 by Passive Sampler	ug/m3				1.06	0.04	A823926			
RDL = Reportable Detection Limit										

Bureau Veritas ID		BIK554			BIK555			BIK556		
Sampling Date		2022/11/02 13:02			2022/11/03 16:12			2022/11/03 16:12		
	UNITS	23-HNO3	RDL	QC Batch	24-NH3	RDL	QC Batch	24-HNO3	RDL	QC Batch
Passive Monitoring										
Ammonia by Passive Sampler	ppb				0.8	0.1	A823082			
HNO3 by Passive Sampler	ug/m3	0.94	0.04	A823926				1.60	0.04	A823926
RDL = Reportable Detection Limit										

Bureau Veritas ID		BIK557			BIK558			BIK559		
Sampling Date		2022/11/02 15:45			2022/11/02 15:45			2022/11/02 14:35		
	UNITS	26-NH3	RDL	QC Batch	26-HNO3	RDL	QC Batch	27-NH3	RDL	QC Batch
Passive Monitoring										
Ammonia by Passive Sampler	ppb	0.6	0.1	A823082				0.8	0.1	A823087
HNO3 by Passive Sampler	ug/m3				2.15	0.04	A823926			
RDL = Reportable Detection Limit										

Bureau Veritas ID		BIK560			BIK561			BIK562		
Sampling Date		2022/11/02 14:35			2022/11/03 10:58			2022/11/03 10:58		
	UNITS	27-HNO3	RDL	QC Batch	28-NH3	RDL	QC Batch	28-HNO3	RDL	QC Batch
Passive Monitoring										
Ammonia by Passive Sampler	ppb				2.1	0.1	A823087			
HNO3 by Passive Sampler	ug/m3	1.96	0.04	A823926				3.79	0.04	A823926
RDL = Reportable Detection Limit										

Bureau Veritas ID		BIK563			BIK564			BIK565		
Sampling Date		2022/11/02 10:54			2022/11/02 10:54			2022/11/02 19:50		
	UNITS	29-NH3	RDL	QC Batch	29-HNO3	RDL	QC Batch	32-NH3	RDL	QC Batch
Passive Monitoring										
Ammonia by Passive Sampler	ppb	0.9	0.1	A823087				0.2	0.1	A823087
HNO3 by Passive Sampler	ug/m3				1.57	0.04	A823926			
RDL = Reportable Detection Limit										

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Bureau Veritas Job #: C295846
Report Date: 2022/12/15

LAKELAND INDUSTRY AND COMMUNITY ASSOCIATION
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Sampler Initials: AY

RESULTS OF CHEMICAL ANALYSES OF AIR

Bureau Veritas ID		BIK566			BIK567			BIK568		
Sampling Date		2022/11/02 19:50			2022/11/04 14:37			2022/11/04 14:37		
	UNITS	32-HNO3	RDL	QC Batch	42-NH3	RDL	QC Batch	42-HNO3	RDL	QC Batch
Passive Monitoring										
Ammonia by Passive Sampler	ppb				1.2	0.1	A823087			
HNO3 by Passive Sampler	ug/m3	1.19	0.04	A823926				1.81	0.04	A823926
RDL = Reportable Detection Limit										

Bureau Veritas ID		BIK569			BIK570			BIK571		
Sampling Date										
	UNITS	BLANK 1-NH3	RDL	QC Batch	BLANK 1-HNO3	RDL	QC Batch	BLANK 2-NH3	RDL	QC Batch
Passive Monitoring										
Ammonia by Passive Sampler	ppb	0.3	0.1	A823087				0.3	0.1	A823087
HNO3 by Passive Sampler	ug/m3				0.10	0.04	A823926			
RDL = Reportable Detection Limit										

Bureau Veritas ID		BIK572			BIK573			BIK574		
Sampling Date										
	UNITS	BLANK 2-HNO3	RDL	QC Batch	BLANK 3-NH3	RDL	QC Batch	BLANK 3-HNO3	RDL	QC Batch
Passive Monitoring										
Ammonia by Passive Sampler	ppb				0.3	0.1	A823087			
HNO3 by Passive Sampler	ug/m3	0.34	0.04	A823926				0.20	0.04	A823926
RDL = Reportable Detection Limit										

Bureau Veritas ID		BIK575			BIK576			BIK577		
Sampling Date		2022/11/02 16:32			2022/11/02 16:32			2022/11/03 09:54		
	UNITS	13-NH3-DUP	RDL	QC Batch	13-HNO3-DUP	RDL	QC Batch	15-NH3-DUP	RDL	QC Batch
Passive Monitoring										
Ammonia by Passive Sampler	ppb	0.5	0.1	A823087				1.0	0.1	A823087
HNO3 by Passive Sampler	ug/m3				1.16	0.04	A823926			
RDL = Reportable Detection Limit										

Bureau Veritas ID		BIK578		
Sampling Date		2022/11/03 09:54		
	UNITS	15-HNO3-DUP	RDL	QC Batch
Passive Monitoring				
HNO3 by Passive Sampler	ug/m3	1.92	0.04	A823926
RDL = Reportable Detection Limit				

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GENERAL COMMENTS

Sample BIK474 [3] : 2022/12/09 XZ:O3 sample was received with broken barrier.

Sample BIK484 [14] : 2022/12/09 XZ:O3 sample was received with broken barrier.

Sample BIK486 [16] : 2022/12/09 XZ:O3 sample was received with broken barrier.

Sample BIK490 [22] : 2022/12/09 XZ:O3 sample was received with broken barrier.

Sample BIK494 [27] : SO2 sample BIK494 (# 27) was returned to the lab. with small perforation in filter membrane. - OZ 2022/12/10

Results relate only to the items tested.

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Report Date: 2022/12/15

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QUALITY ASSURANCE REPORT

QA/QC Batch	Init	QC Type	Parameter	Date Analyzed	Value	Recovery	UNITS	QC Limits
A820901	XSZ	Spiked Blank	Calculated O3			100	%	90 - 110
A820901	XSZ	Method Blank	Calculated O3		<0.1		ppb	
A821534	SS6	Spiked Blank	Calculated NO2			100	%	90 - 110
A821534	SS6	Method Blank	Calculated NO2		<0.1		ppb	
A821537	SS6	Spiked Blank	Calculated NO2			100	%	90 - 110
A821537	SS6	Method Blank	Calculated NO2		<0.1		ppb	
A821645	SS6	Spiked Blank	Calculated SO2			101	%	90 - 110
A821645	SS6	Method Blank	Calculated SO2		<0.1		ppb	
A821668	SS6	Spiked Blank	Calculated SO2			102	%	90 - 110
A821668	SS6	Method Blank	Calculated SO2		<0.1		ppb	
A821820	XSZ	Spiked Blank	Calculated O3			101	%	90 - 110
A821820	XSZ	Method Blank	Calculated O3		<0.1		ppb	
A821823	XSZ	Spiked Blank	Calculated O3			100	%	90 - 110
A821823	XSZ	Method Blank	Calculated O3		<0.1		ppb	
A822902	YYA	Spiked Blank	Calculated H2S			101	%	90 - 110
A822905	YYA	Spiked Blank	Calculated H2S			101	%	90 - 110
A823082	XSZ	Spiked Blank	Ammonia by Passive Sampler			99	%	90 - 110
A823082	XSZ	Method Blank	Ammonia by Passive Sampler		<0.1		ppb	
A823087	XSZ	Spiked Blank	Ammonia by Passive Sampler			100	%	90 - 110
A823087	XSZ	Method Blank	Ammonia by Passive Sampler		<0.1		ppb	
A823925	OZ	Method Blank	HNO3 by Passive Sampler		<0.04		ug/m3	
A823925	OZ	RPD [BIK510-01]	HNO3 by Passive Sampler	2022/12/15	NC		%	N/A
A823926	OZ	Method Blank	HNO3 by Passive Sampler		<0.04		ug/m3	
A823926	OZ	RPD [BIK552-01]	HNO3 by Passive Sampler	2022/12/15	NC		%	N/A

N/A = Not Applicable

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

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

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

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

Bureau Veritas Job #: C295846
Report Date: 2022/12/15

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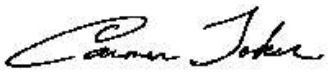
VALIDATION SIGNATURE PAGE

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



Carmen Toker, CT, Manager Air Laboratory Services

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End of Report