GROUNDWATER MONITORING AND SAMPLING PROGRAM – JANUARY 2023
FORMER SEARS FUEL SITE AND ADJACENT HOUNSFIELD HEIGHTS AREA
1620 – 14th AVENUE NW
CALGARY, ALBERTA
SUNCOR OUTLET NO. 9445
ALBERTA ENVIRONMENT AND PROTECTED AREAS (AEPA) FILE NO. 00141934

Prepared for:
Suncor Energy Products Partnership
Suncor Energy Centre
P.O. Box 2844, 150 – 6 Avenue S.W.
Calgary, Alberta
T2P 3E3

Prepared by:

Suite 510, 214 - 11th Avenue SW
Calgary, Alberta
T2R 0K1
Phone: (403) 294-4200
Fax: (403) 294-4240

Job No.: 10-12832
Ref. No.: 478621.17102

Distribution:

1 copy – Suncor Energy Products Partnership
1 copy – Andrea Stenvig, Elise Chamberland and EAS Communications, Alberta Environment and Protected Areas
1 copy – Tyson Allan, The City of Calgary
1 copy – David Crowe, Alberta Health Services
1 copy – Beacon, Plume Committee, and General Manager, Hounsfield Heights Briar Hill
1 copy – Gary Molnar, Hounsfield Heights Landowners Group
1 copy – Linda Barron

SUMMARY

Site:	1620 - 14th Avenue NW; the Mall Property; 14th Avenue NW; Lions Park; and the adjacent Hounsfield Heights community
Type of Facility:	Former Sears Fuel Site
Applicable Groundwater Guidelines:	Alberta Environment and Parks (AEP), 2022 Alberta Tier 1 and 2 Soil and Groundwater Remediation Guidelines; fine-grained and coarse-grained soils; commercial land use, residential land use, and commercial land use with a residential buffer. The freshwater aquatic life pathway has been eliminated. In addition, Tier 2 guidelines for the vapour inhalation pathway have been calculated for selected areas.
Date(s) of Groundwater Monitoring and Sampling:	January 9, 2023 to January 20, 2023
Presence of Liquid-Phase Hydrocarbons (LPH):	LPH was not detected in any of the groundwater monitoring wells or extraction wells monitored.
Monitoring and Extraction Wells with Groundwater Samples that Exceeded Guidelines:	Nine of 104 monitoring wells sampled had concentrations that exceeded guidelines for the vapour inhalation pathway (BH1912, BH1915, BH1979, BH4002, BH4003A, BH4006, BH4007, EX-5, and EX-7); three of 104 wells sampled exceeded the guidelines for the ecological direct soil pathway; 33 of 104 wells sampled exceeded the drinking water guidelines; for one or more petroleum hydrocarbon constituents (BTEX, F1, F2), or 1,2-Dichloroethane.
Changes to Program and Future Work:	Based on a review of the groundwater analytical results, no changes to the groundwater monitoring and sampling (GWMS) program are proposed at this time. Groundwater monitoring and sampling will be conducted in July 2023, in accordance with the semi-annual GWMS program.

TABLE OF CONTENTS

Page

LIST OF TABLES iii

LIST OF DRAWINGS iii

LIST OF APPENDICES iii

1.0 INTRODUCTION 1
1.1 PURPOSE 1
1.2 SCOPE OF WORK 1

2.0 SITE ACTIVITIES 1

3.0 GUIDELINES REFERENCED 2

4.0 RESULTS OF THE INVESTIGATION 3
4.1 GROUNDWATER MONITORING RESULTS 3
4.2 GROUNDWATER ANALYTICAL RESULTS 3
4.3 QUALITY ASSURANCE AND QUALITY CONTROL (QAQC) RESULTS 4

5.0 SUMMARY 4

6.0 LIMITATION OF LIABILITY, SCOPE OF REPORT AND THIRD-PARTY RELIANCE 6

7.0 CLOSURE 7

8.0 REFERENCES 8

LIST OF TABLES

Table 1	Groundwater Monitoring Results – January 2023
Table 2	Groundwater Analytical Data – January 2023

LIST OF DRAWINGS

Drawing No. 1	Site Location Map
Drawing No. 2	Site Topography
Drawing No. 3	Site Plan: Groundwater Monitoring and Extraction Well Locations
Drawing No. 4	Elevation of the Groundwater Potentiometric Surface (January 2023)
Drawing No. 5	Benzene Concentrations in Groundwater (January 2023)
Drawing No. 6	1,2-Dichloroethane Concentrations in Groundwater (January 2023)

LIST OF APPENDICES

Appendix A	Groundwater Monitoring and Sampling Procedures
Appendix B	Groundwater Guideline Summary
Appendix C	Historical Groundwater Tables
Appendix D	Quality Assurance and Quality Control

1.0 INTRODUCTION

Parsons Inc. (Parsons) was retained by Suncor Energy Products Partnership (Suncor) to perform groundwater monitoring and sampling for the Former Sears Fuel Site located at 1620 - 14th Avenue NW; as well as the Mall Property; 14th Avenue NW; Lions Park; and the adjacent Hounsfield Heights community (collectively referred to as "the site").

1.1 PURPOSE

Groundwater monitoring and sampling was conducted between January 9, 2023 and January 20, 2023 in accordance with the semi-annual groundwater monitoring and sampling (GWMS) program, in order to maintain an audit of subsurface conditions.

1.2 SCOPE OF WORK

The following site activities were conducted on behalf of Suncor in January 2023:

- Monitor the groundwater monitoring wells and extraction wells for subsurface vapour concentrations, water levels, and the presence or absence of liquid-phase hydrocarbons (LPH);
- Collect groundwater samples from selected wells for laboratory analyses;
- Repair selected wells which were previously damaged or inaccessible, where possible; and,
- Prepare a report that describes the field activities and the results of the laboratory analyses.

The site location and municipal zoning are presented in Drawing No. 1. The grade elevations are shown on Drawing No. 2.

2.0 SITE ACTIVITIES

The dual-phase vapour extraction system operating at the site was turned off on January 9, 2023. Between January 9 and January 20, 2023, groundwater monitoring was performed on 117 groundwater monitoring and extraction wells across the site, as presented in Table 1. Groundwater samples were then collected from 104 groundwater monitoring and extraction wells for laboratory analysis, as presented in Table 2. Some of the wells could not be monitored or sampled as they were dry, had insufficient water, were blocked below grade, were paved over,

or could not be located. Groundwater samples from two monitoring wells (BH1946 and BH1947) were not analyzed due to uncertainty issues raised by sample labeling issues.

Groundwater Monitoring and Extraction Well Locations:	Drawing No. 3
Monitoring/Sampling Date(s):	January 9, 2023 to January 20, 2023
Groundwater samples analyzed for:	☒Benzene, Toluene, Ethylbenzene, and Xylenes (BTEX) ☒Petroleum Hydrocarbon (PHC) Fractions F1 and F2 ☒1,2-Dichloroethane (1,2-DCA) ☒Routine Water Chemistry (select wells only)
Laboratory:	AGAT Laboratories
Field procedures and sampling method shown in:	Appendix A: The field procedures were conducted in accordance with generally accepted industry practices.

3.0 GUIDELINES REFERENCED

The groundwater regulatory guidelines referenced are the Alberta Tier 2 Soil and Groundwater Remediation Guidelines (AEP 2022a/b) for fine-grained and coarse-grained soil, and for commercial and residential/parkland land use, with the freshwater aquatic life (FAL) pathway excluded. These are summarized in Appendix B. Tier 2 guidelines are also referenced for the vapour inhalation pathway for selected areas, as described below. In the northern area of the site, within 30 m of properties zoned for residential or parkland land use, vapour inhalation pathway guidelines (soil and groundwater) and ecological soil contact guidelines (for groundwater) for residential land use have been applied, as shown on Drawing No. 3. For areas of the site north of the Tier 2 guideline area as described below, Tier 1 guidelines for coarse-grained soil have been conservatively applied.

Tier 2 groundwater guidelines for the vapour inhalation pathway were developed by Intrinsik (Intrinsik, 2022) for some areas of the site, as shown on Drawing No. 3. In the applicable areas (areas N1, N2, S1 and S2, as shown on Drawing No. 3), the calculated Tier 2 guidelines are used in place of the Tier 1 guidelines for the vapour inhalation pathway. For risk management purposes, in accordance with the Revised Remediation Plan (Version 4.0) (Clifton, 2022), groundwater concentrations have been compared to the Tier 2 risk-based guidelines for the vapour inhalation pathway (Intrinsik, 2022).

4.0 RESULTS OF THE INVESTIGATION

4.1 GROUNDWATER MONITORING RESULTS

Depth to Groundwater:	As presented in Table 1, the depth to groundwater varies with the grade elevation and the geological unit, ranging from approximately 1.00 to 14.85 mbgs. Generally, groundwater is deeper in the northern areas of the site, and shallower in the southern areas.
Subsurface Vapour Concentrations:	As presented in Table 1, subsurface vapour concentrations measured in the monitoring wells ranged from not detected (<5 parts per million by volume (ppmv)) to >100% of the lower explosive limit (LEL).
Presence of LPH:	LPH was not detected in any of the groundwater monitoring or extraction wells monitored.
Elevation of the Potentiometric Surface:	Presented as Drawing No. 4.
Principal direction of groundwater flow:	The apparent direction of groundwater flow during the January 2023 monitoring event was generally towards the south-southeast

4.2 GROUNDWATER ANALYTICAL RESULTS

BTEX, F1, F2, and 1,2-DCA:	As presented in Table 2, nine of 104 monitoring wells sampled exceeded guidelines for the vapour inhalation pathway (BH1912, BH1915, BH1979, BH4002, BH4003A, BH4006, BH4007, EX-5, and EX-7); three of 104 wells sampled exceeded the guidelines for the ecological direct soil pathway; 33 of 104 wells sampled exceeded the drinking water guidelines; for one or more petroleum hydrocarbon constituents (BTEX, F1, F2), or 1,2-Dichloroethane.
Routine Water Chemistry:	Presented as Table 2.
Spatial Summary of Analytical Results:	Presented as Drawing No. 5 and Drawing No. 6.
Historical Analytical Results:	Results from 2022 and January 2023 are presented in Appendix C.
Laboratory Certificates:	Presented in Appendix D.

4.3 QUALITY ASSURANCE AND QUALITY CONTROL (QAQC) RESULTS

Laboratory QAQC:	Appendix D	No laboratory QAQC issues were identified that call into question the reliability of the laboratory data reported.
Field QAQC:	Appendix D	Three field duplicate soil vapour samples were submitted. No field QAQC issues were identified that call into question the reliability of the lab data reported.
QAQC Summary:	Appendix D	No QAQC issues were identified that would affect the overall conclusions of the assessment work presented in this report.

5.0 SUMMARY

Between January 9 and January 20, 2023, groundwater monitoring and sampling was conducted as part of the semi-annual GWMS program. Groundwater monitoring was performed on 117 groundwater monitoring and extraction wells, with groundwater samples were collected from 104 wells and sent for laboratory analysis. The groundwater regulatory guidelines referenced are the AEP, 2022 Alberta Tier 1 and 2 Soil and Groundwater Remediation Guidelines; fine-grained and coarse-grained soils; commercial land use, residential land use, and commercial land use with a residential buffer. The freshwater aquatic life pathway has been eliminated. In addition, Tier 2 guidelines for the vapour inhalation pathway have been calculated for selected areas.

The results of the January 9 to 20, 2023 GWMS event are summarized as follows:

- The depth to water varies with the grade elevation and the geological unit, varying from approximately 1.00 to 14.85 mbgs. Generally, groundwater is deeper in the northern areas of the site, and shallower in the southern areas;
- Subsurface vapour concentrations measured in the monitoring wells ranged from not detected to >100% LEL;
- LPH was not detected in any of the groundwater monitoring or extraction wells monitored;
- The apparent direction of groundwater flow during the January 2023 monitoring event was generally towards the south-southeast; and,
- Nine of 104 monitoring wells sampled had concentrations that exceeded guidelines for the vapour inhalation pathway (BH1912, BH1915, BH1979, BH4002, BH4003A, BH4006, BH4007, EX-5, and EX-7); three of 104 wells sampled exceeded the guidelines for the ecological direct soil pathway; 33 of 104 wells sampled exceeded the drinking water guidelines; for one or more petroleum hydrocarbon constituents (BTEX, F1, F2), or 1,2-Dichloroethane.

Based on a review of the groundwater analytical results, no changes to the GWMS program are proposed at this time.

The next groundwater monitoring and sampling is anticipated to be conducted in July 2023, in accordance with the semi-annual GWMS program.

6.0 LIMITATION OF LIABILITY, SCOPE OF REPORT AND THIRD-PARTY RELIANCE

This report has been prepared and the work referred to in this report has been undertaken by Parsons for Suncor Energy Products Partnership (Suncor). It is intended for the sole and exclusive use of Suncor Energy Inc., its affiliated companies and partners and their respective insurers, agents, employees and advisors (collectively, "Suncor"). Any use, reliance on or decision made by any person other than Suncor based on this report is the sole responsibility of such other person. Suncor and Parsons make no representation or warranty to any other person with regard to this report and the work referred to in this report and they accept no duty of care to any other person or any liability or responsibility whatsoever for any losses, expenses, damages, fines, penalties or other harm that may be suffered or incurred by any other person as a result of the use of, reliance on, any decision made or any action taken based on this report or the work referred to in this report.

The investigations undertaken by Parsons with respect to this report and any conclusions or recommendations made in this report reflect Parsons' judgement based on the site conditions observed at the time of the site inspection on the date(s) set out in this report and on information examined at the time of preparation of this report. This report has been prepared for specific application to this site and it is based, in part, upon visual observation of the site, subsurface investigation at discrete locations and depths, and specific analysis of specific chemical parameters and materials during a specific time interval, all as described in this report. Unless otherwise stated, the findings cannot be extended to previous or future site conditions, portions of the site which were unavailable for direct investigation, subsurface locations which were not investigated directly, or chemical parameters, materials or analysis which were not addressed in the report. Substances other than those addressed by the investigation described in this report may exist within the site, substances addressed by this investigation may exist in areas of the site not investigated and concentrations of substances addressed which are different than those reported may exist in areas other than the locations from which samples were taken.

If site conditions or applicable standards change or if any additional information becomes available at a future date, modifications to the findings, conclusions and recommendations in this report may be necessary.

Other than by Suncor, copying or distribution of this report or use of or reliance on the information contained herein, in whole or in part, is not permitted without the express written permission of Parsons. Nothing in this report is intended to constitute or provide a legal opinion.

7.0 CLOSURE

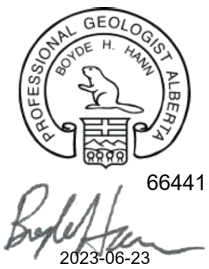
We trust the foregoing information is satisfactory for your requirements. If there are any questions or concerns regarding this report, please do not hesitate to contact the undersigned.

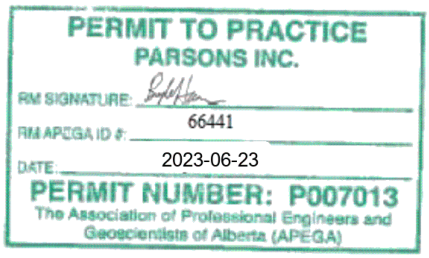
Respectfully submitted,

PARSONS INC.

Rebecca Neufeld, BSc.

Michelle S. Patterson, P.Tech.(Eng.)





B. Hann, P.Geol.

8.0 REFERENCES

AEP 2022a. *Alberta Tier 1 Soil and Groundwater Remediation Guidelines.* Land Policy Branch, Policy and Planning Division, Alberta Environment and Parks. August 24, 2022.

AEP 2022b. *Alberta Tier 2 Soil and Groundwater Remediation Guidelines.* Land Policy Branch, Policy and Planning Division, Alberta Environment and Parks. August 24, 2022.

Clifton, 2022. *Revised Remediation Plan (Version 4.0). Hounsfield Heights and Mall Areas, 1620 – 14th Avenue NW, Calgary, AB*. Prepared by Clifton Engineering Group Inc. (Clifton) for Suncor Energy Products Partnership. March 31, 2022.

Intrinsik, 2022. *Development of Soil Vapour and Groundwater Quality Guidelines*. Prepared by Intrinsik Corp. for Suncor Energy Products Partnership. December 2022.

Parsons, 2022. Annual Summary Report – 2022, Former Sears Fuel Site and Adjacent Hounsfield Heights Area, 1620 – 14th Avenue NW, Calgary, Alberta, Suncor Outlet No. 9445. Prepared by Parsons Inc. (Parsons) for Suncor Energy Products Partnership. March 31, 2023.

TABLE 1

GROUNDWATER MONITORING RESULTS - JANUARY 2023

ASSESSMENT LOCATION	TOP OF PIPE ELEVATION (masl)	GROUND SURFACE ELEVATION (masl)	SCREEN INTERVAL (mbgs)	DATE (yyyy/mm/dd)	SUBSURFACE VAPOUR CONCENTRATIONS[1]	FREE PRODUCT THICKNESS (mm)	POTENTIOMETRIC DEPTH[3] (mbgs)	POTENTIOMETRIC ELEVATION[2] (masl)
BH510A	1091.04	1091.15	11.3 - 17.4	2023/01/10	ND	ND	13.59	1077.56
BH732	1080.54	1080.60	4.3 - 14.9	2023/01/09	ND	ND	5.55	1075.06
BH912	1075.14	1075.23	1.5 - 6.1	2023/01/09	20	ND	2.60	1072.63
BH1102	1089.18	1089.25	7.6 - 15.2	2023/01/09	ND	ND	10.34	1078.91
BH1704	1089.46	1089.58	9.1 - 13.7	2023/01/10	250	ND	10.50	1079.09
BH1904	1090.49	1090.58	12.8 - 16.8	2023/01/13	210	ND	10.08	1080.50*
BH1905	1090.43	1090.57	3.1 - 6.1	2023/01/13	220	ND	3.87	1086.70
BH1906	1090.95	1091.03	11.6 - 19.2	2023/01/09	100	ND	11.71	1079.32
BH1907	1090.14	1090.22	8.8 - 18.0	2023/01/09	100%	ND	11.05	1079.17
BH1908	1089.44	1089.55	12.2 - 16.8	2023/01/09	290	ND	10.71	1078.84*
BH1909	1089.48	1089.56	5.5-7.4	2023/01/09	35	DRY	DRY	DRY
BH1910	1090.08	1090.23	11.0 - 18.6	2023/01/09	170	ND	11.37	1078.86
BH1911	1092.86	1092.96	14.3 - 18.3	2023/01/09	20	ND	13.82	1079.14*
BH1912	1091.04	1091.09	13.4 - 21.0	2023/01/13	60	ND	10.49	1080.60*
BH1913	1091.05	1091.11	6.4 - 10.0	2023/01/13	5	ND	5.66	1085.45*
BH1914	1091.03	1091.08	1.5 - 7.3	2023/01/13	10	ND	5.35	1085.73
BH1915	1091.06	1091.10	10.4 - 18.6	2023/01/13	40%	ND	10.20	1080.90*
BH1916	1091.06	1091.12	0.9 - 6.4	2023/01/13	5	ND	5.52	1085.60
BH1917	1089.39	1089.55	8.8 - 16.2	2023/01/09	NM (Could Not Find)	NM (Could Not Find)	NM (Could Not Find)	NM (Could Not Find)
BH1918	1087.23	1087.27	5.8 - 13.1	2023/01/12	40	ND	9.38	1077.89
BH1919	1085.47	1085.52	6.7 - 15.5	2023/01/09	60	ND	9.82	1075.70
BH1921	1088.92	1089.11	8.8 - 18.9	2023/01/10	25	ND	11.49	1077.62
BH1922	1087.65	1087.76	7.9 - 19.2	2023/01/10	70	ND	10.99	1076.76
BH1924	1093.31	1093.39	14.9 - 19.8	2023/01/16	70%	ND	14.18	1079.21*
BH1925	1091.15	1091.24	16.4 - 19.8	2023/01/11	10	ND	13.72	1077.53*
BH1926	1091.01	1091.13	7.6 - 23.5	2023/01/09	NM (Could Not Find)	NM (Could Not Find)	NM (Could Not Find)	NM (Could Not Find)
BH1927	1090.31	1090.45	12.2 - 22.3	2023/01/10	NM (Could Not Find)	NM (Could Not Find)	NM (Could Not Find)	NM (Could Not Find)
BH1928	1083.60	1083.72	6.4 - 16.8	2023/01/09	60	ND	8.29	1075.43
BH1929	1082.55	1082.67	5.5 - 14.9	2023/01/09	7%	ND	7.88	1074.79
BH1930	1088.51	1088.73	6.4 - 18.3	2023/01/10	NM	NM	NM	NM
BH1933	1090.41	1090.53	8.8 - 17.1	2023/01/13	30	ND	11.01	1079.53
BH1934	1090.47	1090.55	5.8 - 8.5	2023/01/13	85	ND	6.44	1084.11
BH1935	1090.48	1090.60	1.5 - 5.2	2023/01/16	ND	ND	4.58	1086.02
BH1936	1082.18	1082.26	5.3 - 14.7	2023/01/10	280	ND	7.60	1074.66
BH1937	1080.60	1080.75	8.8 - 12.8	2023/01/10	ND	ND	6.18	1074.58*
BH1938	1082.20	1082.30	3.7 - 5.2	2023/01/10	30	DRY	DRY	DRY
BH1939	1080.66	1080.75	8.1 - 8.7	2023/01/10	5	ND	6.22	1074.53*
BH1941	1073.80	1073.95	7.3 - 11.3	2023/01/09	55	ND	2.02	1071.92*
BH1942	1068.37	1068.54	4.4 - 8.5	2023/01/09	60	ND	1.80	1066.74*
BH1943	1078.72	1078.91	7.3 - 14.0	2023/01/11	NM (Could Not Find)	NM (Could Not Find)	NM (Could Not Find)	NM (Could Not Find)
BH1944	1077.12	1077.33	5.9 - 7.6	2023/01/11	15	ND	5.89	1071.44*
BH1945	1069.27	1069.36	3.7 - 6.4	2023/01/11	ND	ND	3.04	1066.32*

1 - ppmv if not indicated or % LEL if indicated.

2 - Calculated using product thicknesses corrected by a specific gravity of 0.75 g/cm^3.

masl - metres above sea level

mbgs - metres below ground surface

mm - millimetres

ND - Not detected.

NM - Not monitored.

* - Water level above top of screen.

** - Screen interval to be confirmed.

TABLE 1

GROUNDWATER MONITORING RESULTS - JANUARY 2023

ASSESSMENT LOCATION	TOP OF PIPE ELEVATION (masl)	GROUND SURFACE ELEVATION (masl)	SCREEN INTERVAL (mbgs)	DATE (yyyy/mm/dd)	SUBSURFACE VAPOUR CONCENTRATIONS[1]	FREE PRODUCT THICKNESS (mm)	POTENTIOMETRIC DEPTH[3] (mbgs)	POTENTIOMETRIC ELEVATION[2] (masl)
BH1946	1064.57	1064.66	4.3 - 6.4	2023/01/11	45	ND	2.97	1061.69*
BH1947	1067.72	1067.83	4.3 - 6.1	2023/01/12	20	ND	1.68	1066.14*
BH1949	1091.06	1091.10	6.4 - 7.3	2023/01/09	ND	DRY	DRY	DRY
BH1950A	1091.04	1091.15	8.5 - 11.1	2023/01/11	60	ND	10.01	1081.14
BH1951	1068.02	1068.12	2.0 - 4.1	2023/01/11	35	ND	3.26	1064.85
BH1952	1090.81	1090.99	7.9 - 18.6	2023/01/10	40	ND	11.73	1079.26
BH1953	1091.28	1091.34	11.3 - 18.6	2023/01/12	15	ND	14.85	1076.49
BH1954	1076.76	1076.90	5.5 - 13.1	2023/01/09	5	ND	3.48	1073.42*
BH1955A	1073.95	1074.13	8.5 - 11.0**	2023/01/09	ND	ND	2.40	1071.73
BH1956	1084.76	1084.92	5.8 - 14.6	2023/01/11	50	NM (Blocked)	NM (Blocked)	NM (Blocked)
BH1957	1089.87	1089.98	5.8 - 14.1	2023/01/13	35	ND	10.01	1079.97
BH1958	1090.26	1090.41	5.8 - 14.9	2023/01/13	45	ND	9.78	1080.62
BH1961	1076.67	1076.79	8.5 - 11.9	2023/01/11	ND	ND	4.41	1072.38*
BH1962	1078.36	1078.48	9.8 - 12.5	2023/01/11	ND	ND	3.10	1075.38*
BH1963	1080.84	1080.96	5.5 - 11.3	2023/01/11	30	ND	4.98	1075.98*
BH1964	1076.77	1076.90	7.6 - 8.5	2023/01/11	ND	ND	4.24	1072.66*
BH1966	1089.42	1089.52	7.3 - 16.5	2023/01/09	5	ND	10.62	1078.90
BH1967	1090.10	1090.21	5.5 - 8.5	2023/01/09	85	ND	7.18	1083.03
BH1968	1090.08	1090.20	1.5 - 5.2	2023/01/09	45	DRY	DRY	DRY
BH1969	1089.39	1089.47	1.5 - 7.6	2023/01/09	15	DRY	DRY	DRY
BH1970	1089.22	1089.30	7.9 - 8.5	2023/01/09	100	DRY	DRY	DRY
BH1971	1090.76	1090.94	7.3 - 11.0	2023/01/09	ND	ND	7.23	1083.72*
BH1972	1088.79	1088.92	8.2 - 11.0	2023/01/10	45	ND	8.51	1080.41
BH1973	1090.81	1090.93	1.5 - 6.4	2023/01/09	35	ND	6.06	1084.87
BH1974	1090.07	1090.24	7.6 - 10.4	2023/01/09	ND	ND	6.62	1083.62*
BH1975	1090.23	1090.39	1.5 - 7.3	2023/01/09	25	ND	6.30	1084.09
BH1976	1092.63	1092.79	9.4 - 14.3	2023/01/09	ND	ND	8.34	1084.45*
BH1977	1074.04	1074.16	3.1 - 7.6	2023/01/09	ND	ND	1.18	1072.98*
BH1978	1069.24	1069.42	0.9 - 3.0	2023/01/11	ND	ND	2.37	1067.05
BH1979	1078.71	1078.78	2.8 - 6.7	2023/01/11	5	ND	5.74	1073.04
BH1980	1074.24	1074.31	4.3 - 6.1	2023/01/09	105	ND	2.62	1071.69*
BH1981	1076.99	1077.06	3.0 - 9.1	2023/01/09	50	ND	3.61	1073.45
BH1982	1080.85	1080.96	1.5 - 7.9	2023/01/10	ND	ND	6.39	1074.58
BH1983A	1090.59	1090.71	3.7 - 5.2**	2023/01/16	200	ND	9.61	1081.10
BH1984	1090.37	1090.46	7.3 - 15.5	2023/01/13	>100%	ND	8.74	1081.72
BH1985	1090.21	1090.31	6.4 - 17.4	2023/01/13	90	ND	8.54	1081.78
BH2001	1069.85	1069.94	3.4 - 4.9	2023/01/12	45	ND	1.00	1068.94*
BH2002	1070.03	1070.14	1.6 - 3.8	2023/01/09	ND	ND	2.56	1067.58
BH2003	1073.31	1073.48	1.5 - 4.6	2023/01/09	40	ND	2.88	1070.60
BH2004	1074.03	1074.18	4.9 - 6.4	2023/01/11	75	ND	5.08	1069.10
BH2005	1076.70	1076.84	3.95 - 7.0	2023/01/12	ND	ND	3.35	1073.49*
BH2006	1074.10	1074.24	2.3 - 4.9	2023/01/09	ND	ND	1.34	1072.90*

1 - ppmv if not indicated or % LEL if indicated.
2 - Calculated using product thicknesses corrected by a specific gravity of 0.75 g/cm^3.
masl - metres above sea level
mbgs - metres below ground surface
mm - millimetres
ND - Not detected.
NM - Not monitored.
* - Water level above top of screen.
** - Screen interval to be confirmed.

TABLE 1

GROUNDWATER MONITORING RESULTS - JANUARY 2023

ASSESSMENT LOCATION	TOP OF PIPE ELEVATION (masl)	GROUND SURFACE ELEVATION (masl)	SCREEN INTERVAL (mbgs)	DATE (yyyy/mm/dd)	SUBSURFACE VAPOUR CONCENTRATIONS[1]	FREE PRODUCT THICKNESS (mm)	POTENTIOMETRIC DEPTH[3] (mbgs)	POTENTIOMETRIC ELEVATION[2] (masl)
BH2007	1091.72	1091.86	12.8 - 18.3	2023/01/11	ND	ND	11.23	1080.63*
BH2008	1091.80	1091.93	5.2 - 12.8	2023/01/11	35	ND	7.58	1084.35
BH2010	1094.27	1094.38	14.0 - 18.9	2023/01/09	70	ND	13.72	1080.66*
BH2011	1094.07	1094.26	9.4 - 14.0	2023/01/09	80	ND	11.12	1083.15
BH2012	1094.72	1094.90	13.4 - 18.3	2023/01/11	ND	ND	13.58	1081.32
BH3001A	1070.46	1070.52	1.5 - 3.05	2023/01/12	ND	ND	1.30	1069.22*
BH3001B	1070.43	1070.50	3.7 - 4.3	2023/01/12	ND	ND	1.79	1068.72*
BH3001C	1070.35	1070.44	5.2 - 6.1	2023/01/12	10	ND	2.88	1067.55*
BH3002A	1073.25	1073.37	1.8 - 3.8	2023/01/12	20	ND	1.57	1071.80*
BH3002B	1073.22	1073.30	6.1 - 7.6	2023/01/12	35	ND	5.34	1067.96*
BH3003A	1073.08	1073.15	2.18 - 2.9	2023/01/12	110	ND	1.92	1071.24*
BH3003B	1072.95	1073.07	6.9 - 7.9	2023/01/12	5	ND	5.36	1067.71*
BH4002	1091.10	1091.00	11.7 - 13.2	2023/01/13	330	ND	9.37	1081.63*
BH4003A	1090.97	1090.87	10.5 - 12.0	2023/01/13	4%	ND	9.40	1081.47*
BH4003B	1090.97	1090.92	14.9 - 16.4	2023/01/13	50	ND	9.57	1081.35*
BH4004A	1090.69	1090.62	11.5 - 13.0	2023/01/13	100	ND	9.41	1081.213*
BH4004B	1090.71	1090.64	14.5 - 16.0	2023/01/13	5%	ND	9.65	1080.99*
BH4005	1090.41	1090.36	10.7 - 12.2	2023/01/13	45	ND	8.82	1081.54*
BH4006	1090.62	1090.51	10.7 - 12.2	2023/01/13	10%	ND	8.81	1081.70*
BH4007	1090.73	1090.65	10.6 - 12.1	2023/01/17	35	ND	9.14	1081.52*
BH4008A	1090.83	1090.74	10.5 - 12.0	2023/01/13	80	ND	9.00	1081.75*
BH4008B	1090.84	1090.76	15.2 - 16.7	2023/01/13	25	ND	9.37	1081.39*
BH4009A	1091.52	1091.43	10.5 - 12.0	2023/01/13	150	ND	9.83	1081.60*
BH4009B	1091.56	1091.44	14.5 - 16	2023/01/13	20	ND	9.88	1081.56*
BH5001	1069.38	1069.47	1.5 - 3.05	2023/01/12	50	ND	1.57	1067.90
BH5002	1065.68	1065.83	1.5 - 3.05	2023/01/12	80	ND	1.72	1064.10
BH6001	1089.36	1089.47	9.75 - 12.8	2023/01/10	ND	ND	11.22	1078.25
BH6002	1089.55	1089.67	10.65 - 13.7	2023/01/10	60	ND	11.12	1078.55
BH6003	1089.77	1089.88	9.75 - 12.8	2023/01/10	5%	ND	11.02	1078.87
BH6004	1089.66	1089.78	9.15 - 12.2	2023/01/09	150	ND	10.66	1079.12
BH6005	1089.08	1089.31	9.15 - 12.2	2023/01/09	ND	ND	10.19	1079.12
BH6006	1091.38	1091.50	12.2 - 15.2	2023/01/11	45	ND	13.80	1077.70
EX-1	1088.62	1089.25	11.7 - 14.63	2023/01/11	NM (Could Not Open)	NM (Could Not Open)	NM (Could Not Open)	NM (Could Not Open)
EX-2	1087.85	1088.48	8.8 - 13.41	2023/01/10	ND	ND	13.41	1075.07
EX-3	1088.46	1089.09	8.2 - 12.8	2023/01/10	10	ND	12.13	1076.96
EX-4	1089.44	1090.07	10.3 - 13.72	2023/01/10	15	ND	10.54	1079.54
EX-5	1090.31	1090.94	10.6 - 13.72	2023/01/10	10	ND	10.82	1080.12
EX-6	1090.45	1091.08	10.6 - 13.11	2023/01/19	100	ND	11.55	1079.53
EX-7	1088.92	1089.55	11.5 - 15.85	2023/01/16	20	ND	11.54	1078.01

1 - ppmv if not indicated or % LEL if indicated.
2 - Calculated using product thicknesses corrected by a specific gravity of 0.75 g/cm^3.
masl - metres above sea level
mbgs - metres below ground surface
mm - millimetres
ND - Not detected.
NM - Not monitored.
* - Water level above top of screen.
** - Screen interval to be confirmed.

TABLE 2

GROUNDWATER ANALYTICAL DATA - JANUARY 2023

Well ID	Screen Interval (mbgs)	Guideline Referenced	CONSTITUENT / Sample Date	Benzene	Toluene	Ethylbenzene	Total Xylenes	Petroleum Hydrocarbons F1 (C6-C10)[b]	Petroleum Hydrocarbons F2 (>C10-C16)[c]	1,2-Dichloroethane	Alkalinity, Total (as $CaCO_3$)	Calcium (filtered)	Chloride (filtered)	Electrical Conductivity (uS/cm)	Fluoride	Hardness ($CaCO_3$)	Hydroxide (OH)	Iron (filtered)	Magnesium (filtered)	Manganese (filtered)	pH (unitless)	Potassium (filtered)	Sodium (filtered)	Sodium Adsorption Ratio (unitless)	Sulphate (filtered)	Total Dissolved Solids (TDS)	Nitrate (as N) (filtered)	Nitrate ($as NO_3$) (filtered)	Nitrite (as N) (filtered)	Nitrite ($as NO_2$) (filtered)	Nitrate + Nitrite - N
Guidelines[a]:																															
Domestic Use Aquifer Pathway				0.005	0.024	0.0016	0.02	2.2	1.1	0.005	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Vapour Inhalation Pathway:																															
N1 Area (Tier 2)				16	NG	NG	NG	540	NG	0.048	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
N2 Area (Tier 2)				12	NG	NG	NG	420	NG	0.038	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
S1 Area (Tier 2)				0.67	NG	NG	52	23	NG	0.2	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
S2 Area (Tier 2)				0.57	NG	NG	44	19	NG	0.17	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Commercial area, Coarse-grained				0.37	NG	NG	26	9.1	17	0.13	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential/Residential Buffer area, Coarse-grained				0.03	45	31	2.2	0.81	1.5	0.01	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential, Fine-grained				0.57	NG	NG	44	19	NG	0.17	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Ecological Soil Contact Pathway:																															
N1, N2, S1, S2 Areas (Residential, most stringent of fine or coarse-grained)				61	59	20	21	6.5	1.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Commercial area, Coarse-grained				350	200	110	120	11	3.1	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential/Residential Buffer area, Coarse-grained				61	59	20	31	7.1	1.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential, Fine-grained				100	82	42	21	6.5	1.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Most stringent guideline for Routine Parameters				NG	NG	NG	NG	NG	NG	NG	NG	NG	120	NG	1.5	NG	NG	0.3	NG	0.02	6.5-8.5	NG	200	NG	429	500	3	NG	0.02	NG	NG
BH510A	11.3 - 17.4	N1	2023-01-19	*0.169*	0.0115	*0.348*	*0.0208*	1.1	0.2	*0.019*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	11.3 - 17.4	N1	2023-01-19 Dup	*0.172*	0.0114	*0.358*	0.0193	1.0	0.1	*0.020*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH732	4.3 - 14.9	N2	2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH912	1.5 - 6.1	S1	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1102	7.6 - 15.2	N1	2023-01-17	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1704	9.1 - 13.7	N1	2023-01-19	*0.121*	*0.655*	*0.0538*	*2.63*	*3.0*	***6.0***	*0.020*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1904	12.8 - 16.8	Commercial area	2023-01-18	*0.114*	<0.0003	<0.0005	0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	12.8 - 16.8	Commercial area	2023-01-18 Dup	*0.115*	<0.0003	<0.0005	0.0006	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1906	11.6 - 19.2	N1	2023-01-17	*1.65*	<0.0003	<0.0005	<0.0005	<0.1	<0.1	*0.028*	462	184	**311**	1970	0.20	875	<5	<0.1	101	**0.677**	7.51	4.7	50.8	0.75	37.8	**1130**	**31.2**	138	**5.39**	17.7	36.6
	11.6 - 19.2	N1	2023-01-17 Dup	*1.62*	<0.0003	<0.0005	<0.0005	<0.1	<0.1	*0.028*	459	184	**314**	1970	0.12	871	<5	<0.1	100	**0.674**	7.49	4.7	50.0	0.74	37.3	**1130**	**31.6**	140	**5.54**	18.2	37.2
BH1907	8.8 - 18.0	N1	2023-01-17	*0.387*	*2.82*	*0.608*	*4.96*	*2.8*	0.7	*0.007*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1908	12.2 - 16.8	N1	2023-01-17	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1910	11.0 - 18.6	N1	2023-01-17	*0.135*	<0.0003	<0.0005	<0.0005	<0.1	<0.1	*0.022*	585	143	**347**	1940	0.15	917	<5	<0.1	136	**0.573**	7.52	3.2	46.2	0.66	27.4	**1060**	1.15	5.1	**0.04**	0.14	1.19
	11.0 - 18.6	N1	2023-01-17 Dup	*0.136*	<0.0003	<0.0005	<0.0005	<0.1	<0.1	*0.021*	584	143	**341**	1940	0.14	921	<5	<0.1	137	**0.577**	7.56	3.2	46.7	0.67	27.2	**1060**	1.15	5.1	**0.05**	0.15	1.20
BH1911	14.3 - 18.3	N1	2023-01-17	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1912	13.4 - 21.0	Residential Buffer	2023-01-13	*0.007*	<0.0003	<0.0005	<0.0005	<0.1	<0.1	***0.015***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1913	6.4 - 10.0	Residential Buffer	2023-01-13	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1914	1.5 - 7.3	Residential Buffer	2023-01-13	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1915	10.4 - 18.6	Residential Buffer	2023-01-13	***0.0315***	0.0006	*0.0029*	0.013	**1.4**	0.3	***0.015***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	10.4 - 18.6	Residential Buffer	2023-01-13 Dup	***0.033***	0.0007	*0.0033*	0.0128	**1.3**	0.4	***0.016***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1916	0.91 - 6.4	Residential Buffer	2023-01-13	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1918	5.8 - 13.1	N1	2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	585	150	**389**	2230	0.05	955	<5	<0.1	141	<0.005	7.69	4.9	85.1	1.20	50.1	**1220**	**9.87**	43.7	<0.01	<0.05	9.87

a - Alberta Tier 1 and 2 Soil and Groundwater Remediation Guidelines (AEP, 2022a/b) with the freshwater aquatic life pathway eliminated; Tier 2 calculated guidelines for the vapour inhalation pathway (Intrinsik, 2022); For fine-grained or coarse-grained soil, commercial or residential land use; Refer to report text for additional information on guideline selection.
b - BTEX have been subtracted from the fraction.
c - Naphthalene has not been subtracted from the fraction.
d - Screen interval to be confirmed.
"-" - Not analyzed.
Dup - Duplicate sample.
NA - Not applicable.
NG - No Guideline.
Italics - Exceeds guideline for the domestic use aquifer pathway solely.
Highlighted - Exceeds referenced guideline for the ecological soil contact pathway but not the vapour inhalation pathway.
Highlighted - Exceeds referenced guideline for the vapour inhalation pathway.
BOLD - Exceeds most stringent guideline for routine water quality parameters.
Results for all parameters are reported in milligrams per litre (mg/L), unless otherwise specified.

TABLE 2

GROUNDWATER ANALYTICAL DATA - JANUARY 2023

Well ID	Screen Interval (mbgs)	Guideline Referenced	CONSTITUENT / Sample Date	Benzene	Toluene	Ethylbenzene	Total Xylenes	Petroleum Hydrocarbons F1 (C6-C10)[b]	Petroleum Hydrocarbons F2 (>C10-C16)[c]	1,2-Dichloroethane	Alkalinity, Total (as $CaCO_3$)	Calcium (filtered)	Chloride (filtered)	Electrical Conductivity (uS/cm)	Fluoride	Hardness ($CaCO_3$)	Hydroxide (OH)	Iron (filtered)	Magnesium (filtered)	Manganese (filtered)	pH (unitless)	Potassium (filtered)	Sodium (filtered)	Sodium Adsorption Ratio (unitless)	Sulphate (filtered)	Total Dissolved Solids (TDS)	Nitrate (as N) (filtered)	Nitrate ($as NO_3$) (filtered)	Nitrite (as N) (filtered)	Nitrite ($as NO_2$) (filtered)	Nitrate + Nitrite - N
Guidelines[a]:																															
Domestic Use Aquifer Pathway				0.005	0.024	0.0016	0.02	2.2	1.1	0.005	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Vapour Inhalation Pathway:																															
N1 Area (Tier 2)				16	NG	NG	NG	540	NG	0.048	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
N2 Area (Tier 2)				12	NG	NG	NG	420	NG	0.038	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
S1 Area (Tier 2)				0.67	NG	NG	52	23	NG	0.2	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
S2 Area (Tier 2)				0.57	NG	NG	44	19	NG	0.17	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Commercial area, Coarse-grained				0.37	NG	NG	26	9.1	17	0.13	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential/Residential Buffer area, Coarse-grained				0.03	45	31	2.2	0.81	1.5	0.01	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential, Fine-grained				0.57	NG	NG	44	19	NG	0.17	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Ecological Soil Contact Pathway:																															
N1, N2, S1, S2 Areas (Residential, most stringent of fine or coarse-grained)				61	59	20	21	6.5	1.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Commercial area, Coarse-grained				350	200	110	120	11	3.1	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential/Residential Buffer area, Coarse-grained				61	59	20	31	7.1	1.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential, Fine-grained				100	82	42	21	6.5	1.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Most stringent guideline for Routine Parameters				NG	NG	NG	NG	NG	NG	NG	NG	NG	120	NG	1.5	NG	NG	0.3	NG	0.02	6.5-8.5	NG	200	NG	429	500	3	NG	0.02	NG	NG
BH1919	6.7 - 15.5	N2	2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1922	7.9 - 19.2	N2	2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1925	16.4 - 19.8	N1	2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	486	70.0	106	1480	0.15	669	<5	<0.1	120	<0.005	7.86	2.2	48.5	0.82	158	**814**	2.76	12.2	<0.01	<0.05	2.76
BH1928	6.4 - 16.8	N2	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	530	268	**797**	3380	0.15	1520	<5	<0.1	207	0.014	7.54	6.3	110	1.23	40.9	**1950**	**43.8**	194	**0.03**	0.11	43.9
BH1929	5.5 - 14.9	N2	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5.5 - 14.9	N2	2023-01-18 Dup	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1930	6.4 - 18.3	N2	2023-01-19	0.0029	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1933	8.8 - 17.1	Residential Buffer	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1934	5.8 - 8.5	Residential Buffer	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1935	1.5 - 5.2	Residential Buffer	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1936	5.3 - 14.7	S1	2023-01-20	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	5.3 - 14.7	S1	2023-01-20 Dup	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1937	5.3 - 14.7	S1	2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1939	8.1 - 8.7	S1	2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	*0.051*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1942	4.4 - 8.5	S2	2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4.4 - 8.5	S2	2023-01-19 Dup	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1944	5.9 - 7.6	S1	2023-01-19	*0.0155*	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	469	107	25.6	959	0.12	524	<5	<0.1	62.3	**0.260**	7.75	2.9	12.2	0.23	46.3	**554**	2.48	11.0	**0.05**	0.16	2.53
BH1945	3.7 - 6.4	S2	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1950A	8.5 - 11.1	N1	2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1951	2.0 - 4.1	Residential	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1952	7.9 - 18.6	N1	2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1953	11.3 - 18.6	N1	2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	651	186	**324**	2120	0.12	1000	<5	<0.1	131	**0.182**	7.58	5.7	78.0	1.07	41.6	**1210**	**9.87**	43.7	<0.01	<0.05	9.87

a - Alberta Tier 1 and 2 Soil and Groundwater Remediation Guidelines (AEP, 2022a/b) with the freshwater aquatic life pathway eliminated; Tier 2 calculated guidelines for the vapour inhalation pathway (Intrinsik, 2022); For fine-grained or coarse-grained soil, commercial or residential land use; Refer to report text for additional information on guideline selection.
b - BTEX have been subtracted from the fraction.
c - Naphthalene has not been subtracted from the fraction.
d - Screen interval to be confirmed.
"-" - Not analyzed.
Dup - Duplicate sample.
NA - Not applicable.
NG - No Guideline.
Italics - Exceeds guideline for the domestic use aquifer pathway solely.
Highlighted - Exceeds referenced guideline for the ecological soil contact pathway but not the vapour inhalation pathway.
Highlighted - Exceeds referenced guideline for the vapour inhalation pathway.
BOLD - Exceeds most stringent guideline for routine water quality parameters.
Results for all parameters are reported in milligrams per litre (mg/L), unless otherwise specified.

TABLE 2

GROUNDWATER ANALYTICAL DATA - JANUARY 2023

Well ID	Screen Interval (mbgs)	Guideline Referenced	CONSTITUENT / Sample Date	Benzene	Toluene	Ethylbenzene	Total Xylenes	Petroleum Hydrocarbons F1 (C6-C10)[b]	Petroleum Hydrocarbons F2 (>C10-C16)[c]	1,2-Dichloroethane	Alkalinity, Total (as $CaCO_3$)	Calcium (filtered)	Chloride (filtered)	Electrical Conductivity (uS/cm)	Fluoride	Hardness ($CaCO_3$)	Hydroxide (OH)	Iron (filtered)	Magnesium (filtered)	Manganese (filtered)	pH (unitless)	Potassium (filtered)	Sodium (filtered)	Sodium Adsorption Ratio (unitless)	Sulphate (filtered)	Total Dissolved Solids (TDS)	Nitrate (as N) (filtered)	Nitrate ($as NO_3$) (filtered)	Nitrite (as N) (filtered)	Nitrite ($as NO_2$) (filtered)	Nitrate + Nitrite - N
Guidelines[a]:																															
Domestic Use Aquifer Pathway				0.005	0.024	0.0016	0.02	2.2	1.1	0.005	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Vapour Inhalation Pathway:																															
N1 Area (Tier 2)				16	NG	NG	NG	540	NG	0.048	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
N2 Area (Tier 2)				12	NG	NG	NG	420	NG	0.038	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
S1 Area (Tier 2)				0.67	NG	NG	52	23	NG	0.2	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
S2 Area (Tier 2)				0.57	NG	NG	44	19	NG	0.17	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Commercial area, Coarse-grained				0.37	NG	NG	26	9.1	17	0.13	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential/Residential Buffer area, Coarse-grained				0.03	45	31	2.2	0.81	1.5	0.01	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential, Fine-grained				0.57	NG	NG	44	19	NG	0.17	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Ecological Soil Contact Pathway:																															
N1, N2, S1, S2 Areas (Residential, most stringent of fine or coarse-grained)				61	59	20	21	6.5	1.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Commercial area, Coarse-grained				350	200	110	120	11	3.1	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential/Residential Buffer area, Coarse-grained				61	59	20	31	7.1	1.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential, Fine-grained				100	82	42	21	6.5	1.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Most stringent guideline for Routine Parameters				NG	NG	NG	NG	NG	NG	NG	NG	NG	120	NG	1.5	NG	NG	0.3	NG	0.02	6.5-8.5	NG	200	NG	429	500	3	NG	0.02	NG	NG
BH1954	5.5 - 13.1	S1	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1955A	8.5 - 11.0[d]	S2	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1957	5.8 - 14.1	Commercial area	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1958	5.8 - 14.9	Commercial area	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	482	140	**238**	1600	0.16	707	<5	<0.1	86.7	<0.005	7.67	4.0	61.4	1.01	38.3	**874**	2.42	10.7	<0.01	<0.05	2.42
BH1961	8.5 - 11.9	N2	2023-01-20	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1962	9.8 - 12.5	N2	2023-01-20	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	319	69.1	5.0	580	0.28	293	<5	<0.1	29.3	**0.169**	7.97	1.9	16.0	0.41	20.6	338	0.16	0.7	0.02	0.07	0.18
BH1963	5.5 - 11.3	N2	2023-01-20	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1964	7.6 - 8.5	N2	2023-01-20	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1966	7.3 - 16.5	N1	2023-01-17	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1967	5.5 - 8.5	N1	2023-01-17	*0.0900*	0.0072	*0.0114*	0.0009	*2.4*	0.3	*0.019*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1971	7.3 - 11.0	N1	2023-01-17	0.0037	0.0004	*0.0083*	<0.0005	1.4	0.2	*0.046*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1972	8.2 - 11.0	N2	2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1973	1.5 - 6.4	N1	2023-01-17	0.0034	0.0007	*0.0067*	<0.0005	0.8	0.2	*0.018*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1974	7.6 - 10.4	N1	2023-01-17	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1976	9.4 - 14.3	N1	2023-01-17	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1977	3.1 - 7.6	S2	2023-01-18	*0.0646*	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1978	0.9 - 3.0	S2	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1979	2.8 - 6.7	S1	2023-01-19	***1.11***	<0.0003	<0.0005	<0.0005	<0.1	<0.1	*0.009*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1980	4.3 - 6.1	S2	2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1981	3.0 - 9.1	S1	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	*0.027*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	3.0 - 9.1	S1	2023-01-18 Dup	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	*0.026*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1982	1.5 - 7.9	S1	2023-01-19	*0.0477*	0.0055	*0.0301*	0.0029	0.4	<0.1	*0.097*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	1.5 - 7.9	S1	2023-01-19 Dup	*0.0463*	0.006	*0.0331*	0.0031	0.4	<0.1	*0.111*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

a - Alberta Tier 1 and 2 Soil and Groundwater Remediation Guidelines (AEP, 2022a/b) with the freshwater aquatic life pathway eliminated; Tier 2 calculated guidelines for the vapour inhalation pathway (Intrinsik, 2022); For fine-grained or coarse-grained soil, commercial or residential land use; Refer to report text for additional information on guideline selection.
b - BTEX have been subtracted from the fraction.
c - Naphthalene has not been subtracted from the fraction.
d - Screen interval to be confirmed.
"-" - Not analyzed.
Dup - Duplicate sample.
NA - Not applicable.
NG - No Guideline.
Italics - Exceeds guideline for the domestic use aquifer pathway solely.
Highlighted - Exceeds referenced guideline for the ecological soil contact pathway but not the vapour inhalation pathway.
Highlighted - Exceeds referenced guideline for the vapour inahalation pathway.
BOLD - Exceeds most stringent guideline for routine water quality parameters.
Results for all parameters are reported in milligrams per litre (mg/L), unless otherwise specified.

TABLE 2

GROUNDWATER ANALYTICAL DATA - JANUARY 2023

Well ID	Screen Interval (mbgs)	Guideline Referenced	CONSTITUENT / Sample Date	Benzene	Toluene	Ethylbenzene	Total Xylenes	Petroleum Hydrocarbons F1 (C6-C10)[b]	Petroleum Hydrocarbons F2 (>C10-C16)[c]	1,2-Dichloroethane	Alkalinity, Total (as $CaCO_3$)	Calcium (filtered)	Chloride (filtered)	Electrical Conductivity (uS/cm)	Fluoride	Hardness ($CaCO_3$)	Hydroxide (OH)	Iron (filtered)	Magnesium (filtered)	Manganese (filtered)	pH (unitless)	Potassium (filtered)	Sodium (filtered)	Sodium Adsorption Ratio (unitless)	Sulphate (filtered)	Total Dissolved Solids (TDS)	Nitrate (as N) (filtered)	Nitrate ($as NO_3$) (filtered)	Nitrite (as N) (filtered)	Nitrite ($as NO_2$) (filtered)	Nitrate + Nitrite - N
Guidelines[a]:																															
Domestic Use Aquifer Pathway				0.005	0.024	0.0016	0.02	2.2	1.1	0.005	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Vapour Inhalation Pathway:																															
N1 Area (Tier 2)				16	NG	NG	NG	540	NG	0.048	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
N2 Area (Tier 2)				12	NG	NG	NG	420	NG	0.038	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
S1 Area (Tier 2)				0.67	NG	NG	52	23	NG	0.2	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
S2 Area (Tier 2)				0.57	NG	NG	44	19	NG	0.17	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Commercial area, Coarse-grained				0.37	NG	NG	26	9.1	17	0.13	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential/Residential Buffer area, Coarse-grained				0.03	45	31	2.2	0.81	1.5	0.01	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential, Fine-grained				0.57	NG	NG	44	19	NG	0.17	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Ecological Soil Contact Pathway:																															
N1, N2, S1, S2 Areas (Residential, most stringent of fine or coarse-grained)				61	59	20	21	6.5	1.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Commercial area, Coarse-grained				350	200	110	120	11	3.1	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential/Residential Buffer area, Coarse-grained				61	59	20	31	7.1	1.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential, Fine-grained				100	82	42	21	6.5	1.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Most stringent guideline for Routine Parameters				NG	NG	NG	NG	NG	NG	NG	NG	NG	120	NG	1.5	NG	NG	0.3	NG	0.02	6.5-8.5	NG	200	NG	429	500	3	NG	0.02	NG	NG
BH1983A	3.7 - 5.2[d]	Commercial area	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1984	7.3 - 15.5	Commercial area	2023-01-18	0.0019	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	538	114	**150**	1450	0.19	729	<5	<0.1	108	**0.574**	7.72	4.1	27.2	0.44	41.3	**811**	**8.54**	37.8	**0.15**	0.50	8.69
BH1985	6.4 - 17.4	Residential Buffer	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2001	3.4 - 4.9	S2	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2002	1.6 - 3.8	S2	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2003	1.5 - 4.6	S2	2023-01-19	-	-	-	-	-	-	-	486	100	**141**	1320	0.12	545	<5	<0.1	71.7	**0.044**	7.81	3.1	74.7	1.39	60.3	**749**	0.18	0.8	<0.01	<0.05	0.18
	1.5 - 4.6	S2	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2004	4.9 - 6.4	S2	2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	4.9 - 6.4	S2	2023-01-19 Dup	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2005	3.95 - 7	S2	2023-01-18	0.0010	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2006	2.3 - 4.9	S2	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2007	12.8 - 18.3	Residential Buffer	2023-01-17	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2008	5.2 - 12.8	Residential Buffer	2023-01-17	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2010	14.0 - 18.9	Residential Buffer	2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	359	91.5	34.7	778	0.12	403	<5	<0.1	42.4	**0.080**	7.83	2.9	6.8	0.15	35.4	446	2.80	12.4	**0.14**	0.46	2.94
BH2011	9.4 - 14.0	Residential Buffer	2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2012	13.4 - 18.3	Residential Buffer	2023-01-20	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	473	141	**305**	1860	0.21	875	<5	<0.1	127	**0.152**	7.66	4.6	45.3	0.67	62.0	**1060**	**18.4**	81.5	0.02	0.08	18.4
BH3001A	1.5 - 3.05	Residential	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	591	161	**278**	1950	0.11	904	<5	<0.1	122	<0.005	7.91	4.5	65.4	0.95	53.3	**1100**	**13.5**	59.7	<0.01	<0.05	13.5
BH3001B	3.7 - 4.3	Residential	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH3001C	5.2 - 6.1	Residential	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH3002A	1.8 - 3.8	Residential	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH3002B	6.1 - 7.6	Residential	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

a - Alberta Tier 1 and 2 Soil and Groundwater Remediation Guidelines (AEP, 2022a/b) with the freshwater aquatic life pathway eliminated; Tier 2 calculated guidelines for the vapour inhalation pathway (Intrinsik, 2022); For fine-grained or coarse-grained soil, commercial or residential land use; Refer to report text for additional information on guideline selection.
b - BTEX have been subtracted from the fraction.
c - Naphthalene has not been subtracted from the fraction.
d - Screen interval to be confirmed.
"-" - Not analyzed.
Dup - Duplicate sample.
NA - Not applicable.
NG - No Guideline.
Italics - Exceeds guideline for the domestic use aquifer pathway solely.
Highlighted - Exceeds referenced guideline for the ecological soil contact pathway but not the vapour inhalation pathway.
Highlighted - Exceeds referenced guideline for the vapour inahalation pathway.
BOLD - Exceeds most stringent guideline for routine water quality parameters.
Results for all parameters are reported in milligrams per litre (mg/L), unless otherwise specified.

TABLE 2

GROUNDWATER ANALYTICAL DATA - JANUARY 2023

Well ID	Screen Interval (mbgs)	Guideline Referenced	CONSTITUENT / Sample Date	Benzene	Toluene	Ethylbenzene	Total Xylenes	Petroleum Hydrocarbons F1 (C6-C10)[b]	Petroleum Hydrocarbons F2 (>C10-C16)[c]	1,2-Dichloroethane	Alkalinity, Total (as $CaCO_3$)	Calcium (filtered)	Chloride (filtered)	Electrical Conductivity (uS/cm)	Fluoride	Hardness ($CaCO_3$)	Hydroxide (OH)	Iron (filtered)	Magnesium (filtered)	Manganese (filtered)	pH (unitless)	Potassium (filtered)	Sodium (filtered)	Sodium Adsorption Ratio (unitless)	Sulphate (filtered)	Total Dissolved Solids (TDS)	Nitrate (as N) (filtered)	Nitrate ($as NO_3$) (filtered)	Nitrite (as N) (filtered)	Nitrite ($as NO_2$) (filtered)	Nitrate + Nitrite - N
Guidelines[a]:																															
Domestic Use Aquifer Pathway				0.005	0.024	0.0016	0.02	2.2	1.1	0.005	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Vapour Inhalation Pathway:																															
N1 Area (Tier 2)				16	NG	NG	NG	540	NG	0.048	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
N2 Area (Tier 2)				12	NG	NG	NG	420	NG	0.038	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
S1 Area (Tier 2)				0.67	NG	NG	52	23	NG	0.2	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
S2 Area (Tier 2)				0.57	NG	NG	44	19	NG	0.17	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Commercial area, Coarse-grained				0.37	NG	NG	26	9.1	17	0.13	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential/Residential Buffer area, Coarse-grained				0.03	45	31	2.2	0.81	1.5	0.01	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential, Fine-grained				0.57	NG	NG	44	19	NG	0.17	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Ecological Soil Contact Pathway:																															
N1, N2, S1, S2 Areas (Residential, most stringent of fine or coarse-grained)				61	59	20	21	6.5	1.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Commercial area, Coarse-grained				350	200	110	120	11	3.1	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential/Residential Buffer area, Coarse-grained				61	59	20	31	7.1	1.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential, Fine-grained				100	82	42	21	6.5	1.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Most stringent guideline for Routine Parameters				NG	NG	NG	NG	NG	NG	NG	NG	NG	120	NG	1.5	NG	NG	0.3	NG	0.02	6.5-8.5	NG	200	NG	429	500	3	NG	0.02	NG	NG
BH3003A	2.18 - 2.9	Residential	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH3003B	6.9 - 7.9	Residential	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4002	11.7 - 13.2	Residential Buffer	2023-01-18	*0.0071*	*0.140*	0.0005	***2.66***	**1.9**	0.5	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4003A	10.5 - 12	Commercial area	2023-01-18	***2.33***	0.0030	<0.0005	*0.0567*	0.2	0.2	***0.195***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4003B	14.9 - 16.4	Commercial area	2023-01-18	*0.0187*	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4004A	11.5 - 13	Commercial area	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4004B	14.5 - 16	Commercial area	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4005	10.7 - 12.2	Commercial area	2023-01-18	*0.0117*	0.0004	*0.0048*	<0.0005	0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4006	10.7 - 12.2	Residential Buffer	2023-01-18	***0.460***	0.0010	<0.0005	*0.0309*	0.4	<0.1	***0.023***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4007	10.6 - 12.1	Commercial area	2023-01-18	***0.689***	0.0012	<0.0005	0.0142	0.1	0.1	*0.025*	642	120	**735**	3370	0.24	1490	<5	<0.1	290	**0.532**	7.71	5.4	135	1.52	32.9	**1800**	**16.9**	75.0	**5.63**	18.5	22.6
BH4008A	10.5 - 12	Residential Buffer	2023-01-18	<0.0005	0.0046	<0.0005	*0.0465*	0.2	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4008B	15.2 - 16.7	Residential Buffer	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4009A	10.5 - 12	Residential Buffer	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4009B	14.5 - 16	Residential Buffer	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH5001	1.5 - 3.05	S2	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH5002	1.5 - 3.05	S2	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	1.5 - 3.05	S2	2023-01-18 Dup	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH6001	9.75 - 12.8	N1	2023-01-19	0.0037	0.0005	*0.0161*	0.0020	0.1	<0.1	*0.021*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH6002	10.65 - 13.7	N1	2023-01-19	*0.0699*	*0.423*	*0.532*	*4.30*	*3.4*	0.7	*0.030*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH6003	9.75 - 12.8	N1	2023-01-19	*0.0191*	*0.744*	*0.291*	*4.69*	*4.2*	**1.9**	*0.012*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH6004	9.15 - 12.2	N1	2023-01-17	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	*0.009*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH6005	9.15 - 12.2	N1	2023-01-17	*0.840*	*0.639*	*0.110*	*0.875*	*2.8*	0.5	*0.024*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

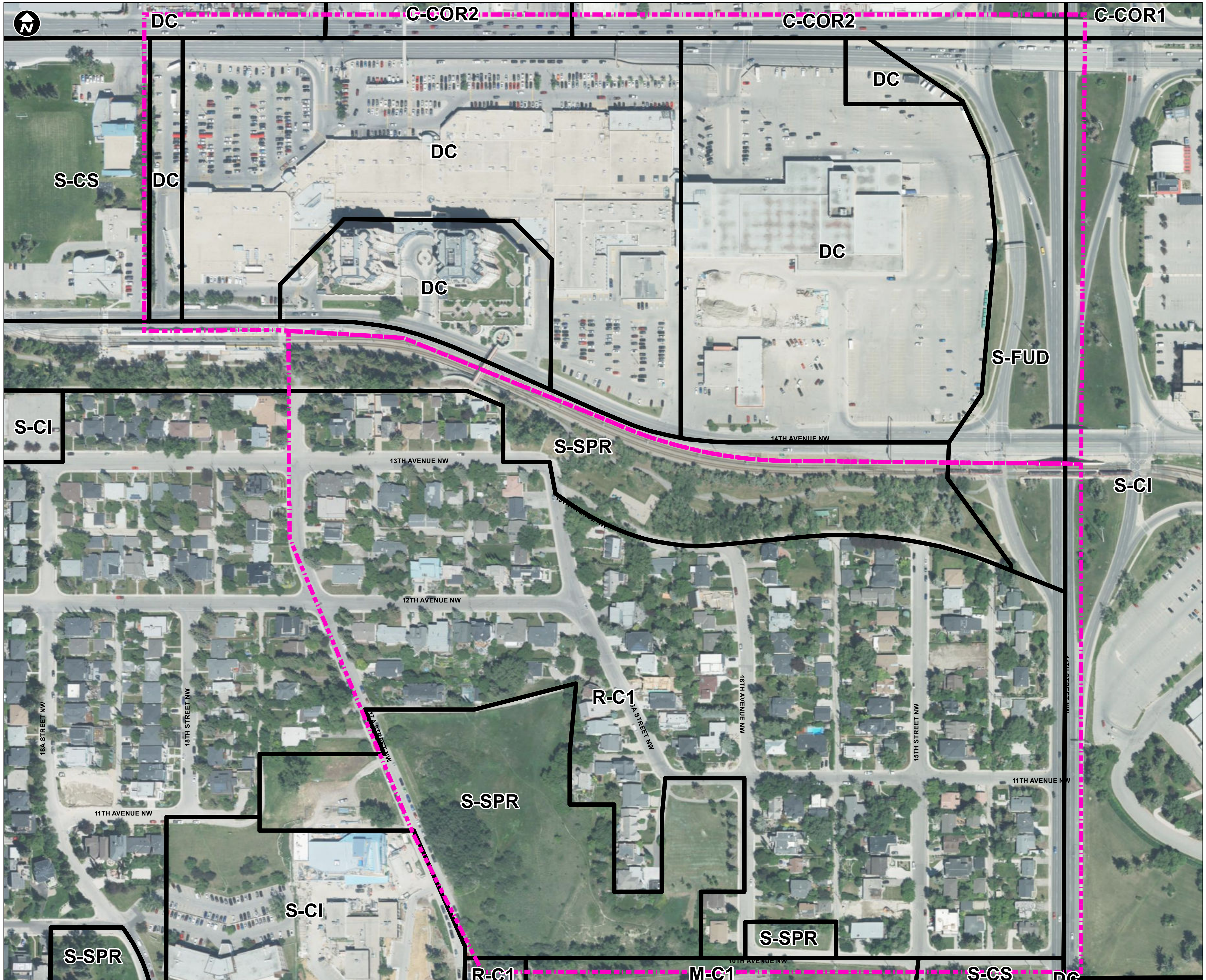
a - Alberta Tier 1 and 2 Soil and Groundwater Remediation Guidelines (AEP, 2022a/b) with the freshwater aquatic life pathway eliminated; Tier 2 calculated guidelines for the vapour inhalation pathway (Intrinsik, 2022); For fine-grained or coarse-grained soil, commercial or residential land use; Refer to report text for additional information on guideline selection.
b - BTEX have been subtracted from the fraction.
c - Naphthalene has not been subtracted from the fraction.
d - Screen interval to be confirmed.
"-" - Not analyzed.
Dup - Duplicate sample.
NA - Not applicable.
NG - No Guideline.
Italics - Exceeds guideline for the domestic use aquifer pathway solely.
Highlighted - Exceeds referenced guideline for the ecological soil contact pathway but not the vapour inhalation pathway.
Highlighted - Exceeds referenced guideline for the vapour inhalation pathway.
BOLD - Exceeds most stringent guideline for routine water quality parameters.
Results for all parameters are reported in milligrams per litre (mg/L), unless otherwise specified.

TABLE 2

GROUNDWATER ANALYTICAL DATA - JANUARY 2023

Well ID	Screen Interval (mbgs)	Guideline Referenced	CONSTITUENT Sample Date	Benzene	Toluene	Ethylbenzene	Total Xylenes	Petroleum Hydrocarbons F1 (C6-C10)[b]	Petroleum Hydrocarbons F2 (>C10-C16)[c]	1,2-Dichloroethane	Alkalinity, Total (as $CaCO_3$)	Calcium (filtered)	Chloride (filtered)	Electrical Conductivity (uS/cm)	Fluoride	Hardness ($CaCO_3$)	Hydroxide (OH)	Iron (filtered)	Magnesium (filtered)	Manganese (filtered)	pH (unitless)	Potassium (filtered)	Sodium (filtered)	Sodium Adsorption Ratio (unitless)	Sulphate (filtered)	Total Dissolved Solids (TDS)	Nitrate (as N) (filtered)	Nitrate ($as NO_3$) (filtered)	Nitrite (as N) (filtered)	Nitrite ($as NO_2$) (filtered)	Nitrate + Nitrite - N
Guidelines[a]:																															
Domestic Use Aquifer Pathway				0.005	0.024	0.0016	0.02	2.2	1.1	0.005	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Vapour Inhalation Pathway:																															
N1 Area (Tier 2)				16	NG	NG	NG	540	NG	0.048	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
N2 Area (Tier 2)				12	NG	NG	NG	420	NG	0.038	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
S1 Area (Tier 2)				0.67	NG	NG	52	23	NG	0.2	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
S2 Area (Tier 2)				0.57	NG	NG	44	19	NG	0.17	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Commercial area, Coarse-grained				0.37	NG	NG	26	9.1	17	0.13	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential/Residential Buffer area, Coarse-grained				0.03	45	31	2.2	0.81	1.5	0.01	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential, Fine-grained				0.57	NG	NG	44	19	NG	0.17	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Ecological Soil Contact Pathway:																															
N1, N2, S1, S2 Areas (Residential, most stringent of fine or coarse-grained)				61	59	20	21	6.5	1.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Commercial area, Coarse-grained				350	200	110	120	11	3.1	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential/Residential Buffer area, Coarse-grained				61	59	20	31	7.1	1.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential, Fine-grained				100	82	42	21	6.5	1.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Most stringent guideline for Routine Parameters				NG	NG	NG	NG	NG	NG	NG	NG	NG	120	NG	1.5	NG	NG	0.3	NG	0.02	6.5-8.5	NG	200	NG	429	500	3	NG	0.02	NG	NG
BH6006	12.2 - 15.2	N1	2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EX-2	8.8 - 13.41	N1	2023-01-19	0.0035	0.0005	0.0016	<0.0005	<0.1	<0.1	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EX-3	8.2 - 12.8	N1	2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EX-4	10.3 - 13.72	N1	2023-01-19	*0.188*	0.0141	*0.304*	*0.683*	1.9	1.0	*0.008*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EX-5	10.6 - 13.72	N1	2023-01-19	*5.46*	*10.1*	*1.46*	*6.71*	***10.2***	*1.2*	***0.131***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EX-6	10.6 - 13.11	N1	2023-01-19	*0.352*	*0.349*	*1.08*	*3.05*	*2.4*	0.7	*0.035*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EX-7	11.5 - 15.85	N1	2023-01-19	*0.322*	*0.454*	*0.878*	*2.37*	*4.4*	*1.2*	***0.051***	497	144	**402**	1980	0.13	899	<5	<0.1	131	**0.576**	7.41	2.2	46.7	0.68	2.5	**1030**	0.18	0.8	<0.01	<0.05	0.18
EB-Bailer-01	NA	Most Stringent	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EB-Bailer-02	NA	Most Stringent	2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EB-Bailer-03	NA	Most Stringent	2023-01-20	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EB-Hydra-01	NA	Most Stringent	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EB-Hydra-02	NA	Most Stringent	2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EB-Hydra-03	NA	Most Stringent	2023-01-20	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trip Blank-01	NA	Most Stringent	2023-01-13	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trip Blank-02	NA	Most Stringent	2023-01-17	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trip Blank-03	NA	Most Stringent	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trip Blank-04	NA	Most Stringent	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trip Blank-05	NA	Most Stringent	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trip Blank-06	NA	Most Stringent	2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trip Blank-07	NA	Most Stringent	2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trip Blank-08	NA	Most Stringent	2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trip Blank-09	NA	Most Stringent	2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Trip Blank-10	NA	Most Stringent	2023-01-20	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

a - Alberta Tier 1 and 2 Soil and Groundwater Remediation Guidelines (AEP, 2022a/b) with the freshwater aquatic life pathway eliminated; Tier 2 calculated guidelines for the vapour inhalation pathway (Intrinsik, 2022); For fine-grained or coarse-grained soil, commercial or residential land use; Refer to report text for additional information on guideline selection.
b - BTEX have been subtracted from the fraction.
c - Naphthalene has not been subtracted from the fraction.
d - Screen interval to be confirmed.
"-" - Not analyzed.
Dup - Duplicate sample.
NA - Not applicable.
NG - No Guideline.
Italics - Exceeds guideline for the domestic use aquifer pathway solely.
Highlighted - Exceeds referenced guideline for the ecological soil contact pathway but not the vapour inhalation pathway.
Highlighted - Exceeds referenced guideline for the vapour inahalation pathway.
BOLD - Exceeds most stringent guideline for routine water quality parameters.
Results for all parameters are reported in milligrams per litre (mg/L), unless otherwise specified.



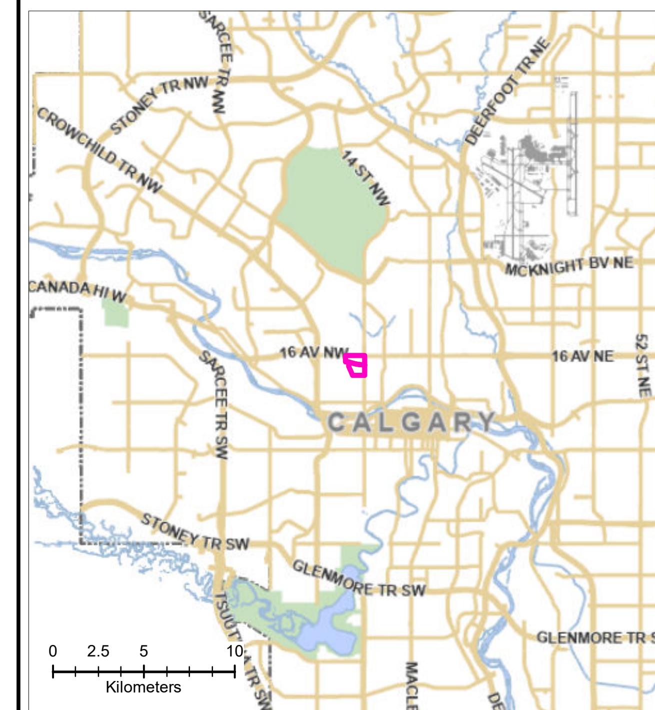
LEGEND

Site Boundary

City Of Calgary Zoning

Land Use Districts:

R-C1 (Residential - Contextual One Dwelling)
M-C1 (Multi-Residential - Contextual Low Profile)
M-CG (Multi-Residential - Contextual Ground Oriented)
C-COR1 (Commercial - Corridor 1)
C-COR2 (Commercial - Corridor 2)
S-SPR (Special Purpose - School, Park and Community Reserve)
S-CI (Special Purpose - Community Institution)
S-CS (Special Purpose - Community Service)
S-FUD (Special Purpose - Future Urban Development)
DC (Direct Control District)



0 50 100 200
Metres

Notes:.
- The ArcGIS Map Service based on City of Calgary Basemap (WMASP).
- The orthophoto based on City of Calgary Basemap (WMASP), July-August 2022.
- Land Use District data based on City of Calgary's Open Data Portal, City Online, Base Map Data service. Downloaded March 2023.

Site Location Map

Hounsfield Heights And Lion's Park
1620-14th Ave NW, Calgary, Alberta

Drawn By: JDC	Ref. No.: 10-12832
Reviewed By: MP	Date: 26-Mar-2023
PARSONS	Drawing No.: 1

Document Path: C:\Z_Drive\10-12832\MXD\GW_Report2023\12832_SiteLocation_March2023.mxd Coordinate System: NAD83 UTM 114 Longitude Meter Province of Alberta Canada

LEGEND

- Grade Elevation Contour (masl) (1m
- Site Boundary

0 25 50 100
Metres

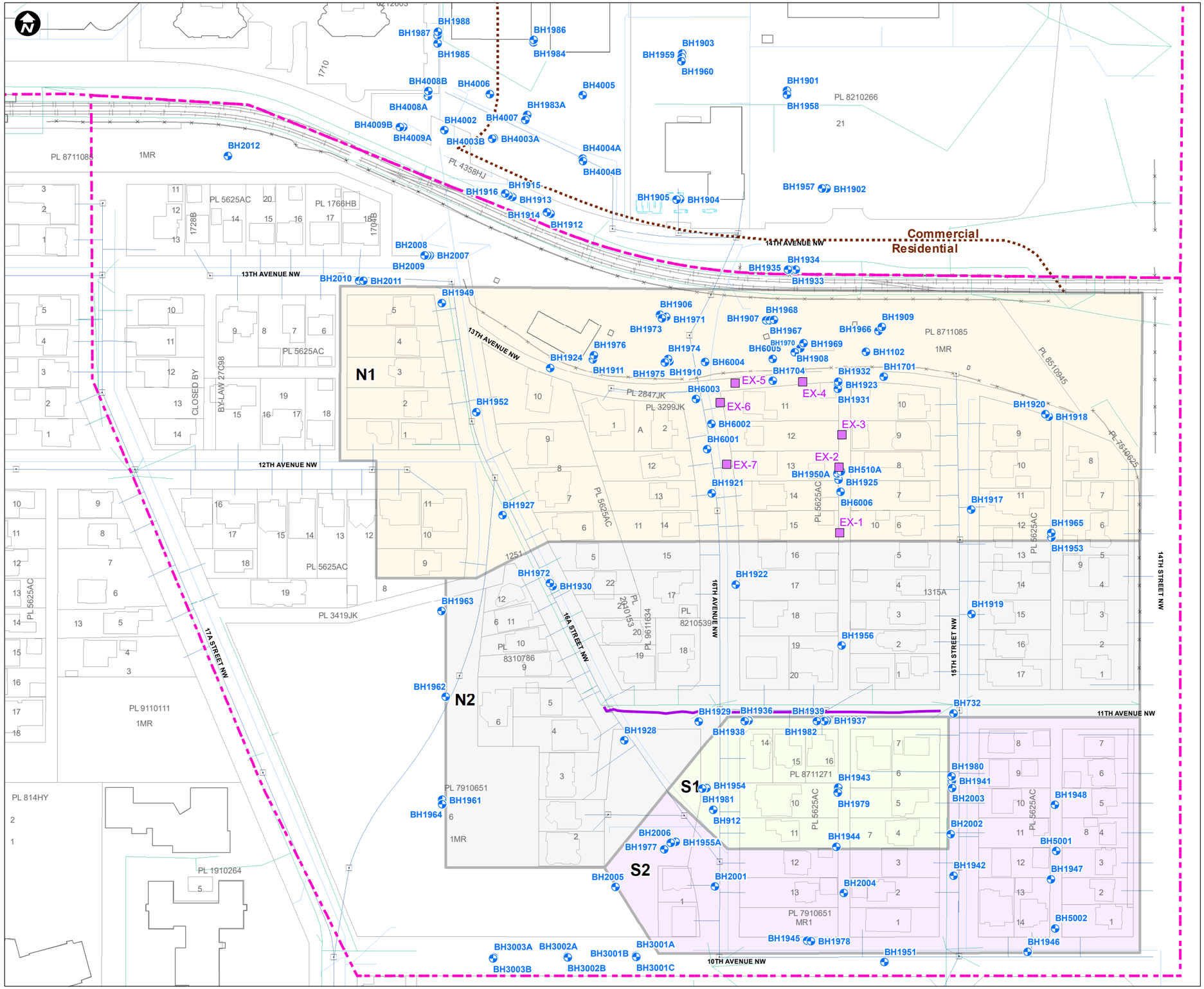
Notes:
- The orthophoto based on City of Calgary Basemap (WMASP), July-August 2022.
- Elevation data based on City of Calgary's Open Data Portal, City Online, Base Map Data service. Downloaded January 2023.

Site Topography

Hounsfield Heights And Lion's Park
1620-14th Ave NW, Calgary, Alberta

	Drawn By: JDC	Ref. No.: 10-12832
	Reviewed By: MP	Date: 29-Mar-2023
PARSONS		Drawing No.: 2

Document Path: C:\Z_Drive\10-12832\MXD\GW_Report\20231\2832_SiteTopo_March2023.mxd Coordinate System: NAD83 UTM 114 Longitude Meter Province of Alberta Canada



Document Path: C:\Z_Drive\10-12832\MXD\GW_Report\20231\2832_SitePlan_MW3_March2023.mxd Coordinate System: NAD83 UTM 114 Longitude Meter Province of Alberta Canada

LEGEND

- Monitoring Well
- Extraction Well
- Former Facility/Feature
- LRT Tracks
- Water
- Storm Sewer
- Sanitary Sewer
- Permeable Reactive Barrier (Dec. 2019)
- Residential/parkland 30 m buffer
- Site Boundary

N1/N2/S1/S2 - Calculated Tier 2 Groundwater Guidelines, Vapour Inhalation Pathway

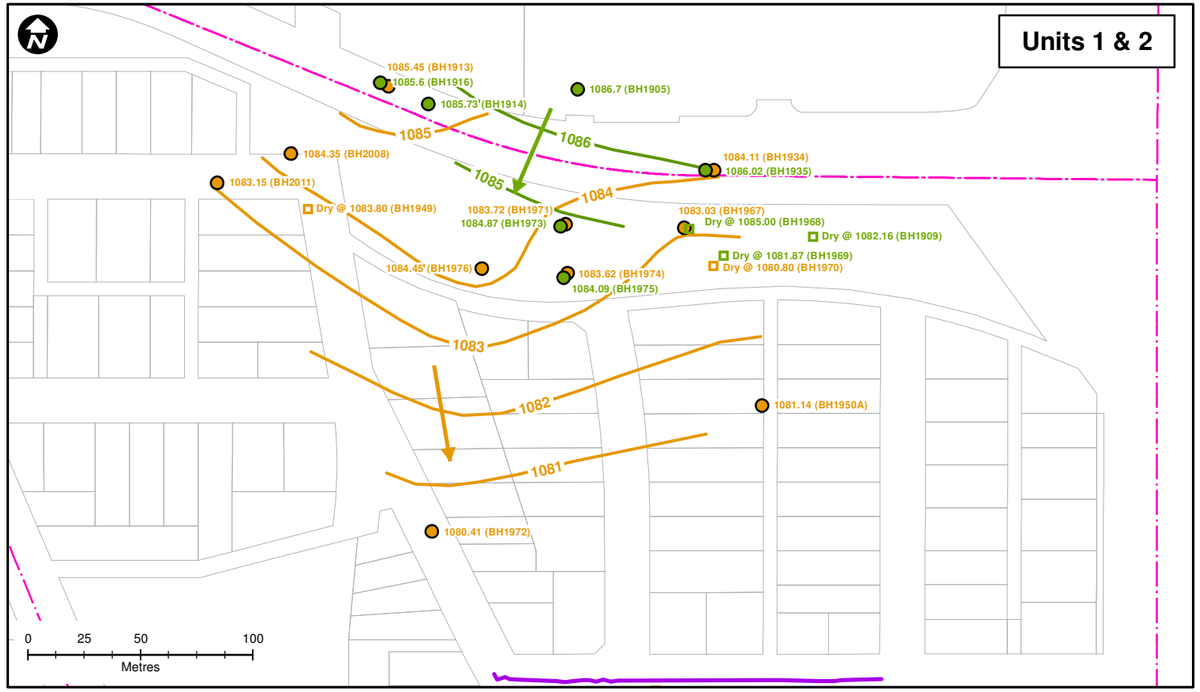
0 25 50 100
Metres

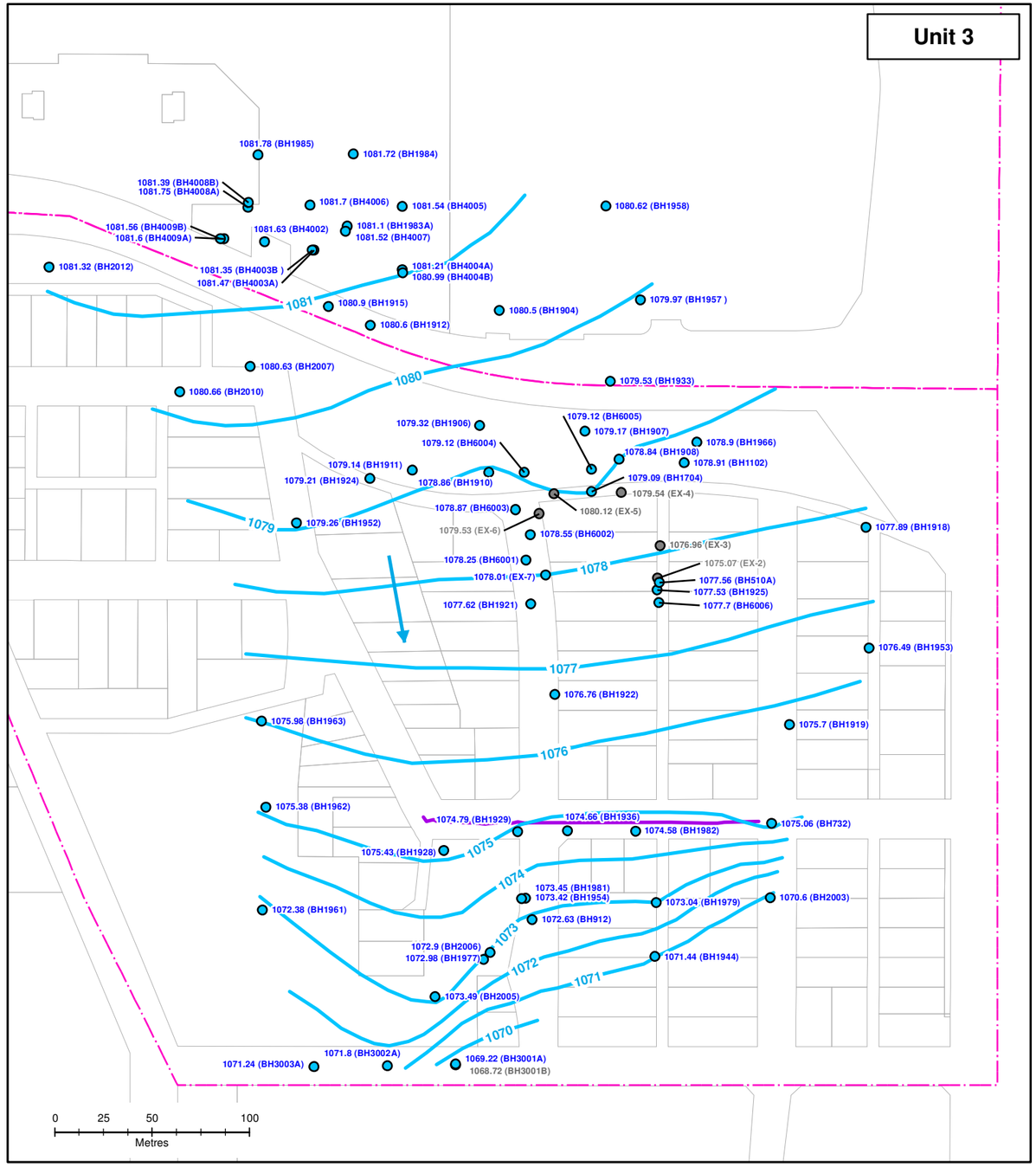
Notes:
- Well locations, on-site features provided as AutoCAD file by Clifton Engineering Group Inc..
- Property parcel and utility data based on City of Calgary's Open Data Portal, City Online, Geospatial Data service. Downloaded March 2023; note only City utilities are shown.
- Building based on City of Calgary's Open Data Portal, City Online, Base Map Data service. Downloaded January 2023.

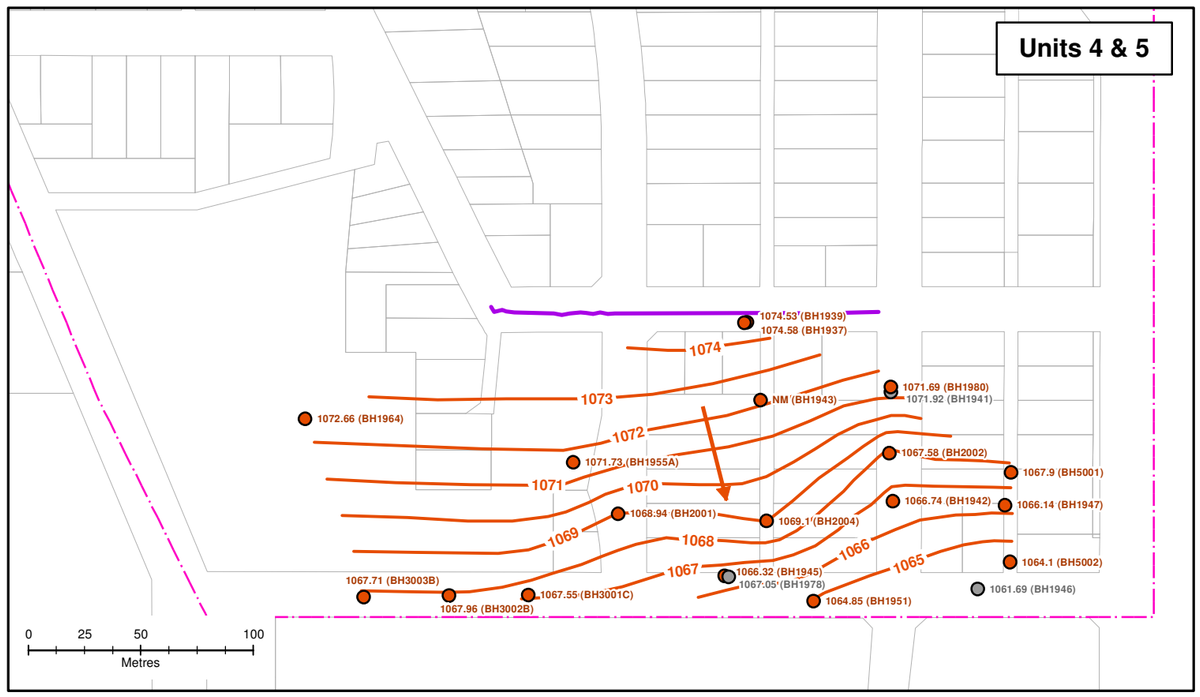
Site Plan
Groundwater Monitoring and Extraction Well Locations

Hounsfield Heights And Lion's Park
1620-14th Ave NW, Calgary, Alberta

	Drawn By: JDC	Ref. No.: 10-12832
	Reviewed By: MP	Date: 31-Mar-2023
PARSONS		Drawing No.: 3







LEGEND

- Permeable Reactive Barrier (2019)
- Site Boundary

Monitoring Well and Potentiometric Surface Elevation (masl):

- Unit 1
- Unit 1: dry well
- Unit 2
- Unit 2: dry well
- Unit 3
- Unit 4 and 5
- Value Not Used for Contouring
- Inferred direction of groundwater flow

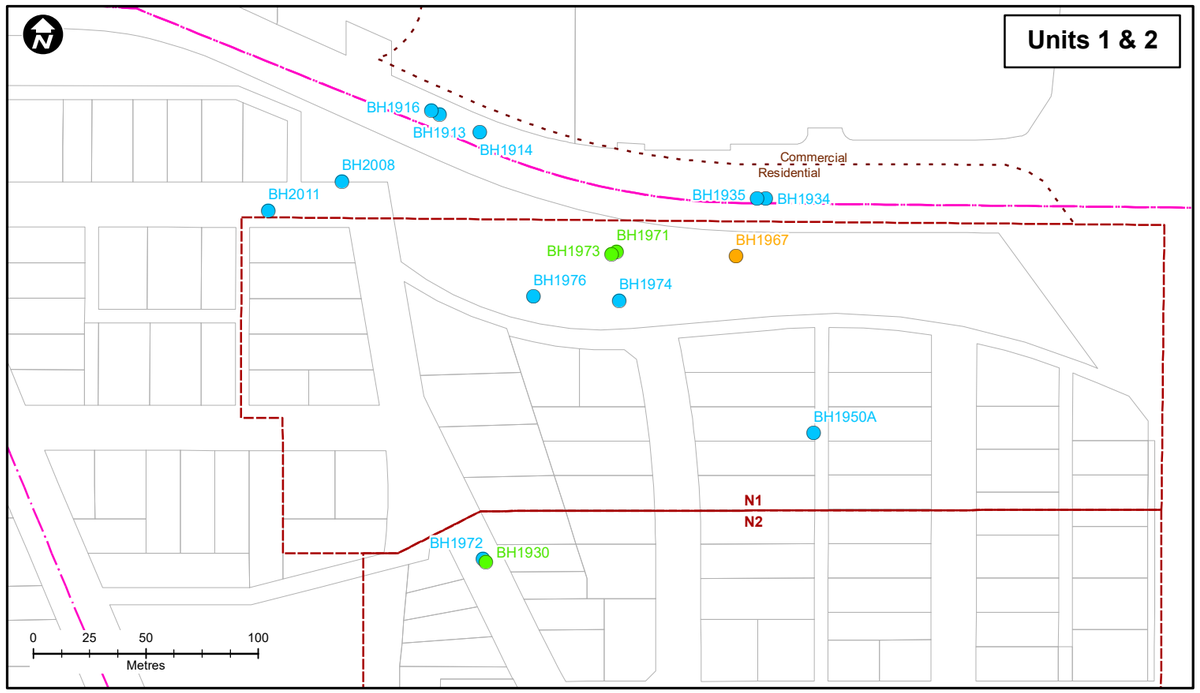
Notes:
- Geological unit is as per the report May/June 2022 Monitoring and Sampling Event (Clifton, 2022).
- Wells that were not monitored for water levels are not shown.

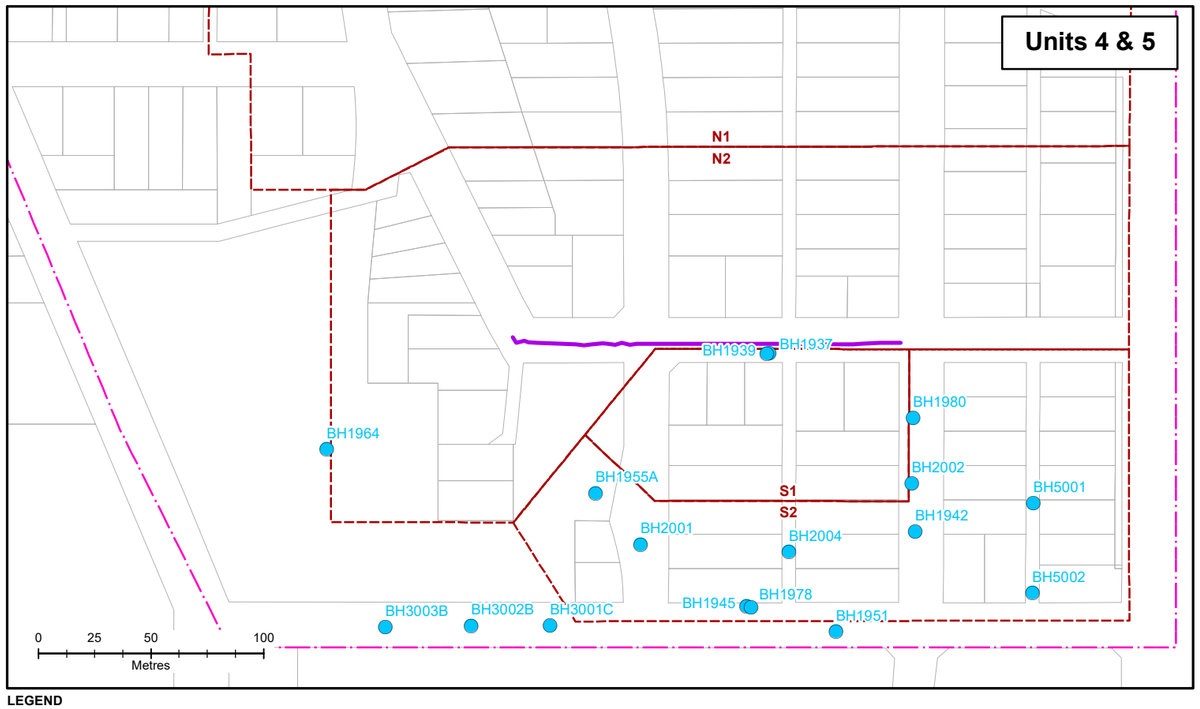
Elevation of the Groundwater Potentiometric Surface (masl) (January 2023)

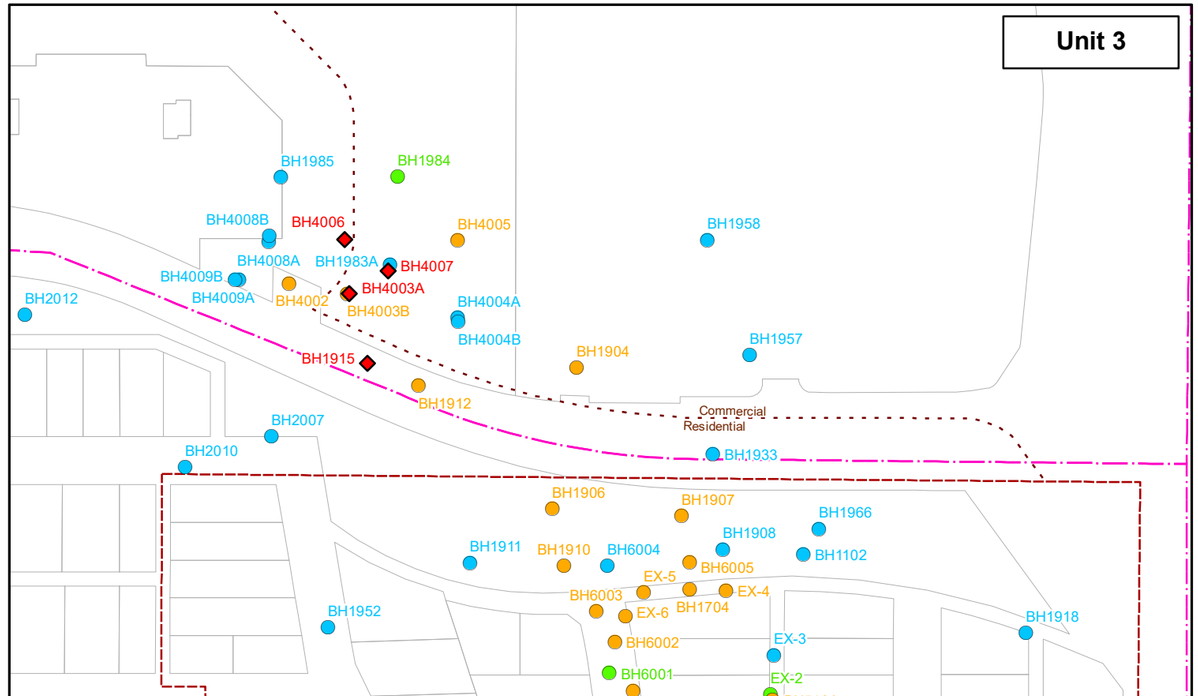
Hounsfield Heights And Lion's Park, 1620-14th Ave NW Calgary, Alberta

	Drawn By: SLD	Ref. No.: 10-12832
	Reviewed By: AT/MP	Date: 02-Jun-2023
PARSONS		Drawing No.: 4

Document Path: C:\Z_Drive\10-12832\MXD\12832_GW_Contour_Jan2023_v2.mxd Coordinate System: NAD83 UTM 114 Longitude Meter Province of Alberta Canada







LEGEND

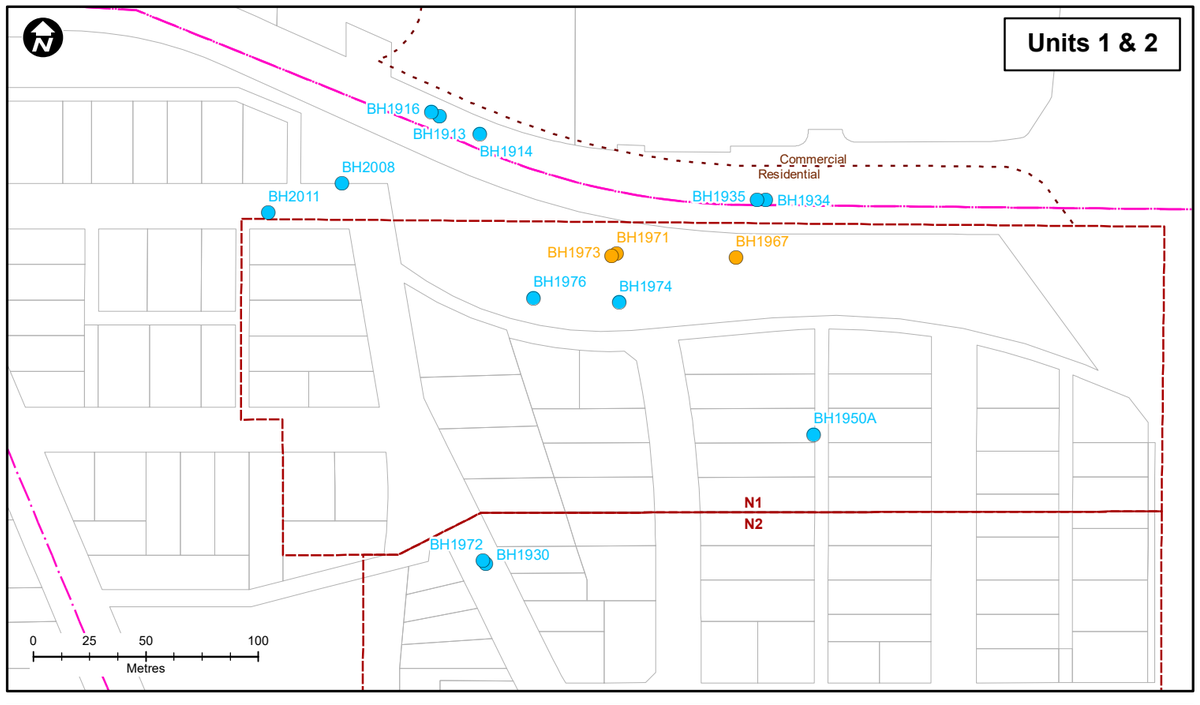
- < 0.0005 mg/L (lab detection limit)
- ≥ 0.0005 to ≤ 0.005 mg/L (drinking water guideline)
- > 0.005 mg/L to ≤ Vapour inhalation guideline
- Exceeds vapour inhalation guideline (guideline varies based on area)
- Liquid-Phase Hydrocarbons Detected
- Tier 2 vapour inhalation pathway guideline area (N1, N2, S1, S2)
- Permeable Reactive Barrier (2019)
- Residential/parkland 30 m buffer
- Site Boundary

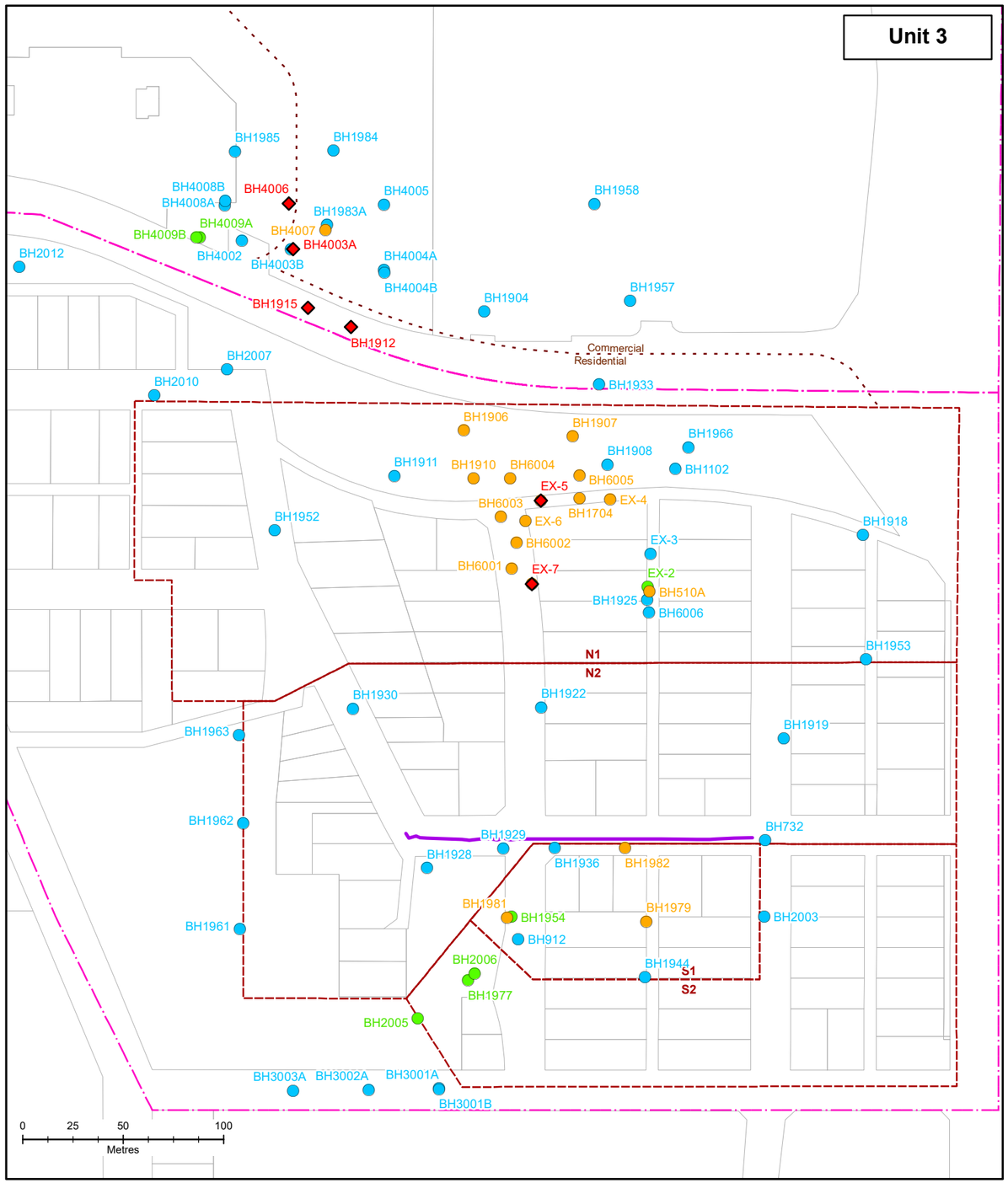
Notes:
- Groundwater guideline(s) for the vapour inhalation pathway varies based on area; see report text for details.
- Geological unit is as per the report May/June 2022 Monitoring and Sampling Event (Clifton, 2022).
- No Liquid-Phase Hydrocarbons Detected

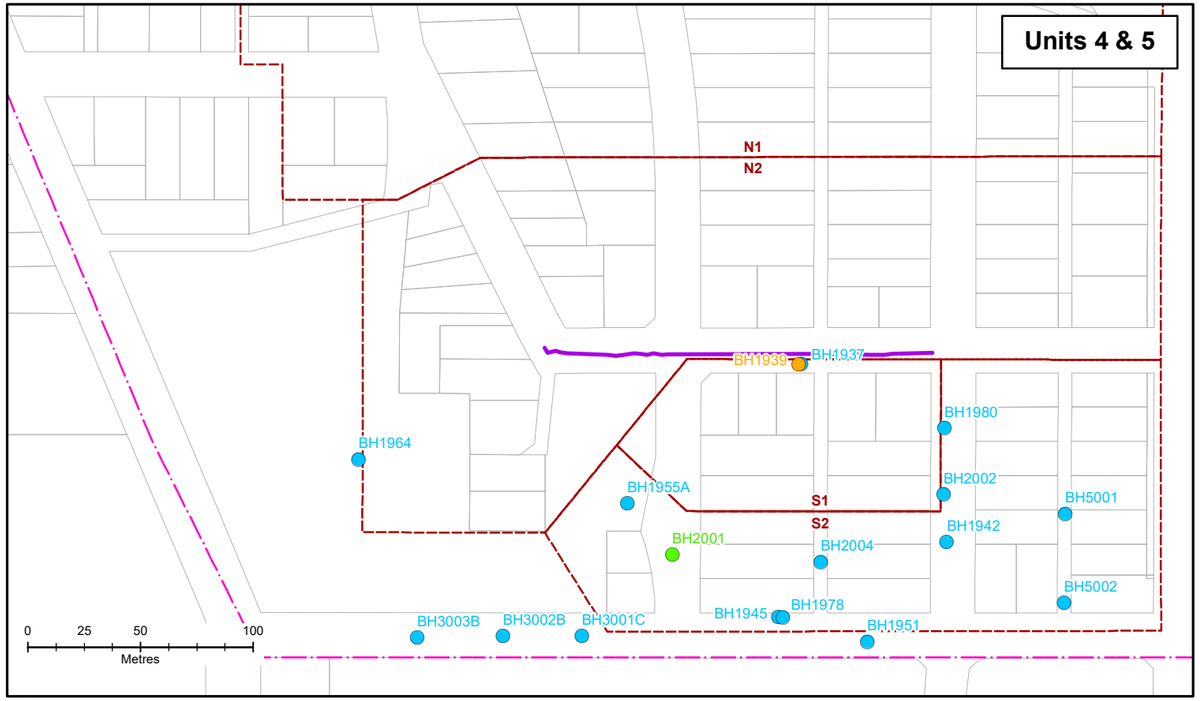
Benzene Concentrations in Groundwater (mg/L) (January 2023)

Hounsfield Heights And Lion's Park, 1620-14th Ave NW Calgary, Alberta

	Drawn By: SLD/JDC	Ref. No.: 10-12832
	Reviewed By: MP	Date: 05-Jun-2023
PARSONS		Drawing No.: 5







LEGEND

- < 0.0005 mg/L (lab detection limit)
- ≥ 0.0005 to ≤ 0.005 mg/L (drinking water guideline)
- > 0.005 mg/L to ≤ Vapour inhalation guideline
- Exceeds vapour inhalation guideline (guideline varies based on area)
- Liquid-Phase Hydrocarbons Detected
- Tier 2 vapour inhalation pathway guideline area (N1, N2, S1, S2)
- Permeable Reactive Barrier (2019)
- Residential/parkland 30 m buffer
- Site Boundary

Notes:
- Groundwater guideline(s) for the vapour inhalation pathway varies based on area; see report text for details.
- Geological unit is as per the report May/June 2022 Monitoring and Sampling Event (Clifton, 2022).
- No Liquid-Phase Hydrocarbons Detected

1,2-Dichloroethane Concentrations in Groundwater (mg/L) (January 2023)

Hounsfield Heights And Lion's Park, 1620-14th Ave NW Calgary, Alberta

	Drawn By: SLD/JDC	Ref. No.: 10-12832
	Reviewed By: MP	Date: 05-Jun-2023
PARSONS		Drawing No.: 6

APPENDIX A

GROUNDWATER MONITORING AND SAMPLING PROCEDURES

APPENDIX A
GROUNDWATER MONITORING AND SAMPLING PROCEDURES

HEALTH AND SAFETY

Consistent with Parsons' policy and Suncor's requirements, the completed work was carried out in accordance with a site-specific health and safety plan. This plan, as a minimum, complied with provincial requirements as well as Parsons' and Suncor's health and safety guidelines, whichever were more stringent.

APPROVALS

Prior to doing any site work, approval to proceed was obtained from the client. When monitoring or investigative work was required on public or third-party lands, the necessary approvals were obtained from the municipality or the property owner prior to commencing any work.

MONITORING EQUIPMENT MAINTENANCE - RKI EAGLE

RKI Eagle gas monitors are maintained as per the manufacturer's specifications and calibrated daily. The RKI units are calibrated as required for zero-point measurement and using a single hexane standard in the percent of the lower explosive limit (LEL) range. Prior to use, the RKI Eagle is checked for battery charge and presence of flow rate. Prior to measurement in the field, the RKI Eagle is activated for a minimum of 15 minutes. The RKI Eagle is operated in methane elimination mode.

MONITORING PROCEDURE

Groundwater monitoring and extraction wells were accessed to determine subsurface vapour concentrations using a hexane calibrated RKI Eagle with methane elimination. This was done by inserting the collection tube of the RKI Eagle into the riser pipe (approximately 0.5m below grade) and recording the peak instrument reading.

The depth to the water table and presence or absence of liquid-phase hydrocarbons (LPH) in the wells were determined with an oil/water interface probe that was cleaned with a solution of phosphate-free detergent and water and rinsed with distilled water between monitoring wells. If the interface probe indicated thicknesses of LPH less than 5 mm, the presence of product was confirmed with a clean disposable bailer. If measurable LPH is observed in any well, Parsons's protocol is not to collect a groundwater sample from that well. However, groundwater samples are collected from wells if a sheen is observed.

GROUNDWATER SAMPLING PROCEDURE

Groundwater samples were collected from the groundwater monitoring and extraction wells using either a disposable bailer or HydraSleeve, as presented in Table A-1. The methodology for each sampling method is summarized below.

APPENDIX A
GROUNDWATER MONITORING AND SAMPLING PROCEDURES

Samples for analysis of benzene, toluene, ethylbenzene, and xylenes (BTEX), petroleum hydrocarbon fraction F1, and 1,2-dichloroethane (1,2-DCA), were collected in septum-topped 40 mL clear glass vials (with zero headspace), pre-charged with sodium bisulphate ($NaHSO_4$) preservative. Samples for analysis of petroleum hydrocarbon fraction F2 were collected in 100 mL amber glass bottles pre-charged with $NaHSO_4$ preservative. Samples for routine water chemistry were collected in 200 mL plastic bottles. All sample bottles were supplied by the laboratory. A trip blank composed of laboratory supplied ultra-pure water was prepared to accompany each cooler of groundwater samples for quality assurance and quality control purposes. Collected samples were shipped in ice filled, security sealed coolers with the appropriate chain of custody documentation to the laboratory.

SAMPLING BY BAILER

Prior to the collection of groundwater samples for hydrochemical analyses, a minimum of three well casing volumes of water were purged from the monitoring/extraction well or the well was purged to dryness. Following the appropriate groundwater recovery in the wells, fresh groundwater samples were then recovered utilizing a disposable bailer and placed in appropriate sample containers supplied by the laboratory and kept cool in ice filled coolers. A fresh pair of nitrile gloves was worn for each groundwater sample collected. For every 10 groundwater samples collected, a duplicate groundwater sample was prepared from one of the sampled monitoring wells. In addition, three equipment blanks were prepared by collecting the laboratory supplied ultra-pure water which was poured through a disposable bailer.

SAMPLING BY HYDRASLEEVE

Groundwater samples were collected for hydrochemical analyses by lowering a weighted HydraSleeve into the monitoring/extraction well so that the HydraSleeve is positioned within the well screen. The water pressure in the well keeps the bag collapsed and the check valve closed, preventing water from entering the HydraSleeve. The well is left for 20 minutes to allow the well to return to equilibrium. After which the field technician pulls up on the HydraSleeve to open the check valve to open and the HydraSleeve to fill with water. Groundwater samples were then recovered and placed in appropriate sample containers supplied by the laboratory and kept cool in ice filled coolers. A fresh pair of nitrile gloves was worn for each groundwater sample collected. The HydraSleeve weight was cleaned with a solution of phosphate-free detergent and water and rinsed with distilled water between monitoring wells. For every 10 groundwater samples collected, a duplicate groundwater sample was prepared from one of the sampled monitoring wells. In addition, three equipment blanks were prepared by collecting the laboratory supplied ultra-pure water which was poured into a disposable HydraSleeve.

TABLE A-1

GROUNDWATER SAMPLING METHOD

Well ID	Sampling Method
BH732	HydraSleeve
BH912	Disposable Bailer
BH510A	HydraSleeve
BH1102	HydraSleeve
BH1701	Disposable Bailer
BH1704	Disposable Bailer
BH1901	HydraSleeve
BH1902	HydraSleeve
BH1903	HydraSleeve
BH1904	HydraSleeve
BH1905	Disposable Bailer
BH1906	HydraSleeve
BH1907	HydraSleeve
BH1908	HydraSleeve
BH1909	Disposable Bailer
BH1909	HydraSleeve
BH1911	HydraSleeve
BH1912	HydraSleeve
BH1913	HydraSleeve
BH1914	Disposable Bailer
BH1915	Disposable Bailer
BH1916	Disposable Bailer
BH1917	HydraSleeve
BH1918	HydraSleeve
BH1919	HydraSleeve
BH1920	Disposable Bailer
BH1921	HydraSleeve
BH1922	HydraSleeve
BH1923	HydraSleeve
BH1924	HydraSleeve
BH1925	HydraSleeve
BH1927	HydraSleeve
BH1928	HydraSleeve
BH1929	HydraSleeve
BH1930	HydraSleeve
BH1931	Disposable Bailer
BH1932	Disposable Bailer
BH1933	HydraSleeve
BH1934	Disposable Bailer
BH1935	Disposable Bailer
BH1936	HydraSleeve
BH1937	HydraSleeve
BH1938	Disposable Bailer
BH1939	Disposable Bailer
BH1941	HydraSleeve
BH1942	HydraSleeve
BH1943	HydraSleeve
BH1944	Disposable Bailer
BH1945	Disposable Bailer
BH1946	Disposable Bailer
BH1947	Disposable Bailer
BH1948	HydraSleeve
BH1949	Disposable Bailer
BH1950A	Disposable Bailer
BH1951	Disposable Bailer
BH1952	HydraSleeve
BH1953	HydraSleeve
BH1954	HydraSleeve
BH1955A	Disposable Bailer
BH1956	Disposable Bailer
BH1957	HydraSleeve
BH1958	HydraSleeve
BH1959	HydraSleeve
BH1960	Disposable Bailer
BH1961	HydraSleeve
BH1962	Disposable Bailer
BH1963	HydraSleeve
BH1964	Disposable Bailer
BH1965	Disposable Bailer
BH1966	HydraSleeve
BH1967	Disposable Bailer
BH1968	Disposable Bailer
BH1969	Disposable Bailer
BH1970	Disposable Bailer
BH1971	HydraSleeve
BH1972	Disposable Bailer
BH1973	Disposable Bailer
BH1974	Disposable Bailer
BH1975	Disposable Bailer
BH1976	HydraSleeve
BH1977	HydraSleeve
BH1978	Disposable Bailer
BH1979	Disposable Bailer
BH1980	Disposable Bailer
BH1981	HydraSleeve
BH1982	Disposable Bailer
BH1983	HydraSleeve
BH1984	HydraSleeve
BH1985	HydraSleeve
BH1986	Disposable Bailer
BH1987	Disposable Bailer
BH1988	Disposable Bailer
BH2001	Disposable Bailer
BH2002	Disposable Bailer
BH2003	Disposable Bailer
BH2004	Disposable Bailer
BH2005	HydraSleeve
BH2006	Disposable Bailer
BH2007	HydraSleeve
BH2008	Disposable Bailer
BH2009	Disposable Bailer
BH2010	HydraSleeve
BH2011	Disposable Bailer
BH2012	HydraSleeve
BH3001A	Disposable Bailer
BH3001B	Disposable Bailer
BH3001C	Disposable Bailer
BH3002A	Disposable Bailer
BH3002B	Disposable Bailer
BH3003A	Disposable Bailer
BH3003B	Disposable Bailer
BH4002	Disposable Bailer
BH4003A	Disposable Bailer
BH4003B	Disposable Bailer
BH4004A	Disposable Bailer
BH4004B	Disposable Bailer
BH4005	Disposable Bailer
BH4006	Disposable Bailer
BH4007	Disposable Bailer
BH4008A	Disposable Bailer
BH4008B	Disposable Bailer
BH4009A	Disposable Bailer
BH4009B	Disposable Bailer
BH5001	Disposable Bailer
BH5002	Disposable Bailer
BH6001	Disposable Bailer
BH6002	Disposable Bailer
BH6003	Disposable Bailer
BH6004	Disposable Bailer
BH6005	Disposable Bailer
BH6006	Disposable Bailer
EX1	Disposable Bailer
EX2	Disposable Bailer
EX3	Disposable Bailer
EX4	Disposable Bailer
EX5	HydraSleeve
EX6	Disposable Bailer
EX7	Disposable Bailer

APPENDIX B

GROUNDWATER GUIDELINE SUMMARY

TABLE B-1

SUMMARY OF GROUNDWATER GUIDELINES EFFECTIVE JANUARY 1, 2023

	Tier 1[a]									Tier 2[b]			
Pathway:	**Protection of Domestic Use Aquifer**	**Ecological Direct Soil Contact**	**Ecological Direct Soil Contact**	**Ecological Direct Soil Contact**	**Ecological Direct Soil Contact**	**Vapour Inhalation Tier 1**	**Vapour Inhalation Tier 1**	**Vapour Inhalation Tier 1**	**Vapour Inhalation Tier 1**	**Vapour Inhalation Tier 2**	**Vapour Inhalation Tier 2**	**Vapour Inhalation Tier 2**	**Vapour Inhalation Tier 2**
Grain Size:	N/A	Coarse	Coarse	Fine	Fine	Coarse	Coarse	Fine	Fine	N/A	N/A	N/A	N/A
Land Use:	N/A	Commercial	Residential	Commercial	Residential	Commercial	Residential	Commercial	Residential	N/A	N/A	N/A	N/A
Tier 2 Area for Vapour Inhalation Pathway:	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N1	N2	S1	S2
Units:	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)	(mg/L)
Benzene	0.005	350	61	540	100	0.37	0.03	3.9	0.57	16	12	0.67	0.57
Toluene	0.024	200	59	240	82	-	45	-	-	-	-	-	-
Ethylbenzene	0.0016	110	20	150	42	-	31	-	-	-	-	-	-
Xylenes	0.02	120	31	74	21	26	2.2	-	44	-	-	52	44
F1	2.2	11	7.1	9.9	6.5	9.1	0.81	-	19	540	420	23	19
F2	1.1	3.1	1.8	3.1	1.8	17	1.5	-	-	-	-	-	-
Naphthalene	0.47	-	-	-	-	31	2.7	-	-	-	-	-	-
1,2-Dichloroethane	0.005	-	-	-	-	0.13	0.01	1.2	0.17	0.048	0.038	0.2	0.17

a - Alberta Tier 1 and 2 Soil and Groundwater Remediation Guidelines (AEP, 2022a/b); freshwater aquatic life pathway excluded.

b - Calculated Tier 2 guidelines for the vapour inhalation pathway (Intrinsik, 2022), for BTEX, F1, F2, 1,2-DCA and Naphthalene.

"-" - No guideline or No Guideline Required (NGR - calculated values above compound solubility limit).

"--" - Not assessed via Tier 2.

N/A - Not applicable.

APPENDIX C

HISTORICAL GROUNDWATER TABLES

TABLE C-1

SUMMARY OF 2022 GROUNDWATER ANALYTICAL DATA

Well ID	Sample Date	Duplicate	Well Screen (mbgs)	Guideline Referenced	Benzene	Toluene	Ethylbenzene	Xylenes	Petroleum Hydrocarbons F1 (C6-C10)	Petroleum Hydrocarbons F2 (>C10-C16)	1,2-Dichloroethane	Alkalinity (Total as CaCO3)	Calcium (filtered)	Chloride (filtered)	Electrical Conductivity (µS/cm)	Fluoride	Hardness (CaCO3)	Hydroxide (OH)	Iron (filtered)	Magnesium (filtered)	Manganese (filtered)	pH (unitless)	Potassium (filtered)	Sodium (filtered)	SAR (unitless)	Sulphate (filtered)	TDS	Nitrate (as N) (filtered)	Nitrate (as NO3) (filtered)	Nitrite (as N) (filtered)	Nitrite (as NO2) (filtered)	Nitrate + Nitrite - N
Guidelines[a]:																																
Domestic Use Aquifer Pathway					0.005	0.024	0.0016	0.02	2.2	1.1	0.005	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Vapour Inhalation Pathway:																																
N1 Area (Tier 2)					16	NG	NG	NG	540	NG	0.048	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
N2 Area (Tier 2)					12	NG	NG	NG	420	NG	0.038	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
S1 Area (Tier 2)					0.67	NG	NG	52	23	NG	0.2	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
S2 Area (Tier 2)					0.57	NG	NG	44	19	NG	0.17	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Commercial area, Coarse-grained					0.37	NG	NG	26	9.1	17	0.13	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential/Residential Buffer area, Coarse-grained					0.03	45	31	2.2	0.81	1.5	0.01	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential, Fine-grained					0.57	NG	NG	44	19	NG	0.17	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Ecological Soil Contact Pathway:																																
N1, N2, S1, S2 Areas (Residential, most stringent of fine or coarse-grained)					61	59	20	21	6.5	1.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Commercial area, Coarse-grained					350	200	110	120	11	3.1	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential/Residential Buffer area, Coarse-grained					61	59	20	31	7.1	1.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential, Fine-grained					100	82	42	21	6.5	1.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Most stringent guideline for Routine Parameters					NG	NG	NG	NG	NG	NG	NG	NG	NG	120	NG	1.5	NG	NG	0.3	NG	0.02	6.5-8.5	NG	200	NG	429	500	3	NG	0.02	NG	NG
BH1102	3-Jun-2022		7.6 - 15.2	N1	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1102	17-Jan-2023		7.6 - 15.2	N1	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1701	7-Jun-2022		6.4 - 12.19	N1	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1704	15-Jun-2022		9.1 - 13.7	N1	*0.839*	*2.83*	*0.247*	*12.2*	*5.8*	***5.1***	*0.023*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1704	19-Jan-2023		9.1 - 13.7	N1	*0.121*	*0.655*	*0.0538*	*2.63*	*3.0*	***6.0***	*0.020*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1904	16-Jun-2022		12.8 - 16.8	Commercial area	*0.174*	<0.0003	0.0016	0.0022	0.3	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1904	18-Jan-2023		12.8 - 16.8	Commercial area	*0.114*	<0.0003	<0.0005	0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1904	18-Jan-2023	Dup	12.8 - 16.8	Commercial area	*0.115*	<0.0003	<0.0005	0.0006	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1905	16-Jun-2022		3.1 - 6.1	Commercial area	*0.036*	0.0174	*0.609*	*4.57*	*3.3*	***8.1***	*0.013*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1906	5-Jun-2022		11.6 - 19.2	N1	*2.55*	<0.0003	<0.0005	<0.0005	<0.1	<0.1	*0.034*	479			2080	0.03	1030	<5	<0.1		**0.687**	7.79			0.58	31.7	**1100**	**31.2**	138	**4.38**	14.4	35.6
BH1906	17-Jan-2023		11.6 - 19.2	N1	*1.65*	<0.0003	<0.0005	<0.0005	<0.1	<0.1	*0.028*	462	184	**311**	1970	0.20	875	<5	<0.1	101	**0.677**	7.51	4.7	50.8	0.75	37.8	**1130**	**31.2**	138	**5.39**	17.7	36.6
BH1906	17-Jan-2023	Dup	11.6 - 19.2	N1	*1.62*	<0.0003	<0.0005	<0.0005	<0.1	<0.1	*0.028*	459	184	**314**	1970	0.12	871	<5	<0.1	100	**0.674**	7.49	4.7	50.0	0.74	37.3	**1130**	**31.6**	140	**5.54**	18.2	37.2
BH1907	3-Jun-2022		8.8 - 18.0	N1	*1.13*	*7.63*	*0.546*	*8.5*	*3.0*	0.8	*0.015*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1907	3-Jun-2022	Dup	8.8 - 18.0	N1	*1.13*	*7.48*	*0.541*	*8.34*	*3.4*	0.8	*0.017*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1907	17-Jan-2023		8.8 - 18.0	N1	*0.387*	*2.82*	*0.608*	*4.96*	*2.8*	0.7	*0.007*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1908	3-Jun-2022		12.2 - 16.8	N1	0.0007	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1908	17-Jan-2023		12.2 - 16.8	N1	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1910	5-Jun-2022		11.0 - 18.6	N1	*0.171*	<0.0003	<0.0005	<0.0005	<0.1	<0.1	*0.027*	511			2030	0.07	984	<5	<0.1		**0.638**	7.85			0.63	23.8	**998**	0.59	2.6	<0.01	<0.05	0.59
BH1910	17-Jan-2023		11.0 - 18.6	N1	*0.135*	<0.0003	<0.0005	<0.0005	<0.1	<0.1	*0.022*	585	143	**347**	1940	0.15	917	<5	<0.1	136	**0.573**	7.52	3.2	46.2	0.66	27.4	**1060**	1.15	5.1	**0.04**	0.14	1.19
BH1910	17-Jan-2023	Dup	11.0 - 18.6	N1	*0.136*	<0.0003	<0.0005	<0.0005	<0.1	<0.1	*0.021*	584	143	**341**	1940	0.14	921	<5	<0.1	137	**0.577**	7.56	3.2	46.7	0.67	27.2	**1060**	1.15	5.1	**0.05**	0.15	1.20
BH1911	2-Jun-2022		14.3 - 18.3	N1	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1911	17-Jan-2023		14.3 - 18.3	N1	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1912	23-Jun-2022		13.4 - 21.0	Residential Buffer	*0.0099*	<0.0003	<0.0005	<0.0005	<0.1	<0.1	***0.029***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1912	13-Jan-2023		13.4 - 21.0	Residential Buffer	*0.007*	<0.0003	<0.0005	<0.0005	<0.1	<0.1	***0.015***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1913	23-Jun-2022		6.4 - 10.0	Residential Buffer	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1913	13-Jan-2023		6.4 - 10.0	Residential Buffer	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1914	23-Jun-2022		1.5 - 7.3	Residential Buffer	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1914	13-Jan-2023		1.5 - 7.3	Residential Buffer	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1915	23-Jun-2022		10.4 - 18.6	Residential Buffer	*0.0115*	0.0007	0.0009	0.0195	0.7	0.3	***0.014***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1915	23-Jun-2022	Dup	10.4 - 18.6	Residential Buffer	*0.011*	0.0007	0.0008	0.019	0.7	0.3	***0.013***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1915	13-Jan-2023		10.4 - 18.6	Residential Buffer	***0.0315***	0.0006	*0.0029*	0.013	**1.4**	0.3	***0.015***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1915	13-Jan-2023	Dup	10.4 - 18.6	Residential Buffer	***0.033***	0.0007	*0.0033*	0.0128	**1.3**	0.4	***0.016***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1916	13-Jan-2023		0.91 - 6.4	Residential Buffer	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1917	12-Jun-2022		8.8 - 16.2	N1	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1918	7-Jun-2022		5.8 - 13.1	N1	-	-	-	-	-	-	-	345	161	**475**	1990	<0.01	966	<5	<0.1	137	**0.022**	7.63	6.1	97.5	1.37	47	**1130**	0.52	2.3	<0.01	<0.05	0.52
BH1918	7-Jun-2022	Dup	5.8 - 13.1	N1	-	-	-	-	-	-	-	576	205	**466**	2130	<0.01	1070	<5	<0.1	136	0.014	7.86	5.5	93.3	1.24	47.4	**1310**	0.54	2.4	<0.01	<0.05	0.54
BH1918	19-Jan-2023		5.8 - 13.1	N1	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	585	150	**389**	2230	0.05	955	<5	<0.1	141	<0.005	7.69	4.9	85.1	1.20	50.1	**1220**	**9.87**	43.7	<0.01	<0.05	9.87
BH1919	9-Jun-2022		6.7 - 15.5	N2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1919	19-Jan-2023		6.7 - 15.5	N2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

a - Alberta Tier 1 and 2 Soil and Groundwater Remediation Guidelines (AEP, 2022a/b) with the freshwater aquatic life pathway eliminated; Tier 2 calculated guidelines for the vapour inhalation pathway (Intrinsik, 2022); For fine-grained or coarse-grained soil, commercial or residential land use; Refer to report text for additional information on guideline selection.
b - Screen interval to be confirmed.
"-" - Not analyzed.
Dup - Duplicate sample.
NG - No Guideline.
Italics - Exceeds guideline for the domestic use aquifer pathway solely.
Highlighted - Exceeds referenced guideline for the ecological soil contact pathway but not the vapour inhalation pathway.
Highlighted - Exceeds referenced guideline for the vapour inahalation pathway.
BOLD - Exceeds most stringent guideline for routine water quality parameters.
Results for all parameters are reported in milligrams per litre (mg/L), unless otherwise specified.
Notes: 2022 analytical data collected by Clifton Engineering Group Inc; 2022 analytical data sourced from Tables 6, 7 and 8 in the report entitled May/June 2022 Monitoring and Sampling Event (Clifton, 2022d).

TABLE C-1

SUMMARY OF 2022 GROUNDWATER ANALYTICAL DATA

Well ID	Sample Date	Duplicate	Well Screen (mbgs)	Guideline Referenced	Benzene	Toluene	Ethylbenzene	Xylenes	Petroleum Hydrocarbons F1 (C6-C10)	Petroleum Hydrocarbons F2 (>C10-C16)	1,2-Dichloroethane	Alkalinity (Total as CaCO3)	Calcium (filtered)	Chloride (filtered)	Electrical Conductivity (µS/cm)	Fluoride	Hardness (CaCO3)	Hydroxide (OH)	Iron (filtered)	Magnesium (filtered)	Manganese (filtered)	pH (unitless)	Potassium (filtered)	Sodium (filtered)	SAR (unitless)	Sulphate (filtered)	TDS	Nitrate (as N) (filtered)	Nitrate (as NO3) (filtered)	Nitrite (as N) (filtered)	Nitrite (as NO2) (filtered)	Nitrate + Nitrite - N
Guidelines[a]:																																
Domestic Use Aquifer Pathway					0.005	0.024	0.0016	0.02	2.2	1.1	0.005	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Vapour Inhalation Pathway:																																
N1 Area (Tier 2)					16	NG	NG	NG	540	NG	0.048	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
N2 Area (Tier 2)					12	NG	NG	NG	420	NG	0.038	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
S1 Area (Tier 2)					0.67	NG	NG	52	23	NG	0.2	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
S2 Area (Tier 2)					0.57	NG	NG	44	19	NG	0.17	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Commercial area, Coarse-grained					0.37	NG	NG	26	9.1	17	0.13	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential/Residential Buffer area, Coarse-grained					0.03	45	31	2.2	0.81	1.5	0.01	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential, Fine-grained					0.57	NG	NG	44	19	NG	0.17	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Ecological Soil Contact Pathway:																																
N1, N2, S1, S2 Areas (Residential, most stringent of fine or coarse-grained)					61	59	20	21	6.5	1.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Commercial area, Coarse-grained					350	200	110	120	11	3.1	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential/Residential Buffer area, Coarse-grained					61	59	20	31	7.1	1.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential, Fine-grained					100	82	42	21	6.5	1.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Most stringent guideline for Routine Parameters					NG	NG	NG	NG	NG	NG	NG	NG	NG	120	NG	1.5	NG	NG	0.3	NG	0.02	6.5-8.5	NG	200	NG	429	500	3	NG	0.02	NG	NG
BH1921	9-Jun-2022		8.8 - 18.9	N1	*0.0348*	0.0019	*0.044*	0.002	0.7	0.2	*0.038*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1921	9-Jun-2022	Dup	8.8 - 18.9	N1	*0.0349*	0.0021	*0.0461*	0.0022	0.8	0.2	*0.036*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1922	9-Jun-2022		7.9 - 19.2	N2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1922	19-Jan-2023		7.9 - 19.2	N2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1923	9-Jun-2022		7.6 - 15.9	N1	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1924	2-Jun-2022		14.9 - 19.8	N1	*1.43*	0.0009	<0.0005	*0.0691*	<0.1	<0.1	***0.07***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1925	12-Jun-2022		16.4 - 19.8	N1	0.0022	<0.0003	<0.0005	0.0012	0.2	0.1	0.004	574	-	-	1850	0.05	970	<5	<0.1	-	***0.319***	7.85	-	-	0.55	111	***1100***	1.74	7.7	<0.01	<0.05	1.74
BH1925	19-Jan-2023		16.4 - 19.8	N1	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	486	70.0	106	1480	0.15	669	<5	<0.1	120	<0.005	7.86	2.2	48.5	0.82	158	***814***	2.76	12.2	<0.01	<0.05	2.76
BH1927	7-Jun-2022		12.2 - 22.3	N1	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	350	121	88.6	860	0.11	515	<5	<0.1	51.8	<0.005	7.87	2.7	17.3	0.33	33.9	***530***	<0.02	<0.5	<0.01	<0.05	<0.02
BH1928	12-Jun-2022		6.4 - 16.8	N2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	0.3	0.005	545	-	-	3400	<0.03	1630	<5	<0.1	-	***0.024***	7.84	-	-	0.98	39.5	***2120***	***62.1***	275	<0.01	<0.10	62.1
BH1928	18-Jan-2023		6.4 - 16.8	N2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	530	268	***797***	3380	0.15	1520	<5	<0.1	207	0.014	7.54	6.3	110	1.23	40.9	***1950***	***43.8***	194	***0.03***	0.11	43.9
BH1929	3-Jun-2022		5.5 - 14.9	N2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1929	18-Jan-2023		5.5 - 14.9	N2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1929	18-Jan-2023		5.5 - 14.9	N2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1930	9-Jun-2022		6.4 - 18.3	N2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1930	19-Jan-2023		6.4 - 18.3	N2	0.0029	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1933	2-Jun-2022		8.8 - 17.1	Residential Buffer	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1933	18-Jan-2023		8.8 - 17.1	Residential Buffer	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1934	2-Jun-2022		5.8 - 8.5	Residential Buffer	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1934	18-Jan-2023		5.8 - 8.5	Residential Buffer	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1935	2-Jun-2022		1.5 - 5.2	Residential Buffer	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1935	18-Jan-2023		1.5 - 5.2	Residential Buffer	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1936	3-Jun-2022		5.3 - 14.7	S1	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1936	20-Jan-2023		5.3 - 14.7	S1	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1936	20-Jan-2023		5.3 - 14.7	S1	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1937	5-Jun-2022		5.3 - 14.7	S1	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1937	19-Jan-2023		5.3 - 14.7	S1	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1939	7-Jun-2022		8.1 - 8.7	S1	0.0009	<0.0003	<0.0005	<0.0005	<0.1	0.2	*0.062*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1939	7-Jun-2022	Dup	8.1 - 8.7	S1	0.0009	<0.0003	<0.0005	<0.0005	<0.1	0.2	*0.059*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1939	19-Jan-2023		8.1 - 8.7	S1	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.051	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1941	3-Jun-2022		7.3 - 11.3	S2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1942	5-Jun-2022		4.4 - 8.5	S2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1942	19-Jan-2023		4.4 - 8.5	S2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1942	19-Jan-2023	Dup	4.4 - 8.5	S2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1943	5-Jun-2022		7.3 - 14.0	S1	*0.256*	<0.0003	<0.0005	<0.0005	<0.1	<0.1	*0.013*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1944	15-Jun-2022		5.9 - 7.6	S1	*0.0438*	<0.0003	<0.0005	<0.0005	0.1	<0.1	<0.001	394	-	-	784	0.11	495	<5	<0.1	-	***0.288***	8.13	-	-	0.23	42.6	493	2.64	11.7	***0.04***	0.12	2.68
BH1944	19-Jan-2023		5.9 - 7.6	S1	*0.0155*	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	469	107	25.6	959	0.12	524	<5	<0.1	62.3	***0.260***	7.75	2.9	12.2	0.23	46.3	***554***	2.48	11.0	***0.05***	0.16	2.53

a - Alberta Tier 1 and 2 Soil and Groundwater Remediation Guidelines (AEP, 2022a/b) with the freshwater aquatic life pathway eliminated; Tier 2 calculated guidelines for the vapour inhalation pathway (Intrinsik, 2022); For fine-grained or coarse-grained soil, commercial or residential land use; Refer to report text for additional information on guideline selection.

b - Screen interval to be confirmed.

"-" - Not analyzed.

Dup - Duplicate sample.

NG - No Guideline.

Italics - Exceeds guideline for the domestic use aquifer pathway solely.

Highlighted - Exceeds referenced guideline for the ecological soil contact pathway but not the vapour inhalation pathway.

Highlighted - Exceeds referenced guideline for the vapour inahalation pathway.

BOLD - Exceeds most stringent guideline for routine water quality parameters.

Results for all parameters are reported in milligrams per litre (mg/L), unless otherwise specified.

Notes: 2022 analytical data collected by Clifton Engineering Group Inc; 2022 analytical data sourced from Tables 6, 7 and 8 in the report entitled May/June 2022 Monitoring and Sampling Event (Clifton, 2022d).

TABLE C-1

SUMMARY OF 2022 GROUNDWATER ANALYTICAL DATA

Well ID	Sample Date	Duplicate	Well Screen (mbgs)	Guideline Referenced	Benzene	Toluene	Ethylbenzene	Xylenes	Petroleum Hydrocarbons F1 (C6-C10)	Petroleum Hydrocarbons F2 (>C10-C16)	1,2-Dichloroethane	Alkalinity (Total as CaCO3)	Calcium (filtered)	Chloride (filtered)	Electrical Conductivity (µS/cm)	Fluoride	Hardness (CaCO3)	Hydroxide (OH)	Iron (filtered)	Magnesium (filtered)	Manganese (filtered)	pH (unitless)	Potassium (filtered)	Sodium (filtered)	SAR (unitless)	Sulphate (filtered)	TDS	Nitrate (as N) (filtered)	Nitrate (as NO3) (filtered)	Nitrite (as N) (filtered)	Nitrite (as NO2) (filtered)	Nitrate + Nitrite - N
Guidelines[a]:																																
Domestic Use Aquifer Pathway					0.005	0.024	0.0016	0.02	2.2	1.1	0.005	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Vapour Inhalation Pathway:																																
N1 Area (Tier 2)					16	NG	NG	NG	540	NG	0.048	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
N2 Area (Tier 2)					12	NG	NG	NG	420	NG	0.038	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
S1 Area (Tier 2)					0.67	NG	NG	52	23	NG	0.2	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
S2 Area (Tier 2)					0.57	NG	NG	44	19	NG	0.17	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Commercial area, Coarse-grained					0.37	NG	NG	26	9.1	17	0.13	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential/Residential Buffer area, Coarse-grained					0.03	45	31	2.2	0.81	1.5	0.01	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential, Fine-grained					0.57	NG	NG	44	19	NG	0.17	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Ecological Soil Contact Pathway:																																
N1, N2, S1, S2 Areas (Residential, most stringent of fine or coarse-grained)					61	59	20	21	6.5	1.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Commercial area, Coarse-grained					350	200	110	120	11	3.1	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential/Residential Buffer area, Coarse-grained					61	59	20	31	7.1	1.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential, Fine-grained					100	82	42	21	6.5	1.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Most stringent guideline for Routine Parameters					NG	NG	NG	NG	NG	NG	NG	NG	NG	120	NG	1.5	NG	NG	0.3	NG	0.02	6.5-8.5	NG	200	NG	429	500	3	NG	0.02	NG	NG
BH1945	2-Jun-2022		3.7 - 6.4	S2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1945	18-Jan-2023		3.7 - 6.4	S2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1946	2-Jun-2022		4.3 - 6.4	S2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1947	7-Jun-2022		4.3 - 6.1	S2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1950A	15-Jun-2022		8.5 - 11.1	N1	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1950A	19-Jan-2023		8.5 - 11.1	N1	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1951	2-Jun-2022		2.0 - 4.1	Residential	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1951	18-Jan-2023		2.0 - 4.1	Residential	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1952	3-Jun-2022		7.9 - 18.6	N1	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1952	19-Jan-2023		7.9 - 18.6	N1	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1953	7-Jun-2022		11.3 - 18.6	N1	-	-	-	-	-	-	-	638	229	**354**	2010	<0.01	1090	<5	<0.1	127	**0.096**	7.61	5.4	77.8	1.02	43	**1230**	0.5	2.2	<0.01	<0.05	0.5
BH1953	19-Jan-2023		11.3 - 18.6	N1	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	651	186	**324**	2120	0.12	1000	<5	<0.1	131	**0.182**	7.58	5.7	78.0	1.07	41.6	**1210**	**9.87**	43.7	<0.01	<0.05	9.87
BH1954	3-Jun-2022		5.5 - 13.1	S1	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	*0.009*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1954	18-Jan-2023		5.5 - 13.1	S1	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1955A	2-Jun-2022		8.5 - 11.0[b]	S2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1955A	18-Jan-2023		8.5 - 11.0[b]	S2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1956	15-Jun-2022		5.8 - 14.6	N2	0.0019	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	349	-	-	1080	0.1	682	<5	<0.1	-	<0.005	8.01	-	-	0.16	49.2	**677**	**15.9**	70.5	<0.01	<0.05	15.9
BH1957	16-Jun-2022		5.8 - 14.1	Commercial area	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1957	18-Jan-2023		5.8 - 14.1	Commercial area	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1958	16-Jun-2022		5.8 - 14.9	Commercial area	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	469	-	-	1460	0.16	674	<5	<0.1	-	<0.005	7.84	-	-	0.79	36.6	**830**	2.37	10.5	<0.01	<0.05	2.37
BH1958	18-Jan-2023		5.8 - 14.9	Commercial area	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	482	140	**238**	1600	0.16	707	<5	<0.1	86.7	<0.005	7.67	4.0	61.4	1.01	38.3	**874**	2.42	10.7	<0.01	<0.05	2.42
BH1961	9-Jun-2022		8.5 - 11.9	N2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1961	20-Jan-2023		8.5 - 11.9	N2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1962	9-Jun-2022		9.8 - 12.5	N2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1962	20-Jan-2023		9.8 - 12.5	N2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	319	69.1	5.0	580	0.28	293	<5	<0.1	29.3	**0.169**	7.97	1.9	16.0	0.41	20.6	338	0.16	0.7	0.02	0.07	0.18
BH1963	9-Jun-2022		5.5 - 11.3	N2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	279	-	-	551	0.25	287	<5	<0.1	-	**0.131**	8.07	-	-	0.48	18	305	<0.02	<0.5	<0.01	<0.05	<0.02
BH1963	20-Jan-2023		5.5 - 11.3	N2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1964	9-Jun-2022		7.6 - 8.5	N2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1964	20-Jan-2023		7.6 - 8.5	N2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1966	3-Jun-2022		7.3 - 16.5	N1	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1966	17-Jan-2023		7.3 - 16.5	N1	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1967	7-Jun-2022		5.5 - 8.5	N1	*0.117*	0.0082	*0.0341*	0.0015	2.7	0.4	*0.022*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1967	7-Jun-2022	Dup	5.5 - 8.5	N1	*0.111*	0.0079	*0.0324*	0.0013	2.7	0.4	*0.021*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1967	17-Jan-2023		5.5 - 8.5	N1	*0.0900*	0.0072	*0.0114*	0.0009	*2.4*	0.3	*0.019*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1971	3-Jun-2022		7.3 - 11.0	N1	*0.0076*	0.0008	*0.0168*	<0.0005	1.0	0.1	*0.047*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1971	3-Jun-2022	Dup	7.3 - 11.0	N1	*0.0059*	0.0007	*0.0146*	<0.0005	0.9	0.1	***0.051***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1971	17-Jan-2023		7.3 - 11.0	N1	0.0037	0.0004	*0.0083*	<0.0005	1.4	0.2	*0.046*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1972	15-Jun-2022		8.2 - 11.0	N2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1972	19-Jan-2023		8.2 - 11.0	N2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

a - Alberta Tier 1 and 2 Soil and Groundwater Remediation Guidelines (AEP, 2022a/b) with the freshwater aquatic life pathway eliminated; Tier 2 calculated guidelines for the vapour inhalation pathway (Intrinsik, 2022); For fine-grained or coarse-grained soil, commercial or residential land use; Refer to report text for additional information on guideline selection.

b - Screen interval to be confirmed.

"-" - Not analyzed.

Dup - Duplicate sample.

NG - No Guideline.

Italics - Exceeds guideline for the domestic use aquifer pathway solely.

Highlighted - Exceeds referenced guideline for the ecological soil contact pathway but not the vapour inhalation pathway.

Highlighted - Exceeds referenced guideline for the vapour inahalation pathway.

BOLD - Exceeds most stringent guideline for routine water quality parameters.

Results for all parameters are reported in milligrams per litre (mg/L), unless otherwise specified.

Notes: 2022 analytical data collected by Clifton Engineering Group Inc; 2022 analytical data sourced from Tables 6, 7 and 8 in the report entitled May/June 2022 Monitoring and Sampling Event (Clifton, 2022d).

TABLE C-1

SUMMARY OF 2022 GROUNDWATER ANALYTICAL DATA

Well ID	Sample Date	Duplicate	Well Screen (mbgs)	Guideline Referenced	Benzene	Toluene	Ethylbenzene	Xylenes	Petroleum Hydrocarbons F1 (C6-C10)	Petroleum Hydrocarbons F2 (>C10-C16)	1,2-Dichloroethane	Alkalinity (Total as CaCO3)	Calcium (filtered)	Chloride (filtered)	Electrical Conductivity (µS/cm)	Fluoride	Hardness (CaCO3)	Hydroxide (OH)	Iron (filtered)	Magnesium (filtered)	Manganese (filtered)	pH (unitless)	Potassium (filtered)	Sodium (filtered)	SAR (unitless)	Sulphate (filtered)	TDS	Nitrate (as N) (filtered)	Nitrate (as NO3) (filtered)	Nitrite (as N) (filtered)	Nitrite (as NO2) (filtered)	Nitrate + Nitrite - N
Guidelines[a]:																																
Domestic Use Aquifer Pathway					0.005	0.024	0.0016	0.02	2.2	1.1	0.005	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Vapour Inhalation Pathway:																																
N1 Area (Tier 2)					16	NG	NG	NG	540	NG	0.048	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
N2 Area (Tier 2)					12	NG	NG	NG	420	NG	0.038	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
S1 Area (Tier 2)					0.67	NG	NG	52	23	NG	0.2	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
S2 Area (Tier 2)					0.57	NG	NG	44	19	NG	0.17	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Commercial area, Coarse-grained					0.37	NG	NG	26	9.1	17	0.13	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential/Residential Buffer area, Coarse-grained					0.03	45	31	2.2	0.81	1.5	0.01	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential, Fine-grained					0.57	NG	NG	44	19	NG	0.17	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Ecological Soil Contact Pathway:																																
N1, N2, S1, S2 Areas (Residential, most stringent of fine or coarse-grained)					61	59	20	21	6.5	1.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Commercial area, Coarse-grained					350	200	110	120	11	3.1	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential/Residential Buffer area, Coarse-grained					61	59	20	31	7.1	1.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential, Fine-grained					100	82	42	21	6.5	1.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Most stringent guideline for Routine Parameters					NG	NG	NG	NG	NG	NG	NG	NG	NG	120	NG	1.5	NG	NG	0.3	NG	0.02	6.5-8.5	NG	200	NG	429	500	3	NG	0.02	NG	NG
BH1973	3-Jun-2022		1.5 - 6.4	N1	0.0038	0.0013	*0.0094*	0.0011	0.4	0.2	*0.012*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1973	17-Jan-2023		1.5 - 6.4	N1	0.0034	0.0007	*0.0067*	<0.0005	0.8	0.2	*0.018*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1974	3-Jun-2022		7.6 - 10.4	N1	0.0024	0.0005	<0.0005	<0.0005	0.2	<0.1	*0.016*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1974	17-Jan-2023		7.6 - 10.4	N1	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1976	2-Jun-2022		9.4 - 14.3	N1	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1976	17-Jan-2023		9.4 - 14.3	N1	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1977	2-Jun-2022		3.1 - 7.6	S2	*0.0332*	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1977	18-Jan-2023		3.1 - 7.6	S2	*0.0646*	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1978	2-Jun-2022		0.9 - 3.0	S2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1978	18-Jan-2023		0.9 - 3.0	S2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1979	5-Jun-2022		2.8 - 6.7	S1	***1.8***	<0.0003	<0.0005	<0.0005	<0.1	<0.1	*0.012*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1979	19-Jan-2023		2.8 - 6.7	S1	***1.11***	<0.0003	<0.0005	<0.0005	<0.1	<0.1	*0.009*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1980	5-Jun-2022		4.3 - 6.1	S2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1980	19-Jan-2023		4.3 - 6.1	S2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1981	3-Jun-2022		3.0 - 9.1	S1	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	*0.027*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1981	18-Jan-2023		3.0 - 9.1	S1	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	*0.027*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1981	18-Jan-2023	Dup	3.0 - 9.1	S1	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	*0.026*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1982	15-Jun-2022		1.5 - 7.9	S1	*0.298*	0.0013	*0.0032*	<0.0005	0.3	<0.1	*0.046*	478	-	-	1100	0.15	649	<5	**0.8**	-	**0.678**	8.1	-	-	0.44	47.6	**670**	**3.07**	13.6	0.02	0.08	3.1
BH1982	15-Jun-2022	Dup	1.5 - 7.9	S1	*0.291*	0.0013	*0.0032*	<0.0005	0.3	<0.1	*0.05*	514	-	-	1140	0.15	650	<5	**0.8**	-	**0.681**	8.07	-	-	0.44	47.4	**689**	3	13.3	<0.01	<0.05	3
BH1982	19-Jan-2023		1.5 - 7.9	S1	*0.0477*	0.0055	*0.0301*	0.0029	0.4	<0.1	0.097	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1982	19-Jan-2023	Dup	1.5 - 7.9	S1	*0.0463*	0.006	*0.0331*	0.0031	0.4	<0.1	0.111	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1983A	16-Jun-2022		3.7 - 5.2[b]	Commercial area	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1983A	18-Jan-2023		3.7 - 5.2[b]	Commercial area	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1984	16-Jun-2022		7.3 - 15.5	Commercial area	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	514	-	-	1180	0.21	600	<5	<0.1	-	**0.299**	7.83	-	-	0.46	37.6	**696**	**6.33**	28	<0.01	<0.05	6.33
BH1984	18-Jan-2023		7.3 - 15.5	Commercial area	0.0019	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	538	114	**150**	1450	0.19	729	<5	<0.1	108	**0.574**	7.72	4.1	27.2	0.44	41.3	**811**	**8.54**	37.8	**0.15**	0.50	8.69
BH1985	16-Jun-2022		6.4 - 17.4	Residential Buffer	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1985	18-Jan-2023		6.4 - 17.4	Residential Buffer	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2001	2-Jun-2022		3.4 - 4.9	S2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2001	18-Jan-2023		3.4 - 4.9	S2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2002	5-Jun-2022		1.6 - 3.8	S2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2002	18-Jan-2023		1.6 - 3.8	S2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2003	15-Jun-2022		1.5 - 4.6	S2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	427	-	-	1570	0.14	604	<5	<0.1	-	**0.327**	8.14	-	-	2.36	56.9	**897**	0.41	1.8	<0.01	<0.05	0.41
BH2003	15-Jun-2022	Dup	1.5 - 4.6	S2	-	-	-	-	-	-	-	403	-	-	1540	0.12	601	<5	<0.1	-	**0.325**	8.18	-	-	2.33	56.8	**882**	0.43	1.9	<0.01	<0.05	0.43
BH2003	19-Jan-2023		1.5 - 4.6	S2	-	-	-	-	-	-	-	486	100	**141**	1320	0.12	545	<5	<0.1	71.7	**0.044**	7.81	3.1	74.7	1.39	60.3	**749**	0.18	0.8	<0.01	<0.05	0.18
BH2003	18-Jan-2023		1.5 - 4.6	S2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2004	5-Jun-2022		4.9 - 6.4	S2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2004	19-Jan-2023		4.9 - 6.4	S2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2004	19-Jan-2023	Dup	4.9 - 6.4	S2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

a - Alberta Tier 1 and 2 Soil and Groundwater Remediation Guidelines (AEP, 2022a/b) with the freshwater aquatic life pathway eliminated; Tier 2 calculated guidelines for the vapour inhalation pathway (Intrinsik, 2022); For fine-grained or coarse-grained soil, commercial or residential land use; Refer to report text for additional information on guideline selection.
b - Screen interval to be confirmed.
"-" - Not analyzed.
Dup - Duplicate sample.
NG - No Guideline.
Italics - Exceeds guideline for the domestic use aquifer pathway solely.
Highlighted - Exceeds referenced guideline for the ecological soil contact pathway but not the vapour inhalation pathway.
Highlighted - Exceeds referenced guideline for the vapour inahalation pathway.
BOLD - Exceeds most stringent guideline for routine water quality parameters.
Results for all parameters are reported in milligrams per litre (mg/L), unless otherwise specified.
Notes: 2022 analytical data collected by Clifton Engineering Group Inc; 2022 analytical data sourced from Tables 6, 7 and 8 in the report entitled May/June 2022 Monitoring and Sampling Event (Clifton, 2022d).

TABLE C-1

SUMMARY OF 2022 GROUNDWATER ANALYTICAL DATA

Well ID	Sample Date	Duplicate	Well Screen (mbgs)	Guideline Referenced	Benzene	Toluene	Ethylbenzene	Xylenes	Petroleum Hydrocarbons F1 (C6-C10)	Petroleum Hydrocarbons F2 (>C10-C16)	1,2-Dichloroethane	Alkalinity (Total as CaCO3)	Calcium (filtered)	Chloride (filtered)	Electrical Conductivity (µS/cm)	Fluoride	Hardness (CaCO3)	Hydroxide (OH)	Iron (filtered)	Magnesium (filtered)	Manganese (filtered)	pH (unitless)	Potassium (filtered)	Sodium (filtered)	SAR (unitless)	Sulphate (filtered)	TDS	Nitrate (as N) (filtered)	Nitrate (as NO3) (filtered)	Nitrite (as N) (filtered)	Nitrite (as NO2) (filtered)	Nitrate + Nitrite - N
Guidelines[a]:																																
Domestic Use Aquifer Pathway					0.005	0.024	0.0016	0.02	2.2	1.1	0.005	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Vapour Inhalation Pathway:																																
N1 Area (Tier 2)					16	NG	NG	NG	540	NG	0.048	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
N2 Area (Tier 2)					12	NG	NG	NG	420	NG	0.038	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
S1 Area (Tier 2)					0.67	NG	NG	52	23	NG	0.2	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
S2 Area (Tier 2)					0.57	NG	NG	44	19	NG	0.17	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Commercial area, Coarse-grained					0.37	NG	NG	26	9.1	17	0.13	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential/Residential Buffer area, Coarse-grained					0.03	45	31	2.2	0.81	1.5	0.01	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential, Fine-grained					0.57	NG	NG	44	19	NG	0.17	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Ecological Soil Contact Pathway:																																
N1, N2, S1, S2 Areas (Residential, most stringent of fine or coarse-grained)					61	59	20	21	6.5	1.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Commercial area, Coarse-grained					350	200	110	120	11	3.1	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential/Residential Buffer area, Coarse-grained					61	59	20	31	7.1	1.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential, Fine-grained					100	82	42	21	6.5	1.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Most stringent guideline for Routine Parameters					NG	NG	NG	NG	NG	NG	NG	NG	NG	120	NG	1.5	NG	NG	0.3	NG	0.02	6.5-8.5	NG	200	NG	429	500	3	NG	0.02	NG	NG
BH2005	2-Jun-2022		3.95 - 7	S2	*0.226*	<0.0003	<0.0005	<0.0005	0.2	<0.1	0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2005	2-Jun-2022	Dup	3.95 - 7	S2	*0.257*	<0.0003	<0.0005	<0.0005	0.2	<0.1	0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2005	18-Jan-2023		3.95 - 7	S2	0.0010	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2006	2-Jun-2022		2.3 - 4.9	S2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2006	18-Jan-2023		2.3 - 4.9	S2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2007	2-Jun-2022		12.8 - 18.3	Residential Buffer	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2007	17-Jan-2023		12.8 - 18.3	Residential Buffer	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2008	2-Jun-2022		5.2 - 12.8	Residential Buffer	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2008	17-Jan-2023		5.2 - 12.8	Residential Buffer	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2010	5-Jun-2022		14.0 - 18.9	Residential Buffer	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	292	-	-	827	0.18	432	<5	<0.1	-	**0.067**	7.97	-	-	0.18	33.6	412	2.8	12.4	**0.17**	0.55	2.97
BH2010	19-Jan-2023		14.0 - 18.9	Residential Buffer	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	359	91.5	34.7	778	0.12	403	<5	<0.1	42.4	**0.080**	7.83	2.9	6.8	0.15	35.4	446	2.80	12.4	**0.14**	0.46	2.94
BH2011	3-Jun-2022		9.4 - 14.0	Residential Buffer	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2011	19-Jan-2023		9.4 - 14.0	Residential Buffer	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2012	5-Jun-2022		13.4 - 18.3	Residential Buffer	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	395	-	-	1750	0.11	853	<5	<0.1	-	**0.153**	7.96	-	-	0.62	50.5	**898**	**14.6**	64.6	<0.01	<0.05	14.6
BH2012	20-Jan-2023		13.4 - 18.3	Residential Buffer	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	473	141	**305**	1860	0.21	875	<5	<0.1	127	**0.152**	7.66	4.6	45.3	0.67	62.0	**1060**	**18.4**	81.5	0.02	0.08	18.4
BH3001A	2-Jun-2022		1.5 - 3.05	Residential	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH3001A	18-Jan-2023		1.5 - 3.05	Residential	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	591	161	**278**	1950	0.11	904	<5	<0.1	122	<0.005	7.91	4.5	65.4	0.95	53.3	**1100**	**13.5**	59.7	<0.01	<0.05	13.5
BH3001B	2-Jun-2022		3.7 - 4.3	Residential	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH3001B	18-Jan-2023		3.7 - 4.3	Residential	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH3001C	2-Jun-2022		5.2 - 6.1	Residential	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH3001C	18-Jan-2023		5.2 - 6.1	Residential	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH3002A	2-Jun-2022		1.8 - 3.8	Residential	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH3002A	18-Jan-2023		1.8 - 3.8	Residential	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH3002B	2-Jun-2022		6.1 - 7.6	Residential	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH3002B	18-Jan-2023		6.1 - 7.6	Residential	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH3003A	2-Jun-2022		2.18 - 2.9	Residential	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH3003A	18-Jan-2023		2.18 - 2.9	Residential	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH3003B	2-Jun-2022		6.9 - 7.9	Residential	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH3003B	18-Jan-2023		6.9 - 7.9	Residential	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4002	15-Jun-2022		11.7 - 13.2	Residential Buffer	*0.0073*	*0.0838*	<0.0005	*1.5*	**1.3**	0.3	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4002	18-Jan-2023		11.7 - 13.2	Residential Buffer	*0.0071*	*0.140*	0.0005	***2.66***	**1.9**	0.5	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4003A	15-Jun-2022		10.5 - 12	Commercial area	***2.04***	0.0041	<0.0005	*0.0789*	0.9	0.2	***0.255***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4003A	18-Jan-2023		10.5 - 12	Commercial area	***2.33***	0.0030	<0.0005	*0.0567*	0.2	0.2	0.195	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4003B	15-Jun-2022		14.9 - 16.4	Commercial area	*0.0164*	<0.0003	<0.0005	<0.0005	<0.1	0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4003B	18-Jan-2023		14.9 - 16.4	Commercial area	*0.0187*	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4004A	16-Jun-2022		11.5 - 13	Commercial area	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4004A	18-Jan-2023		11.5 - 13	Commercial area	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4004B	16-Jun-2022		14.5 - 16	Commercial area	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4004B	16-Jun-2022	Dup	14.5 - 16	Commercial area	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4004B	18-Jan-2023		14.5 - 16	Commercial area	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

a - Alberta Tier 1 and 2 Soil and Groundwater Remediation Guidelines (AEP, 2022a/b) with the freshwater aquatic life pathway eliminated; Tier 2 calculated guidelines for the vapour inhalation pathway (Intrinsik, 2022); For fine-grained or coarse-grained soil, commercial or residential land use; Refer to report text for additional information on guideline selection.
b - Screen interval to be confirmed.
"-" - Not analyzed.
Dup - Duplicate sample.
NG - No Guideline.
Italics - Exceeds guideline for the domestic use aquifer pathway solely.
Highlighted - Exceeds referenced guideline for the ecological soil contact pathway but not the vapour inhalation pathway.
Highlighted - Exceeds referenced guideline for the vapour inahalation pathway.
BOLD - Exceeds most stringent guideline for routine water quality parameters.
Results for all parameters are reported in milligrams per litre (mg/L), unless otherwise specified.
Notes: 2022 analytical data collected by Clifton Engineering Group Inc; 2022 analytical data sourced from Tables 6, 7 and 8 in the report entitled May/June 2022 Monitoring and Sampling Event (Clifton, 2022d).

TABLE C-1

SUMMARY OF 2022 GROUNDWATER ANALYTICAL DATA

Well ID	Sample Date	Duplicate	Well Screen (mbgs)	Guideline Referenced	Benzene	Toluene	Ethylbenzene	Xylenes	Petroleum Hydrocarbons F1 (C6-C10)	Petroleum Hydrocarbons F2 (>C10-C16)	1,2-Dichloroethane	Alkalinity (Total as CaCO3)	Calcium (filtered)	Chloride (filtered)	Electrical Conductivity (µS/cm)	Fluoride	Hardness (CaCO3)	Hydroxide (OH)	Iron (filtered)	Magnesium (filtered)	Manganese (filtered)	pH (unitless)	Potassium (filtered)	Sodium (filtered)	SAR (unitless)	Sulphate (filtered)	TDS	Nitrate (as N) (filtered)	Nitrate (as NO3) (filtered)	Nitrite (as N) (filtered)	Nitrite (as NO2) (filtered)	Nitrate + Nitrite - N
Guidelines[a]:																																
Domestic Use Aquifer Pathway					0.005	0.024	0.0016	0.02	2.2	1.1	0.005	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Vapour Inhalation Pathway:																																
N1 Area (Tier 2)					16	NG	NG	NG	540	NG	0.048	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
N2 Area (Tier 2)					12	NG	NG	NG	420	NG	0.038	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
S1 Area (Tier 2)					0.67	NG	NG	52	23	NG	0.2	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
S2 Area (Tier 2)					0.57	NG	NG	44	19	NG	0.17	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Commercial area, Coarse-grained					0.37	NG	NG	26	9.1	17	0.13	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential/Residential Buffer area, Coarse-grained					0.03	45	31	2.2	0.81	1.5	0.01	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential, Fine-grained					0.57	NG	NG	44	19	NG	0.17	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Ecological Soil Contact Pathway:																																
N1, N2, S1, S2 Areas (Residential, most stringent of fine or coarse-grained)					61	59	20	21	6.5	1.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Commercial area, Coarse-grained					350	200	110	120	11	3.1	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential/Residential Buffer area, Coarse-grained					61	59	20	31	7.1	1.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential, Fine-grained					100	82	42	21	6.5	1.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Most stringent guideline for Routine Parameters					NG	NG	NG	NG	NG	NG	NG	NG	NG	120	NG	1.5	NG	NG	0.3	NG	0.02	6.5-8.5	NG	200	NG	429	500	3	NG	0.02	NG	NG
BH4005	16-Jun-2022		10.7 - 12.2	Commercial area	*0.0129*	0.0006	*0.0109*	<0.0005	0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4005	18-Jan-2023		10.7 - 12.2	Commercial area	*0.0117*	0.0004	*0.0048*	<0.0005	0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4006	16-Jun-2022		10.7 - 12.2	Residential Buffer	***0.408***	0.0033	<0.0005	*0.0573*	0.7	0.1	***0.025***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4006	18-Jan-2023		10.7 - 12.2	Residential Buffer	***0.460***	0.0010	<0.0005	*0.0309*	0.4	<0.1	***0.023***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4007	16-Jun-2022		10.6 - 12.1	Commercial area	***0.988***	0.001	<0.0005	0.0123	0.5	0.2	*0.028*	612	-	-	2610	0.22	1210	<5	<0.1	-	**0.421**	7.77	-	-	1.12	28	**1440**	**17.3**	76.5	**3.41**	11.2	20.7
BH4007	18-Jan-2023		10.6 - 12.1	Commercial area	***0.689***	0.0012	<0.0005	0.0142	0.1	0.1	*0.025*	642	120	**735**	3370	0.24	1490	<5	<0.1	290	**0.532**	7.71	5.4	135	1.52	32.9	**1800**	**16.9**	75.0	**5.63**	18.5	22.6
BH4008A	15-Jun-2022		10.5 - 12	Residential Buffer	<0.0005	0.0103	<0.0005	*0.246*	0.5	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4008A	18-Jan-2023		10.5 - 12	Residential Buffer	<0.0005	0.0046	<0.0005	*0.0465*	0.2	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4008B	15-Jun-2022		15.2 - 16.7	Residential Buffer	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4008B	18-Jan-2023		15.2 - 16.7	Residential Buffer	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4009A	15-Jun-2022		10.5 - 12	Residential Buffer	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4009A	18-Jan-2023		10.5 - 12	Residential Buffer	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4009B	15-Jun-2022		14.5 - 16	Residential Buffer	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4009B	18-Jan-2023		14.5 - 16	Residential Buffer	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH5001	7-Jun-2022		1.5 - 3.05	S2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH5001	18-Jan-2023		1.5 - 3.05	S2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH5002	7-Jun-2022		1.5 - 3.05	S2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH5002	18-Jan-2023		1.5 - 3.05	S2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH5002	18-Jan-2023	Dup	1.5 - 3.05	S2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH510A	12-Jun-2022		11.3 - 17.4	N1	*0.327*	0.014	*0.406*	*0.049*	0.7	0.2	*0.022*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH510A	12-Jun-2022		11.3 - 17.4	N1	*0.276*	0.012	*0.365*	*0.051*	0.8	0.4	*0.019*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH510A	19-Jan-2023		11.3 - 17.4	N1	*0.169*	0.0115	*0.348*	*0.0208*	1.1	0.2	*0.019*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH510A	19-Jan-2023	Dup	11.3 - 17.4	N1	*0.172*	0.0114	*0.358*	0.0193	1.0	0.1	*0.020*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH6001	9-Jun-2022		9.75 - 12.8	N1	*0.0119*	0.005	*0.0172*	0.0019	0.2	0.1	*0.026*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH6001	19-Jan-2023		9.75 - 12.8	N1	0.0037	0.0005	*0.0161*	0.0020	0.1	<0.1	*0.021*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH6002	9-Jun-2022		10.65 - 13.7	N1	*0.0548*	*0.37*	*0.11*	*2.51*	0.2	0.5	*0.034*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH6002	19-Jan-2023		10.65 - 13.7	N1	*0.0699*	*0.423*	*0.532*	*4.30*	*3.4*	0.7	*0.030*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH6003	9-Jun-2022		9.75 - 12.8	N1	*0.0101*	0.0204	*0.0237*	*0.258*	1.4	1	*0.011*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH6003	19-Jan-2023		9.75 - 12.8	N1	*0.0191*	*0.744*	*0.291*	*4.69*	*4.2*	***1.9***	*0.012*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH6004	7-Jun-2022		9.15 - 12.2	N1	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	*0.012*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH6004	17-Jan-2023		9.15 - 12.2	N1	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	*0.009*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH6005	7-Jun-2022		9.15 - 12.2	N1	*1.46*	*1.13*	*0.224*	*1.88*	1.7	0.6	*0.027*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH6005	17-Jan-2023		9.15 - 12.2	N1	*0.840*	*0.639*	*0.110*	*0.875*	*2.8*	0.5	*0.024*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH6006	15-Jun-2022		12.2 - 15.2	N1	<0.0005	<0.0003	<0.0005	<0.0005	0.2	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH6006	19-Jan-2023		12.2 - 15.2	N1	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH732	3-Jun-2022		4.3 - 14.9	N2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH732	19-Jan-2023		4.3 - 14.9	N2	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH912	2-Jun-2022		1.5 - 6.1	S1	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH912	18-Jan-2023		1.5 - 6.1	S1	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

a - Alberta Tier 1 and 2 Soil and Groundwater Remediation Guidelines (AEP, 2022a/b) with the freshwater aquatic life pathway eliminated; Tier 2 calculated guidelines for the vapour inhalation pathway (Intrinsik, 2022); For fine-grained or coarse-grained soil, commercial or residential land use; Refer to report text for additional information on guideline selection.
b - Screen interval to be confirmed.
"-" - Not analyzed.
Dup - Duplicate sample.
NG - No Guideline.
Italics - Exceeds guideline for the domestic use aquifer pathway solely.
Highlighted - Exceeds referenced guideline for the ecological soil contact pathway but not the vapour inhalation pathway.
Highlighted - Exceeds referenced guideline for the vapour inahalation pathway.
BOLD - Exceeds most stringent guideline for routine water quality parameters.
Results for all parameters are reported in milligrams per litre (mg/L), unless otherwise specified.
Notes: 2022 analytical data collected by Clifton Engineering Group Inc; 2022 analytical data sourced from Tables 6, 7 and 8 in the report entitled May/June 2022 Monitoring and Sampling Event (Clifton, 2022d).

TABLE C-1

SUMMARY OF 2022 GROUNDWATER ANALYTICAL DATA

Well ID	Sample Date	Duplicate	Well Screen (mbgs)	Guideline Referenced	Benzene	Toluene	Ethylbenzene	Xylenes	Petroleum Hydrocarbons F1 (C6-C10)	Petroleum Hydrocarbons F2 (>C10-C16)	1,2-Dichloroethane	Alkalinity (Total as CaCO3)	Calcium (filtered)	Chloride (filtered)	Electrical Conductivity (µS/cm)	Fluoride	Hardness (CaCO3)	Hydroxide (OH)	Iron (filtered)	Magnesium (filtered)	Manganese (filtered)	pH (unitless)	Potassium (filtered)	Sodium (filtered)	SAR (unitless)	Sulphate (filtered)	TDS	Nitrate (as N) (filtered)	Nitrate (as NO3) (filtered)	Nitrite (as N) (filtered)	Nitrite (as NO2) (filtered)	Nitrate + Nitrite - N
Guidelines[a]:																																
Domestic Use Aquifer Pathway					0.005	0.024	0.0016	0.02	2.2	1.1	0.005	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Vapour Inhalation Pathway:																																
N1 Area (Tier 2)					16	NG	NG	NG	540	NG	0.048	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
N2 Area (Tier 2)					12	NG	NG	NG	420	NG	0.038	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
S1 Area (Tier 2)					0.67	NG	NG	52	23	NG	0.2	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
S2 Area (Tier 2)					0.57	NG	NG	44	19	NG	0.17	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Commercial area, Coarse-grained					0.37	NG	NG	26	9.1	17	0.13	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential/Residential Buffer area, Coarse-grained					0.03	45	31	2.2	0.81	1.5	0.01	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential, Fine-grained					0.57	NG	NG	44	19	NG	0.17	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Ecological Soil Contact Pathway:																																
N1, N2, S1, S2 Areas (Residential, most stringent of fine or coarse-grained)					61	59	20	21	6.5	1.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Commercial area, Coarse-grained					350	200	110	120	11	3.1	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential/Residential Buffer area, Coarse-grained					61	59	20	31	7.1	1.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential, Fine-grained					100	82	42	21	6.5	1.8	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Most stringent guideline for Routine Parameters					NG	NG	NG	NG	NG	NG	NG	NG	NG	120	NG	1.5	NG	NG	0.3	NG	0.02	6.5-8.5	NG	200	NG	429	500	3	NG	0.02	NG	NG
EX-1	15-Jun-2022		11.7 - 14.63	N1	*1.18*	0.0066	*0.0472*	0.0051	0.2	<0.1	*0.038*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EX-1	15-Jun-2022	Dup	11.7 - 14.63	N1	*1.11*	0.0065	*0.0472*	0.0052	0.2	<0.1	*0.04*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EX-2	15-Jun-2022		8.8 - 13.41	N1	*0.0353*	0.0031	*0.0346*	0.0078	0.7	<0.1	*0.006*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EX-2	19-Jan-2023		8.8 - 13.41	N1	0.0035	0.0005	0.0016	<0.0005	<0.1	<0.1	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EX-3	7-Jun-2022		8.2 - 12.8	N1	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EX-3	19-Jan-2023		8.2 - 12.8	N1	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EX-4	16-Jun-2022		10.3 - 13.72	N1	*0.151*	0.0091	*0.301*	*0.543*	1.6	*1.2*	*0.01*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EX-4	19-Jan-2023		10.3 - 13.72	N1	*0.188*	0.0141	*0.304*	*0.683*	1.9	1.0	*0.008*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EX-5	12-Jun-2022		10.6 - 13.72	N1	*3.94*	*8.94*	*0.932*	*5.3*	*5.0*	0.8	***0.059***	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EX-5	12-Jun-2022	Dup	10.6 - 13.72	N1	*3.99*	*9.1*	*0.925*	*5.44*	*4.2*	0.8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EX-5	19-Jan-2023		10.6 - 13.72	N1	*5.46*	*10.1*	*1.46*	*6.71*	***10.2***	*1.2*	0.131	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EX-6	15-Jun-2022		10.6 - 13.11	N1	*0.412*	*0.352*	*1.07*	*3.3*	***7.7***	0.7	*0.043*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EX-6	19-Jan-2023		10.6 - 13.11	N1	*0.352*	*0.349*	*1.08*	*3.05*	*2.4*	0.7	*0.035*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EX-7	9-Jun-2022		11.5 - 15.85	N1	*0.769*	*0.0729*	*0.551*	*0.969*	1.8	*1.2*	***0.079***	468	-	-	1780	0.22	905	<5	<0.1	-	***0.807***	7.67	-	-	0.7	5.3	***940***	<0.02	<0.5	<0.01	<0.05	<0.02
EX-7	19-Jan-2023		11.5 - 15.85	N1	*0.322*	*0.454*	*0.878*	*2.37*	*4.4*	*1.2*	0.051	497	144	***402***	1980	0.13	899	<5	<0.1	131	***0.576***	7.41	2.2	46.7	0.68	2.5	***1030***	0.18	0.8	<0.01	<0.05	0.18

a - Alberta Tier 1 and 2 Soil and Groundwater Remediation Guidelines (AEP, 2022a/b) with the freshwater aquatic life pathway eliminated; Tier 2 calculated guidelines for the vapour inhalation pathway (Intrinsik, 2022); For fine-grained or coarse-grained soil, commercial or residential land use; Refer to report text for additional information on guideline selection.
b - Screen interval to be confirmed.
"-" - Not analyzed.
Dup - Duplicate sample.
NG - No Guideline.
Italics - Exceeds guideline for the domestic use aquifer pathway solely.
Highlighted - Exceeds referenced guideline for the ecological soil contact pathway but not the vapour inhalation pathway.
Highlighted - Exceeds referenced guideline for the vapour inahalation pathway.
BOLD - Exceeds most stringent guideline for routine water quality parameters.
Results for all parameters are reported in milligrams per litre (mg/L), unless otherwise specified.
Notes: 2022 analytical data collected by Clifton Engineering Group Inc; 2022 analytical data sourced from Tables 6, 7 and 8 in the report entitled May/June 2022 Monitoring and Sampling Event (Clifton, 2022d).

APPENDIX D

QUALITY ASSURANCE AND QUALITY CONTROL

TABLE D-1

RELATIVE PERCENT DIFFERENCE CALCULATIONS - GROUNDWATER FIELD DUPLICATE SAMPLES
PETROLEUM HYDROCARBON PARAMETERS, 1-2-DICHLOROETHANE, AND ROUTINE PARAMETERS

SAMPLE LOCATIONS	BH1915		Dup-01 FIELD DUPLICATE BH1915			BH1936		Dup-12 FIELD DUPLICATE BH1936			
AGAT Certificate of Analysis No.	23C988133	RDL	23C988133	RDL	RPD	23C990277	RDL	23C990277	RDL	RPD	RPD ALERT LIMITS (%)[a]
AGAT Sample ID	4685365		4685366			4705533		4705534			
Screen Interval (mbgs)	10.4 - 18.6		10.4 - 18.6			5.3 - 14.7		5.3 - 14.7			
Date Sampled (yyyy/mm/dd)	2023/01/13		2023/01/13			2023/01/20		2023/01/20			
PARAMETERS											
Benzene	0.0315	0.0005	0.033	0.0005	5%	<0.0005	0.0005	<0.0005	0.0005	NC	80
Toluene	0.0006	0.0003	0.0007	0.0003	NC	<0.0003	0.0003	<0.0003	0.0003	NC	80
Ethylbenzene	0.0029	0.0005	0.0033	0.0005	13%	<0.0005	0.0005	<0.0005	0.0005	NC	80
Total Xylenes	0.013	0.0005	0.0128	0.0005	2%	<0.0005	0.0005	<0.0005	0.0005	NC	80
Petroleum Hydrocarbons F1 (C6-C10)[b]	1.4	0.1	1.3	0.1	7%	<0.1	0.1	<0.1	0.1	NC	80
Petroleum Hydrocarbons F2 (>C10-C16)[c]	0.3	0.1	0.4	0.1	NC	<0.1	0.1	<0.1	0.1	NC	80
1,2-Dichloroethane	0.015	0.001	0.016	0.001	6%	<0.001	0.001	<0.001	0.001	NC	80
Alkalinity (PP as CaCO3)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Alkalinity, Total (as CaCO3)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Conductivity (uS/cm)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Calcium	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Chloride	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Iron	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Magnesium	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Manganese	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Nitrate (as N)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Nitrate (NO3)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Nitrite (as N)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Nitrite (NO2)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Nitrate+Nitrite-N - Dissolved	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Potassium	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Sodium	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Fluoride	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Hardness (mg CaCO3/L)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Hydroxide	-	NA	-	NA	NA	-	NA	-	NA	NA	50
pH (pH Units)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Sodium Adsorption Ratio	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Sulphate	-	NA	-	NA	NA	-	NA	-	NA	NA	50
TDS (Calculated)	-	NA	-	NA	NA	-	NA	-	NA	NA	50

a - Alert limits used for field duplicate samples.
b - BTEX have been subtracted from the fraction.
c - Naphthalene has not been subtracted from the fraction.
NA - Not applicable.
NC - Not calculated.
RDL - Reportable Detection Limit.
RPD - Relative Percent Difference (not calculated when one or both results are less than 5X RDL).
"-" - Not analyzed.
mbgs - metres below ground surface
BOLD - Exceeds RPD alert limit.
Results for all paramters are reported in miligrams per litre (mg/L), unless otherwise stated.

TABLE D-1

RELATIVE PERCENT DIFFERENCE CALCULATIONS - GROUNDWATER FIELD DUPLICATE SAMPLES
PETROLEUM HYDROCARBON PARAMETERS, 1-2-DICHLOROETHANE, AND ROUTINE PARAMETERS

SAMPLE LOCATIONS	BH1906		DUP-02 FIELD DUPLICATE BH1906			BH1910		DUP-03 FIELD DUPLICATE BH1910			
AGAT Certificate of Analysis No.	23C989369	RDL	23C989369	RDL	RPD	23C989369	RDL	23C989369	RDL	RPD	RPD ALERT LIMITS (%)[a]
AGAT Sample ID	4697540		4697618			4697626		4697627			
Screen Interval (mbgs)	11.6 - 19.2		11.6 - 19.2			11.0 - 18.6		11.0 - 18.6			
Date Sampled (yyyy/mm/dd)	2023/01/17		2023/01/17			2023/01/17		2023/01/17			
PARAMETERS											
Benzene	1.65	0.0005	1.62	0.0005	2%	0.135	0.0005	0.136	0.0005	1%	80
Toluene	<0.0003	0.0003	<0.0003	0.0003	NC	<0.0003	0.0003	<0.0003	0.0003	NC	80
Ethylbenzene	<0.0005	0.0005	<0.0005	0.0005	NC	<0.0005	0.0005	<0.0005	0.0005	NC	80
Total Xylenes	<0.0005	0.0005	<0.0005	0.0005	NC	<0.0005	0.0005	<0.0005	0.0005	NC	80
Petroleum Hydrocarbons F1 (C6-C10)[b]	<0.1	0.1	<0.1	0.1	NC	<0.1	0.1	<0.1	0.1	NC	80
Petroleum Hydrocarbons F2 (>C10-C16)[c]	<0.1	0.1	<0.1	0.1	NC	<0.1	0.1	<0.1	0.1	NC	80
1,2-Dichloroethane	0.028	0.001	0.028	0.001	0%	0.022	0.001	0.021	0.001	5%	80
Alkalinity (PP as CaCO3)	<5	5	<5	5	NC	<5	5	<5	5	NC	50
Alkalinity, Total (as CaCO3)	462	5	459	5	1%	585	5	584	5	0%	50
Conductivity (uS/cm)	1970	5	1970	5	0%	1940	5	1940	5	0%	50
Dissolved Calcium	184	0.3	184	0.3	0%	143	0.3	143	0.3	0%	50
Dissolved Chloride	311	1.0	314	1.0	1%	347	1.0	341	1.0	2%	50
Dissolved Iron	<0.1	0.1	<0.1	0.1	NC	<0.1	0.1	<0.1	0.1	NC	50
Dissolved Magnesium	101	0.2	100	0.2	1%	136	0.2	137	0.2	1%	50
Dissolved Manganese	0.677	0.005	0.674	0.005	0%	0.573	0.005	0.577	0.005	1%	50
Dissolved Nitrate (as N)	31.2	0.02	31.6	0.02	1%	1.15	0.02	1.15	0.02	0%	50
Dissolved Nitrate (NO3)	138	1.0	140	1.0	1%	5.1	1.0	5.1	1.0	0%	50
Dissolved Nitrite (as N)	5.39	0.01	5.54	0.01	3%	0.04	0.01	0.05	0.01	NC	50
Dissolved Nitrite (NO2)	17.7	0.05	18.2	0.05	3%	0.14	0.05	0.15	0.05	NC	50
Nitrate+Nitrite-N - Dissolved	36.6	0.02	37.2	0.02	2%	1.19	0.02	1.20	0.02	1%	50
Dissolved Potassium	4.7	0.6	4.7	0.6	0%	3.2	0.6	3.2	0.6	0%	50
Dissolved Sodium	50.8	0.6	50.0	0.6	2%	46.2	0.6	46.7	0.6	1%	50
Fluoride	0.20	0.01	0.12	0.01	**50%**	0.15	0.01	0.14	0.01	7%	50
Hardness (mg CaCO3/L)	875	0.5	871	0.5	0%	917	0.5	921	0.5	0%	50
Hydroxide	<5	5	<5	5	NC	<5	5	<5	5	NC	50
pH (pH Units)	7.51	NA	7.49	NA	0%	7.52	NA	7.56	NA	1%	50
Sodium Adsorption Ratio	0.75	NA	0.74	NA	1%	0.66	NA	0.67	NA	2%	50
Sulphate	37.8	1.0	37.3	1.0	1%	27.4	1.0	27.2	1.0	1%	50
TDS (Calculated)	1130	0.6	1130	0.6	0%	1060	0.6	1060	0.6	0%	50

a - Alert limits used for field duplicate samples.
b - BTEX have been subtracted from the fraction.
c - Naphthalene has not been subtracted from the fraction.
NA - Not applicable.
NC - Not calculated.
RDL - Reportable Detection Limit.
RPD - Relative Percent Difference (not calculated when one or both results are less than 5X RDL).
"-" - Not analyzed.
mbgs - metres below ground surface
BOLD - Exceeds RPD alert limit.
Results for all paramters are reported in miligrams per litre (mg/L), unless otherwise stated.

TABLE D-1

RELATIVE PERCENT DIFFERENCE CALCULATIONS - GROUNDWATER FIELD DUPLICATE SAMPLES
PETROLEUM HYDROCARBON PARAMETERS, 1-2-DICHLOROETHANE, AND ROUTINE PARAMETERS

SAMPLE LOCATIONS	BH1904		DUP-04 FIELD DUPLICATE BH1904			BH1981		DUP-05 FIELD DUPLICATE BH1981			
AGAT Certificate of Analysis No.	23C989826	RDL	23C989826	RDL	RPD	23C989826	RDL	23C989826	RDL	RPD	RPD ALERT LIMITS (%)[a]
AGAT Sample ID	4701816		4701817			4701831		4701832			
Screen Interval (mbgs)	12.8 - 16.8		12.8 - 16.8			3.0 - 9.1		3.0 - 9.1			
Date Sampled (yyyy/mm/dd)	2023/01/18		2023/01/18			2023/01/18		2023/01/18			
PARAMETERS											
Benzene	0.114	0.0005	0.115	0.0005	1%	<0.0005	0.0005	<0.0005	0.0005	NC	80
Toluene	<0.0003	0.0003	<0.0003	0.0003	NC	<0.0003	0.0003	<0.0003	0.0003	NC	80
Ethylbenzene	<0.0005	0.0005	<0.0005	0.0005	NC	<0.0005	0.0005	<0.0005	0.0005	NC	80
Total Xylenes	0.0005	0.0005	0.0006	0.0005	NC	<0.0005	0.0005	<0.0005	0.0005	NC	80
Petroleum Hydrocarbons F1 (C6-C10)[b]	<0.1	0.1	<0.1	0.1	NC	<0.1	0.1	<0.1	0.1	NC	80
Petroleum Hydrocarbons F2 (>C10-C16)[c]	<0.1	0.1	<0.1	0.1	NC	<0.1	0.1	<0.1	0.1	NC	80
1,2-Dichloroethane	<0.001	0.001	<0.001	0.001	NC	0.027	0.001	0.026	0.001	4%	80
Alkalinity (PP as CaCO3)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Alkalinity, Total (as CaCO3)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Conductivity (uS/cm)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Calcium	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Chloride	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Iron	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Magnesium	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Manganese	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Nitrate (as N)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Nitrate (NO3)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Nitrite (as N)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Nitrite (NO2)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Nitrate+Nitrite-N - Dissolved	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Potassium	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Sodium	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Fluoride	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Hardness (mg CaCO3/L)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Hydroxide	-	NA	-	NA	NA	-	NA	-	NA	NA	50
pH (pH Units)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Sodium Adsorption Ratio	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Sulphate	-	NA	-	NA	NA	-	NA	-	NA	NA	50
TDS (Calculated)	-	NA	-	NA	NA	-	NA	-	NA	NA	50

a - Alert limits used for field duplicate samples.
b - BTEX have been subtracted from the fraction.
c - Naphthalene has not been subtracted from the fraction.
NA - Not applicable.
NC - Not calculated.
RDL - Reportable Detection Limit.
RPD - Relative Percent Difference (not calculated when one or both results are less than 5X RDL).
"-" - Not analyzed.
mbgs - metres below ground surface
BOLD - Exceeds RPD alert limit.
Results for all paramters are reported in miligrams per litre (mg/L), unless otherwise stated.

TABLE D-1

RELATIVE PERCENT DIFFERENCE CALCULATIONS - GROUNDWATER FIELD DUPLICATE SAMPLES
PETROLEUM HYDROCARBON PARAMETERS, 1-2-DICHLOROETHANE, AND ROUTINE PARAMETERS

SAMPLE LOCATIONS	BH1929		DUP-06 FIELD DUPLICATE BH1929			BH5002		DUP-07 FIELD DUPLICATE BH5002			
AGAT Certificate of Analysis No.	23C989826	RDL	23C989826	RDL	RPD	23C989826	RDL	23C989826	RDL	RPD	RPD ALERT LIMITS (%)[a]
AGAT Sample ID	4701833		4701834			4701853		4701854			
Screen Interval (mbgs)	5.5 - 14.9		5.5 - 14.9			1.5 - 3.05		1.5 - 3.05			
Date Sampled (yyyy/mm/dd)	2023/01/18		2023/01/18			2023/01/18		2023/01/18			
PARAMETERS											
Benzene	<0.0005	0.0005	<0.0005	0.0005	NC	<0.0005	0.0005	<0.0005	0.0005	NC	80
Toluene	<0.0003	0.0003	<0.0003	0.0003	NC	<0.0003	0.0003	<0.0003	0.0003	NC	80
Ethylbenzene	<0.0005	0.0005	<0.0005	0.0005	NC	<0.0005	0.0005	<0.0005	0.0005	NC	80
Total Xylenes	<0.0005	0.0005	<0.0005	0.0005	NC	<0.0005	0.0005	<0.0005	0.0005	NC	80
Petroleum Hydrocarbons F1 (C6-C10)[b]	<0.1	0.1	<0.1	0.1	NC	<0.1	0.1	<0.1	0.1	NC	80
Petroleum Hydrocarbons F2 (>C10-C16)[c]	<0.1	0.1	<0.1	0.1	NC	<0.1	0.1	<0.1	0.1	NC	80
1,2-Dichloroethane	<0.001	0.001	<0.001	0.001	NC	<0.001	0.001	<0.001	0.001	NC	80
Alkalinity (PP as CaCO3)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Alkalinity, Total (as CaCO3)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Conductivity (uS/cm)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Calcium	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Chloride	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Iron	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Magnesium	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Manganese	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Nitrate (as N)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Nitrate (NO3)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Nitrite (as N)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Nitrite (NO2)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Nitrate+Nitrite-N - Dissolved	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Potassium	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Sodium	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Fluoride	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Hardness (mg CaCO3/L)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Hydroxide	-	NA	-	NA	NA	-	NA	-	NA	NA	50
pH (pH Units)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Sodium Adsorption Ratio	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Sulphate	-	NA	-	NA	NA	-	NA	-	NA	NA	50
TDS (Calculated)	-	NA	-	NA	NA	-	NA	-	NA	NA	50

a - Alert limits used for field duplicate samples.
b - BTEX have been subtracted from the fraction.
c - Naphthalene has not been subtracted from the fraction.
NA - Not applicable.
NC - Not calculated.
RDL - Reportable Detection Limit.
RPD - Relative Percent Difference (not calculated when one or both results are less than 5X RDL).
"-" - Not analyzed.
mbgs - metres below ground surface
BOLD - Exceeds RPD alert limit.
Results for all paramters are reported in miligrams per litre (mg/L), unless otherwise stated.

TABLE D-1

RELATIVE PERCENT DIFFERENCE CALCULATIONS - GROUNDWATER FIELD DUPLICATE SAMPLES
PETROLEUM HYDROCARBON PARAMETERS, 1-2-DICHLOROETHANE, AND ROUTINE PARAMETERS

SAMPLE LOCATIONS	BH510A		DUP-08 FIELD DUPLICATE BH510A			BH2004		DUP-09 FIELD DUPLICATE BH2004			
AGAT Certificate of Analysis No.	23C990183	RDL	23C990183	RDL	RPD	23C990183	RDL	23C990183	RDL	RPD	RPD ALERT LIMITS (%)[a]
AGAT Sample ID	4705065		4705066			4705074		4705075			
Screen Interval (mbgs)	11.3 - 17.4		11.3 - 17.4			4.9 - 6.4		4.9 - 6.4			
Date Sampled (yyyy/mm/dd)	2023/01/19		2023/01/19			2023/01/19		2023/01/19			
PARAMETERS											
Benzene	0.169	0.0005	0.172	0.0005	2%	<0.0005	0.0005	<0.0005	0.0005	NC	80
Toluene	0.0115	0.0003	0.0114	0.0003	1%	<0.0003	0.0003	<0.0003	0.0003	NC	80
Ethylbenzene	0.348	0.0005	0.358	0.0005	3%	<0.0005	0.0005	<0.0005	0.0005	NC	80
Total Xylenes	0.0208	0.0005	0.0193	0.0005	7%	<0.0005	0.0005	<0.0005	0.0005	NC	80
Petroleum Hydrocarbons F1 (C6-C10)[b]	1.1	0.1	1.0	0.1	10%	<0.1	0.1	<0.1	0.1	NC	80
Petroleum Hydrocarbons F2 (>C10-C16)[c]	0.2	0.1	0.1	0.1	NC	<0.1	0.1	<0.1	0.1	NC	80
1,2-Dichloroethane	0.019	0.001	0.020	0.001	5%	<0.001	0.001	<0.001	0.001	NC	80
Alkalinity (PP as CaCO3)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Alkalinity, Total (as CaCO3)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Conductivity (uS/cm)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Calcium	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Chloride	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Iron	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Magnesium	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Manganese	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Nitrate (as N)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Nitrate (NO3)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Nitrite (as N)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Nitrite (NO2)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Nitrate+Nitrite-N - Dissolved	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Potassium	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Sodium	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Fluoride	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Hardness (mg CaCO3/L)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Hydroxide	-	NA	-	NA	NA	-	NA	-	NA	NA	50
pH (pH Units)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Sodium Adsorption Ratio	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Sulphate	-	NA	-	NA	NA	-	NA	-	NA	NA	50
TDS (Calculated)	-	NA	-	NA	NA	-	NA	-	NA	NA	50

a - Alert limits used for field duplicate samples.
b - BTEX have been subtracted from the fraction.
c - Naphthalene has not been subtracted from the fraction.
NA - Not applicable.
NC - Not calculated.
RDL - Reportable Detection Limit.
RPD - Relative Percent Difference (not calculated when one or both results are less than 5X RDL).
"-" - Not analyzed.
mbgs - metres below ground surface
BOLD - Exceeds RPD alert limit.
Results for all paramters are reported in miligrams per litre (mg/L), unless otherwise stated.

TABLE D-1

RELATIVE PERCENT DIFFERENCE CALCULATIONS - GROUNDWATER FIELD DUPLICATE SAMPLES
PETROLEUM HYDROCARBON PARAMETERS, 1-2-DICHLOROETHANE, AND ROUTINE PARAMETERS

SAMPLE LOCATIONS	BH1942		DUP-10 FIELD DUPLICATE BH1942			BH1982		DUP-11 FIELD DUPLICATE BH1982			
AGAT Certificate of Analysis No.	23C990183	RDL	23C990183	RDL	RPD	23C990183	RDL	23C990183	RDL	RPD	RPD ALERT LIMITS (%)[a]
AGAT Sample ID	4705229		4705230			4705233		4705234			
Screen Interval (mbgs)	4.4 - 8.5		4.4 - 8.5			1.5 - 7.9		1.5 - 7.9			
Date Sampled (yyyy/mm/dd)	2023/01/19		2023/01/19			2023/01/19		2023/01/19			
PARAMETERS											
Benzene	<0.0005	0.0005	<0.0005	0.0005	NC	0.0477	0.0005	0.0463	0.0005	3%	80
Toluene	<0.0003	0.0003	<0.0003	0.0003	NC	0.0055	0.0003	0.006	0.0003	9%	80
Ethylbenzene	<0.0005	0.0005	<0.0005	0.0005	NC	0.0301	0.0005	0.0331	0.0005	9%	80
Total Xylenes	<0.0005	0.0005	<0.0005	0.0005	NC	0.0029	0.0005	0.0031	0.0005	7%	80
Petroleum Hydrocarbons F1 (C6-C10)[b]	<0.1	0.1	<0.1	0.1	NC	0.4	0.1	0.4	0.1	NC	80
Petroleum Hydrocarbons F2 (>C10-C16)[c]	<0.1	0.1	<0.1	0.1	NC	<0.1	0.1	<0.1	0.1	NC	80
1,2-Dichloroethane	<0.001	0.001	<0.001	0.001	NC	0.097	0.001	0.111	0.001	13%	80
Alkalinity (PP as CaCO3)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Alkalinity, Total (as CaCO3)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Conductivity (uS/cm)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Calcium	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Chloride	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Iron	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Magnesium	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Manganese	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Nitrate (as N)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Nitrate (NO3)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Nitrite (as N)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Nitrite (NO2)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Nitrate+Nitrite-N - Dissolved	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Potassium	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Dissolved Sodium	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Fluoride	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Hardness (mg CaCO3/L)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Hydroxide	-	NA	-	NA	NA	-	NA	-	NA	NA	50
pH (pH Units)	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Sodium Adsorption Ratio	-	NA	-	NA	NA	-	NA	-	NA	NA	50
Sulphate	-	NA	-	NA	NA	-	NA	-	NA	NA	50
TDS (Calculated)	-	NA	-	NA	NA	-	NA	-	NA	NA	50

a - Alert limits used for field duplicate samples.
b - BTEX have been subtracted from the fraction.
c - Naphthalene has not been subtracted from the fraction.
NA - Not applicable.
NC - Not calculated.
RDL - Reportable Detection Limit.
RPD - Relative Percent Difference (not calculated when one or both results are less than 5X RDL).
"-" - Not analyzed.
mbgs - metres below ground surface
BOLD - Exceeds RPD alert limit.
Results for all paramters are reported in miligrams per litre (mg/L), unless otherwise stated.

TABLE D-2

GROUNDWATER FIELD BLANK AND TRIP BLANK DATA
PETROLEUM HYDROCARBON PARAMETERS AND 1,2-DICHLOROETHANE

SAMPLE LOCATIONS AGAT Certificate of Analysis No. AGAT Sample ID Date Sampled (yyyy/mm/dd)	RDL	EQUIPMENT BLANK EB-Bailer-01 23C989826 4701837 2023/01/18	EXCEEDS ALERT LIMIT (yes/no)	EQUIPMENT BLANK EB-Bailer-02 23C990183 4705082 2023/01/19	EXCEEDS ALERT LIMIT (yes/no)	EQUIPMENT BLANK EB-Bailer-03 23C990277 4705541 2023/01/20	EXCEEDS ALERT LIMIT (yes/no)
PARAMETERS							
Benzene	0.0005	<0.0005	No	<0.0005	No	<0.0005	No
Toluene	0.0003	<0.0003	No	<0.0003	No	<0.0003	No
Ethylbenzene	0.0005	<0.0005	No	<0.0005	No	<0.0005	No
Total Xylenes	0.0005	<0.0005	No	<0.0005	No	<0.0005	No
Petroleum Hydrocarbons F1 (C6-C10)[a]	0.1	<0.1	No	<0.1	No	<0.1	No
Petroleum Hydrocarbons F2 (>C10-C16)[b]	0.1	<0.1	No	<0.1	No	<0.1	No
1,2-Dichloroethane	0.001	<0.001	No	<0.001	No	<0.001	No

a - BTEX have been subtracted from the fraction.

b - Naphthalene has not been subtracted from the fraction.

RDL - Reportable Detection Limit.

Note - Alert limits for field blanks and trip blanks are 5x RDL for BTEX and lead; 2x RDL for petroleum hydrocarbons fractions F1 and F2.

Results for all paramters are reported in miligrams per litre (mg/L), unless otherwise stated.

TABLE D-2

GROUNDWATER FIELD BLANK AND TRIP BLANK DATA
PETROLEUM HYDROCARBON PARAMETERS AND 1,2-DICHLOROETHANE

SAMPLE LOCATIONS AGAT Certificate of Analysis No. AGAT Sample ID Date Sampled (yyyy/mm/dd)	RDL	EQUIPMENT BLANK EB-Hydra-01 23C989826 4701836 2023/01/18	EXCEEDS ALERT LIMIT (yes/no)	EQUIPMENT BLANK EB-Hydra-02 23C990183 4705081 2023/01/19	EXCEEDS ALERT LIMIT (yes/no)	EQUIPMENT BLANK EB-Hydra-03 23C990277 4705540 2023/01/20	EXCEEDS ALERT LIMIT (yes/no)
PARAMETERS							
Benzene	0.0005	<0.0005	No	<0.0005	No	<0.0005	No
Toluene	0.0003	<0.0003	No	<0.0003	No	<0.0003	No
Ethylbenzene	0.0005	<0.0005	No	<0.0005	No	<0.0005	No
Total Xylenes	0.0005	<0.0005	No	<0.0005	No	<0.0005	No
Petroleum Hydrocarbons F1 (C6-C10)[a]	0.1	<0.1	No	<0.1	No	<0.1	No
Petroleum Hydrocarbons F2 (>C10-C16)[b]	0.1	<0.1	No	<0.1	No	<0.1	No
1,2-Dichloroethane	0.001	<0.001	No	<0.001	No	<0.001	No

a - BTEX have been subtracted from the fraction.

b - Naphthalene has not been subtracted from the fraction.

RDL - Reportable Detection Limit.

Note - Alert limits for field blanks and trip blanks are 5x RDL for BTEX and lead; 2x RDL for petroleum hydrocarbons fractions F1 and F2.

Results for all paramters are reported in miligrams per litre (mg/L), unless otherwise stated.

TABLE D-2

GROUNDWATER FIELD BLANK AND TRIP BLANK DATA
PETROLEUM HYDROCARBON PARAMETERS AND 1,2-DICHLOROETHANE

SAMPLE LOCATIONS AGAT Certificate of Analysis No. AGAT Sample ID Date Sampled (yyyy/mm/dd)	RDL	TRIP BLANK 'Trip Blank -01 23C988133 4685368 2023/01/13	EXCEEDS ALERT LIMIT (yes/no)	TRIP BLANK 'Trip Blank-02 23C989369 4697635 2023/01/17	EXCEEDS ALERT LIMIT (yes/no)	TRIP BLANK 'Trip Blank-03 23C989826 4701838 2023/01/18	EXCEEDS ALERT LIMIT (yes/no)
PARAMETERS							
Benzene	0.0005	<0.0005	No	<0.0005	No	<0.0005	No
Toluene	0.0003	<0.0003	No	<0.0003	No	<0.0003	No
Ethylbenzene	0.0005	<0.0005	No	<0.0005	No	<0.0005	No
Total Xylenes	0.0005	<0.0005	No	<0.0005	No	<0.0005	No
Petroleum Hydrocarbons F1 (C6-C10)[a]	0.1	<0.1	No	<0.1	No	<0.1	No
Petroleum Hydrocarbons F2 (>C10-C16)[b]	0.1	<0.1	No	<0.1	No	<0.1	No
1,2-Dichloroethane	0.001	<0.001	No	<0.001	No	<0.001	No

a - BTEX have been subtracted from the fraction.

b - Naphthalene has not been subtracted from the fraction.

RDL - Reportable Detection Limit.

Note - Alert limits for field blanks and trip blanks are 5x RDL for BTEX and lead; 2x RDL for petroleum hydrocarbons fractions F1 and F2.

Results for all paramters are reported in miligrams per litre (mg/L), unless otherwise stated.

TABLE D-2

GROUNDWATER FIELD BLANK AND TRIP BLANK DATA
PETROLEUM HYDROCARBON PARAMETERS AND 1,2-DICHLOROETHANE

SAMPLE LOCATIONS AGAT Certificate of Analysis No. AGAT Sample ID Date Sampled (yyyy/mm/dd)	RDL	TRIP BLANK 'Trip Blank-03 23C989369 4697636 2023/01/17	EXCEEDS ALERT LIMIT (yes/no)	TRIP BLANK 'Trip Blank-04 23C989826 4701839 2023/01/18	EXCEEDS ALERT LIMIT (yes/no)	TRIP BLANK 'Trip Blank-05 23C989826 4701857 2023/01/18	EXCEEDS ALERT LIMIT (yes/no)
PARAMETERS							
Benzene	0.0005	<0.0005	No	<0.0005	No	<0.0005	No
Toluene	0.0003	<0.0003	No	<0.0003	No	<0.0003	No
Ethylbenzene	0.0005	<0.0005	No	<0.0005	No	<0.0005	No
Total Xylenes	0.0005	<0.0005	No	<0.0005	No	<0.0005	No
Petroleum Hydrocarbons F1 (C6-C10)[a]	0.1	<0.1	No	<0.1	No	<0.1	No
Petroleum Hydrocarbons F2 (>C10-C16)[b]	0.1	<0.1	No	<0.1	No	<0.1	No
1,2-Dichloroethane	0.001	<0.001	No	<0.001	No	<0.001	No

a - BTEX have been subtracted from the fraction.

b - Naphthalene has not been subtracted from the fraction.

RDL - Reportable Detection Limit.

Note - Alert limits for field blanks and trip blanks are 5x RDL for BTEX and lead; 2x RDL for petroleum hydrocarbons fractions F1 and F2.

Results for all paramters are reported in miligrams per litre (mg/L), unless otherwise stated.

TABLE D-2

GROUNDWATER FIELD BLANK AND TRIP BLANK DATA
PETROLEUM HYDROCARBON PARAMETERS AND 1,2-DICHLOROETHANE

SAMPLE LOCATIONS AGAT Certificate of Analysis No. AGAT Sample ID Date Sampled (yyyy/mm/dd)	RDL	TRIP BLANK 'Trip Blank-06 23C989826 4701858 2023/01/18	EXCEEDS ALERT LIMIT (yes/no)	TRIP BLANK 'Trip Blank-07 23C990183 4705083 2023/01/19	EXCEEDS ALERT LIMIT (yes/no)	TRIP BLANK 'Trip Blank-08 23C990183 4705084 2023/01/19	EXCEEDS ALERT LIMIT (yes/no)
PARAMETERS							
Benzene	0.0005	<0.0005	No	<0.0005	No	<0.0005	No
Toluene	0.0003	<0.0003	No	<0.0003	No	<0.0003	No
Ethylbenzene	0.0005	<0.0005	No	<0.0005	No	<0.0005	No
Total Xylenes	0.0005	<0.0005	No	<0.0005	No	<0.0005	No
Petroleum Hydrocarbons F1 (C6-C10)[a]	0.1	<0.1	No	<0.1	No	<0.1	No
Petroleum Hydrocarbons F2 (>C10-C16)[b]	0.1	<0.1	No	<0.1	No	<0.1	No
1,2-Dichloroethane	0.001	<0.001	No	<0.001	No	<0.001	No

a - BTEX have been subtracted from the fraction.

b - Naphthalene has not been subtracted from the fraction.

RDL - Reportable Detection Limit.

Note - Alert limits for field blanks and trip blanks are 5x RDL for BTEX and lead; 2x RDL for petroleum hydrocarbons fractions F1 and F2.

Results for all paramters are reported in miligrams per litre (mg/L), unless otherwise stated.

TABLE D-2

GROUNDWATER FIELD BLANK AND TRIP BLANK DATA
PETROLEUM HYDROCARBON PARAMETERS AND 1,2-DICHLOROETHANE

SAMPLE LOCATIONS AGAT Certificate of Analysis No. AGAT Sample ID Date Sampled (yyyy/mm/dd)	RDL	TRIP BLANK 'Trip Blank - 09 23C990183 4705243 2023/01/19	EXCEEDS ALERT LIMIT (yes/no)	TRIP BLANK 'Trip-10 23C990277 4705539 2023/01/20	EXCEEDS ALERT LIMIT (yes/no)
PARAMETERS					
Benzene	0.0005	<0.0005	No	<0.0005	No
Toluene	0.0003	<0.0003	No	<0.0003	No
Ethylbenzene	0.0005	<0.0005	No	<0.0005	No
Total Xylenes	0.0005	<0.0005	No	<0.0005	No
Petroleum Hydrocarbons F1 (C6-C10)[a]	0.1	<0.1	No	<0.1	No
Petroleum Hydrocarbons F2 (>C10-C16)[b]	0.1	<0.1	No	<0.1	No
1,2-Dichloroethane	0.001	<0.001	No	<0.001	No

a - BTEX have been subtracted from the fraction.

b - Naphthalene has not been subtracted from the fraction.

RDL - Reportable Detection Limit.

Note - Alert limits for field blanks and trip blanks are 5x RDL for BTEX and lead; 2x RDL for petroleum hydrocarbons f

Results for all paramters are reported in miligrams per litre (mg/L), unless otherwise stated.

TABLE D-3

GROUNDWATER FIELD BLANK AND TRIP BLANK DATA
VOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATIONS AGAT Certificate of Analysis No. AGAT Sample ID Date Sampled (yyyy/mm/dd)	RDL	EQUIPMENT BLANK EB-Bailer-03 23C990277 4705541 2023/01/20	EXCEEDS ALERT LIMIT (yes/no)	EQUIPMENT BLANK EB-Hyrda-03 23C990277 4705540 2023/01/20	EXCEEDS ALERT LIMIT (yes/no)	TRIP BLANK 'Trip Blank-02 23C989369 4697635 2023/01/17	EXCEEDS ALERT LIMIT (yes/no)	TRIP BLANK 'Trip Blank-03 23C989826 4701838 2023/01/18	EXCEEDS ALERT LIMIT (yes/no)
PARAMETERS									
2-Butanone	0.01	<0.01	No	<0.01	No	<0.01	No	<0.01	No
Acetone	0.01	<0.01	No	<0.01	No	<0.01	No	<0.01	No
Bromodichloromethane	0.001	<0.001	No	<0.001	No	<0.001	No	<0.001	No
Bromoform	0.001	<0.001	No	<0.001	No	<0.001	No	<0.001	No
Bromomethane	0.001	<0.001	No	<0.001	No	<0.001	No	<0.001	No
Carbon Tetrachloride	0.0005	<0.0005	No	<0.0005	No	<0.0005	No	<0.0005	No
Chlorobenzene	0.001	<0.001	No	<0.001	No	<0.001	No	<0.001	No
Chloroethane	0.001	<0.001	No	<0.001	No	<0.001	No	<0.001	No
Chloroform	0.001	<0.001	No	<0.001	No	<0.001	No	<0.001	No
Chloromethane	0.001	<0.001	No	<0.001	No	<0.001	No	<0.001	No
Dibromochloromethane	0.001	<0.001	No	<0.001	No	<0.001	No	<0.001	No
1,2-Dibromoethane	0.001	<0.001	No	<0.001	No	<0.001	No	<0.001	No
1,2-Dichlorobenzene	0.0005	<0.0005	No	<0.0005	No	<0.0005	No	<0.0005	No
1,3-Dichlorobenzene	0.0005	<0.0005	No	<0.0005	No	<0.0005	No	<0.0005	No
1,4-Dichlorobenzene	0.0005	<0.0005	No	<0.0005	No	<0.0005	No	<0.0005	No
1,1-Dichloroethane	0.001	<0.001	No	<0.001	No	<0.001	No	<0.001	No
1,1-Dichloroethene	0.001	<0.001	No	<0.001	No	<0.001	No	<0.001	No
cis-1,2-Dichloroethene	0.001	<0.001	No	<0.001	No	<0.001	No	<0.001	No
trans-1,2-Dichloroethene	0.001	<0.001	No	<0.001	No	<0.001	No	<0.001	No
1,2-Dichloropropane	0.001	<0.001	No	<0.001	No	<0.001	No	<0.001	No
cis-1,3-Dichloropropene	0.001	<0.001	No	<0.001	No	<0.001	No	<0.001	No
trans-1,3-Dichloropropene	0.001	<0.001	No	<0.001	No	<0.001	No	<0.001	No
2-Hexanone	0.02	<0.02	No	<0.02	No	<0.02	No	<0.02	No
Hexone	0.01	<0.01	No	<0.01	No	<0.01	No	<0.01	No
Methyl t-Butyl Ether	0.001	<0.001	No	<0.001	No	<0.001	No	<0.001	No
Methylene Chloride	0.001	<0.001	No	<0.001	No	<0.001	No	<0.001	No
Styrene	0.001	<0.001	No	<0.001	No	<0.001	No	<0.001	No
1,1,1,2-Tetrachloroethane	0.001	<0.001	No	<0.001	No	<0.001	No	<0.001	No
1,1,2,2-Tetrachloroethane	0.001	<0.001	No	<0.001	No	<0.001	No	<0.001	No
Tetrachloroethene	0.001	<0.001	No	<0.001	No	<0.001	No	<0.001	No
1,2,4-Trichlorobenzene	0.001	<0.001	No	<0.001	No	<0.001	No	<0.001	No
1,1,1-Trichloroethane	0.001	<0.001	No	<0.001	No	<0.001	No	<0.001	No
1,1,2-Trichloroethane	0.001	<0.001	No	<0.001	No	<0.001	No	<0.001	No
Trichloroethene	0.0003	<0.0003	No	<0.0003	No	<0.0003	No	<0.0003	No
Trichlorofluoromethane	0.001	<0.001	No	<0.001	No	<0.001	No	<0.001	No
Vinyl Chloride	0.0008	<0.0008	No	<0.0008	No	<0.0008	No	<0.0008	No

RDL - Reportable detection limit.

Note - Alert limits for field blanks and trip blanks are 5x RDL for BTEX and lead; 2x RDL for petroleum hydrocarbons fractions F1 to F4.
Results for all parameters are reported in milligrams per litre (mg/L), unless otherwise specified.

TABLE D-3

GROUNDWATER FIELD BLANK AND TRIP BLANK DATA
VOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATIONS AGAT Certificate of Analysis No. AGAT Sample ID Date Sampled (yyyy/mm/dd)	RDL	TRIP BLANK 'Trip Blank-03 23C989369 4697636 2023/01/17	EXCEEDS ALERT LIMIT (yes/no)	TRIP BLANK 'Trip Blank-04 23C989826 4701839 2023/01/18	EXCEEDS ALERT LIMIT (yes/no)	TRIP BLANK 'Trip Blank-07 23C990183 4705083 2023/01/19	EXCEEDS ALERT LIMIT (yes/no)
PARAMETERS							
2-Butanone	0.01	<0.01	No	<0.01	No	<0.01	No
Acetone	0.01	<0.01	No	<0.01	No	<0.01	No
Bromodichloromethane	0.001	<0.001	No	<0.001	No	<0.001	No
Bromoform	0.001	<0.001	No	<0.001	No	<0.001	No
Bromomethane	0.001	<0.001	No	<0.001	No	<0.001	No
Carbon Tetrachloride	0.0005	<0.0005	No	<0.0005	No	<0.0005	No
Chlorobenzene	0.001	<0.001	No	<0.001	No	<0.001	No
Chloroethane	0.001	<0.001	No	<0.001	No	<0.001	No
Chloroform	0.001	<0.001	No	<0.001	No	<0.001	No
Chloromethane	0.001	<0.001	No	<0.001	No	<0.001	No
Dibromochloromethane	0.001	<0.001	No	<0.001	No	<0.001	No
1,2-Dibromoethane	0.001	<0.001	No	<0.001	No	<0.001	No
1,2-Dichlorobenzene	0.0005	<0.0005	No	<0.0005	No	<0.0005	No
1,3-Dichlorobenzene	0.0005	<0.0005	No	<0.0005	No	<0.0005	No
1,4-Dichlorobenzene	0.0005	<0.0005	No	<0.0005	No	<0.0005	No
1,1-Dichloroethane	0.001	<0.001	No	<0.001	No	<0.001	No
1,1-Dichloroethene	0.001	<0.001	No	<0.001	No	<0.001	No
cis-1,2-Dichloroethene	0.001	<0.001	No	<0.001	No	<0.001	No
trans-1,2-Dichloroethene	0.001	<0.001	No	<0.001	No	<0.001	No
1,2-Dichloropropane	0.001	<0.001	No	<0.001	No	<0.001	No
cis-1,3-Dichloropropene	0.001	<0.001	No	<0.001	No	<0.001	No
trans-1,3-Dichloropropene	0.001	<0.001	No	<0.001	No	<0.001	No
2-Hexanone	0.02	<0.02	No	<0.02	No	<0.02	No
Hexone	0.01	<0.01	No	<0.01	No	<0.01	No
Methyl t-Butyl Ether	0.001	<0.001	No	<0.001	No	<0.001	No
Methylene Chloride	0.001	<0.001	No	<0.001	No	<0.001	No
Styrene	0.001	<0.001	No	<0.001	No	<0.001	No
1,1,1,2-Tetrachloroethane	0.001	<0.001	No	<0.001	No	<0.001	No
1,1,2,2-Tetrachloroethane	0.001	<0.001	No	<0.001	No	<0.001	No
Tetrachloroethene	0.001	<0.001	No	<0.001	No	<0.001	No
1,2,4-Trichlorobenzene	0.001	<0.001	No	<0.001	No	<0.001	No
1,1,1-Trichloroethane	0.001	<0.001	No	<0.001	No	<0.001	No
1,1,2-Trichloroethane	0.001	<0.001	No	<0.001	No	<0.001	No
Trichloroethene	0.0003	<0.0003	No	<0.0003	No	<0.0003	No
Trichlorofluoromethane	0.001	<0.001	No	<0.001	No	<0.001	No
Vinyl Chloride	0.0008	<0.0008	No	<0.0008	No	<0.0008	No

RDL - Reportable detection limit.

Note - Alert limits for field blanks and trip blanks are 5x RDL for BTEX and lead; 2x RDL for petroleum hydrocarbons fractions F1 to F4.
Results for all parameters are reported in milligrams per litre (mg/L), unless otherwise specified.

TABLE D-3

GROUNDWATER FIELD BLANK AND TRIP BLANK DATA
VOLATILE ORGANIC COMPOUNDS

SAMPLE LOCATIONS AGAT Certificate of Analysis No. AGAT Sample ID Date Sampled (yyyy/mm/dd)	RDL	TRIP BLANK 'Trip Blank-08 23C990183 4705084 2023/01/19	EXCEEDS ALERT LIMIT (yes/no)	TRIP BLANK 'Trip Blank - 09 23C990183 4705243 2023/01/19	EXCEEDS ALERT LIMIT (yes/no)	TRIP BLANK 'Trip-10 23C990277 4705539 2023/01/20	EXCEEDS ALERT LIMIT (yes/no)
PARAMETERS							
2-Butanone	0.01	<0.01	No	<0.01	No	<0.01	No
Acetone	0.01	<0.01	No	<0.01	No	<0.01	No
Bromodichloromethane	0.001	<0.001	No	<0.001	No	<0.001	No
Bromoform	0.001	<0.001	No	<0.001	No	<0.001	No
Bromomethane	0.001	<0.001	No	<0.001	No	<0.001	No
Carbon Tetrachloride	0.0005	<0.0005	No	<0.0005	No	<0.0005	No
Chlorobenzene	0.001	<0.001	No	<0.001	No	<0.001	No
Chloroethane	0.001	<0.001	No	<0.001	No	<0.001	No
Chloroform	0.001	<0.001	No	<0.001	No	<0.001	No
Chloromethane	0.001	<0.001	No	<0.001	No	<0.001	No
Dibromochloromethane	0.001	<0.001	No	<0.001	No	<0.001	No
1,2-Dibromoethane	0.001	<0.001	No	<0.001	No	<0.001	No
1,2-Dichlorobenzene	0.0005	<0.0005	No	<0.0005	No	<0.0005	No
1,3-Dichlorobenzene	0.0005	<0.0005	No	<0.0005	No	<0.0005	No
1,4-Dichlorobenzene	0.0005	<0.0005	No	<0.0005	No	<0.0005	No
1,1-Dichloroethane	0.001	<0.001	No	<0.001	No	<0.001	No
1,1-Dichloroethene	0.001	<0.001	No	<0.001	No	<0.001	No
cis-1,2-Dichloroethene	0.001	<0.001	No	<0.001	No	<0.001	No
trans-1,2-Dichloroethene	0.001	<0.001	No	<0.001	No	<0.001	No
1,2-Dichloropropane	0.001	<0.001	No	<0.001	No	<0.001	No
cis-1,3-Dichloropropene	0.001	<0.001	No	<0.001	No	<0.001	No
trans-1,3-Dichloropropene	0.001	<0.001	No	<0.001	No	<0.001	No
2-Hexanone	0.02	<0.02	No	<0.02	No	<0.02	No
Hexone	0.01	<0.01	No	<0.01	No	<0.01	No
Methyl t-Butyl Ether	0.001	<0.001	No	<0.001	No	<0.001	No
Methylene Chloride	0.001	<0.001	No	<0.001	No	<0.001	No
Styrene	0.001	<0.001	No	<0.001	No	<0.001	No
1,1,1,2-Tetrachloroethane	0.001	<0.001	No	<0.001	No	<0.001	No
1,1,2,2-Tetrachloroethane	0.001	<0.001	No	<0.001	No	<0.001	No
Tetrachloroethene	0.001	<0.001	No	<0.001	No	<0.001	No
1,2,4-Trichlorobenzene	0.001	<0.001	No	<0.001	No	<0.001	No
1,1,1-Trichloroethane	0.001	<0.001	No	<0.001	No	<0.001	No
1,1,2-Trichloroethane	0.001	<0.001	No	<0.001	No	<0.001	No
Trichloroethene	0.0003	<0.0003	No	<0.0003	No	<0.0003	No
Trichlorofluoromethane	0.001	<0.001	No	<0.001	No	<0.001	No
Vinyl Chloride	0.0008	<0.0008	No	<0.0008	No	<0.0008	No

RDL - Reportable detection limit.

Note - Alert limits for field blanks and trip blanks are 5x RDL for BTEX and lead; 2x RDL for petroleum hydrocarbons fractions F1 to F4.
Results for all parameters are reported in milligrams per litre (mg/L), unless otherwise specified.

DATA QUALITY REVIEW CHECKLIST

Consultant: *Parsons Inc.* Sampling Date: *2023/01/13*

Location: *1620 - 14th Avenue NW, Calgary, AB* Laboratory : *AGAT Laboratories*

Consultant Project Number: *10-12832* Sample Submission Number: *23C988133*

Are All Laboratory QC Samples Within Acceptance Criteria (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Surrogate Recovery	*X*			*All lab QC met acceptance criteria.*
Method Blank Concentration	*X*			
Matrix Duplicate RPD	*X*			
Matrix Spike Recovery	*X*			
Other Quality Control Data	*X*			

Are All Field QC Samples Within Alert Limits (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Equipment Blank Concentration			*X*	*All field QC samples have met alert limits.*
Trip Blank Concentration	*X*			
Field Duplicate RPD	*X*			*All field QC samples have met the acceptable RPD limits.*

Has CoA been signed off (Yes/No)?:	*Yes*
Were all samples analyzed within hold times (Yes/No)?:	*Yes*
All volatiles samples methanol extracted, if required, within 48 hours (Yes, No or N/A)?:	*N/A*
Is Chain of Custody completed and signed (Yes/No)?:	*Yes*
Were sample temperatures acceptable when they reached lab (Yes/No)?:	*No*

Is data considered to be reliable (Yes/No)?: *Yes*

If answer is "No", describe and provide rationale:

Performed by (Print): *Danielle Smith*

Reviewed by (Print): *Michelle Patterson*

Reviewed date: *2023/05/02*

Reviewed by (Signature): 

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP
BOX 1720 STN M
CALGARY, AB T2P 0A2

ATTENTION TO: Michelle Patterson

PROJECT: 10-12832

AGAT WORK ORDER: 23C988133

TRACE ORGANICS REVIEWED BY: Joanne Wudrich, Laboratory Manager

DATE REPORTED: Jan 18, 2023

PAGES (INCLUDING COVER): 7

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (403) 735-2005

*Notes

Disclaimer:

- *All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.*
- *All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.*
- *AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.*
- *This Certificate shall not be reproduced except in full, without the written approval of the laboratory.*
- *The test results reported herewith relate only to the samples as received by the laboratory.*
- *Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.*
- *All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.*

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C988133

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Michelle Patterson

SAMPLING SITE:

SAMPLED BY:Gavin Clarke

SUNCOR - Petroleum Hydrocarbons (BTEX/F1-F2) in Water

DATE RECEIVED: 2023-01-13 **DATE REPORTED: 2023-01-18**

		SAMPLE DESCRIPTION:		BH1912	BH1913	BH1914	BH1915	Dup-01	BH1916	Trip Blank -01
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2023-01-13	2023-01-13	2023-01-13	2023-01-13	2023-01-13	2023-01-13	2023-01-13
Parameter	**Unit**	**G / S**	**RDL**	**4685361**	**4685363**	**4685364**	**4685365**	**4685366**	**4685367**	**4685368**
Benzene	mg/L		0.0005	0.007	<0.0005	<0.0005	0.0315	0.033	<0.0005	<0.0005
Toluene	mg/L		0.0003	<0.0003	<0.0003	<0.0003	0.0006	0.0007	<0.0003	<0.0003
Ethylbenzene	mg/L		0.0005	<0.0005	<0.0005	<0.0005	0.0029	0.0033	<0.0005	<0.0005
m,p-Xylenes	mg/L		0.0005	<0.0005	<0.0005	<0.0005	0.0108	0.0107	<0.0005	<0.0005
o-Xylene	mg/L		0.0005	<0.0005	<0.0005	<0.0005	0.0022	0.0021	<0.0005	<0.0005
Xylenes	mg/L		0.0005	<0.0005	<0.0005	<0.0005	0.013	0.0128	<0.0005	<0.0005
C6 - C10 (F1)	mg/L		0.1	<0.1	<0.1	<0.1	1.4	1.3	<0.1	<0.1
C6 - C10 (F1 minus BTEX)	mg/L		0.1	<0.1	<0.1	<0.1	1.4	1.3	<0.1	<0.1
C>10 - C16	mg/L		0.1	<0.1	<0.1	<0.1	0.3	0.4	<0.1	<0.1
Sediment				Not Present	Not Present	Not Present	Not Present	Not Present	Not Present	Not Present
Surrogate	**Unit**	**Acceptable Limits**								
Toluene-d8 (BTEX)	%	60-140		86	85	83	82	84	80	85
o-Terphenyl (F2-F4)	%	60-140		109	112	109	109	110	109	110

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

4685361-4685368 The F1 (C6 - C10) fraction is determined by integrating the FID chromatogram from the beginning of the nC6 peak to the apex of the last nC10 peak.
The C6 - C10 fraction is calculated from the FID toluene response factor.
The F2 (C10 - C16) fraction is determined by integrating the FID chromatogram from the apex of the nC10 peak to the apex of the nC16 peak.
The F2 (C10 - C16) fraction is calculated using the average response factor for nC10, nC16, and nC34.
Quality control for the calibration follows the guidelines set out in the CCME Contaminated Sites Method for Soils.
C6 –C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
C>10 – C16 (F2- Napthalene) is a calculated parameter. The calculated value is F2 - Napthalene (if requested). The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
C>16 - C34 (F3-PAH) is a calculated parameter. The calculated value is F3-PAH (if requested). The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
Xylenes is a calculated parameter. The calculated value is the sum of m&p-Xylenes + o-Xylene. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
Sediment parameter is comment only based on visual inspection of the sample prior to extraction and is not an accredited test.
Extraction and holding times were met for this sample.

Analysis performed at AGAT Calgary (unless marked by *)

Certified By: Joanne Wudrich

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C988133

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Michelle Patterson

SAMPLING SITE:

SAMPLED BY:Gavin Clarke

Volatile Organic Compounds in Water - 1,2-DCA

DATE RECEIVED: 2023-01-13 **DATE REPORTED: 2023-01-18**

		SAMPLE DESCRIPTION:		BH1912	BH1913	BH1914	BH1915	Dup-01	BH1916	Trip Blank -01
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2023-01-13	2023-01-13	2023-01-13	2023-01-13	2023-01-13	2023-01-13	2023-01-13
Parameter	**Unit**	**G / S**	**RDL**	**4685361**	**4685363**	**4685364**	**4685365**	**4685366**	**4685367**	**4685368**
1,2-Dichloroethane	mg/L		0.001	0.015	<0.001	<0.001	0.015	0.016	<0.001	<0.001
Surrogate	**Unit**	**Acceptable Limits**								
Toluene-d8	%	50-140		86	84	87	72	73	81	83

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Analysis performed at AGAT Calgary (unless marked by *)

Certified By: Joanne Wudrich

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Quality Assurance

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

AGAT WORK ORDER: 23C988133

PROJECT: 10-12832

ATTENTION TO: Michelle Patterson

SAMPLING SITE:

SAMPLED BY:Gavin Clarke

Trace Organics Analysis

RPT Date: Jan 18, 2023			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
SUNCOR - Petroleum Hydrocarbons (BTEX/F1-F2) in Water															
Benzene	4804	4685363	<0.0005	<0.0005	NA	< 0.0005	90%	60%	140%	88%	60%	140%	77%	60%	140%
Toluene	4804	4685363	<0.0003	<0.0003	NA	< 0.0003	90%	60%	140%	94%	60%	140%	84%	60%	140%
Ethylbenzene	4804	4685363	<0.0005	<0.0005	NA	< 0.0005	84%	60%	140%	94%	60%	140%	82%	60%	140%
m,p-Xylenes	4804	4685363	<0.0005	<0.0005	NA	< 0.0005	82%	60%	140%	98%	60%	140%	88%	60%	140%
o-Xylene	4804	4685363	<0.0005	<0.0005	NA	< 0.0005	82%	60%	140%	98%	60%	140%	88%	60%	140%
Xylenes	4804	4685363	<0.0005	<0.0005	NA	< 0.0005	82%	60%	140%	98%	60%	140%	88%	60%	140%
C6 - C10 (F1)	4804	4685363	<0.1	<0.1	NA	< 0.1	85%	60%	140%	104%	60%	140%	104%	60%	140%
C>10 - C16	8020	4685363	<0.1	<0.1	NA	< 0.1	86%	60%	140%	79%	60%	140%	83%	60%	140%

Comments: Duplicate NA: results are less than 5X the RDL and RDP will not be calculated.
The sample spikes and dups are not from the same sample ID.

Volatile Organic Compounds in Water - 1,2-DCA															
1,2-Dichloroethane	4552	4685361	0.015	0.015	NA	< 0.001	101%	50%	140%	96%	60%	130%	100%	50%	140%

Comments: Duplicate NA: results are less than 5X the RDL and RDP will not be calculated.
The sample spikes and dups are not from the same sample ID.

Certified By: Joanne Wudrich

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Method Summary

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

AGAT WORK ORDER: 23C988133

PROJECT: 10-12832

ATTENTION TO: Michelle Patterson

SAMPLING SITE:

SAMPLED BY:Gavin Clarke

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Benzene	TO 0332	EPA SW-846 5021 & 8260	GC/MS
Toluene	TO 0332	EPA SW-846 5021 & 8260	GC/MS
Ethylbenzene	TO 0332	EPA SW-846 5021 & 8260	GC/MS
m,p-Xylenes	TO-0542	EPA SW-846 5021/8260-W	GC/MS
o-Xylene	TO-0542	EPA SW-846 5021/8260-W	GC/MS
Xylenes	TO 0332	EPA SW-846 5021 & 8260	GC/MS
C6 - C10 (F1)	TO 0542	CCME Tier 1 Method	GC/FID
C6 - C10 (F1 minus BTEX)	TO 0542	CCME Tier 1 Method	GC/FID
C>10 - C16	TO 0511	CCME Tier 1 Method	GC/FID
Toluene-d8 (BTEX)	TO-0543	EPA SW-846 5021 & 8260	GC/FID
o-Terphenyl (F2-F4)	TO 0511	CCME Tier 1 Method	GC/FID
Sediment	TO-0511	CCME Tier 1 Method	GC/FID
1,2-Dichloroethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Toluene-d8	TO-0330	EPA SW-846 5030 & 8260	GC/MS

AGAT Laboratories

2910 12 Street NE
Calgary, Alberta T2E 7P7
P: 403-735-2005 • F: 403-735-2771
webearth.agatlabs.com

Laboratory Use Only
Arrival Temperature:
AGAT Job Number: 23C988133
Date and Time: 13-JAN-23 PM 3:20

Chain of Custody Record

Emergency Support Services Hotline 1-855-AGAT 245 (1-855-242-8245)

Report Information
Company: PARSONS
Contact: Michelle Patterson
Address: #100, 318 – 11 Ave SE, Calgary AB T2G 0Y2
Phone: (403)294-4215 Fax: (403)294-4240
LSD: 1624 14th Street NW, Calgary, AB -14AVE N.W ROAD
Client Project #: 10-12832
Sampled By: GAVIN CLARKE
Outlet #: 9445

Report Information
1. Name: Michelle Patterson
Email: michelle.patterson@parsons.com
2. Name: Calgary Lab Report
Email: Calgary.labreport@parsons.com
3. Name:
Email:

Turnaround Time Required (TAT)
Regular TAT ☑ 5 to 7 Business Days
Rush TAT ☐ <24 Hours (200%) ☐ Two Day / Next Day (100%) ☐ Three Day (50%) ☐ Four Day (25%)
Date Required:

SEE BACK FOR SURCHARGE BREAKDOWN. CONTACT YOUR CPM FOR ADDITIONAL INFORMATION

Invoice To Same Yes ☐ / No ☑
Company: Suncor Energy Products Partnership
Contact: Stephen D'Abadie
Address: P.O. Box 2844, 150 – 6 Avenue S.W.
Calgary, AB T2P 3E3
Phone: 587-223-4146 Fax:
PO/AFE#:

Requirements *(Selection may impact detection limits)*
☐ CCME ☑ AB Tier 1
☐ Agricultural ☐ Agricultural
☐ Industrial ☐ Industrial
☐ Residential/Park ☑ Residential/Park
☐ Commercial ☐ Commercial
☐ FWAL ☐ Natural Area
☐ Drinking Water ☐ Alberta Surface Water
☐ Other: ☐ Chronic ☐ Acute

Number of Jars used & not submitted

Activity
Assessement A1 ☐ A2 ☐ AR ☐ AV ☐
Remediation RE ☐ RX ☐ RI ☐ RA ☐
Containement Management M ☐ MW ☑ MV ☐

LAB USE (LAB ID #)	SAMPLE IDENTIFICATION	DEPTH	DATE/TIME SAMPLED	SAMPLE MATRIX	COMMENTS (FILTERED, PRESERVED, HAZARDOUS*) *ADDITIONAL FEE	# OF CONTAINERS VIALS / JARS	BAGS	BOTTLES	Detailed Salinity: ☐AB ☐SK ☐BC ☐D50	☐CCME/AB : BTEX/F1-F4 ☑CCME/AB : BTEX /F1-F2	☐BC: BTEXS/VPH/EPH ☐BC: LEPH/HEPH	SK: BTEX/TVH/C11-C22, C23-C60	Soil Metals: ☐HWS-B ☐SP-B ☐Hg ☐Cr^{6+}	Water Metals: ☐Dissolved ☐Total ☐Hg ☐Cr^{6+}	Routine Water Chemistry	Landfill: ☐AB Class 2 ☐BC ☐SK	Coliforms: ☐Total ☐Fecal ☐E.coli	Particle Size: ☐Sieve (75µm) ☐Texture	1,2 DCA	VOC	HOLD FOR 30 DAYS NO ANALYSIS (Additional Fee)	HOLD FOR 30 DAYS AFTER ANALYSIS (Additional Fee)
1	BH1912		01/13/2023	G.W	Preserved			6		X								X			
2	BH1913							6		X								X			
3	BH1914							6		X								X			
4	BH1915							6		X								X			
5	DUP-01							6		X								X			
6	BH1916							6		X								X			
7	Trip Blank-01			Other				6		X								X			
8																					
9																					
10																					

Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Gavin Clarke	01/13/2023 15:00	John Capon	JAN 13 2023

Pink Copy - Client
Yellow Copy - AGAT
White Copy- AGAT

Page 1 of 1
N°: AB

AGAT Laboratories

SAMPLE INTEGRITY RECEIPT FORM

RECEIVING BASICS - Shipping

Company/Consultant: Parsons / Sunwor

Courier: O/O Prepaid Collect

Waybill#_____

Branch: EDM GP FN FM RD VAN LYD FSJ EST SASK Other: C

If multiple sites were submitted at once: Yes (No)

Custody Seal Intact: Yes No (NA)

TAT: <24hr 24-48hr 48-72hr (Reg) Other_____

Cooler Quantity: 1

TIME SENSITIVE ISSUES - Shipping

ALREADY EXCEEDED HOLD TIME? Yes (No)

Inorganic Tests (Please Circle): Mibi , BOD , Nitrate/Nitrite , Turbidity , Color , Microtox , Ortho PO4 , Tedlar Bag , Residual Chlorine , Chlorophyll* , Chloroamines*

Earliest Expiry:_____

Hydrocarbons: Earliest Expiry _____

SAMPLE INTEGRITY - Shipping

Hazardous Samples: YES (NO) Precaution Taken:_____

Legal Samples: Yes (No)

International Samples: Yes (No)

Tape Sealed: Yes (No)

Coolant Used: Icepack (Bagged Ice) Free Ice Free Water None

Temperature (Bottles/Jars only) N/A if only Soil Bags Received

FROZEN (Please Circle if samples received Frozen)

1 (Bottle/Jar) 12 + 13 + 13 = 13 °C 2(Bottle/Jar)___+___+___=____°C

3 (Bottle/Jar)___+___+___=____°C 4 (Bottle/Jar)___+___+___=____°C

5 (Bottle/Jar)___+___+___=____°C 6 (Bottle/Jar)___+___+___=____°C

7 (Bottle/Jar)___+___+___=____°C 8 (Bottle/Jar)___+___+___=____°C

9 (Bottle/Jar)___+___+___=____°C 10 (Bottle/Jar)___+___+___=____°C

(If more than 10 coolers are received use another sheet of paper and attach)

LOGISTICS USE ONLY

Workorder No: 23C988133

Samples Damaged: Yes No If YES why?

No Bubble Wrap Frozen Courier

Other: _____

Account Project Manager: _____have they been notified of the above issues: Yes No

Whom spoken to: _____ Date/Time: _____

CPM Initial_____

General Comments: _____

* Subcontracted Analysis (See CPM)

Date issued: March 11, 2020
Document ID: SR-9505.004

DATA QUALITY REVIEW CHECKLIST

Consultant: *Parsons Inc.* Sampling Date: *2023/01/17*

Location: *1620 - 14th Avenue NW, Calgary, AB* Laboratory : *AGAT Laboratories*

Consultant Project Number: *10-12832* Sample Submission Number: *23C989369*

Are All Laboratory QC Samples Within Acceptance Criteria (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Surrogate Recovery	*X*			*All lab QC met acceptance criteria.*
Method Blank Concentration	*X*			
Matrix Duplicate RPD	*X*			
Matrix Spike Recovery	*X*			
Other Quality Control Data	*X*			

Are All Field QC Samples Within Alert Limits (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Equipment Blank Concentration			*X*	*All field QC samples have met alert limits.*
Trip Blank Concentration	*X*			
Field Duplicate RPD	*X*			*The field duplicate (DUP-02) for fluoride (50%) is beyond the acceptable limits. All other field QC samples met the alert limits.*

Has CoA been signed off (Yes/No)?:	*Yes*
Were all samples analyzed within hold times (Yes/No)?:	*Yes*
All volatiles samples methanol extracted, if required, within 48 hours (Yes, No or N/A)?:	*N/A*
Is Chain of Custody completed and signed (Yes/No)?:	*Yes*
Were sample temperatures acceptable when they reached lab (Yes/No)?:	*Yes*

Is data considered to be reliable (Yes/No)?: *Yes*

If answer is "No", describe and provide rationale:

Performed by (Print): *Danielle Smith*

Reviewed by (Print): *Michelle Patterson*

Reviewed date: *2023/05/02*

Reviewed by (Signature): 

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP
BOX 1720 STN M
CALGARY, AB T2P 0A2

ATTENTION TO: Stephen D'Abadie

PROJECT: 10-12832

AGAT WORK ORDER: 23C989369

TRACE ORGANICS REVIEWED BY: Elena Gorobets, Report Writer

WATER ANALYSIS REVIEWED BY: Thomas Yoo, Report Writer

DATE REPORTED: Jan 25, 2023

PAGES (INCLUDING COVER): 17

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (403) 735-2005

*Notes

Disclaimer:

- All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.
- All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.
- This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
- The test results reported herewith relate only to the samples as received by the laboratory.
- Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.
- All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C989369

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:

SUNCOR - Petroleum Hydrocarbons (BTEX/F1-F2) in Water

DATE RECEIVED: 2023-01-17

DATE REPORTED: 2023-01-20

				SAMPLE DESCRIPTION:	BH1966	BH1102	BH1906	DUP-02	BH1971	BH1907	BH1973	BH1911
				SAMPLE TYPE:	Water	Water	Water	Water	Water	Water	Water	Water
				DATE SAMPLED:	2023-01-17 10:51	2023-01-17 11:00	2023-01-17 11:20	2023-01-17 11:20	2023-01-17 11:40	2023-01-17 11:50	2023-01-17 12:10	2023-01-17 12:30
Parameter	Unit	G / S	RDL		4697535	4697539	4697540	4697618	4697620	4697621	4697622	4697623
Benzene	mg/L		0.0005		<0.0005	<0.0005	1.65	1.62	0.0037	0.387	0.0034	<0.0005
Toluene	mg/L		0.0003		<0.0003	<0.0003	<0.0003	<0.0003	0.0004	2.82	0.0007	<0.0003
Ethylbenzene	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	0.0083	0.608	0.0067	<0.0005
m,p-Xylenes	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	3.96	<0.0005	<0.0005
o-Xylene	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	1.00	<0.0005	<0.0005
Xylenes	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	4.96	<0.0005	<0.0005
C6 - C10 (F1)	mg/L		0.1		<0.1	<0.1	1.6	1.6	1.5	11.6	0.9	<0.1
C6 - C10 (F1 minus BTEX)	mg/L		0.1		<0.1	<0.1	<0.1	<0.1	1.4	2.8	0.8	<0.1
C>10 - C16	mg/L		0.1		<0.1	<0.1	<0.1	<0.1	0.2	0.7	0.2	<0.1
Sediment					Not Present	Not Present	Not Present	Not Present	Not Present	Not Present	Not Present	Not Present
Surrogate	Unit	Acceptable Limits										
Toluene-d8 (BTEX)	%	60-140			101	107	90	89	109	131	116	102
o-Terphenyl (F2-F4)	%	60-140			107	105	107	106	103	107	106	106

Certified By: Elena Gorobets

AGAT Laboratories
2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C989369

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:

SUNCOR - Petroleum Hydrocarbons (BTEX/F1-F2) in Water

DATE RECEIVED: 2023-01-17

DATE REPORTED: 2023-01-20

				SAMPLE DESCRIPTION:	BH1976	BH1910	DUP-03	BH1974	BH6004	BH1967	BH6005	BH1908
				SAMPLE TYPE:	Water	Water	Water	Water	Water	Water	Water	Water
				DATE SAMPLED:	2023-01-17 12:40	2023-01-17 12:45	2023-01-17 12:45	2023-01-17 13:00	2023-01-17 13:20	2023-01-17 13:30	2023-01-17 13:45	2023-01-17 14:10
Parameter	Unit	G / S	RDL		4697624	4697626	4697627	4697628	4697629	4697630	4697631	4697632
Benzene	mg/L		0.0005		<0.0005	0.135	0.136	<0.0005	<0.0005	0.0900	0.840	<0.0005
Toluene	mg/L		0.0003		<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.0072	0.639	<0.0003
Ethylbenzene	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0114	0.110	<0.0005
m,p-Xylenes	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0009	0.726	<0.0005
o-Xylene	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.149	<0.0005
Xylenes	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0009	0.875	<0.0005
C6 - C10 (F1)	mg/L		0.1		<0.1	0.1	0.1	<0.1	<0.1	2.5	5.3	<0.1
C6 - C10 (F1 minus BTEX)	mg/L		0.1		<0.1	<0.1	<0.1	<0.1	<0.1	2.4	2.8	<0.1
C>10 - C16	mg/L		0.1		<0.1	<0.1	<0.1	<0.1	<0.1	0.3	0.5	<0.1
Sediment					Not Present	Not Present	Not Present	Not Present	Not Present	Not Present	Not Present	Not Present
Surrogate	Unit	Acceptable Limits										
Toluene-d8 (BTEX)	%	60-140			107	89	96	103	118	129	125	93
o-Terphenyl (F2-F4)	%	60-140			105	106	106	106	106	107	106	107

Certified By: Elena Gorobets

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C989369

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:

SUNCOR - Petroleum Hydrocarbons (BTEX/F1-F2) in Water

DATE RECEIVED: 2023-01-17

DATE REPORTED: 2023-01-20

				SAMPLE DESCRIPTION:	BH2008	BH2007	Trip Blank-02	Trip Blank-03
				SAMPLE TYPE:	Water	Water	Water	Water
				DATE SAMPLED:	2023-01-17 14:15	2023-01-17 14:30	2023-01-17 14:50	2023-01-17 15:00
Parameter	Unit	G / S	RDL		4697633	4697634	4697635	4697636
Benzene	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005
Toluene	mg/L		0.0003		<0.0003	<0.0003	<0.0003	<0.0003
Ethylbenzene	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005
m,p-Xylenes	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005
o-Xylene	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005
Xylenes	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005
C6 - C10 (F1)	mg/L		0.1		<0.1	<0.1	<0.1	<0.1
C6 - C10 (F1 minus BTEX)	mg/L		0.1		<0.1	<0.1	<0.1	<0.1
C>10 - C16	mg/L		0.1		<0.1	<0.1	<0.1	<0.1
Sediment					Not Present	Not Present	Not Present	Not Present
Surrogate	Unit	Acceptable Limits						
Toluene-d8 (BTEX)	%	60-140			109	127	104	104
o-Terphenyl (F2-F4)	%	60-140			106	106	104	106

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

4697535-4697636 The F1 (C6 - C10) fraction is determined by integrating the FID chromatogram from the beginning of the nC6 peak to the apex of the last nC10 peak.
The C6 - C10 fraction is calculated from the FID toluene response factor.
The F2 (C10 - C16) fraction is determined by integrating the FID chromatogram from the apex of the nC10 peak to the apex of the nC16 peak.
The F2 (C10 - C16) fraction is calculated using the average response factor for nC10, nC16, and nC34.
Quality control for the calibration follows the guidelines set out in the CCME Contaminated Sites Method for Soils.
C6 –C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
C>10 – C16 (F2- Napthalene) is a calculated parameter. The calculated value is F2 - Napthalene (if requested). The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
C>16 - C34 (F3-PAH) is a calculated parameter. The calculated value is F3-PAH (if requested). The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
Xylenes is a calculated parameter. The calculated value is the sum of m&p-Xylenes + o-Xylene. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
Sediment parameter is comment only based on visual inspection of the sample prior to extraction and is not an accredited test.
Extraction and holding times were met for this sample.

Analysis performed at AGAT Calgary (unless marked by *)

Certified By: Elena Gorobets

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C989369

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:

Volatile Organic Compounds in Water

DATE RECEIVED: 2023-01-17

DATE REPORTED: 2023-01-19

				SAMPLE DESCRIPTION:	Trip Blank-02	Trip Blank-03
				SAMPLE TYPE:	Water	Water
				DATE SAMPLED:	2023-01-17 14:50	2023-01-17 15:00
Parameter	Unit	G / S	RDL		4697635	4697636
Chloromethane	mg/L		0.001		<0.001	<0.001
Vinyl Chloride	mg/L		0.0008		<0.0008	<0.0008
Bromomethane	mg/L		0.001		<0.001	<0.001
Chloroethane	mg/L		0.001		<0.001	<0.001
Trichlorofluoromethane	mg/L		0.001		<0.001	<0.001
Acetone	mg/L		0.01		<0.01	<0.01
1,1-Dichloroethylene	mg/L		0.001		<0.001	<0.001
Methylene Chloride	mg/L		0.001		<0.001	<0.001
Methyl tert-Butyl Ether	mg/L		0.001		<0.001	<0.001
Methyl Ethyl Ketone	mg/L		0.01		<0.01	<0.01
trans-1,2-Dichloroethylene	mg/L		0.001		<0.001	<0.001
1,1-Dichloroethane	mg/L		0.001		<0.001	<0.001
cis-1,2-Dichloroethylene	mg/L		0.001		<0.001	<0.001
Chloroform	mg/L		0.001		<0.001	<0.001
1,2-Dichloroethane	mg/L		0.001		<0.001	<0.001
1,1,1-Trichloroethane	mg/L		0.001		<0.001	<0.001
Carbon Tetrachloride	mg/L		0.0005		<0.0005	<0.0005
Benzene	mg/L		0.0005		<0.0005	<0.0005
1,2-Dichloropropane	mg/L		0.001		<0.001	<0.001
Trichloroethylene	mg/L		0.00030		<0.0003	<0.0003
Bromodichloromethane	mg/L		0.001		<0.001	<0.001
trans-1,3-Dichloropropene	mg/L		0.001		<0.001	<0.001
Methyl Isobutyl Ketone	mg/L		0.01		<0.01	<0.01
cis-1,3-Dichloropropene	mg/L		0.001		<0.001	<0.001
1,1,2-Trichloroethane	mg/L		0.001		<0.001	<0.001
Toluene	mg/L		0.0003		<0.0003	<0.0003
2-Hexanone	mg/L		0.02		<0.02	<0.02
Dibromochloromethane	mg/L		0.001		<0.001	<0.001
Ethylene Dibromide	mg/L		0.001		<0.001	<0.001

Certified By: Elena Gorobets

AGAT Laboratories
2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C989369

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:

Volatile Organic Compounds in Water

DATE RECEIVED: 2023-01-17

DATE REPORTED: 2023-01-19

				SAMPLE DESCRIPTION:	Trip Blank-02	Trip Blank-03
				SAMPLE TYPE:	Water	Water
				DATE SAMPLED:	2023-01-17 14:50	2023-01-17 15:00
Parameter	Unit	G / S	RDL		4697635	4697636
Tetrachloroethene	mg/L		0.001		<0.001	<0.001
1,1,1,2-Tetrachloroethane	mg/L		0.001		<0.001	<0.001
Chlorobenzene	mg/L		0.0010		<0.001	<0.001
Ethylbenzene	mg/L		0.0005		<0.0005	<0.0005
m,p-Xylenes	mg/L		0.0005		<0.0005	<0.0005
Bromoform	mg/L		0.001		<0.001	<0.001
Styrene	mg/L		0.001		<0.001	<0.001
1,1,2,2-Tetrachloroethane	mg/L		0.001		<0.001	<0.001
o-Xylene	mg/L		0.0005		<0.0005	<0.0005
1,3-Dichlorobenzene	mg/L		0.0005		<0.0005	<0.0005
1,4-Dichlorobenzene	mg/L		0.0005		<0.0005	<0.0005
1,2-Dichlorobenzene	mg/L		0.0005		<0.0005	<0.0005
1,2,4-Trichlorobenzene	mg/L		0.001		<0.001	<0.001
Xylenes	mg/L		0.0005		<0.0005	<0.0005
Surrogate	Unit	Acceptable Limits				
Toluene-d8	%	50-140			94	97

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

4697635-4697636 1,1,2,2-Tetrachloroethane reported only for samples matrices which can be purged. Otherwise N/A.
Xylenes is a calculated parameter. The calculated value is the sum of m&p-Xylenes + o-Xylene. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Calgary (unless marked by *)

Certified By: Elena Gorobets

AGAT Laboratories
2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C989369

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:

Volatile Organic Compounds in Water - 1,2-DCA

DATE RECEIVED: 2023-01-17

DATE REPORTED: 2023-01-19

		SAMPLE DESCRIPTION:		BH1966	BH1102	BH1906	DUP-02	BH1971	BH1907	BH1973	BH1911
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2023-01-17 10:51	2023-01-17 11:00	2023-01-17 11:20	2023-01-17 11:20	2023-01-17 11:40	2023-01-17 11:50	2023-01-17 12:10	2023-01-17 12:30
Parameter	Unit	G / S	RDL	4697535	4697539	4697540	4697618	4697620	4697621	4697622	4697623
1,2-Dichloroethane	mg/L		0.001	<0.001	<0.001	0.028	0.028	0.046	0.007	0.018	<0.001
Surrogate	Unit	Acceptable Limits									
Toluene-d8	%	50-140		90	92	76	80	91	110	99	92

		SAMPLE DESCRIPTION:		BH1976	BH1910	DUP-03	BH1974	BH6004	BH1967	BH6005	BH1908
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2023-01-17 12:40	2023-01-17 12:45	2023-01-17 12:45	2023-01-17 13:00	2023-01-17 13:20	2023-01-17 13:30	2023-01-17 13:45	2023-01-17 14:10
Parameter	Unit	G / S	RDL	4697624	4697626	4697627	4697628	4697629	4697630	4697631	4697632
1,2-Dichloroethane	mg/L		0.001	<0.001	0.022	0.021	<0.001	0.009	0.019	0.024	<0.001
Surrogate	Unit	Acceptable Limits									
Toluene-d8	%	50-140		91	83	84	97	102	103	107	98

		SAMPLE DESCRIPTION:		BH2008	BH2007
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		2023-01-17 14:15	2023-01-17 14:30
Parameter	Unit	G / S	RDL	4697633	4697634
1,2-Dichloroethane	mg/L		0.001	<0.001	<0.001
Surrogate	Unit	Acceptable Limits			
Toluene-d8	%	50-140		98	118

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Analysis performed at AGAT Calgary (unless marked by *)

Certified By: Elena Gorobets

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C989369

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:

Water Package - Routine Chemistry Water Analysis - Lab Filtered Cations

DATE RECEIVED: 2023-01-17

DATE REPORTED: 2023-01-23

		SAMPLE DESCRIPTION:		BH1906	DUP-02	BH1910	DUP-03
		SAMPLE TYPE:		Water	Water	Water	Water
		DATE SAMPLED:		2023-01-17 11:20	2023-01-17 11:20	2023-01-17 12:45	2023-01-17 12:45
Parameter	Unit	G / S	RDL	4697540	4697618	4697626	4697627
pH	pH Units	7.0-10.5	N/A	7.51	7.49	7.52	7.56
p - Alkalinity (as CaCO3)	mg/L		5	<5	<5	<5	<5
T - Alkalinity (as CaCO3)	mg/L		5	462	459	585	584
Bicarbonate	mg/L		5	577	572	724	723
Carbonate	mg/L		5	<5	<5	<5	<5
Hydroxide	mg/L		5	<5	<5	<5	<5
Electrical Conductivity	uS/cm		5	1970	1970	1940	1940
Chloride	mg/L	(250)	1.0	311	314	347	341
Fluoride	mg/L	1.5	0.01	0.20	0.12	0.15	0.14
Nitrate	mg/L	45	1.0	138	140	5.1	5.1
Nitrate-N	mg/L	10	0.02	31.2	31.6	1.15	1.15
Nitrite	mg/L	3	0.05	17.7	18.2	0.14	0.15
Nitrite-N	mg/L	1	0.01	5.39	5.54	0.04	0.05
Nitrate+Nitrite - Nitrogen	mg/L		0.02	36.6	37.2	1.19	1.20
Sulfate	mg/L	(500)	1.0	37.8	37.3	27.4	27.2
Dissolved Calcium	mg/L		0.3	184	184	143	143
Dissolved Magnesium	mg/L		0.2	101	100	136	137
Dissolved Sodium	mg/L	(200)	0.6	50.8	50.0	46.2	46.7
Dissolved Potassium	mg/L		0.6	4.7	4.7	3.2	3.2
Dissolved Iron	mg/L	(0.3)	0.1	<0.1	<0.1	<0.1	<0.1
Dissolved Manganese	mg/L	0.12 (0.02)	0.005	0.677	0.674	0.573	0.577
Sodium Adsorption Ratio				0.75	0.74	0.66	0.67
Calculated TDS	mg/L		0.6	1130	1130	1060	1060
Hardness	mg CaCO3/L		0.5	875	871	917	921
Ion Balance	%		1	92	91	92	93
Lab Filtration on Routine for IC				Complete	Complete	Complete	Complete
Lab Filtration on Routine for Metals				Complete	Complete	Complete	Complete

Certified By:

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C989369

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:

Water Package - Routine Chemistry Water Analysis - Lab Filtered Cations

DATE RECEIVED: 2023-01-17

DATE REPORTED: 2023-01-23

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to 2020 Canadian Drinking Water Quality MAC (AO)
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

4697540-4697627 < - Values refer to Report Detection Limits.
SAR is a calculated parameter. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
If sodium results in mg/L are less than detection, SAR is non-calculable and is reported as 0.
Ion Balance is a calculated parameter. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
Hardness is a calculated parameter. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
Calculated TDS is a calculated parameter. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Calgary (unless marked by *)

Certified By:

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Quality Assurance

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

AGAT WORK ORDER: 23C989369

PROJECT: 10-12832

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis

RPT Date:			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
SUNCOR - Petroleum Hydrocarbons (BTEX/F1-F2) in Water															
Benzene	4554	4697539	<0.0005	<0.0005	NA	< 0.0005	94%	60%	140%	89%	60%	140%	87%	60%	140%
Toluene	4554	4697539	<0.0003	<0.0003	NA	< 0.0003	95%	60%	140%	89%	60%	140%	88%	60%	140%
Ethylbenzene	4554	4697539	<0.0005	<0.0005	NA	< 0.0005	92%	60%	140%	82%	60%	140%	82%	60%	140%
m,p-Xylenes	4554	4697539	<0.0005	<0.0005	NA	< 0.0005	92%	60%	140%	92%	60%	140%	92%	60%	140%
o-Xylene	4554	4697539	<0.0005	<0.0005	NA	< 0.0005	91%	60%	140%	92%	60%	140%	92%	60%	140%
Xylenes	4554	4697539	<0.0005	<0.0005	NA	< 0.0005	92%	60%	140%	92%	60%	140%	92%	60%	140%
C6 - C10 (F1)	4554	4697539	<0.1	<0.1	NA	< 0.1	118%	60%	140%	126%	60%	140%	121%	60%	140%
C>10 - C16	8025	4697539	<0.1	<0.1	NA	< 0.1	117%	60%	140%	99%	60%	140%	96%	60%	140%
Comments: Duplicate NA: results are less than 5X the RDL and RDP will not be calculated. The sample spikes and dups are not from the same sample ID.															
Volatile Organic Compounds in Water - 1,2-DCA															
1,2-Dichloroethane	4554	4697539	<0.001	<0.001	NA	< 0.001	102%	50%	140%	96%	60%	130%	94%	50%	140%
Comments: Duplicate NA: results are less than 5X the RDL and RDP will not be calculated. The sample spikes and dups are not from the same sample ID.															
Volatile Organic Compounds in Water															
Chloromethane	4554	4697539	< 0.001	< 0.001	NA	< 0.001	104%	50%	140%	92%	50%	140%	127%	50%	140%
Vinyl Chloride	4554	4697539	< 0.0008	< 0.0008	NA	< 0.0008	96%	50%	140%	88%	50%	140%	88%	50%	140%
Bromomethane	4554	4697539	< 0.001	< 0.001	NA	< 0.001	118%	50%	140%	104%	50%	140%	101%	50%	140%
Chloroethane	4554	4697539	< 0.001	< 0.001	NA	< 0.001	110%	50%	140%	96%	50%	140%	96%	50%	140%
Trichlorofluoromethane	4554	4697539	< 0.001	< 0.001	NA	< 0.001	121%	50%	140%	109%	60%	130%	103%	50%	140%
Acetone	4554	4697539	< 0.01	< 0.01	NA	< 0.01	74%	50%	140%	74%	50%	140%	102%	50%	140%
1,1-Dichloroethylene	4554	4697539	< 0.001	< 0.001	NA	< 0.001	126%	50%	140%	109%	60%	130%	106%	50%	140%
Methylene Chloride	4554	4697539	< 0.001	< 0.001	NA	< 0.001	107%	50%	140%	98%	60%	130%	95%	50%	140%
Methyl tert-Butyl Ether	4554	4697539	< 0.001	< 0.001	NA	< 0.001	125%	50%	140%	115%	60%	130%	103%	50%	140%
Methyl Ethyl Ketone	4554	4697539	< 0.01	< 0.01	NA	< 0.01	70%	50%	140%	80%	50%	140%	105%	50%	140%
trans-1,2-Dichloroethylene	4554	4697539	< 0.001	< 0.001	NA	< 0.001	118%	50%	140%	106%	60%	130%	102%	50%	140%
1,1-Dichloroethane	4554	4697539	< 0.001	< 0.001	NA	< 0.001	105%	50%	140%	94%	60%	130%	93%	50%	140%
cis-1,2-Dichloroethylene	4554	4697539	< 0.001	< 0.001	NA	< 0.001	126%	50%	140%	108%	60%	130%	105%	50%	140%
Chloroform	4554	4697539	< 0.001	< 0.001	NA	< 0.001	100%	50%	140%	92%	60%	130%	90%	50%	140%
1,2-Dichloroethane	4554	4697539	< 0.001	< 0.001	NA	< 0.001	102%	50%	140%	96%	60%	130%	94%	50%	140%
1,1,1-Trichloroethane	4554	4697539	< 0.001	< 0.001	NA	< 0.001	113%	50%	140%	102%	60%	130%	98%	50%	140%
Carbon Tetrachloride	4554	4697539	< 0.0005	< 0.0005	NA	< 0.0005	111%	50%	140%	105%	60%	130%	99%	50%	140%
Benzene	4554	4697539	< 0.0005	< 0.0005	NA	< 0.0005	91%	50%	140%	93%	60%	130%	93%	50%	140%
1,2-Dichloropropane	4554	4697539	< 0.001	< 0.001	NA	< 0.001	83%	50%	140%	88%	60%	130%	88%	50%	140%
Trichloroethylene	4554	4697539	< 0.00030	< 0.00030	NA	< 0.00030	96%	50%	140%	98%	60%	130%	71%	50%	140%
Bromodichloromethane	4554	4697539	< 0.001	< 0.001	NA	< 0.001	85%	50%	140%	88%	60%	130%	89%	50%	140%
trans-1,3-Dichloropropene	4554	4697539	< 0.001	< 0.001	NA	< 0.001	91%	50%	140%	100%	60%	130%	92%	50%	140%
Methyl Isobutyl Ketone	4554	4697539	< 0.01	< 0.01	NA	< 0.01	70%	50%	140%	94%	50%	140%	103%	50%	140%

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Quality Assurance

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

AGAT WORK ORDER: 23C989369

PROJECT: 10-12832

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis (Continued)

RPT Date:			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
cis-1,3-Dichloropropene	4554	4697539	< 0.001	< 0.001	NA	< 0.001	83%	50%	140%	96%	60%	130%	96%	50%	140%
1,1,2-Trichloroethane	4554	4697539	< 0.001	< 0.001	NA	< 0.001	85%	50%	140%	85%	60%	130%	88%	50%	140%
Toluene	4554	4697539	< 0.0003	< 0.0003	NA	< 0.0003	94%	50%	140%	96%	60%	130%	94%	50%	140%
2-Hexanone	4554	4697539	< 0.02	< 0.02	NA	< 0.02	70%	50%	140%	84%	50%	140%	85%	50%	140%
Dibromochloromethane	4554	4697539	< 0.001	< 0.001	NA	< 0.001	96%	50%	140%	103%	60%	130%	104%	50%	140%
Ethylene Dibromide	4554	4697539	< 0.001	< 0.001	NA	< 0.001	95%	50%	140%	103%	60%	130%	103%	50%	140%
Tetrachloroethene	4554	4697539	< 0.001	< 0.001	NA	< 0.001	110%	50%	140%	111%	60%	130%	107%	50%	140%
1,1,1,2-Tetrachloroethane	4554	4697539	< 0.001	< 0.001	NA	< 0.001	106%	50%	140%	107%	60%	130%	109%	50%	140%
Chlorobenzene	4554	4697539	< 0.0010	< 0.0010	NA	< 0.0010	88%	50%	140%	102%	60%	130%	100%	50%	140%
Ethylbenzene	4554	4697539	< 0.0005	< 0.0005	NA	< 0.0005	90%	50%	140%	105%	60%	130%	101%	50%	140%
m,p-Xylenes	4554	4697539	< 0.0005	< 0.0005	NA	< 0.0005	88%	50%	140%	99%	60%	130%	96%	50%	140%
Bromoform	4554	4697539	< 0.001	< 0.001	NA	< 0.001	100%	50%	140%	104%	60%	130%	108%	50%	140%
Styrene	4554	4697539	< 0.001	< 0.001	NA	< 0.001	106%	50%	140%	116%	60%	130%	110%	50%	140%
o-Xylene	4554	4697539	< 0.0005	< 0.0005	NA	< 0.0005	88%	50%	140%	96%	60%	130%	93%	50%	140%
1,3-Dichlorobenzene	4554	4697539	< 0.0005	< 0.0005	NA	< 0.0005	92%	50%	140%	98%	60%	130%	97%	50%	140%
1,4-Dichlorobenzene	4554	4697539	< 0.0005	< 0.0005	NA	< 0.0005	77%	50%	140%	104%	60%	130%	99%	50%	140%
1,2-Dichlorobenzene	4554	4697539	< 0.0005	< 0.0005	NA	< 0.0005	100%	50%	140%	104%	60%	130%	105%	50%	140%
1,2,4-Trichlorobenzene	4554	4697539	< 0.001	< 0.001	NA	< 0.001	102%	50%	140%	107%	60%	130%	108%	50%	140%
Xylenes	4554	4697539	< 0.0005	< 0.0005	NA	< 0.0005	88%	50%	140%	98%	60%	130%	95%	50%	140%

Comments: Duplicate NA: results are less than 5X the RDL and RDP will not be calculated.
The sample spikes and dups are not from the same sample ID.

Certified By: Elena Gorobets

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Quality Assurance

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

AGAT WORK ORDER: 23C989369

PROJECT: 10-12832

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:

Water Analysis

RPT Date:			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Water Package - Routine Chemistry Water Analysis - Lab Filtered Cations															
pH	4697626	4697626	7.52	7.54	0.3%	N/A	101%	90%	110%						
p - Alkalinity (as CaCO3)	4697626	4697626	<5	<5	NA	< 5	NA	80%	120%						
T - Alkalinity (as CaCO3)	4697626	4697626	585	584	0.1%	< 5	103%	80%	120%						
Bicarbonate	4697626	4697626	724	723	0.1%	8	NA								
Carbonate	4697626	4697626	<5	<5	NA	< 5	NA								
Hydroxide	4697626	4697626	<5	<5	NA	< 5	NA								
Electrical Conductivity	4697626	4697626	1940	1930	0.3%	< 5	101%	90%	110%						
Chloride	4697540	4697540	311	320	2.7%	< 1.0	100%	70%	130%	90%	80%	120%	NA	70%	130%
Fluoride	4697540	4697540	<0.1	<0.1	NA	< 0.01	99%	70%	130%	89%	80%	120%	96%	70%	130%
Nitrate	4697540	4697540	138	141	1.9%	< 0.5	100%	70%	130%	95%	80%	120%	NA	70%	130%
Nitrite	4697540	4697540	17.5	17.6	0.5%	< 0.05	101%	70%	130%	93%	80%	120%	98%	70%	130%
Sulfate	4697540	4697540	32.7	34.6	5.7%	< 1.0	101%	70%	130%	95%	80%	120%	98%	70%	130%
Dissolved Calcium	4697549		<0.3	<0.3	NA	< 0.3	91%	70%	130%	96%	80%	120%	96%	70%	130%
Dissolved Magnesium	4697549		<0.2	<0.2	NA	< 0.2	95%	70%	130%	89%	80%	120%	95%	70%	130%
Dissolved Sodium	4697549		<0.6	<0.6	NA	< 0.6	97%	70%	130%	94%	80%	120%	97%	70%	130%
Dissolved Potassium	4697549		<0.6	<0.6	NA	< 0.6	86%	70%	130%	86%	80%	120%	90%	70%	130%
Dissolved Iron	4697549		<0.1	<0.1	NA	< 0.1	102%	70%	130%	105%	80%	120%	107%	70%	130%
Dissolved Manganese	4697549		<0.005	<0.005	NA	< 0.005	100%	70%	130%	104%	80%	120%	105%	70%	130%

Comments: Matrix spike NA: Spike level < native concentration. Matrix spike acceptance limits do not apply and are not calculated.
Duplicate NA: results are less than 5X the RDL and RDP will not be calculated.

pH has been analyzed past the recommended holding time of 15 minutes from sampling (field measurement ideal if more accurate data required)

Nitrate and Nitrite: The regulatory hold time for the analysis of nitrate and/or nitrite in water is 72 hours.

Certified By:

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Method Summary

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

AGAT WORK ORDER: 23C989369

PROJECT: 10-12832

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Benzene	TO 0332	EPA SW-846 5021 & 8260	GC/MS
Toluene	TO 0332	EPA SW-846 5021 & 8260	GC/MS
Ethylbenzene	TO 0332	EPA SW-846 5021 & 8260	GC/MS
m,p-Xylenes	TO-0542	EPA SW-846 5021/8260-W	GC/MS
o-Xylene	TO-0542	EPA SW-846 5021/8260-W	GC/MS
Xylenes	TO 0332	EPA SW-846 5021 & 8260	GC/MS
C6 - C10 (F1)	TO 0542	CCME Tier 1 Method	GC/FID
C6 - C10 (F1 minus BTEX)	TO 0542	CCME Tier 1 Method	GC/FID
C>10 - C16	TO 0511	CCME Tier 1 Method	GC/FID
Toluene-d8 (BTEX)	TO-0543	EPA SW-846 5021 & 8260	GC/FID
o-Terphenyl (F2-F4)	TO 0511	CCME Tier 1 Method	GC/FID
Sediment	TO-0511	CCME Tier 1 Method	GC/FID
Chloromethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Vinyl Chloride	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Bromomethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Chloroethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Trichlorofluoromethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Acetone	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,1-Dichloroethylene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Methylene Chloride	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Methyl tert-Butyl Ether	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Methyl Ethyl Ketone	TO-0330	EPA SW-846 5030 & 8260	GC/MS
trans-1,2-Dichloroethylene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,1-Dichloroethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
cis-1,2-Dichloroethylene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Chloroform	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,2-Dichloroethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,1,1-Trichloroethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Carbon Tetrachloride	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Benzene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,2-Dichloropropane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Trichloroethylene	TO-0330	EPA SW-846 8260	GC/MS
Bromodichloromethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
trans-1,3-Dichloropropene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Methyl Isobutyl Ketone	TO-0330	EPA SW-846 5030 & 8260	GC/MS
cis-1,3-Dichloropropene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,1,2-Trichloroethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Toluene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
2-Hexanone	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Dibromochloromethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Ethylene Dibromide	TO-0330	EPA SW-846 8260	GC/MS
Tetrachloroethene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,1,1,2-Tetrachloroethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Chlorobenzene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Ethylbenzene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
m,p-Xylenes	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Bromoform	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Styrene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,1,2,2-Tetrachloroethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Method Summary

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

AGAT WORK ORDER: 23C989369

PROJECT: 10-12832

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
o-Xylene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,3-Dichlorobenzene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,4-Dichlorobenzene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,2-Dichlorobenzene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,2,4-Trichlorobenzene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Xylenes	TO 0330	EPA SW-846 8260	GC/MS
Toluene-d8	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Water Analysis			
pH	INST 0101, INST 0104	SM 4500 H+	PH METER
p - Alkalinity (as CaCO3)	INST-0100, INST-0101	SM 2320 B	TITRATION
T - Alkalinity (as CaCO3)	INST 0101	SM 2320 B	TITRATION
Bicarbonate	INST 0101	SM 2320 B	PC TITRATE
Carbonate	INST 0101	SM 2320 B	PC TITRATE
Hydroxide	INST 0101	SM 2320 B	PC TITRATE
Electrical Conductivity	INST 0101, INST 0120	SM 2510 B	CONDUCTIVITY METER
Chloride	INST 0150	SM 4110 B	ION CHROMATOGRAPH
Fluoride	INST 0150	SM 4110 B	ION CHROMATOGRAPH
Nitrate	INST 0150	SM 4110 B	ION CHROMATOGRAPH
Nitrate-N	INST 0150	SM 4110 B	CALCULATION
Nitrite	INST 0150	SM 4110 B	ION CHROMATOGRAPH
Nitrite-N	INST 0150	SM 4110 B	CALCULATION
Nitrate+Nitrite - Nitrogen	INST 0150	SM 4110 B	CALCULATION
Sulfate	INST 0150	SM 4110 B	ION CHROMATOGRAPH
Dissolved Calcium	INST 0140	SM 3120B – R	ICP/OES
Dissolved Magnesium	INST 0140	SM 3120B – R	ICP/OES
Dissolved Sodium	INST 0140	SM 3120B – R	ICP/OES
Dissolved Potassium	INST 0140	SM 3120B – R	ICP/OES
Dissolved Iron	INST 0140	SM 3120B – R	ICP/OES
Dissolved Manganese	INST 0140	SM 3120B – R	ICP/OES
Sodium Adsorption Ratio		CARTER & GREGORICH 2007	CALCULATION
Calculated TDS		SM 1030E	CALCULATION
Hardness		SM 2340 B	CALCULATION
Ion Balance		SM 1030E	CALCULATION
Lab Filtration on Routine for IC			N/A
Lab Filtration on Routine for Metals			N/A

AGAT Laboratories

2910 12 Street NE
Calgary, Alberta T2E 7P7
P: 403-735-2005 • F: 403-735-2771
webearth.agatlabs.com

Laboratory Use Only
Arrival Temperature: 7C
AGAT Job Number: 23C989369
Date and Time: 17-JAN-23 PM 4:03

Chain of Custody Record

Emergency Support Services Hotline **1-855-AGAT 245 (1-855-242-8245)**

Report Information
Company: PARSONS
Contact: Michelle Patterson
Address: #100, 318 – 11 Ave SE, Calgary AB T2G 0Y2
Phone: (403)294-4215 Fax: (403)294-4240
LSD: 1624 14th Street NW, Calgary, AB
Client Project #: 10-12832
Sampled By: Gavin Clarke
Outlet #: 9445

Report Information
1. Name: Michelle Patterson
Email: michelle.patterson@parsons.com
2. Name: Calgary Lab Report
Email: Calgary.labreport@parsons.com
3. Name:
Email:

Turnaround Time Required (TAT)
Regular TAT ☑ 5 to 7 Business Days
Rush TAT ☐ <24 Hours (200%) ☐ Two Day / Next Day (100%) ☐ Three Day (50%) ☐ Four Day (25%)
Date Required:

SEE BACK FOR SURCHARGE BREAKDOWN. CONTACT YOUR CPM FOR ADDITIONAL INFORMATION

Invoice To Same Yes ☐ / No ☑
Company: Suncor Energy Products Partnership
Contact: Stephen D'Abadie
Address: P.O. Box 2844, 150 – 6 Avenue S.W.
Calgary, AB T2P 3E3
Phone: 587-223-4146 Fax:
PO/AFE#:

Requirements *(Selection may impact detection limits)*
☐ CCME ☑ AB Tier 1
☐ Agricultural ☐ Agricultural
☐ Industrial ☐ Industrial
☐ Residential/Park ☑ Residential/Park
☐ Commercial ☐ Commercial
☐ FWAL ☐ Natural Area
☐ Drinking Water ☐ Alberta Surface Water
☐ Other: ☐ Chronic ☐ Acute

Number of jars used & not submitted

Activity
Assessement
A1 ☐ A2 ☐
AR ☐ AV ☐
Remediation
RE ☐ RX ☐
RI ☐ RA ☐
Containement Management
M ☐ MW ☑
MV ☐

LABORATORY USE (LAB ID #)	SAMPLE IDENTIFICATION	DEPTH	DATE/TIME SAMPLED	SAMPLE MATRIX	COMMENTS (FILTERED, PRESERVED, HAZARDOUS*) *ADDITIONAL FEE	# OF CONTAINERS VIALS / JARS	BAGS	BOTTLES	Detailed Salinity: ☐AB ☐SK ☐BC ☐D50	☐CCME/AB : BTEX/F1-F4 ☑CCME/AB : BTEX /F1-F2	☐BC: BTEXS/VPH/EPH ☐BC: LEPH/HEPH	SK: BTEX/TVH/C11-C22, C23-C60	Soil Metals: ☐HWS-B ☐SP-B ☐Hg ☐Cr^{6+}	Water Metals: ☐Dissolved ☐Total ☐Hg ☐Cr^{6+}	Routine Water Chemistry	Landfill: ☐AB Class 2 ☐BC ☐SK	Coliforms: ☐Total ☐Fecal ☐E.coli	Particle Size: ☐Sieve (75um) ☐Texture	1,2 DCA 1,2 Dichloroethane	VOC	HOLD FOR 30 DAYS NO ANALYSIS (Additional Fee)	HOLD FOR 30 DAYS AFTER ANALYSIS (Additional Fee)
1	BH1966		01/17/23 10:50	GW	Preserved			6		X									X			
2	BH1102		11:00					6		X									X			
3	BH1906		11:20					7		X					X				X			
4	DUP-02		11:20					7		X					X				X			
5	BH1971		11:40					6		X									X			
6	BH1907		11:50					6		X									X			
7	BH1973		12:10					6		X									X			
8	BH1911		12:30					6		X									X			
9	BH1976		12:40					6		X									X			
10	BH1910		12:45					7		X					X				X			

Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Gavin Clarke	01/17/23 15:30	Lan7 Cen7	1/17/23
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time

Pink Copy - Client
Yellow Copy - AGAT
White Copy- AGAT

Page 1 of 2

N°: AB

AGAT Laboratories

2910 12 Street NE
Calgary, Alberta T2E 7P7
P: 403-735-2005 • F: 403-735-2771
webearth.agatlabs.com

Laboratory Use Only
Arrival Temperature: 7C
AGAT Job Number:
Date and Time: 17-JAN-23 14:03

Chain of Custody Record

Emergency Support Services Hotline 1-855-AGAT 245 (1-855-242-8245)

Report Information
Company: PARSONS
Contact: Michelle Patterson
Address: #100, 318 – 11 Ave SE, Calgary AB T2G 0Y2
Phone: (403)294-4215 Fax: (403)294-4240
LSD: 1624 14th Street NW, Calgary, AB
Client Project #: 10-12832
Sampled By: Gavin Clarke
Outlet #: 9445

Report Information
1. Name: Michelle Patterson
Email: michelle.patterson@parsons.com
2. Name: Calgary Lab Report
Email: Calgary.labreport@parsons.com
3. Name:
Email:

Turnaround Time Required (TAT)
Regular TAT ☑ 5 to 7 Business Days
Rush TAT ☐ <24 Hours (200%) ☐ Two Day / Next Day (100%) ☐ Three Day (50%) ☐ Four Day (25%)
Date Required:

SEE BACK FOR SURCHARGE BREAKDOWN. CONTACT YOUR CPM FOR ADDITIONAL INFORMATION

Invoice To Same Yes ☐ / No ☑
Company: Suncor Energy Products Partnership
Contact: Stephen D'Abadie
Address: P.O. Box 2844, 150 – 6 Avenue S.W.
Calgary, AB T2P 3E3
Phone: 587-223-4146 Fax:
PO/AFE#:

Requirements *(Selection may impact detection limits)*
☐ CCME ☑ AB Tier 1
☐ Agricultural ☐ Agricultural
☐ Industrial ☐ Industrial
☐ Residential/Park ☑ Residential/Park
☐ Commercial ☐ Commercial
☐ FWAL ☐ Natural Area
☐ Drinking Water ☐ Alberta Surface Water
☐ Other: ☐ Chronic ☐ Acute

Number of jars used & not submitted

Activity
Assessement
A1 ☐ A2 ☐
AR ☐ AV ☐
Remediation
RE ☐ RX ☐
RI ☐ RA ☐
Containement Management
M ☐ MW ☑
MV ☐

LABORATORY USE (LAB ID #)	SAMPLE IDENTIFICATION	DEPTH	DATE/TIME SAMPLED	SAMPLE MATRIX	COMMENTS (FILTERED, PRESERVED, HAZARDOUS*) *ADDITIONAL FEE	# OF CONTAINERS VIALS / JARS	BAGS	BOTTLES
1	DUP-03		01/17/23 12:45	GW				7
2	BH1974		13:00					6
3	BH6004		13:20					6
4	BH1967		13:30					6
5	BH6005		13:45					6
6	BH1908		14:10					6
7	BH2008		14:15					6
8	BH2007		14:30					6
9	Trip Blank-02		14:50					6
10	Trip Blank-03		15:00					6

Detailed Salinity: ☐ AB ☐ SK ☐ BC ☐ D50	☐ CCME/AB : BTEX/F1-F4 ☑ CCME/AB : BTEX /F1-F2	☐ BC: BTEXS/VPH/EPH ☐ BC: LEPH/HEPH	SK: BTEX/TVH/C11-C22, C23-C60	Soil Metals: ☐ HWS-B ☐ SP-B ☐ Hg ☐ Cr^{6+}	Water Metals: ☐ Dissolved ☐ Total ☐ Hg ☐ Cr^{6+}	Routine Water Chemistry	Landfill: ☐ AB Class 2 ☐ BC ☐ SK	Coliforms: ☐ Total ☐ Fecal ☐ E.coli	Particle Size: ☐ Sieve (75µm) ☐ Texture	1,2 DCA 1,2 Dichloroethane	VOC	HOLD FOR 30 DAYS NO ANALYSIS (Additional Fee)	HOLD FOR 30 DAYS AFTER ANALYSIS (Additional Fee)
	X					X				X			
	X									X			
	X									X			
	X									X			
	X									X			
	X									X			
	X									X			
	X									X			
	X										X		
	X										X		

Samples Relinquished By (Print Name and Sign): Gavin Clarke
Date/Time: 01/17/23 15:30
Samples Received By (Print Name and Sign):
Date/Time
Samples Relinquished By (Print Name and Sign):
Date/Time
Samples Received By (Print Name and Sign):
Date/Time
Samples Relinquished By (Print Name and Sign):
Date/Time
Samples Received By (Print Name and Sign):
Date/Time

Pink Copy - Client
Yellow Copy - AGAT
White Copy- AGAT

Page 2 of 2
N°: AB

Document ID: DIV-SO-1507,007,
Date Revised: Apr 20, 2021

AGAT Laboratories

SAMPLE INTEGRITY RECEIPT FORM

RECEIVING BASICS - Shipping

Company/Consultant: Parsons

Courier: DLO Prepaid Collect

Waybill#

Branch: EDM GP FN FM RD VAN LYD FSJ EST SASK Other C

If multiple sites were submitted at once: Yes (No)

Custody Seal Intact: (Yes) No NA

TAT: <24hr 24-48hr 48-72hr Reg Other

Cooler Quantity: 2 large

TIME SENSITIVE ISSUES - Shipping

ALREADY EXCEEDED HOLD TIME? Yes (No)

Inorganic Tests (Please Circle): Mibi , BOD , Nitrate/Nitrite , Turbidity , Color , Microtox , Ortho PO4 , Tedlar Bag , Residual Chlorine , Chlorophyll* , Chloroamines*

Earliest Expiry: 1/20/23 11:20

Hydrocarbons: Earliest Expiry

SAMPLE INTEGRITY - Shipping

Hazardous Samples: YES NO Precaution Taken:

Legal Samples: Yes No

International Samples: Yes No

Tape Sealed: Yes No

Coolant Used: Icepack Bagged Ice Free Ice Free Water None

Temperature (Bottles/Jars only) N/A if only Soil Bags Received 7C

FROZEN (Please Circle if samples received Frozen)

1 (Bottle/Jar) 7 + 7 + 7 = 7 °C 2(Bottle/Jar) 7 + 6 + 5 = 6 °C

3 (Bottle/Jar)___+___+___=___°C 4 (Bottle/Jar)___+___+___=___°C

5 (Bottle/Jar)___+___+___=___°C 6 (Bottle/Jar)___+___+___=___°C

7 (Bottle/Jar)___+___+___=___°C 8 (Bottle/Jar)___+___+___=___°C

9 (Bottle/Jar)___+___+___=___°C 10 (Bottle/Jar)___+___+___=___°C

(If more than 10 coolers are received use another sheet of paper and attach)

LOGISTICS USE ONLY

Workorder No:

Samples Damaged: Yes No If YES why?

No Bubble Wrap Frozen Courier

Other:

Account Project Manager: have they been notified of the above issues: Yes No

Whom spoken to: Date/Time:

CPM Initial

General Comments:

* Subcontracted Analysis (See CPM)

Date issued: March 11, 2020
Document ID: SR-9505.004

DATA QUALITY REVIEW CHECKLIST

Consultant: *Parsons Inc.* Sampling Date: *2023/01/18*

Location: *1620 - 14th Avenue NW, Calgary, AB* Laboratory : *AGAT Laboratories*

Consultant Project Number: *10-12832* Sample Submission Number: *23C989819*

Are All Laboratory QC Samples Within Acceptance Criteria (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Surrogate Recovery	*X*			*All lab QC met acceptance criteria.*
Method Blank Concentration	*X*			
Matrix Duplicate RPD	*X*			
Matrix Spike Recovery	*X*			
Other Quality Control Data	*X*			

Are All Field QC Samples Within Alert Limits (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Equipment Blank Concentration			*X*	*No field QC samples were submitted.*
Trip Blank Concentration			*X*	
Field Duplicate RPD			*X*	

Has CoA been signed off (Yes/No)?:	*Yes*
Were all samples analyzed within hold times (Yes/No)?:	*Yes*
All volatiles samples methanol extracted, if required, within 48 hours (Yes, No or N/A)?:	*N/A*
Is Chain of Custody completed and signed (Yes/No)?:	*Yes*
Were sample temperatures acceptable when they reached lab (Yes/No)?:	*Yes*

Is data considered to be reliable (Yes/No)?: *Yes*

If answer is "No", describe and provide rationale:

Performed by (Print): *Danielle Smith*

Reviewed by (Print): *Michelle Patterson*

Reviewed date: *2023/05/08*

Reviewed by (Signature): 

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP
BOX 1720 STN M
CALGARY, AB T2P 0A2

ATTENTION TO: Stephen D'Abadie

PROJECT: 10-12832

AGAT WORK ORDER: 23C989819

TRACE ORGANICS REVIEWED BY: Elena Gorobets, Report Writer

WATER ANALYSIS REVIEWED BY: Thomas Yoo, Report Writer

DATE REPORTED: Jan 26, 2023

PAGES (INCLUDING COVER): 12

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (403) 735-2005

*Notes

Disclaimer:

- All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.
- All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.
- This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
- The test results reported herewith relate only to the samples as received by the laboratory.
- Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.
- All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.

AGAT Laboratories
2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C989819

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:Oscar Wronski

1,2-DCA in Water

DATE RECEIVED: 2023-01-18

DATE REPORTED: 2023-01-20

		SAMPLE DESCRIPTION:		BH4004A	BH4004B	BH4005	BH4003A	BH4003B	BH4002	BH4008A	BH4008B
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2023-01-18 07:50	2023-01-18 07:55	2023-01-18 08:00	2023-01-18 08:05	2023-01-18 08:10	2023-01-18 08:15	2023-01-18 08:20	2023-01-18 08:25
Parameter	Unit	G / S	RDL	4701730	4701746	4701747	4701748	4701749	4701750	4701751	4701752
1,2-Dichloroethane	mg/L		0.001	<0.001	<0.001	<0.001	0.195	<0.001	<0.001	<0.001	<0.001
Surrogate	Unit	Acceptable Limits									
Toluene-d8	%	50-140		91	96	85	76	97	90	92	92

	SAMPLE DESCRIPTION:		BH4009A	BH4009B	BH4006	BH1983A	BH4007	BH1984	BH1985	
	SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	
	DATE SAMPLED:		2023-01-18 08:30	2023-01-18 08:35	2023-01-18 09:00	2023-01-18 08:15	2023-01-18 08:30	2023-01-18 08:40	2023-01-18 10:30	
Parameter	Unit	G / S	RDL	4701753	4701754	4701755	4701756	4701758	4701760	4701763	
1,2-Dichloroethane	mg/L		0.001	0.004	0.003	0.023	<0.001	0.025	<0.001	<0.001	
Surrogate	Unit	Acceptable Limits									
Toluene-d8	%	50-140		100	96	80	100	78	104	97	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

4701730-4701763 1,1,2,2-Tetrachloroethane reported only for samples matrices which can be purged. Otherwise N/A.
Xylenes is a calculated parameter. The calculated value is the sum of m&p-Xylenes + o-Xylene. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Calgary (unless marked by *)

Certified By: Elena Gorobets

AGAT Laboratories
2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C989819

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:Oscar Wronski

SUNCOR - Petroleum Hydrocarbons (BTEX/F1-F2) in Water

DATE RECEIVED: 2023-01-18

DATE REPORTED: 2023-01-23

				SAMPLE DESCRIPTION:	BH4004A	BH4004B	BH4005	BH4003A	BH4003B	BH4002	BH4008A	BH4008B
				SAMPLE TYPE:	Water	Water	Water	Water	Water	Water	Water	Water
				DATE SAMPLED:	2023-01-18 07:50	2023-01-18 07:55	2023-01-18 08:00	2023-01-18 08:05	2023-01-18 08:10	2023-01-18 08:15	2023-01-18 08:20	2023-01-18 08:25
Parameter	Unit	G / S	RDL		4701730	4701746	4701747	4701748	4701749	4701750	4701751	4701752
Benzene	mg/L		0.0005		<0.0005	<0.0005	0.0117	2.33	0.0187	0.0071	<0.0005	<0.0005
Toluene	mg/L		0.0003		<0.0003	<0.0003	0.0004	0.0030	<0.0003	0.140	0.0046	<0.0003
Ethylbenzene	mg/L		0.0005		<0.0005	<0.0005	0.0048	<0.0005	<0.0005	0.0005	<0.0005	<0.0005
m,p-Xylenes	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	1.89	0.0179	<0.0005
o-Xylene	mg/L		0.0005		<0.0005	<0.0005	<0.0005	0.0563	<0.0005	0.765	0.0286	<0.0005
Xylenes	mg/L		0.0005		<0.0005	<0.0005	<0.0005	0.0567	<0.0005	2.66	0.0465	<0.0005
C6 - C10 (F1)	mg/L		0.1		<0.1	<0.1	0.1	2.6	<0.1	4.7	0.3	<0.1
C6 - C10 (F1 minus BTEX)	mg/L		0.1		<0.1	<0.1	0.1	0.2	<0.1	1.9	0.2	<0.1
C>10 - C16	mg/L		0.1		<0.1	<0.1	<0.1	0.2	<0.1	0.5	<0.1	<0.1
Sediment					Not Present	Not Present	Not Present	Not Present	Not Present	Not Present	Not Present	Not Present
Surrogate	Unit	Acceptable Limits										
Toluene-d8 (BTEX)	%	60-140			107	114	93	89	101	102	106	103
o-Terphenyl (F2-F4)	%	60-140			101	99	101	101	100	102	100	101

Certified By: Elena Gorobets

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C989819

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:Oscar Wronski

SUNCOR - Petroleum Hydrocarbons (BTEX/F1-F2) in Water

DATE RECEIVED: 2023-01-18

DATE REPORTED: 2023-01-23

				SAMPLE DESCRIPTION:	BH4009A	BH4009B	BH4006	BH1983A	BH4007	BH1984	BH1985
				SAMPLE TYPE:	Water	Water	Water	Water	Water	Water	Water
				DATE SAMPLED:	2023-01-18 08:30	2023-01-18 08:35	2023-01-18 09:00	2023-01-18 08:15	2023-01-18 08:30	2023-01-18 08:40	2023-01-18 10:30
Parameter	Unit	G / S	RDL		4701753	4701754	4701755	4701756	4701758	4701760	4701763
Benzene	mg/L		0.0005		<0.0005	<0.0005	0.460	<0.0005	0.689	0.0019	<0.0005
Toluene	mg/L		0.0003		<0.0003	<0.0003	0.0010	<0.0003	0.0012	<0.0003	<0.0003
Ethylbenzene	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
m,p-Xylenes	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
o-Xylene	mg/L		0.0005		<0.0005	<0.0005	0.0306	<0.0005	0.0140	<0.0005	<0.0005
Xylenes	mg/L		0.0005		<0.0005	<0.0005	0.0309	<0.0005	0.0142	<0.0005	<0.0005
C6 - C10 (F1)	mg/L		0.1		<0.1	<0.1	0.9	<0.1	0.8	<0.1	<0.1
C6 - C10 (F1 minus BTEX)	mg/L		0.1		<0.1	<0.1	0.4	<0.1	0.1	<0.1	<0.1
C>10 - C16	mg/L		0.1		<0.1	<0.1	<0.1	<0.1	0.1	<0.1	<0.1
Sediment					Not Present	Not Present	Not Present	Not Present	Not Present	Not Present	Not Present
Surrogate	Unit	Acceptable Limits									
Toluene-d8 (BTEX)	%	60-140			116	118	90	111	93	124	102
o-Terphenyl (F2-F4)	%	60-140			99	100	99	100	99	98	98

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

4701730-4701763 The F1 (C6 - C10) fraction is determined by integrating the FID chromatogram from the beginning of the nC6 peak to the apex of the last nC10 peak.
The C6 - C10 fraction is calculated from the FID toluene response factor.
The F2 (C10 - C16) fraction is determined by integrating the FID chromatogram from the apex of the nC10 peak to the apex of the nC16 peak.
The F2 (C10 - C16) fraction is calculated using the average response factor for nC10, nC16, and nC34.
Quality control for the calibration follows the guidelines set out in the CCME Contaminated Sites Method for Soils.
C6 –C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
C>10 – C16 (F2- Napthalene) is a calculated parameter. The calculated value is F2 - Napthalene (if requested). The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
C>16 - C34 (F3-PAH) is a calculated parameter. The calculated value is F3-PAH (if requested). The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
Xylenes is a calculated parameter. The calculated value is the sum of m&p-Xylenes + o-Xylene. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
Sediment parameter is comment only based on visual inspection of the sample prior to extraction and is not an accredited test.
Extraction and holding times were met for this sample.

Analysis performed at AGAT Calgary (unless marked by *)

Certified By: Elena Gorobets

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C989819

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

SAMPLING SITE:

ATTENTION TO: Stephen D'Abadie

SAMPLED BY:Oscar Wronski

Water Package - Routine Chemistry Water Analysis - Lab Filtered Cations

DATE RECEIVED: 2023-01-18

DATE REPORTED: 2023-01-25

		SAMPLE DESCRIPTION:		BH4007	BH1984
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		2023-01-18 08:30	2023-01-18 08:40
Parameter	Unit	G / S	RDL	4701758	4701760
pH	pH Units	7.0-10.5	N/A	7.71	7.72
p - Alkalinity (as CaCO3)	mg/L		5	<5	<5
T - Alkalinity (as CaCO3)	mg/L		5	642	538
Bicarbonate	mg/L		5	797	667
Carbonate	mg/L		5	<5	<5
Hydroxide	mg/L		5	<5	<5
Electrical Conductivity	uS/cm		5	3370	1450
Chloride	mg/L	(250)	1.0	735	150
Fluoride	mg/L	1.5	0.01	0.24	0.19
Nitrate	mg/L	45	0.5	75.0	37.8
Nitrate-N	mg/L	10	0.02	16.9	8.54
Nitrite	mg/L	3	0.05	18.5	0.50
Nitrite-N	mg/L	1	0.01	5.63	0.15
Nitrate+Nitrite - Nitrogen	mg/L		0.02	22.6	8.69
Sulfate	mg/L	(500)	1.0	32.9	41.3
Dissolved Calcium	mg/L		0.3	120	114
Dissolved Magnesium	mg/L		0.2	290	108
Dissolved Sodium	mg/L	(200)	0.6	135	27.2
Dissolved Potassium	mg/L		0.6	5.4	4.1
Dissolved Iron	mg/L	(0.3)	0.1	<0.1	<0.1
Dissolved Manganese	mg/L	0.12 (0.02)	0.005	0.532	0.574
Sodium Adsorption Ratio				1.52	0.44
Calculated TDS	mg/L		0.6	1800	811
Hardness	mg CaCO3/L		0.5	1490	729
Ion Balance	%		1	99	95
Lab Filtration on Routine for IC				Complete	Complete
Lab Filtration on Routine for Metals				Complete	Complete

Certified By:

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C989819

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:Oscar Wronski

Water Package - Routine Chemistry Water Analysis - Lab Filtered Cations

DATE RECEIVED: 2023-01-18

DATE REPORTED: 2023-01-25

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to 2020 Canadian Drinking Water Quality MAC (AO)
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

4701758-4701760 < - Values refer to Report Detection Limits.
SAR is a calculated parameter. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
If sodium results in mg/L are less than detection, SAR is non-calculable and is reported as 0.
Ion Balance is a calculated parameter. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
Hardness is a calculated parameter. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
Calculated TDS is a calculated parameter. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Calgary (unless marked by *)

Certified By:

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Quality Assurance

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

AGAT WORK ORDER: 23C989819

PROJECT: 10-12832

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:Oscar Wronski

Trace Organics Analysis

RPT Date:			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
SUNCOR - Petroleum Hydrocarbons (BTEX/F1-F2) in Water															
Benzene	4556	4691235	<0.0005	<0.0005	NA	< 0.0005	87%	60%	140%	87%	60%	140%	88%	60%	140%
Toluene	4556	4691235	<0.0003	<0.0003	NA	< 0.0003	92%	60%	140%	90%	60%	140%	90%	60%	140%
Ethylbenzene	4556	4691235	<0.0005	<0.0005	NA	< 0.0005	91%	60%	140%	82%	60%	140%	84%	60%	140%
m,p-Xylenes	4556	4691235	<0.0005	<0.0005	NA	< 0.0005	88%	60%	140%	87%	60%	140%	91%	60%	140%
o-Xylene	4556	4691235	<0.0005	<0.0005	NA	< 0.0005	88%	60%	140%	87%	60%	140%	91%	60%	140%
Xylenes	4556	4691235	<0.0005	<0.0005	NA	< 0.0005	88%	60%	140%	87%	60%	140%	91%	60%	140%
C6 - C10 (F1)	4556	4691235	<0.1	<0.1	NA	< 0.1	91%	60%	140%	95%	60%	140%	124%	60%	140%
C>10 - C16	8023	4701730	<0.1	<0.1	NA	< 0.1	88%	60%	140%	99%	60%	140%	88%	60%	140%

Comments: Duplicate NA: results are less than 5X the RDL and RDP will not be calculated.
The sample spikes and dups are not from the same sample ID.

SUNCOR - Petroleum Hydrocarbons (BTEX/F1-F2) in Water															
Benzene	4557	4701758	0.689	0.777	12.0%	< 0.0005	98%	60%	140%	96%	60%	140%	99%	60%	140%
Toluene	4557	4701758	0.0012	0.0012	NA	< 0.0003	100%	60%	140%	93%	60%	140%	95%	60%	140%
Ethylbenzene	4557	4701758	<0.0005	<0.0005	NA	< 0.0005	98%	60%	140%	81%	60%	140%	84%	60%	140%
m,p-Xylenes	4557	4701758	<0.0005	<0.0005	NA	< 0.0005	109%	60%	140%	99%	60%	140%	102%	60%	140%
o-Xylene	4557	4701758	0.0140	0.0167	17.6%	< 0.0005	112%	60%	140%	99%	60%	140%	102%	60%	140%
Xylenes	4557	4701758	0.0142	0.0170	17.9%	< 0.0005	109%	60%	140%	99%	60%	140%	102%	60%	140%
C6 - C10 (F1)	4557	4701758	0.8	0.8	0.0%	< 0.1	86%	60%	140%	105%	60%	140%	103%	60%	140%

Comments: Duplicate NA: results are less than 5X the RDL and RDP will not be calculated.
The sample spikes and dups are not from the same sample ID.

1,2-DCA in Water															
1,2-Dichloroethane	4556	4691235	<0.001	<0.001	NA	< 0.001	87%	50%	140%	98%	60%	130%	101%	50%	140%

Comments: Duplicate NA: results are less than 5X the RDL and RDP will not be calculated.
The sample spikes and dups are not from the same sample ID.

1,2-DCA in Water															
1,2-Dichloroethane	4557	4701758	0.025	0.025	0.0%	< 0.001	98%	50%	140%	91%	60%	130%	97%	50%	140%

Comments: Duplicate NA: results are less than 5X the RDL and RDP will not be calculated.
The sample spikes and dups are not from the same sample ID.

Certified By: Elena Gorobets

AGAT Laboratories
2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Quality Assurance

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP
AGAT WORK ORDER: 23C989819
PROJECT: 10-12832
ATTENTION TO: Stephen D'Abadie
SAMPLING SITE:
SAMPLED BY:Oscar Wronski

Water Analysis

RPT Date:			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Water Package - Routine Chemistry Water Analysis - Lab Filtered Cations															
pH	4701758	4701758	7.71	7.75	0.5%	N/A	100%	90%	110%						
p - Alkalinity (as CaCO3)	4701758	4701758	<5	<5	NA	< 5	NA	80%	120%						
T - Alkalinity (as CaCO3)	4701758	4701758	642	640	0.3%	< 5	103%	80%	120%						
Bicarbonate	4701758	4701758	797	794	0.3%	7	NA								
Carbonate	4701758	4701758	<5	<5	NA	< 5	NA								
Hydroxide	4701758	4701758	<5	<5	NA	< 5	NA								
Electrical Conductivity	4701758	4701758	3370	3360	0.3%	< 5	102%	90%	110%						
Chloride	4701289		37.9	38.8	2.3%	< 1.0	95%	70%	130%	94%	80%	120%	98%	70%	130%
Fluoride	4701289		0.35	0.37	5.6%	< 0.01	87%	70%	130%	80%	80%	120%	83%	70%	130%
Nitrate	4701289		2.0	1.9	NA	< 0.5	99%	70%	130%	99%	80%	120%	98%	70%	130%
Nitrite	4701289		<0.20	<0.20	NA	< 0.05	92%	70%	130%	91%	80%	120%	91%	70%	130%
Sulfate	4701289		13.4	13.1	2.0%	< 1.0	99%	70%	130%	100%	80%	120%	97%	70%	130%
Dissolved Calcium	4701758	4701758	120	120	0.1%	< 0.3	95%	70%	130%	106%	80%	120%	NA	70%	130%
Dissolved Magnesium	4701758	4701758	290	290	0.1%	< 0.2	92%	70%	130%	88%	80%	120%	NA	70%	130%
Dissolved Sodium	4701758	4701758	135	135	0.0%	< 0.6	79%	70%	130%	88%	80%	120%	NA	70%	130%
Dissolved Potassium	4701758	4701758	5.4	5.4	0.2%	< 0.6	81%	70%	130%	93%	80%	120%	NA	70%	130%
Dissolved Iron	4701758	4701758	<0.1	<0.1	NA	< 0.1	104%	70%	130%	95%	80%	120%	95%	70%	130%
Dissolved Manganese	4701758	4701758	0.532	0.544	2.2%	< 0.005	104%	70%	130%	94%	80%	120%	NA	70%	130%

Comments: Matrix spike NA: Spike level < native concentration. Matrix spike acceptance limits do not apply and are not calculated.
Duplicate NA: results are less than 5X the RDL and RDP will not be calculated.

pH has been analyzed past the recommended holding time of 15 minutes from sampling (field measurement ideal if more accurate data required)

Nitrate and Nitrite: The regulatory hold time for the analysis of nitrate and/or nitrite in water is 72 hours.

Certified By:

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Method Summary

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

AGAT WORK ORDER: 23C989819

PROJECT: 10-12832

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:Oscar Wronski

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
1,2-Dichloroethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Toluene-d8	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Benzene	TO 0332	EPA SW-846 5021 & 8260	GC/MS
Toluene	TO 0332	EPA SW-846 5021 & 8260	GC/MS
Ethylbenzene	TO 0332	EPA SW-846 5021 & 8260	GC/MS
m,p-Xylenes	TO-0542	EPA SW-846 5021/8260-W	GC/MS
o-Xylene	TO-0542	EPA SW-846 5021/8260-W	GC/MS
Xylenes	TO 0332	EPA SW-846 5021 & 8260	GC/MS
C6 - C10 (F1)	TO 0542	CCME Tier 1 Method	GC/FID
C6 - C10 (F1 minus BTEX)	TO 0542	CCME Tier 1 Method	GC/FID
C>10 - C16	TO 0511	CCME Tier 1 Method	GC/FID
Toluene-d8 (BTEX)	TO-0543	EPA SW-846 5021 & 8260	GC/FID
o-Terphenyl (F2-F4)	TO 0511	CCME Tier 1 Method	GC/FID
Sediment	TO-0511	CCME Tier 1 Method	GC/FID
Water Analysis			
pH	INST 0101, INST 0104	SM 4500 H+	PH METER
p - Alkalinity (as CaCO3)	INST-0100, INST-0101	SM 2320 B	TITRATION
T - Alkalinity (as CaCO3)	INST 0101	SM 2320 B	TITRATION
Bicarbonate	INST 0101	SM 2320 B	PC TITRATE
Carbonate	INST 0101	SM 2320 B	PC TITRATE
Hydroxide	INST 0101	SM 2320 B	PC TITRATE
Electrical Conductivity	INST 0101, INST 0120	SM 2510 B	CONDUCTIVITY METER
Chloride	INST 0150	SM 4110 B	ION CHROMATOGRAPH
Fluoride	INST 0150	SM 4110 B	ION CHROMATOGRAPH
Nitrate	INST 0150	SM 4110 B	ION CHROMATOGRAPH
Nitrate-N	INST 0150	SM 4110 B	CALCULATION
Nitrite	INST 0150	SM 4110 B	ION CHROMATOGRAPH
Nitrite-N	INST 0150	SM 4110 B	CALCULATION
Nitrate+Nitrite - Nitrogen	INST 0150	SM 4110 B	CALCULATION
Sulfate	INST 0150	SM 4110 B	ION CHROMATOGRAPH
Dissolved Calcium	INST 0140	SM 3120B – R	ICP/OES
Dissolved Magnesium	INST 0140	SM 3120B – R	ICP/OES
Dissolved Sodium	INST 0140	SM 3120B – R	ICP/OES
Dissolved Potassium	INST 0140	SM 3120B – R	ICP/OES
Dissolved Iron	INST 0140	SM 3120B – R	ICP/OES
Dissolved Manganese	INST 0140	SM 3120B – R	ICP/OES
Sodium Adsorption Ratio		CARTER & GREGORICH 2007	CALCULATION
Calculated TDS		SM 1030E	CALCULATION
Hardness		SM 2340 B	CALCULATION
Ion Balance		SM 1030E	CALCULATION
Lab Filtration on Routine for IC			N/A
Lab Filtration on Routine for Metals			N/A

MAIL

18 JAN '23 PM 5:22

AGAT Laboratories

2910 12 Street NE
Calgary, Alberta T2E 7P7
P: 403-735-2005 • F: 403-735-2771
webearth.agatlabs.com

Laboratory Use Only
Arrival Temperature:
AGAT Job Number: 23C989819
Date and Time:

Chain of Custody Record

Emergency Support Services Hotline **1-855-AGAT 245 (1-855-242-8245)**

Report Information
Company: PARSONS
Contact: Michelle Patterson
Address: #100, 318 – 11 Ave SE, Calgary AB T2G 0Y2
Phone: (403)294-4215 Fax: (403)294-4240
LSD: 1624 14th Street NW, Calgary, AB BENTALL
Client Project #: 10-12832
Sampled By: Oscar Wronski
Outlet #: 9445

Report Information
1. Name: Michelle Patterson
Email: michelle.patterson@parsons.com
2. Name: Calgary Lab Report
Email: Calgary.labreport@parsons.com
3. Name:
Email:

Turnaround Time Required (TAT)
Regular TAT ☑ 5 to 7 Business Days
Rush TAT ☐ <24 Hours (200%) ☐ Two Day / Next Day (100%) ☐ Three Day (50%) ☐ Four Day (25%)
Date Required:

SEE BACK FOR SURCHARGE BREAKDOWN. CONTACT YOUR CPM FOR ADDITIONAL INFORMATION

Invoice To Same Yes ☐ / No ☑
Company: Suncor Energy Products Partnership
Contact: Stephen D'Abadie
Address: P.O. Box 2844, 150 – 6 Avenue S.W.
Calgary, AB T2P 3E3
Phone: 587-223-4146 Fax:
PO/AFE#:

Requirements *(Selection may impact detection limits)*
☐ CCME ☑ AB Tier 1
☐ Agricultural ☐ Agricultural
☐ Industrial ☐ Industrial
☐ Residential/Park ☑ Residential/Park
☐ Commercial ☐ Commercial
☐ FWAL ☐ Natural Area
☐ Drinking Water ☐ Alberta Surface Water
☐ Other: ☐ Chronic ☐ Acute

Number of jars used & not submitted

Activity
Assessement A1 ☐ A2 ☐ AR ☐ AV ☐
Remediation RE ☐ RX ☐ RI ☐ RA ☐
Containement Management M ☐ MW☑ MV ☐

LABORATORY USE (LAB ID #)	SAMPLE IDENTIFICATION	DEPTH	DATE/TIME SAMPLED	SAMPLE MATRIX	COMMENTS (FILTERED, PRESERVED, HAZARDOUS*) *ADDITIONAL FEE	# OF CONTAINERS VIALS / JARS	BAGS	BOTTLES	Detailed Salinity: ☐AB ☐SK ☐BC ☐D50	☐CCME/AB : BTEX/F1-F4 ☑CCME/AB : BTEX/F1-F2	☐BC: BTEXS/VPH/EPH ☐BC: LEPH/HEPH	SK: BTEX/TVH/C11-C22, C23-C60	Soil Metals: ☐HWS-B ☐SP-B ☐Hg ☐Cr^{6+}	Water Metals: ☐Dissolved ☐Total ☐Hg ☐Cr^{6+}	Routine Water Chemistry	Landfill: ☐AB Class 2 ☐BC ☐SK	Coliforms: ☐Total ☐Fecal ☐E.coli	Particle Size: ☐Sieve (75µm) ☐Texture	1,2 DCA & 1,2 Dichloroethane	VOC	HOLD FOR 30 DAYS NO ANALYSIS (Additional Fee)	HOLD FOR 30 DAYS AFTER ANALYSIS (Additional Fee)
1	BH4004A		01/18 7:50	GW				6		X									X			
2	BH4004B		7:55							X									X			
3	BH4005		8:00							X									X			
4	BH4003A		8:05							X									X			
5	BH4003B		8:10							X									X			
6	BH4002		8:15							X									X			
7	BH4008A		8:20							X									X			
8	BH4008B		8:25							X									X			
9	BH4009A		8:30							X									X			
10	BH4009B		8:35							X									X			

Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Oscar Wronski	01/18/23 16:10	John Capara	JAN 18 2023
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time

Pink Copy - Client
Yellow Copy - AGAT
White Copy- AGAT

Page 1 of 2

N°: AB

Document ID: DIV-50-1507.007

Date Revised: Apr 20, 2021

MALL

19 JAN 23 PM 5:22

AGAT Laboratories

2910 12 Street NE
Calgary, Alberta T2E 7P7
P: 403-735-2005 • F: 403-735-2771
webearth.agatlabs.com

Laboratory Use Only
Arrival Temperature: _____
AGAT Job Number: _____
Date and Time:

Chain of Custody Record

Emergency Support Services Hotline **1-855-AGAT 245 (1-855-242-8245)**

Report Information

Company: PARSONS
Contact: Michelle Patterson
Address: #100, 318 – 11 Ave SE, Calgary AB T2G 0Y2
Phone: (403)294-4215 Fax: (403)294-4240
LSD: 1624 14th Street NW, Calgary, AB REMALL
Client Project #: 10-12832
Sampled By: Gavin Clarke
Outlet #: 9445

Report Information

1. Name: Michelle Patterson
   Email: michelle.patterson@parsons.com
2. Name: Calgary Lab Report
   Email: Calgary.labreport@parsons.com
3. Name:
   Email:

Turnaround Time Required (TAT)

Regular TAT ☑ 5 to 7 Business Days

Rush TAT
☐ <24 Hours (200%)
☐ Two Day / Next Day (100%)
☐ Three Day (50%)
☐ Four Day (25%)

Date Required: _____

SEE BACK FOR SURCHARGE BREAKDOWN. CONTACT YOUR CPM FOR ADDITIONAL INFORMATION

Invoice To

Same Yes ☐ / No ☑

Company: Suncor Energy Products Partnership
Contact: Stephen D'Abadie
Address: P.O. Box 2844, 150 – 6 Avenue S.W.
Calgary, AB T2P 3E3
Phone: 587-223-4146 Fax:
PO/AFE#:

Requirements (Selection may impact detection limits)

☐ CCME
- ☐ Agricultural
- ☐ Industrial
- ☐ Residential/Park
- ☐ Commercial
- ☐ FWAL

☐ Drinking Water
☐ Other: _____

☑ AB Tier 1
- ☐ Agricultural
- ☐ Industrial
- ☑ Residential/Park
- ☐ Commercial
- ☐ Natural Area

☐ Alberta Surface Water
- ☐ Chronic
- ☐ Acute

Number of jars used & not submitted

Activity
Assessment
A1 ☐ A2 ☐
AR ☐ AV ☐
Remediation
RE ☐ RX ☐
RI ☐ RA ☐
Containement Management
M ☐ MW☑
MV ☐

LABORATORY USE (LAB ID #)	SAMPLE IDENTIFICATION	DEPTH	DATE/TIME SAMPLED	SAMPLE MATRIX	COMMENTS (FILTERED, PRESERVED, HAZARDOUS*) *ADDITIONAL FEE	# OF CONTAINERS VIALS / JARS	BAGS	BOTTLES	Detailed Salinity: ☐AB ☐SK ☐BC ☐D50	☐CCME/AB : BTEX/F1-F4 ☑CCME/AB : BTEX/F1-F2	☐BC: BTEXS/VPH/EPH ☐BC: LEPH/HEPH	SK: BTEX/TVH/C11-C22; C23-C60	Soil Metals: ☐HWS-B ☐SP-B ☐Hg ☐Cr^{6+}	Water Metals: ☐Dissolved ☐Total ☐Hg ☐Cr^{6+}	Routine Water Chemistry	Landfill: ☐AB Class 2 ☐BC ☐SK	Coliforms: ☐Total ☐Fecal ☐E.coli	Particle Size: ☐Sieve (75µm) ☐Texture	1,2 DCA 1,2 Dichloroethane	VOC	HOLD FOR 30 DAYS NO ANALYSIS (Additional Fee)	HOLD FOR 30 DAYS AFTER ANALYSIS (Additional Fee)
1	BH4006		01/16/23 09:30	GW				6		X									X	X		
2	BH1983A		09:15					6		X									X	X		
3	BH4007		08:30					7		X					X				X	X		
4	BH1994		09:00					7		X					X				X	X		
5	BH1985		10:30					6		X									X	X		
6																						
7																						
8																						
9																						
10																						

Samples Relinquished By (Print Name and Sign)	Date/Time	Samples Received By (Print Name and Sign)	Date/Time
Gavin Clarke	01/18/23 16:10	JC	JAN 18 2023

Pink Copy - Client
Yellow Copy - AGAT
White Copy- AGAT

Page 2 of 2

N°: AB

Document ID: DIV-50-1507.007

Date Revised: Apr 20, 2021

AGAT Laboratories

SAMPLE INTEGRITY RECEIPT FORM

RECEIVING BASICS - Shipping

Company/Consultant: Parsons / Suncor

Courier: O/G Prepaid Collect

Waybill#

Branch: EDM GP FN FM RD VAN LYD FSJ EST SASK Other: C

If multiple sites were submitted at once: Yes (No)

Custody Seal Intact: Yes No (NA)

TAT: <24hr 24-48hr 48-72hr (Reg) Other

Cooler Quantity: 4

TIME SENSITIVE ISSUES - Shipping

ALREADY EXCEEDED HOLD TIME? Yes (No)

Inorganic Tests (Please Circle): Mibi , BOD , Nitrate/Nitrite , Turbidity , Color , Microtox , Ortho PO4 , Tedlar Bag , Residual Chlorine , Chlorophyll* , Chloroamines*

Earliest Expiry: Jan 21, 2023

Hydrocarbons: Earliest Expiry

SAMPLE INTEGRITY - Shipping

Hazardous Samples: YES (NO) Precaution Taken:

Legal Samples: Yes (No)

International Samples: Yes (No)

Tape Sealed: Yes (No)

Coolant Used: Icepack (Bagged Ice) Free Ice Free Water None

Temperature (Bottles/Jars only) N/A if only Soil Bags Received

FROZEN (Please Circle if samples received Frozen)

1 (Bottle/Jar) 3 + 5 + 4 = 4 °C	2 (Bottle/Jar) 9 + 9 + 8 = 9 °C
3 (Bottle/Jar) 4 + 4 + 4 = 4 °C	4 (Bottle/Jar) 8 + 8 + 8 = 8 °C
5 (Bottle/Jar) ___ + ___ + ___ = ___ °C	6 (Bottle/Jar) ___ + ___ + ___ = ___ °C
7 (Bottle/Jar) ___ + ___ + ___ = ___ °C	8 (Bottle/Jar) ___ + ___ + ___ = ___ °C
9 (Bottle/Jar) ___ + ___ + ___ = ___ °C	10 (Bottle/Jar) ___ + ___ + ___ = ___ °C

(If more than 10 coolers are received use another sheet of paper and attach)

LOGISTICS USE ONLY

Workorder No:

Samples Damaged: Yes No If YES why?

No Bubble Wrap Frozen Courier

Other:

Account Project Manager: have they been notified of the above issues: Yes No

Whom spoken to: Date/Time:

CPM Initial

General Comments:

* Subcontracted Analysis (See CPM)

Date issued: March 11, 2020
Document ID: SR-9505.004

DATA QUALITY REVIEW CHECKLIST

Consultant: *Parsons Inc.* Sampling Date: *2023/01/18*

Location: *1620 - 14th Avenue NW, Calgary, AB* Laboratory : *AGAT Laboratories*

Consultant Project Number: *10-12832* Sample Submission Number: *23C989826*

Are All Laboratory QC Samples Within Acceptance Criteria (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Surrogate Recovery	*X*			*All lab QC met acceptance criteria.*
Method Blank Concentration	*X*			
Matrix Duplicate RPD	*X*			
Matrix Spike Recovery	*X*			
Other Quality Control Data	*X*			

Are All Field QC Samples Within Alert Limits (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Equipment Blank Concentration	*X*			*All field QC samples have met alert limits.*
Trip Blank Concentration	*X*			
Field Duplicate RPD	*X*			*All field QC samples have met the acceptable RPD limits.*

Has CoA been signed off (Yes/No)?:	*Yes*
Were all samples analyzed within hold times (Yes/No)?:	*Yes*
All volatiles samples methanol extracted, if required, within 48 hours (Yes, No or N/A)?:	*N/A*
Is Chain of Custody completed and signed (Yes/No)?:	*Yes*
Were sample temperatures acceptable when they reached lab (Yes/No)?:	*Yes*

Is data considered to be reliable (Yes/No)?: *Yes*

If answer is "No", describe and provide rationale:

The lab did not analyze the samples BH1946 and BH1947. It was determined to be too late to analyze due to being outside of the recommended hold time. It was decided not to resample due to the need to temporally compare groundwater sampling events.

Performed by (Print): *Danielle Smith*

Reviewed by (Print): *Michelle Patterson*

Reviewed date: *2023/05/08*

Reviewed by (Signature): 

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP
BOX 1720 STN M
CALGARY, AB T2P 0A2

ATTENTION TO: Stephen D'Abadie

PROJECT: 10-12832

AGAT WORK ORDER: 23C989826

TRACE ORGANICS REVIEWED BY: Elena Gorobets, Report Writer

WATER ANALYSIS REVIEWED BY: Jennifer Liu, Analyst

DATE REPORTED: Jan 27, 2023

PAGES (INCLUDING COVER): 26

VERSION*: 2

Should you require any information regarding this analysis please contact your client services representative at (403) 735-2005

*Notes

VERSION 2:Version 2: Version 2 supersedes Version 1, issued January 26th, 2023. Sample BH1533 renamed BH1933.

AGAT Laboratories
2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C989826

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:Gavin Clarke

1,2-DCA in Water

DATE RECEIVED: 2023-01-18

DATE REPORTED: 2023-01-27

		SAMPLE DESCRIPTION:		BH1958	BH1957	BH1904	DUP-04	BH1933	BH1934	BH1935	BH3001A
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2023-01-18 09:30	2023-01-18 10:00	2023-01-18 10:15	2023-01-18 10:15	2023-01-18 10:30	2023-01-18 10:45	2023-01-18 11:00	2023-01-18 11:30
Parameter	Unit	G / S	RDL	4701790	4701815	4701816	4701817	4701818	4701819	4701822	4701823
1,2-Dichloroethane	mg/L		0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Surrogate	Unit	Acceptable Limits									
Toluene-d8	%	50-140		97	101	82	84	102	93	93	92

		SAMPLE DESCRIPTION:		BH2005	BH1977	BH2006	BH1955A	BH2001	BH912	BH1954	BH1981
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2023-01-18 11:45	2023-01-18 12:00	2023-01-18 12:10	2023-01-18 12:15	2023-01-18 13:00	2023-01-18 13:10	2023-01-18 13:40	2023-01-18 13:40
Parameter	Unit	G / S	RDL	4701824	4701825	4701826	4701827	4701828	4701829	4701830	4701831
1,2-Dichloroethane	mg/L		0.001	0.003	0.004	0.005	<0.001	0.002	<0.001	0.002	0.027
Surrogate	Unit	Acceptable Limits									
Toluene-d8	%	50-140		101	87	90	103	94	105	100	97

		SAMPLE DESCRIPTION:		DUP-05	BH1929	DUP-06	BH1928	Hydra-01	Bailer-01	BH3003A	BH3003B
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2023-01-18 13:40	2023-01-18 14:00	2023-01-18 14:00	2023-01-18 14:10	2023-01-18 15:40	2023-01-18 15:50	2023-01-18 08:40	2023-01-18 08:45
Parameter	Unit	G / S	RDL	4701832	4701833	4701834	4701835	4701836	4701837	4701840	4701841
1,2-Dichloroethane	mg/L		0.001	0.026	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Surrogate	Unit	Acceptable Limits									
Toluene-d8	%	50-140		100	98	100	96	97	105	97	97

		SAMPLE DESCRIPTION:		BH3002A	BH3002B	BH3001B	BH3001C	BH1978	BH1945	BH1951	BH5001
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2023-01-18 08:50	2023-01-18 08:55	2023-01-18 09:00	2023-01-18 09:20	2023-01-18 09:25	2023-01-18 09:35	2023-01-18 09:45	2023-01-18 10:15
Parameter	Unit	G / S	RDL	4701842	4701843	4701844	4701845	4701846	4701847	4701848	4701851
1,2-Dichloroethane	mg/L		0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Surrogate	Unit	Acceptable Limits									
Toluene-d8	%	50-140		97	100	101	94	104	99	88	98

Certified By: Elena Gorobets

AGAT Laboratories
2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C989826

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:Gavin Clarke

1,2-DCA in Water

DATE RECEIVED: 2023-01-18

DATE REPORTED: 2023-01-27

SAMPLE DESCRIPTION:				BH5002	DUP-07	BH2002	BH2003	Trip Blank-05	Trip Blank-06
SAMPLE TYPE:				Water	Water	Water	Water	Water	Water
DATE SAMPLED:				2023-01-18 10:45	2023-01-18 10:45	2023-01-18 10:55	2023-01-18 11:00	2023-01-18 15:05	2023-01-18 15:20
Parameter	Unit	G / S	RDL	4701853	4701854	4701855	4701856	4701857	4701858
1,2-Dichloroethane	mg/L		0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Surrogate	Unit	Acceptable Limits							
Toluene-d8	%	50-140		98	89	98	90	104	97

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

4701790-4701858 1,1,2,2-Tetrachloroethane reported only for samples matrices which can be purged. Otherwise N/A.
Xylenes is a calculated parameter. The calculated value is the sum of m&p-Xylenes + o-Xylene. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Calgary (unless marked by *)

Certified By: Elena Gorobets

AGAT Laboratories
2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C989826

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:Gavin Clarke

SUNCOR - Petroleum Hydrocarbons (BTEX/F1-F2) in Water

DATE RECEIVED: 2023-01-18

DATE REPORTED: 2023-01-27

				SAMPLE DESCRIPTION:	BH1958	BH1957	BH1904	DUP-04	BH1933	BH1934	BH1935	BH3001A
				SAMPLE TYPE:	Water	Water	Water	Water	Water	Water	Water	Water
				DATE SAMPLED:	2023-01-18 09:30	2023-01-18 10:00	2023-01-18 10:15	2023-01-18 10:15	2023-01-18 10:30	2023-01-18 10:45	2023-01-18 11:00	2023-01-18 11:30
Parameter	Unit	G / S	RDL		4701790	4701815	4701816	4701817	4701818	4701819	4701822	4701823
Benzene	mg/L		0.0005		<0.0005	<0.0005	0.114	0.115	<0.0005	<0.0005	<0.0005	<0.0005
Toluene	mg/L		0.0003		<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Ethylbenzene	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
m,p-Xylenes	mg/L		0.0005		<0.0005	<0.0005	0.0005	0.0006	<0.0005	<0.0005	<0.0005	<0.0005
o-Xylene	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Xylenes	mg/L		0.0005		<0.0005	<0.0005	0.0005	0.0006	<0.0005	<0.0005	<0.0005	<0.0005
C6 - C10 (F1)	mg/L		0.1		<0.1	<0.1	0.2	0.2	<0.1	<0.1	<0.1	<0.1
C6 - C10 (F1 minus BTEX)	mg/L		0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
C>10 - C16	mg/L		0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Sediment					Not Present	Not Present	Not Present	Not Present	Not Present	Not Present	Not Present	Not Present
Surrogate	Unit	Acceptable Limits										
Toluene-d8 (BTEX)	%	60-140			114	92	93	97	110	112	103	98
o-Terphenyl (F2-F4)	%	60-140			110	110	107	107	109	108	105	109

Certified By: Elena Gorobets

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C989826

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:Gavin Clarke

SUNCOR - Petroleum Hydrocarbons (BTEX/F1-F2) in Water

DATE RECEIVED: 2023-01-18

DATE REPORTED: 2023-01-27

				SAMPLE DESCRIPTION:	BH2005	BH1977	BH2006	BH1955A	BH2001	BH912	BH1954	BH1981
				SAMPLE TYPE:	Water	Water	Water	Water	Water	Water	Water	Water
				DATE SAMPLED:	2023-01-18 11:45	2023-01-18 12:00	2023-01-18 12:10	2023-01-18 12:15	2023-01-18 13:00	2023-01-18 13:10	2023-01-18 13:40	2023-01-18 13:40
Parameter	Unit	G / S	RDL		4701824	4701825	4701826	4701827	4701828	4701829	4701830	4701831
Benzene	mg/L		0.0005		0.0010	0.0646	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Toluene	mg/L		0.0003		<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Ethylbenzene	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
m,p-Xylenes	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
o-Xylene	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Xylenes	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
C6 - C10 (F1)	mg/L		0.1		<0.1	0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
C6 - C10 (F1 minus BTEX)	mg/L		0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
C>10 - C16	mg/L		0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Sediment					Not Present	Not Present	Not Present	Not Present	Not Present	Not Present	Not Present	Not Present
Surrogate	Unit	Acceptable Limits										
Toluene-d8 (BTEX)	%	60-140			106	99	112	107	110	124	114	112
o-Terphenyl (F2-F4)	%	60-140			109	110	108	109	108	111	109	109

Certified By: Elena Gorobets

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C989826

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:Gavin Clarke

SUNCOR - Petroleum Hydrocarbons (BTEX/F1-F2) in Water

DATE RECEIVED: 2023-01-18

DATE REPORTED: 2023-01-27

				SAMPLE DESCRIPTION:	DUP-05	BH1929	DUP-06	BH1928	Hydra-01	Bailer-01	Trip Blank-03	Trip Blank-04
				SAMPLE TYPE:	Water	Water	Water	Water	Water	Water	Water	Water
				DATE SAMPLED:	2023-01-18 13:40	2023-01-18 14:00	2023-01-18 14:00	2023-01-18 14:10	2023-01-18 15:40	2023-01-18 15:50	2023-01-18 16:03	2023-01-18 16:05
Parameter	Unit	G / S	RDL		4701832	4701833	4701834	4701835	4701836	4701837	4701838	4701839
Benzene	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Toluene	mg/L		0.0003		<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Ethylbenzene	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
m,p-Xylenes	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
o-Xylene	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Xylenes	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
C6 - C10 (F1)	mg/L		0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
C6 - C10 (F1 minus BTEX)	mg/L		0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
C>10 - C16	mg/L		0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Sediment					Not Present	Not Present	Not Present	Not Present	Not Present	Not Present	Not Present	Not Present
Surrogate	Unit	Acceptable Limits										
Toluene-d8 (BTEX)	%	60-140			102	111	119	101	114	121	111	110
o-Terphenyl (F2-F4)	%	60-140			108	110	110	109	111	110	111	111

Certified By: Elena Gorobets

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C989826

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:Gavin Clarke

SUNCOR - Petroleum Hydrocarbons (BTEX/F1-F2) in Water

DATE RECEIVED: 2023-01-18

DATE REPORTED: 2023-01-27

				SAMPLE DESCRIPTION:	BH3003A	BH3003B	BH3002A	BH3002B	BH3001B	BH3001C	BH1978	BH1945
				SAMPLE TYPE:	Water	Water	Water	Water	Water	Water	Water	Water
				DATE SAMPLED:	2023-01-18 08:40	2023-01-18 08:45	2023-01-18 08:50	2023-01-18 08:55	2023-01-18 09:00	2023-01-18 09:20	2023-01-18 09:25	2023-01-18 09:35
Parameter	Unit	G / S	RDL		4701840	4701841	4701842	4701843	4701844	4701845	4701846	4701847
Benzene	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Toluene	mg/L		0.0003		<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Ethylbenzene	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
m,p-Xylenes	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
o-Xylene	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Xylenes	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
C6 - C10 (F1)	mg/L		0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
C6 - C10 (F1 minus BTEX)	mg/L		0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
C>10 - C16	mg/L		0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Sediment					Not Present	Not Present	Not Present	Not Present	Not Present	Not Present	Not Present	Not Present
Surrogate	Unit	Acceptable Limits										
Toluene-d8 (BTEX)	%	60-140			109	110	100	114	113	105	125	114
o-Terphenyl (F2-F4)	%	60-140			110	110	111	111	109	109	110	110

Certified By: Elena Gorobets

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C989826

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:Gavin Clarke

SUNCOR - Petroleum Hydrocarbons (BTEX/F1-F2) in Water

DATE RECEIVED: 2023-01-18

DATE REPORTED: 2023-01-27

SAMPLE DESCRIPTION:				BH1951	BH5001	BH5002	DUP-07	BH2002	BH2003	Trip Blank-05	Trip Blank-06
SAMPLE TYPE:				Water	Water	Water	Water	Water	Water	Water	Water
DATE SAMPLED:				2023-01-18 09:45	2023-01-18 10:15	2023-01-18 10:45	2023-01-18 10:45	2023-01-18 10:55	2023-01-18 11:00	2023-01-18 15:05	2023-01-18 15:20
Parameter	Unit	G / S	RDL	4701848	4701851	4701853	4701854	4701855	4701856	4701857	4701858
Benzene	mg/L		0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Toluene	mg/L		0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Ethylbenzene	mg/L		0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
m,p-Xylenes	mg/L		0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
o-Xylene	mg/L		0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Xylenes	mg/L		0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
C6 - C10 (F1)	mg/L		0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
C6 - C10 (F1 minus BTEX)	mg/L		0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
C>10 - C16	mg/L		0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Sediment				Not Present	Not Present	Not Present	Not Present	Not Present	Not Present	Not Present	Not Present
Surrogate	Unit	Acceptable Limits									
Toluene-d8 (BTEX)	%	60-140		96	116	107	98	120	109	112	100
o-Terphenyl (F2-F4)	%	60-140		111	112	110	110	111	110	111	111

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

4701790-4701858 The F1 (C6 - C10) fraction is determined by integrating the FID chromatogram from the beginning of the nC6 peak to the apex of the last nC10 peak.
The C6 - C10 fraction is calculated from the FID toluene response factor.
The F2 (C10 - C16) fraction is determined by integrating the FID chromatogram from the apex of the nC10 peak to the apex of the nC16 peak.
The F2 (C10 - C16) fraction is calculated using the average response factor for nC10, nC16, and nC34.
Quality control for the calibration follows the guidelines set out in the CCME Contaminated Sites Method for Soils.
C6 –C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
C>10 – C16 (F2- Napthalene) is a calculated parameter. The calculated value is F2 - Napthalene (if requested). The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
C>16 - C34 (F3-PAH) is a calculated parameter. The calculated value is F3-PAH (if requested). The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
Xylenes is a calculated parameter. The calculated value is the sum of m&p-Xylenes + o-Xylene. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
Sediment parameter is comment only based on visual inspection of the sample prior to extraction and is not an accredited test.
Extraction and holding times were met for this sample.

Analysis performed at AGAT Calgary (unless marked by *)

Certified By: Elena Gorobets

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C989826

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:Gavin Clarke

Volatile Organic Compounds in Water

DATE RECEIVED: 2023-01-18

DATE REPORTED: 2023-01-27

		SAMPLE DESCRIPTION:		Trip Blank-03	Trip Blank-04
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		2023-01-18 16:03	2023-01-18 16:05
Parameter	Unit	G / S	RDL	4701838	4701839
Chloromethane	mg/L		0.001	<0.001	<0.001
Vinyl Chloride	mg/L		0.0008	<0.0008	<0.0008
Bromomethane	mg/L		0.001	<0.001	<0.001
Chloroethane	mg/L		0.001	<0.001	<0.001
Trichlorofluoromethane	mg/L		0.001	<0.001	<0.001
Acetone	mg/L		0.01	<0.01	<0.01
1,1-Dichloroethylene	mg/L		0.001	<0.001	<0.001
Methylene Chloride	mg/L		0.001	<0.001	<0.001
Methyl tert-Butyl Ether	mg/L		0.001	<0.001	<0.001
Methyl Ethyl Ketone	mg/L		0.01	<0.01	<0.01
trans-1,2-Dichloroethylene	mg/L		0.001	<0.001	<0.001
1,1-Dichloroethane	mg/L		0.001	<0.001	<0.001
cis-1,2-Dichloroethylene	mg/L		0.001	<0.001	<0.001
Chloroform	mg/L		0.001	<0.001	<0.001
1,2-Dichloroethane	mg/L		0.001	<0.001	<0.001
1,1,1-Trichloroethane	mg/L		0.001	<0.001	<0.001
Carbon Tetrachloride	mg/L		0.0005	<0.0005	<0.0005
Benzene	mg/L		0.0005	<0.0005	<0.0005
1,2-Dichloropropane	mg/L		0.001	<0.001	<0.001
Trichloroethylene	mg/L		0.00030	<0.0003	<0.0003
Bromodichloromethane	mg/L		0.001	<0.001	<0.001
trans-1,3-Dichloropropene	mg/L		0.001	<0.001	<0.001
Methyl Isobutyl Ketone	mg/L		0.01	<0.01	<0.01
cis-1,3-Dichloropropene	mg/L		0.001	<0.001	<0.001
1,1,2-Trichloroethane	mg/L		0.001	<0.001	<0.001
Toluene	mg/L		0.0003	<0.0003	<0.0003
2-Hexanone	mg/L		0.02	<0.02	<0.02
Dibromochloromethane	mg/L		0.001	<0.001	<0.001
Ethylene Dibromide	mg/L		0.001	<0.001	<0.001

Certified By: Elena Gorobets

AGAT Laboratories
2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C989826

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:Gavin Clarke

Volatile Organic Compounds in Water

DATE RECEIVED: 2023-01-18

DATE REPORTED: 2023-01-27

				SAMPLE DESCRIPTION:	Trip Blank-03	Trip Blank-04
				SAMPLE TYPE:	Water	Water
				DATE SAMPLED:	2023-01-18 16:03	2023-01-18 16:05
Parameter	Unit	G / S	RDL		4701838	4701839
Tetrachloroethene	mg/L		0.001		<0.001	<0.001
1,1,1,2-Tetrachloroethane	mg/L		0.001		<0.001	<0.001
Chlorobenzene	mg/L		0.0010		<0.001	<0.001
Ethylbenzene	mg/L		0.0005		<0.0005	<0.0005
m,p-Xylenes	mg/L		0.0005		<0.0005	<0.0005
Bromoform	mg/L		0.001		<0.001	<0.001
Styrene	mg/L		0.001		<0.001	<0.001
1,1,2,2-Tetrachloroethane	mg/L		0.001		<0.001	<0.001
o-Xylene	mg/L		0.0005		<0.0005	<0.0005
1,3-Dichlorobenzene	mg/L		0.0005		<0.0005	<0.0005
1,4-Dichlorobenzene	mg/L		0.0005		<0.0005	<0.0005
1,2-Dichlorobenzene	mg/L		0.0005		<0.0005	<0.0005
1,2,4-Trichlorobenzene	mg/L		0.001		<0.001	<0.001
Xylenes	mg/L		0.0005		<0.0005	<0.0005
Surrogate	Unit	Acceptable Limits				
Toluene-d8	%	50-140			105	98

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

4701838-4701839 1,1,2,2-Tetrachloroethane reported only for samples matrices which can be purged. Otherwise N/A.
Xylenes is a calculated parameter. The calculated value is the sum of m&p-Xylenes + o-Xylene. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Calgary (unless marked by *)

Certified By: Elena Gorobets

AGAT Laboratories
2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C989826

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:Gavin Clarke

Water Package - Routine Chemistry Water Analysis - Lab Filtered Cations

DATE RECEIVED: 2023-01-18

DATE REPORTED: 2023-01-27

		SAMPLE DESCRIPTION:		BH1958	BH3001A		BH1928
		SAMPLE TYPE:		Water	Water		Water
		DATE SAMPLED:		2023-01-18 09:30	2023-01-18 11:30		2023-01-18 14:10
Parameter	Unit	G / S	RDL	4701790	4701823	RDL	4701835
pH	pH Units	7.0-10.5	N/A	7.67	7.91	N/A	7.54
p - Alkalinity (as CaCO3)	mg/L		5	<5	<5	5	<5
T - Alkalinity (as CaCO3)	mg/L		5	482	591	5	530
Bicarbonate	mg/L		5	600	732	5	657
Carbonate	mg/L		5	<5	<5	5	<5
Hydroxide	mg/L		5	<5	<5	5	<5
Electrical Conductivity	uS/cm		5	1600	1950	5	3380
Chloride	mg/L	(250)	1.0	238	278	1.5	797
Fluoride	mg/L	1.5	0.01	0.16	0.11	0.03	0.15
Nitrate	mg/L	45	0.5	10.7	59.7	0.5	194
Nitrate-N	mg/L	10	0.02	2.42	13.5	0.02	43.8
Nitrite	mg/L	3	0.05	<0.05	<0.05	0.10	0.11
Nitrite-N	mg/L	1	0.01	<0.01	<0.01	0.01	0.03
Nitrate+Nitrite - Nitrogen	mg/L		0.02	2.42	13.5	0.02	43.9
Sulfate	mg/L	(500)	1.0	38.3	53.3	1.0	40.9
Dissolved Calcium	mg/L		0.3	140	161	0.3	268
Dissolved Magnesium	mg/L		0.2	86.7	122	0.2	207
Dissolved Sodium	mg/L	(200)	0.6	61.4	65.4	0.6	110
Dissolved Potassium	mg/L		0.6	4.0	4.5	0.6	6.3
Dissolved Iron	mg/L	(0.3)	0.1	<0.1	<0.1	0.1	<0.1
Dissolved Manganese	mg/L	0.12 (0.02)	0.005	<0.005	<0.005	0.005	0.014
Sodium Adsorption Ratio				1.01	0.95		1.23
Calculated TDS	mg/L		0.6	874	1100	0.6	1950
Hardness	mg CaCO3/L		0.5	707	904	0.5	1520
Ion Balance	%		1	96	96	1	95

Certified By:

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C989826

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:Gavin Clarke

Water Package - Routine Chemistry Water Analysis - Lab Filtered Cations

DATE RECEIVED: 2023-01-18

DATE REPORTED: 2023-01-27

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to 2020 Canadian Drinking Water Quality MAC (AO)
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

4701790-4701835 < - Values refer to Report Detection Limits.
SAR is a calculated parameter. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
If sodium results in mg/L are less than detection, SAR is non-calculable and is reported as 0.
Ion Balance is a calculated parameter. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
Hardness is a calculated parameter. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
Calculated TDS is a calculated parameter. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Calgary (unless marked by *)

Certified By:

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Quality Assurance

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

AGAT WORK ORDER: 23C989826

PROJECT: 10-12832

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:Gavin Clarke

Trace Organics Analysis

RPT Date: Jan 27, 2023			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
SUNCOR - Petroleum Hydrocarbons (BTEX/F1-F2) in Water															
Benzene	4559	4701815	<0.0005	<0.0005	NA	< 0.0005	82%	60%	140%	85%	60%	140%	91%	60%	140%
Toluene	4559	4701815	<0.0003	<0.0003	NA	< 0.0003	86%	60%	140%	87%	60%	140%	86%	60%	140%
Ethylbenzene	4559	4701815	<0.0005	<0.0005	NA	< 0.0005	85%	60%	140%	82%	60%	140%	83%	60%	140%
m,p-Xylenes	4559	4701815	<0.0005	<0.0005	NA	< 0.0005	88%	60%	140%	94%	60%	140%	97%	60%	140%
o-Xylene	4559	4701815	<0.0005	<0.0005	NA	< 0.0005	110%	60%	140%	94%	60%	140%	97%	60%	140%
Xylenes	4559	4701815	<0.0005	<0.0005	NA	< 0.0005	88%	60%	140%	94%	60%	140%	97%	60%	140%
C6 - C10 (F1)	4559	4701815	<0.1	<0.1	NA	< 0.1	101%	60%	140%	103%	60%	140%	107%	60%	140%
C>10 - C16	8030	4701819	<0.1	<0.1	NA	< 0.1	93%	60%	140%	83%	60%	140%	79%	60%	140%

Comments: Duplicate NA: results are less than 5X the RDL and RDP will not be calculated.
The sample spikes and dups are not from the same sample ID.

1,2-DCA in Water															
1,2-Dichloroethane	4559	4701815	<0.001	<0.001	NA	< 0.001	86%	50%	140%	92%	60%	130%	89%	50%	140%

Comments: Duplicate NA: results are less than 5X the RDL and RDP will not be calculated.
The sample spikes and dups are not from the same sample ID.

SUNCOR - Petroleum Hydrocarbons (BTEX/F1-F2) in Water															
Benzene	4560	4701837	<0.0005	<0.0005	NA	< 0.0005	85%	60%	140%	94%	60%	140%	98%	60%	140%
Toluene	4560	4701837	<0.0003	<0.0003	NA	< 0.0003	96%	60%	140%	90%	60%	140%	95%	60%	140%
Ethylbenzene	4560	4701837	<0.0005	<0.0005	NA	< 0.0005	87%	60%	140%	86%	60%	140%	83%	60%	140%
m,p-Xylenes	4560	4701837	<0.0005	<0.0005	NA	< 0.0005	96%	60%	140%	102%	60%	140%	106%	60%	140%
o-Xylene	4560	4701837	<0.0005	<0.0005	NA	< 0.0005	110%	60%	140%	102%	60%	140%	106%	60%	140%
Xylenes	4560	4701837	<0.0005	<0.0005	NA	< 0.0005	96%	60%	140%	102%	60%	140%	106%	60%	140%
C6 - C10 (F1)	4560	4701837	<0.1	<0.1	NA	< 0.1	101%	60%	140%	111%	60%	140%	97%	60%	140%
C>10 - C16	8030	4701837	<0.1	<0.1	NA	< 0.1	93%	60%	140%	82%	60%	140%	75%	60%	140%

Comments: Duplicate NA: results are less than 5X the RDL and RDP will not be calculated.
The sample spikes and dups are not from the same sample ID.

1,2-DCA in Water															
1,2-Dichloroethane	4560	4701837	<0.001	<0.001	NA	< 0.001	94%	50%	140%	87%	60%	130%	90%	50%	140%

Comments: Duplicate NA: results are less than 5X the RDL and RDP will not be calculated.
The sample spikes and dups are not from the same sample ID.

Certified By: Elena Gorobets

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Quality Assurance

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

AGAT WORK ORDER: 23C989826

PROJECT: 10-12832

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:Gavin Clarke

Water Analysis

RPT Date: Jan 27, 2023			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Water Package - Routine Chemistry Water Analysis - Lab Filtered Cations															
pH	4701758		7.71	7.75	0.5%	N/A	100%	90%	110%						
p - Alkalinity (as CaCO3)	4701758		<5	<5	NA	< 5	NA	80%	120%						
T - Alkalinity (as CaCO3)	4701758		642	640	0.3%	< 5	103%	80%	120%						
Bicarbonate	4701758		797	794	0.3%	7	NA								
Carbonate	4701758		<5	<5	NA	< 5	NA								
Hydroxide	4701758		<5	<5	NA	< 5	NA								
Electrical Conductivity	4701758		3370	3360	0.3%	< 5	102%	90%	110%						
Chloride	4701289		37.9	38.8	2.3%	< 1.0	95%	70%	130%	94%	80%	120%	98%	70%	130%
Fluoride	4701289		0.35	0.37	5.6%	< 0.01	87%	70%	130%	80%	80%	120%	83%	70%	130%
Nitrate	4701289		2.0	1.9	NA	< 0.5	99%	70%	130%	99%	80%	120%	98%	70%	130%
Nitrite	4701289		<0.20	<0.20	NA	< 0.05	92%	70%	130%	91%	80%	120%	91%	70%	130%
Sulfate	4701289		13.4	13.1	2.0%	< 1.0	99%	70%	130%	100%	80%	120%	97%	70%	130%
Dissolved Calcium	4701758		120	120	0.1%	< 0.3	95%	70%	130%	106%	80%	120%	NA	70%	130%
Dissolved Magnesium	4701758		290	290	0.1%	< 0.2	92%	70%	130%	88%	80%	120%	NA	70%	130%
Dissolved Sodium	4701758		135	135	0.0%	< 0.6	79%	70%	130%	88%	80%	120%	NA	70%	130%
Dissolved Potassium	4701758		5.4	5.4	0.2%	< 0.6	81%	70%	130%	93%	80%	120%	NA	70%	130%
Dissolved Iron	4701758		<0.1	<0.1	NA	< 0.1	104%	70%	130%	95%	80%	120%	95%	70%	130%
Dissolved Manganese	4701758		0.532	0.544	2.2%	< 0.005	104%	70%	130%	94%	80%	120%	NA	70%	130%

Comments: Matrix spike NA: Spike level < native concentration. Matrix spike acceptance limits do not apply and are not calculated.
Duplicate NA: results are less than 5X the RDL and RDP will not be calculated.

pH has been analyzed past the recommended holding time of 15 minutes from sampling (field measurement ideal if more accurate data required)

Nitrate and Nitrite: The regulatory hold time for the analysis of nitrate and/or nitrite in water is 72 hours.

Certified By:

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Method Summary

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

AGAT WORK ORDER: 23C989826

PROJECT: 10-12832

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:Gavin Clarke

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
1,2-Dichloroethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Toluene-d8	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Benzene	TO 0332	EPA SW-846 5021 & 8260	GC/MS
Toluene	TO 0332	EPA SW-846 5021 & 8260	GC/MS
Ethylbenzene	TO 0332	EPA SW-846 5021 & 8260	GC/MS
m,p-Xylenes	TO-0542	EPA SW-846 5021/8260-W	GC/MS
o-Xylene	TO-0542	EPA SW-846 5021/8260-W	GC/MS
Xylenes	TO 0332	EPA SW-846 5021 & 8260	GC/MS
C6 - C10 (F1)	TO 0542	CCME Tier 1 Method	GC/FID
C6 - C10 (F1 minus BTEX)	TO 0542	CCME Tier 1 Method	GC/FID
C>10 - C16	TO 0511	CCME Tier 1 Method	GC/FID
Toluene-d8 (BTEX)	TO-0543	EPA SW-846 5021 & 8260	GC/FID
o-Terphenyl (F2-F4)	TO 0511	CCME Tier 1 Method	GC/FID
Sediment	TO-0511	CCME Tier 1 Method	GC/FID
Chloromethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Vinyl Chloride	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Bromomethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Chloroethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Trichlorofluoromethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Acetone	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,1-Dichloroethylene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Methylene Chloride	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Methyl tert-Butyl Ether	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Methyl Ethyl Ketone	TO-0330	EPA SW-846 5030 & 8260	GC/MS
trans-1,2-Dichloroethylene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,1-Dichloroethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
cis-1,2-Dichloroethylene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Chloroform	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,1,1-Trichloroethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Carbon Tetrachloride	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Benzene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,2-Dichloropropane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Trichloroethylene	TO-0330	EPA SW-846 8260	GC/MS
Bromodichloromethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
trans-1,3-Dichloropropene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Methyl Isobutyl Ketone	TO-0330	EPA SW-846 5030 & 8260	GC/MS
cis-1,3-Dichloropropene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,1,2-Trichloroethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Toluene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
2-Hexanone	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Dibromochloromethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Ethylene Dibromide	TO-0330	EPA SW-846 8260	GC/MS
Tetrachloroethene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,1,1,2-Tetrachloroethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Chlorobenzene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Ethylbenzene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
m,p-Xylenes	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Bromoform	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Styrene	TO-0330	EPA SW-846 5030 & 8260	GC/MS

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Method Summary

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

AGAT WORK ORDER: 23C989826

PROJECT: 10-12832

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:Gavin Clarke

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
1,1,2,2-Tetrachloroethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
o-Xylene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,3-Dichlorobenzene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,4-Dichlorobenzene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,2-Dichlorobenzene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,2,4-Trichlorobenzene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Xylenes	TO 0330	EPA SW-846 8260	GC/MS
Water Analysis			
pH	INST 0101, INST 0104	SM 4500 H+	PH METER
p - Alkalinity (as CaCO3)	INST-0100, INST-0101	SM 2320 B	TITRATION
T - Alkalinity (as CaCO3)	INST 0101	SM 2320 B	TITRATION
Bicarbonate	INST 0101	SM 2320 B	PC TITRATE
Carbonate	INST 0101	SM 2320 B	PC TITRATE
Hydroxide	INST 0101	SM 2320 B	PC TITRATE
Electrical Conductivity	INST 0101, INST 0120	SM 2510 B	CONDUCTIVITY METER
Chloride	INST 0150	SM 4110 B	ION CHROMATOGRAPH
Fluoride	INST 0150	SM 4110 B	ION CHROMATOGRAPH
Nitrate	INST 0150	SM 4110 B	ION CHROMATOGRAPH
Nitrate-N	INST 0150	SM 4110 B	CALCULATION
Nitrite	INST 0150	SM 4110 B	ION CHROMATOGRAPH
Nitrite-N	INST 0150	SM 4110 B	CALCULATION
Nitrate+Nitrite - Nitrogen	INST 0150	SM 4110 B	CALCULATION
Sulfate	INST 0150	SM 4110 B	ION CHROMATOGRAPH
Dissolved Calcium	INST 0140	SM 3120B – R	ICP/OES
Dissolved Magnesium	INST 0140	SM 3120B – R	ICP/OES
Dissolved Sodium	INST 0140	SM 3120B – R	ICP/OES
Dissolved Potassium	INST 0140	SM 3120B – R	ICP/OES
Dissolved Iron	INST 0140	SM 3120B – R	ICP/OES
Dissolved Manganese	INST 0140	SM 3120B – R	ICP/OES
Sodium Adsorption Ratio		CARTER & GREGORICH 2007	CALCULATION
Calculated TDS		SM 1030E	CALCULATION
Hardness		SM 2340 B	CALCULATION
Ion Balance		SM 1030E	CALCULATION

18-JAN '23 PM 5:22

AGAT Laboratories

2910 12 Street NE
Calgary, Alberta T2E 7P7
P: 403-735-2005 • F: 403-735-2771
webearth.agatlabs.com

Laboratory Use Only
Arrival Temperature:
AGAT Job Number: 23C989826
Date and Time:

Chain of Custody Record

Emergency Support Services Hotline **1-855-AGAT 245 (1-855-242-8245)**

Report Information
Company: PARSONS
Contact: Michelle Patterson
Address: #100, 318 – 11 Ave SE, Calgary AB T2G 0Y2
Phone: (403)294-4215 Fax: (403)294-4240
LSD: 1624 14th Street NW, Calgary, AB
Client Project #: 10-12832
Sampled By: Gavin Clarke
Outlet #: 9445

Report Information
1. Name: Michelle Patterson
Email: michelle.patterson@parsons.com
2. Name: Calgary Lab Report
Email: Calgary.labreport@parsons.com
3. Name:
Email:

Turnaround Time Required (TAT)
Regular TAT ☑ 5 to 7 Business Days
Rush TAT ☐ <24 Hours (200%) ☐ Two Day / Next Day (100%) ☐ Three Day (50%) ☐ Four Day (25%)
Date Required:

SEE BACK FOR SURCHARGE BREAKDOWN. CONTACT YOUR CPM FOR ADDITIONAL INFORMATION

Invoice To Same Yes ☐ / No ☑
Company: Suncor Energy Products Partnership
Contact: Stephen D'Abadie
Address: P.O. Box 2844, 150 – 6 Avenue S.W.
Calgary, AB T2P 3E3
Phone: 587-223-4146 Fax:
PO/AFE#:

Requirements *(Selection may impact detection limits)*
☐ CCME ☑ AB Tier 1
☐ Agricultural ☐ Agricultural
☐ Industrial ☐ Industrial
☐ Residential/Park ☑ Residential/Park
☐ Commercial ☐ Commercial
☐ FWAL ☐ Natural Area
☐ Drinking Water ☐ Alberta Surface Water
☐ Other: ☐ Chronic ☐ Acute

Number of Jars used & not submitted

Activity
Assessement A1 ☐ A2 ☐ AR ☐ AV ☐
Remediation RE ☐ RX ☐ RI ☐ RA ☐
Containement Management M ☐ MW ☑ MV ☐

LABORATORY USE (LAB ID #)	SAMPLE IDENTIFICATION	DEPTH	DATE/TIME SAMPLED	SAMPLE MATRIX	COMMENTS (FILTERED, PRESERVED, HAZARDOUS*) *ADDITIONAL FEE	# OF CONTAINERS VIALS / JARS	BAGS	BOTTLES	Detailed Salinity: ☐ AB ☐ SK ☐ BC ☐ D50	☐ CCME/AB : BTEX/F1-F4 ☑ CCME/AB : BTEX/F1-F2	☐ BC: BTEXS/VPH/EPH ☐ BC: LEPH/HEPH	SK: BTEX/TVH/C11-C22, C23-C60	Soil Metals: ☐ HWS-B ☐ SP-B ☐ Hg ☐ Cr6+	Water Metals: ☐ Dissolved ☐ Total ☐ Hg ☐ Cr6+	Routine Water Chemistry	Landfill: ☐ AB Class 2 ☐ BC ☐ SK	Coliforms: ☐ Total ☐ Fecal ☐ E.coli	Particle Size: ☐ Sieve (75µm) ☐ Texture	1,2 DCA 1,2 Dichloroethane	VOC	HOLD FOR 30 DAYS NO ANALYSIS (Additional Fee)	HOLD FOR 30 DAYS AFTER ANALYSIS (Additional Fee)
1																						
2																						
3																						
4																						
5	BH1958		01/18/23 09:30	G.W				7		X					X				X			
6	BH1957		10:00					6		X									X			
7	BH1904		10:15					6		X									X			
8	DUP-04		10:30					6		X									X			
9	BH1933		10:50					6		X									X			
10	BH1934		10:45					6		X									X			

Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Gavin Clarke	01/18/23 16:10	John Gopan	JAN 18 2023
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time

Pink Copy - Client
Yellow Copy - AGAT
White Copy- AGAT

Page 1 of 5

N°: AB

Document ID: DIV-50-1507.007

Date Revised: Apr 20, 2021

18-JAN '23 PM 5 :22

AGAT Laboratories

2910 12 Street NE
Calgary, Alberta T2E 7P7
P: 403-735-2005 • F: 403-735-2771
webearth.agatlabs.com

Laboratory Use Only
Arrival Temperature:
AGAT Job Number:
Date and Time:

Chain of Custody Record

Emergency Support Services Hotline 1-855-AGAT 245 (1-855-242-8245)

Report Information
Company: PARSONS
Contact: Michelle Patterson
Address: #100, 318 – 11 Ave SE, Calgary AB T2G 0Y2
Phone: (403)294-4215 Fax: (403)294-4240
LSD: 1624 14th Street NW, Calgary, AB
Client Project #: 10-12832
Sampled By: Gavin Clarke
Outlet #: 9445

Report Information
1. Name: Michelle Patterson
Email: michelle.patterson@parsons.com
2. Name: Calgary Lab Report
Email: Calgary.labreport@parsons.com
3. Name:
Email:

Turnaround Time Required (TAT)
Regular TAT ☑ 5 to 7 Business Days
Rush TAT ☐ <24 Hours (200%) ☐ Two Day / Next Day (100%) ☐ Three Day (50%) ☐ Four Day (25%)
Date Required:

SEE BACK FOR SURCHARGE BREAKDOWN. CONTACT YOUR CPM FOR ADDITIONAL INFORMATION

Invoice To Same Yes ☐ / No ☑
Company: Suncor Energy Products Partnership
Contact: Stephen D'Abadie
Address: P.O. Box 2844, 150 – 6 Avenue S.W.
Calgary, AB T2P 3E3
Phone: 587-223-4146 Fax:
PO/AFE#:

Requirements *(Selection may impact detection limits)*
☐ CCME ☑ AB Tier 1
☐ Agricultural ☐ Agricultural
☐ Industrial ☐ Industrial
☐ Residential/Park ☑ Residential/Park
☐ Commercial ☐ Commercial
☐ FWAL ☐ Natural Area
☐ Drinking Water ☐ Alberta Surface Water
☐ Other: ☐ Chronic ☐ Acute

Number of jars used & not submitted

Activity
Assessment A1 ☐ A2 ☐ AR ☐ AV ☐
Remediation RE ☐ RX ☐ RI ☐ RA ☐
Containement Management M ☐ MW☑ MV ☐

LABORATORY USE (LAB ID #)	SAMPLE IDENTIFICATION	DEPTH	DATE/TIME SAMPLED	SAMPLE MATRIX	COMMENTS (FILTERED, PRESERVED, HAZARDOUS*) *ADDITIONAL FEE	# OF CONTAINERS VIALS / JARS	BAGS	BOTTLES	Detailed Salinity: ☐AB ☐SK ☐BC ☐D50	☐CCME/AB : BTEX/F1-F4 ☑CCME/AB : BTEX /F1-F2	☐BC: BTEXS/VPH/EPH ☐BC: LEPH/HEPH	SK: BTEX/TVH/C11-C22, C23-C60	Soil Metals: ☐HWS-B ☐SP-B ☐Hg ☐Cr6+	Water Metals: ☐Dissolved ☐Total ☐Hg ☐Cr6+	Routine Water Chemistry	Landfill: ☐AB Class 2 ☐BC ☐SK	Coliforms: ☐Total ☐Fecal ☐E.coli	Particle Size: ☐Sieve (75µm) ☐Texture	1,2 DCA	VOC							HOLD FOR 30 DAYS NO ANALYSIS (Additional Fee)	HOLD FOR 30 DAYS AFTER ANALYSIS (Additional Fee)
1	BH1935		01/18/23 11:00	G.W				6		X									X										
2	BH 3001A		11:30					7		X					X				X										
3	BH 2005		11:45					6		X									X										
4	BH 1977		12:00					6		X									X										
5	BH 2006		12:10					6		X									X										
6	BH1955A		12:15					6		X									X										
7	BH 2001		13:00					6		X									X										
8	BH 912		13:10					6		X									X										
9	BH1954		13:30					6		X									X										
10	BH1981		13:40					6		X									X										

1,2 Dichloroethane

Samples Relinquished By (Print Name and Sign)	Date/Time	Samples Received By (Print Name and Sign)	Date/Time
Gavin Clarke	01/18/23 16:10	JC	JAN 18 2023
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time

Pink Copy - Client
Yellow Copy - AGAT
White Copy- AGAT

Page 2 of 5

N°: AB

18 JAN '23 PM 5:22

AGAT Laboratories

2910 12 Street NE
Calgary, Alberta T2E 7P7
P: 403-735-2005 • F: 403-735-2771
webearth.agatlabs.com

Laboratory Use Only
Arrival Temperature:
AGAT Job Number:
Date and Time:

Chain of Custody Record

Emergency Support Services Hotline 1-855-AGAT 245 (1-855-242-8245)

Report Information
Company: PARSONS
Contact: Michelle Patterson
Address: #100, 318 – 11 Ave SE, Calgary AB T2G 0Y2
Phone: (403)294-4215 Fax: (403)294-4240
LSD: 1624 14th Street NW, Calgary, AB
Client Project #: 10-12832
Sampled By: Gavin Clarke
Outlet #: 9445

Report Information
1. Name: Michelle Patterson
Email: michelle.patterson@parsons.com
2. Name: Calgary Lab Report
Email: Calgary.labreport@parsons.com
3. Name:
Email:

Turnaround Time Required (TAT)
Regular TAT ☑ 5 to 7 Business Days
Rush TAT ☐ <24 Hours (200%) ☐ Two Day / Next Day (100%) ☐ Three Day (50%) ☐ Four Day (25%)
Date Required:

SEE BACK FOR SURCHARGE BREAKDOWN. CONTACT YOUR CPM FOR ADDITIONAL INFORMATION

Invoice To Same Yes ☐ / No ☑
Company: Suncor Energy Products Partnership
Contact: Stephen D'Abadie
Address: P.O. Box 2844, 150 – 6 Avenue S.W.
Calgary, AB T2P 3E3
Phone: 587-223-4146 Fax:
PO/AFE#:

Requirements *(Selection may impact detection limits)*
☐ CCME ☑ AB Tier 1
☐ Agricultural ☐ Agricultural
☐ Industrial ☐ Industrial
☐ Residential/Park ☑ Residential/Park
☐ Commercial ☐ Commercial
☐ FWAL ☐ Natural Area
☐ Drinking Water ☐ Alberta Surface Water
☐ Other: ☐ Chronic ☐ Acute

Number of jars used & not submitted

Activity
Assessement A1 ☐ A2 ☐ AR ☐ AV ☐
Remediation RE ☐ RX ☐ RI ☐ RA ☐
Containement Management M ☐ MW☑ MV ☐

LABORATORY USE (LAB ID #)	SAMPLE IDENTIFICATION	DEPTH	DATE/TIME SAMPLED	SAMPLE MATRIX	COMMENTS (FILTERED, PRESERVED, HAZARDOUS*) *ADDITIONAL FEE	# OF CONTAINERS VIALS / JARS	BAGS	BOTTLES	Detailed Salinity: ☐AB ☐SK ☐BC ☐D50	☐CCME/AB : BTEX/F1-F4 ☑CCME/AB : BTEX /F1-F2	☐BC: BTEXS/VPH/EPH ☐BC: LEPH/HEPH	SK: BTEX/TVH/C11-C22, C23-C60	Soil Metals: ☐HWS-B ☐SP-B ☐Hg ☐Cr^{6+}	Water Metals: ☐Dissolved ☐Total ☐Hg ☐Cr^{6+}	Routine Water Chemistry	Landfill: ☐AB Class 2 ☐BC ☐SK	Coliforms: ☐Total ☐Fecal ☐E.coli	Particle Size: ☐Sieve (75µm) ☐Texture	1,2 DCA 1,2 Dichloroethane	VOC	HOLD FOR 30 DAYS NO ANALYSIS (Additional Fee)	HOLD FOR 30 DAYS AFTER ANALYSIS (Additional Fee)
1	DUP-05		01/18/23 13:40	G-W				5		X									X			
2	BH1929		14:00					5		X									X			
3	DUP-06		14:00					5		X									X			
4	BH1928		14:40	↓				7		X					X				X			
5	Hydra-01		15:40	Other				6		X									X			
6	Bailer-01		15:50	Other				6		X									X			
7	Trip Blank-03		16:02	Other				6		X									X			
8	Trip Blank-04		16:05	Other				6		X										X		
9	~~BH1933~~		14:30	G-W				6		X									X			
10																						

Samples Relinquished By (Print Name and Sign)	Date/Time	Samples Received By (Print Name and Sign)	Date/Time
Gavin Clarke	01/18/23 16:10	JC	JAN 18 2023

Pink Copy - Client
Yellow Copy - AGAT
White Copy- AGAT

Page 3 of 5

N°: AB

Document ID: DIV-50-1507.007

Date Revised: Apr 20, 2021

AGAT Laboratories

2910 12 Street NE
Calgary, Alberta T2E 7P7
P: 403-735-2005 • F: 403-735-2771
webearth.agatlabs.com

Laboratory Use Only
Arrival Temperature: _____
AGAT Job Number: _____
Date and Time: _____

Chain of Custody Record

Emergency Support Services Hotline 1-855-AGAT 245 (1-855-242-8245)

Report Information
Company: PARSONS
Contact: Michelle Patterson
Address: #100, 318 – 11 Ave SE, Calgary AB T2G 0Y2
Phone: (403)294-4215 Fax: (403)294-4240
LSD: 1624 14th Street NW, Calgary, AB
Client Project #: 10-12832
Sampled By: Oscar Wronski
Outlet #: 9445

Report Information
1. Name: Michelle Patterson
Email: michelle.patterson@parsons.com
2. Name: Calgary Lab Report
Email: Calgary.labreport@parsons.com
3. Name:
Email:

Turnaround Time Required (TAT)
Regular TAT ☑ 5 to 7 Business Days
Rush TAT ☐ <24 Hours (200%) ☐ Two Day / Next Day (100%) ☐ Three Day (50%) ☐ Four Day (25%)
Date Required: _____

SEE BACK FOR SURCHARGE BREAKDOWN. CONTACT YOUR CPM FOR ADDITIONAL INFORMATION

Invoice To Same Yes ☐ / No ☑
Company: Suncor Energy Products Partnership
Contact: Stephen D'Abadie
Address: P.O. Box 2844, 150 – 6 Avenue S.W.
Calgary, AB T2P 3E3
Phone: 587-223-4146 Fax:
PO/AFE#:

Requirements *(Selection may impact detection limits)*
☐ CCME ☑ AB Tier 1
☐ Agricultural ☐ Agricultural
☐ Industrial ☐ Industrial
☐ Residential/Park ☑ Residential/Park
☐ Commercial ☐ Commercial
☐ FWAL ☐ Natural Area
☐ Drinking Water ☐ Alberta Surface Water
☐ Other: ☐ Chronic ☐ Acute

Number of Jars used & not submitted

Activity
Assessment A1 ☐ A2 ☐ AR ☐ AV ☐
Remediation RE ☐ RX ☐ RI ☐ RA ☐
Containement Management M ☐ MW ☑ MV ☐

LABORATORY USE (LAB ID #)	SAMPLE IDENTIFICATION	DEPTH	DATE/TIME SAMPLED	SAMPLE MATRIX	COMMENTS (FILTERED, PRESERVED, HAZARDOUS*) *ADDITIONAL FEE	# OF CONTAINERS VIALS / JARS	BAGS	BOTTLES	Detailed Salinity: ☐ AB ☐ SK ☐ BC ☐ D50	☐ CCME/AB : BTEX/F1-F4	☑ CCME/AB : BTEX/F1-F2	☐ BC: BTEXS/VPH/EPH	☐ BC: LEPH/HEPH	SK: BTEX/TVH/C11-C22, C23-C60	Soil Metals: ☐ HWS-B ☐ SP-B ☐ Hg ☐ Cr^{6+}	Water Metals: ☐ Dissolved ☐ Total ☐ Hg ☐ Cr^{6+}	Routine Water Chemistry	Landfill: ☐ AB Class 2 ☐ BC ☐ SK	Coliforms: ☐ Total ☐ Fecal ☐ E.coli	Particle Size: ☐ Sieve (75µm) ☐ Texture	1,2 DCA	VOC							HOLD FOR 30 DAYS NO ANALYSIS (Additional Fee)	HOLD FOR 30 DAYS AFTER ANALYSIS (Additional Fee)
1	BH 3003A		9:41	GW				6		X											X	X							
2	BH 3003B		9:45							X											X	X							
3	BH 3002A		9:50							X											X	X							
4	BH 3002B		9:55							X											X	X							
5	BH 3001B		9:01							X											X	X							
6	BH 3001C		9:20							X											X	X							
7	BH 1978		9:26							X											X	X							
8	BH 1945		9:35							X											X	X							
9	BH 1951		9:45							X											X	X							
10	BH 1947	▼	10:00	▼				▼		X											X	X							

1,2 Dichloroethane

Samples Relinquished By (Print Name and Sign): Oscar Wronski	Date/Time 2023/01/18	Samples Received By (Print Name and Sign): JC	Date/Time JAN 18 2023
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time

Pink Copy - Client
Yellow Copy - AGAT
White Copy- AGAT

Page 4 of 5

N°: AB

Document ID: DIV-SOP-1507.007.

Date Revised: Apr 20, 2021

AGAT Laboratories

2910 12 Street NE
Calgary, Alberta T2E 7P7
P: 403-735-2005 • F: 403-735-2771
webearth.agatlabs.com

Laboratory Use Only
Arrival Temperature:
AGAT Job Number:
Date and Time:

Chain of Custody Record

Emergency Support Services Hotline 1-855-AGAT 245 (1-855-242-8245)

Report Information
Company: PARSONS
Contact: Michelle Patterson
Address: #100, 318 – 11 Ave SE, Calgary AB T2G 0Y2
Phone: (403)294-4215 Fax: (403)294-4240
LSD: 1624 14th Street NW, Calgary, AB
Client Project #: 10-12832
Sampled By: Oscar Wronski
Outlet #: 9445

Report Information
1. Name: Michelle Patterson
   Email: michelle.patterson@parsons.com
2. Name: Calgary Lab Report
   Email: Calgary.labreport@parsons.com
3. Name:
   Email:

Turnaround Time Required (TAT)
Regular TAT ☑ 5 to 7 Business Days
Rush TAT ☐ <24 Hours (200%) ☐ Two Day / Next Day (100%) ☐ Three Day (50%) ☐ Four Day (25%)
Date Required:

SEE BACK FOR SURCHARGE BREAKDOWN. CONTACT YOUR CPM FOR ADDITIONAL INFORMATION

Invoice To Same Yes ☐ / No ☑
Company: Suncor Energy Products Partnership
Contact: Stephen D'Abadie
Address: P.O. Box 2844, 150 – 6 Avenue S.W. Calgary, AB T2P 3E3
Phone: 587-223-4146 Fax:
PO/AFE#:

Requirements *(Selection may impact detection limits)*
☐ CCME: ☐ Agricultural ☐ Industrial ☐ Residential/Park ☐ Commercial ☐ FWAL
☑ AB Tier 1: ☐ Agricultural ☐ Industrial ☑ Residential/Park ☐ Commercial ☐ Natural Area
☐ Drinking Water
☐ Alberta Surface Water: ☐ Chronic ☐ Acute
☐ Other:

Number of jars used & not submitted

Activity
Assessment: A1 ☐ A2 ☐ AR ☐ AV ☐
Remediation: RE ☐ RX ☐ RI ☐ RA ☐
Containement Management: M ☐ MW ☑ MV ☐

LABORATORY USE (LAB ID #)		SAMPLE IDENTIFICATION	DEPTH	DATE/TIME SAMPLED	SAMPLE MATRIX	COMMENTS (FILTERED, PRESERVED, HAZARDOUS*) *ADDITIONAL FEE	VIALS / JARS	BAGS	BOTTLES	Detailed Salinity: ☐AB ☐SK ☐BC ☐D50	☐ CCME/AB : BTEX/F1-F4 ☑ CCME/AB : BTEX/F1-F2	☐ BC: BTEXS/VPH/EPH ☐ BC: LEPH/HEPH	SK: BTEX/TVH/C11-C22, C23-C60	Soil Metals: ☐ HWS-B ☐ SP-B ☐ Hg ☐ Cr6+	Water Metals: ☐ Dissolved ☐ Total ☐ Hg ☐ Cr6+	Routine Water Chemistry	Landfill: ☐ AB Class 2 ☐ BC ☐ SK	Coliforms: ☐ Total ☐ Fecal ☐ E.coli	Particle Size: ☐ Sieve (75μm) ☐ Texture	1,2 DCA (1,2 Dichloroethane)	VOC					HOLD FOR 30 DAYS NO ANALYSIS (Additional Fee)	HOLD FOR 30 DAYS AFTER ANALYSIS (Additional Fee)
1	RH	BH5001		01/18 10:15	GW				6		X									X							
2		BH1947		10:26	GW						X									X							
3		BH5002		10:35	GW						X									X							
4		DUP-07		10:45	GW						X									X							
5		BH2002		10:55	GW						X									X							
6		BH2003		11:00	GW						X									X							
7		Trip Blank - 05		15:05	GW						X									X							
8		Trip Blank - 06		01/18 13:20	GW						X									X							
9																											
10																											

Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Oscar Wronski [signature]	01/18/23		
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time

Pink Copy - Client
Yellow Copy - AGAT
White Copy- AGAT

Page 5 of 5

Nº: AB

Document ID: DIV-50-1507.007

Date Revised: Apr 20, 2021

AGAT Laboratories

SAMPLE INTEGRITY RECEIPT FORM

RECEIVING BASICS - Shipping

Company/Consultant: Parsons /Sunw-

Courier: O/C Prepaid Collect

Waybill#: ___

Branch: EDM GP FN FM RD VAN LYD FSJ EST SASK Other: C

If multiple sites were submitted at once: Yes (No)

Custody Seal Intact: Yes No (NA)

TAT: <24hr 24-48hr 48-72hr (Reg) Other___

Cooler Quantity: 4

TIME SENSITIVE ISSUES - Shipping

ALREADY EXCEEDED HOLD TIME? Yes (No)

Inorganic Tests (Please Circle): Mibi , BOD , Nitrate/Nitrite , Turbidity , Color , Microtox , Ortho PO4 , Tedlar Bag , Residual Chlorine , Chlorophyll* , Chloroamines*

Earliest Expiry: Jan 21, 2023

Hydrocarbons: Earliest Expiry ___

SAMPLE INTEGRITY - Shipping

Hazardous Samples: YES (NO) Precaution Taken: ___

Legal Samples: Yes (No)

International Samples: Yes (No)

Tape Sealed: Yes (No)

Coolant Used: Icepack (Bagged Ice) Free Ice Free Water None

Temperature (Bottles/Jars only) N/A if only Soil Bags Received

FROZEN (Please Circle if samples received Frozen)

1 ((Bottle)/Jar) 3 + 5 + 4 = 4 °C 2 ((Bottle)/Jar) 9 + 9 + 8 = 9 °C

3 ((Bottle)/Jar) 4 + 4 + 4 = 4 °C 4 ((Bottle)/Jar) 8 + 8 + 8 = 8 °C

5 (Bottle/Jar)__+__+__=__ °C 6 (Bottle/Jar)__+__+__=__ °C

7 (Bottle/Jar)__+__+__=__ °C 8 (Bottle/Jar)__+__+__=__ °C

9 (Bottle/Jar)__+__+__=__ °C 10 (Bottle/Jar)__+__+__=__ °C

(If more than 10 coolers are received use another sheet of paper and attach)

LOGISTICS USE ONLY

Workorder No: ___

Samples Damaged: Yes No If YES why?

No Bubble Wrap Frozen Courier

Other: ___

Account Project Manager: ___ have they been notified of the above issues: Yes No

Whom spoken to: ___ Date/Time: ___

CPM Initial___

General Comments: Client came 1/19/23 7:55 and made changes to the COC

* Subcontracted Analysis (See CPM)

Date issued: March 11, 2020
Document ID: SR-9505.004

AGAT Laboratories

Sample Integrity Report

Client Name: SUNCOR ENERGY PRODUCTS PARTNERSHIP

Project Number: 10-12832

Contact: Stephen D'Abadie

AGAT Work Order Number: 23C989826

Consultant: NA

Client Sample ID	Bottle Type	SIR	Comment
BH1929	100ml Amber	Labeling Issues (Label Missing / Incorrect)	Bottles have 1926 written - labelled as 1929
BH1929	40ml Vial (Amber)	Labeling Issues (Label Missing / Incorrect)	Bottles have 1926 written - labelled as 1929
BH1929	40ml Vial (Amber)	Labeling Issues (Label Missing / Incorrect)	Bottles have 1926 written - labelled as 1929
BH1929	40ml Vial (Amber)	Labeling Issues (Label Missing / Incorrect)	Bottles have 1926 written - labelled as 1929
BH1929	40ml Vial (Amber)	Labeling Issues (Label Missing / Incorrect)	Bottles have 1926 written - labelled as 1929
BH1947	100ml Amber	Labeling Issues (Label Missing / Incorrect)	Date of sampling not on samples - not able to discern which 1947 is accurate. Please see samples rec'd as extra.

AGAT Laboratories

Sample Integrity Report

BH1947	100ml Amber	Labeling Issues (Label Missing / Incorrect)	Date of sampling not on samples - not able to discern which 1947 is accurate. Please see samples rec'd as extra.
BH1947	40ml Vial (Amber)	Labeling Issues (Label Missing / Incorrect)	Date of sampling not on samples - not able to discern which 1947 is accurate. Please see samples rec'd as extra.
BH1947	40ml Vial (Amber)	Labeling Issues (Label Missing / Incorrect)	Date of sampling not on samples - not able to discern which 1947 is accurate. Please see samples rec'd as extra.
BH1947	40ml Vial (Amber)	Labeling Issues (Label Missing / Incorrect)	Date of sampling not on samples - not able to discern which 1947 is accurate. Please see samples rec'd as extra.
BH1947	40ml Vial (Amber)	Labeling Issues (Label Missing / Incorrect)	Date of sampling not on samples - not able to discern which 1947 is accurate. Please see samples rec'd as extra.
BH1947	100ml Amber	Labeling Issues (Label Missing / Incorrect)	Date of sampling not on samples - not able to discern which 1947 is accurate. Please see samples rec'd as extra.
BH1947	100ml Amber	Labeling Issues (Label Missing / Incorrect)	Date of sampling not on samples - not able to discern which 1947 is accurate. Please see samples rec'd as extra.
BH1947	40ml Vial (Amber)	Labeling Issues (Label Missing / Incorrect)	Date of sampling not on samples - not able to discern which 1947 is accurate. Please see samples rec'd as extra.
BH1947	40ml Vial (Amber)	Labeling Issues (Label Missing / Incorrect)	Date of sampling not on samples - not able to discern which 1947 is accurate. Please see samples rec'd as extra.

AGAT Laboratories

Sample Integrity Report

BH1947	40ml Vial (Amber)	Labeling Issues (Label Missing / Incorrect)	Date of sampling not on samples - not able to discern which 1947 is accurate. Please see samples rec'd as extra.
BH1947	40ml Vial (Amber)	Labeling Issues (Label Missing / Incorrect)	Date of sampling not on samples - not able to discern which 1947 is accurate. Please see samples rec'd as extra.
1947	100ml Amber	Bottles in Shipment, But not Listed in COC	Unable to discern the correct 1947
1947	100ml Amber	Bottles in Shipment, But not Listed in COC	Unable to discern the correct 1947
1947	40ml Vial (Amber)	Bottles in Shipment, But not Listed in COC	Unable to discern the correct 1947
1947	40ml Vial (Amber)	Bottles in Shipment, But not Listed in COC	Unable to discern the correct 1947
1947	40ml Vial (Amber)	Bottles in Shipment, But not Listed in COC	Unable to discern the correct 1947
1947	40ml Vial (Amber)	Bottles in Shipment, But not Listed in COC	Unable to discern the correct 1947
1946	100ml Amber	Bottles in Shipment, But not Listed in COC	Unable to discern the correct 1947

AGAT Laboratories

Sample Integrity Report

1946	100ml Amber	Bottles in Shipment, But not Listed in COC	Unable to discern the correct 1947
1946	40ml Vial (Amber)	Bottles in Shipment, But not Listed in COC	Unable to discern the correct 1947
1946	40ml Vial (Amber)	Bottles in Shipment, But not Listed in COC	Unable to discern the correct 1947
1946	40ml Vial (Amber)	Bottles in Shipment, But not Listed in COC	Unable to discern the correct 1947
1946	40ml Vial (Amber)	Bottles in Shipment, But not Listed in COC	Unable to discern the correct 1947

DATA QUALITY REVIEW CHECKLIST

Consultant: *Parsons Inc.* Sampling Date: *2023/01/19*

Location: *1620 - 14th Avenue NW, Calgary, AB* Laboratory : *AGAT Laboratories*

Consultant Project Number: *10-12832* Sample Submission Number: *23C990183*

Are All Laboratory QC Samples Within Acceptance Criteria (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Surrogate Recovery	*X*			*All lab QC met acceptance criteria.*
Method Blank Concentration	*X*			
Matrix Duplicate RPD	*X*			
Matrix Spike Recovery	*X*			
Other Quality Control Data	*X*			

Are All Field QC Samples Within Alert Limits (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Equipment Blank Concentration	*X*			*All field QC samples have met alert limits.*
Trip Blank Concentration	*X*			
Field Duplicate RPD	*X*			*All field QC samples have met the acceptable RPD limits.*

Has CoA been signed off (Yes/No)?:	*Yes*
Were all samples analyzed within hold times (Yes/No)?:	*Yes*
All volatiles samples methanol extracted, if required, within 48 hours (Yes, No or N/A)?:	*N/A*
Is Chain of Custody completed and signed (Yes/No)?:	*Yes*
Were sample temperatures acceptable when they reached lab (Yes/No)?:	*Yes*

Is data considered to be reliable (Yes/No)?: *Yes*

If answer is "No", describe and provide rationale:

Performed by (Print): *Danielle Smith*

Reviewed by (Print): *Michelle Patterson*

Reviewed date: *2023/05/08*

Reviewed by (Signature): 

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP
BOX 1720 STN M
CALGARY, AB T2P 0A2

ATTENTION TO: Stephen D'Abadie

PROJECT: 10-12832

AGAT WORK ORDER: 23C990183

TRACE ORGANICS REVIEWED BY: Elena Gorobets, Report Writer

WATER ANALYSIS REVIEWED BY: Max Dou, Report Writer

DATE REPORTED: Jan 27, 2023

PAGES (INCLUDING COVER): 22

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (403) 735-2005

*Notes

AGAT Laboratories
2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C990183

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:

SUNCOR - Petroleum Hydrocarbons (BTEX/F1-F2) in Water

DATE RECEIVED: 2023-01-19

DATE REPORTED: 2023-01-24

				SAMPLE DESCRIPTION:	EX-5	EX-4	BH1704	EX-3	EX-2	BH510A	DUP-08	BH1950A
				SAMPLE TYPE:	Water	Water	Water	Water	Water	Water	Water	Water
				DATE SAMPLED:	2023-01-19 09:00	2023-01-19 09:30	2023-01-19 09:45	2023-01-19 10:00	2023-01-19 10:15	2023-01-19 10:30	2023-01-19 10:30	2023-01-19 10:45
Parameter	Unit	G / S	RDL		4705028	4705061	4705062	4705063	4705064	4705065	4705066	4705067
Benzene	mg/L		0.0005		5.46	0.188	0.121	<0.0005	0.0035	0.169	0.172	<0.0005
Toluene	mg/L		0.0003		10.1	0.0141	0.655	<0.0003	0.0005	0.0115	0.0114	<0.0003
Ethylbenzene	mg/L		0.0005		1.46	0.304	0.0538	<0.0005	0.0016	0.348	0.358	<0.0005
m,p-Xylenes	mg/L		0.0005		5.94	0.664	1.63	<0.0005	<0.0005	0.0164	0.0154	<0.0005
o-Xylene	mg/L		0.0005		0.777	0.0195	0.999	<0.0005	<0.0005	0.0044	0.0039	<0.0005
Xylenes	mg/L		0.0005		6.71	0.683	2.63	<0.0005	<0.0005	0.0208	0.0193	<0.0005
C6 - C10 (F1)	mg/L		0.1		33.9	3.1	6.5	<0.1	<0.1	1.6	1.6	<0.1
C6 - C10 (F1 minus BTEX)	mg/L		0.1		10.2	1.9	3.0	<0.1	<0.1	1.1	1.0	<0.1
C>10 - C16	mg/L		0.1		1.2	1.0	6.0	<0.1	<0.1	0.2	0.1	<0.1
Sediment					Not Present	Not Present	Not Present	Not Present	Not Present	Not Present	Not Present	Not Present
Surrogate	Unit	Acceptable Limits										
Toluene-d8 (BTEX)	%	60-140			107	100	99	97	100	114	110	97
o-Terphenyl (F2-F4)	%	60-140			107	108	109	109	107	108	107	107

Certified By: Elena Gorobets

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C990183

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:

SUNCOR - Petroleum Hydrocarbons (BTEX/F1-F2) in Water

DATE RECEIVED: 2023-01-19

DATE REPORTED: 2023-01-24

				SAMPLE DESCRIPTION:	BH1925	BH6006	BH1979	BH1944	BH2004	DUP-09	BH1922	BH6001
				SAMPLE TYPE:	Water	Water	Water	Water	Water	Water	Water	Water
				DATE SAMPLED:	2023-01-19 11:00	2023-01-19 11:30	2023-01-19 12:00	2023-01-19 12:30	2023-01-19 13:00	2023-01-19 13:00	2023-01-19 13:30	2023-01-19 13:45
Parameter	Unit	G / S	RDL		4705068	4705071	4705072	4705073	4705074	4705075	4705076	4705077
Benzene	mg/L		0.0005		<0.0005	<0.0005	1.11	0.0155	<0.0005	<0.0005	<0.0005	0.0037
Toluene	mg/L		0.0003		<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.0005
Ethylbenzene	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0161
m,p-Xylenes	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0013
o-Xylene	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0007
Xylenes	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0020
C6 - C10 (F1)	mg/L		0.1		<0.1	<0.1	1.1	<0.1	<0.1	<0.1	<0.1	0.2
C6 - C10 (F1 minus BTEX)	mg/L		0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.1
C>10 - C16	mg/L		0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Sediment					Not Present	Not Present	Not Present	Not Present	Not Present	Not Present	Not Present	Not Present
Surrogate	Unit	Acceptable Limits										
Toluene-d8 (BTEX)	%	60-140			97	102	106	103	97	98	102	103
o-Terphenyl (F2-F4)	%	60-140			108	108	108	107	106	106	108	108

Certified By: Elena Gorobets

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C990183

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:

SUNCOR - Petroleum Hydrocarbons (BTEX/F1-F2) in Water

DATE RECEIVED: 2023-01-19

DATE REPORTED: 2023-01-24

				SAMPLE DESCRIPTION:	EX-7	BH6002	EX-6	Hydra-02	Bailer-02	Trip Blank-07	Trip Blank-08	BH1953
				SAMPLE TYPE:	Water	Water	Water	Water	Water	Water	Water	Water
				DATE SAMPLED:	2023-01-19 14:00	2023-01-19 14:05	2023-01-19 14:10	2023-01-19 14:15	2023-01-19 14:30	2023-01-19 14:45	2023-01-19 15:00	2023-01-19 08:10
Parameter	Unit	G / S	RDL		4705078	4705079	4705080	4705081	4705082	4705083	4705084	4705225
Benzene	mg/L		0.0005		0.322	0.0699	0.352	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Toluene	mg/L		0.0003		0.454	0.423	0.349	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Ethylbenzene	mg/L		0.0005		0.878	0.532	1.08	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
m,p-Xylenes	mg/L		0.0005		1.80	3.04	2.34	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
o-Xylene	mg/L		0.0005		0.563	1.26	0.712	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Xylenes	mg/L		0.0005		2.37	4.30	3.05	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
C6 - C10 (F1)	mg/L		0.1		8.5	8.7	7.2	<0.1	<0.1	<0.1	<0.1	<0.1
C6 - C10 (F1 minus BTEX)	mg/L		0.1		4.4	3.4	2.4	<0.1	<0.1	<0.1	<0.1	<0.1
C>10 - C16	mg/L		0.1		1.2	0.7	0.7	<0.1	<0.1	<0.1	<0.1	<0.1
Sediment					Not Present	Not Present	Not Present	Not Present	Not Present	Not Present	Not Present	Not Present
Surrogate	Unit	Acceptable Limits										
Toluene-d8 (BTEX)	%	60-140			108	100	120	101	93	95	97	96
o-Terphenyl (F2-F4)	%	60-140			109	108	107	108	107	108	106	105

Certified By: Elena Gorobets

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C990183

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:

SUNCOR - Petroleum Hydrocarbons (BTEX/F1-F2) in Water

DATE RECEIVED: 2023-01-19

DATE REPORTED: 2023-01-24

				SAMPLE DESCRIPTION:	BH1918	BH1980	BH1942	DUP-10	BH1919	BH732	BH1982	DUP-11
				SAMPLE TYPE:	Water	Water	Water	Water	Water	Water	Water	Water
				DATE SAMPLED:	2023-01-19 08:30	2023-01-19 08:30	2023-01-19 08:40	2023-01-19 08:50	2023-01-19 09:00	2023-01-19 09:10	2023-01-19 09:20	2023-01-19 09:20
Parameter	Unit	G / S	RDL		4705226	4705227	4705229	4705230	4705231	4705232	4705233	4705234
Benzene	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0477	0.0463
Toluene	mg/L		0.0003		<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.0055	0.006
Ethylbenzene	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0301	0.0331
m,p-Xylenes	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0020	0.0023
o-Xylene	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0009	0.0008
Xylenes	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.0029	0.0031
C6 - C10 (F1)	mg/L		0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.4	0.4
C6 - C10 (F1 minus BTEX)	mg/L		0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	0.4	0.4
C>10 - C16	mg/L		0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Sediment					Not Present	Not Present	Not Present	Not Present	Not Present	Not Present	Not Present	Not Present
Surrogate	Unit	Acceptable Limits										
Toluene-d8 (BTEX)	%	60-140			95	107	96	100	99	96	102	96
o-Terphenyl (F2-F4)	%	60-140			104	105	105	105	106	106	104	106

Certified By: Elena Gorobets

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C990183

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:

SUNCOR - Petroleum Hydrocarbons (BTEX/F1-F2) in Water

DATE RECEIVED: 2023-01-19

DATE REPORTED: 2023-01-24

				SAMPLE DESCRIPTION:	BH1937	BH1939	BH1972	BH1930	BH1952	BH2011	BH2010	BH6003
				SAMPLE TYPE:	Water	Water	Water	Water	Water	Water	Water	Water
				DATE SAMPLED:	2023-01-19 09:30	2023-01-19 09:40	2023-01-19 10:00	2023-01-19 10:20	2023-01-19 10:30	2023-01-19 10:50	2023-01-19 11:20	2023-01-19 11:40
Parameter	Unit	G / S	RDL		4705235	4705236	4705237	4705238	4705239	4705240	4705241	4705242
Benzene	mg/L		0.0005		<0.0005	<0.0005	<0.0005	0.0029	<0.0005	<0.0005	<0.0005	0.0191
Toluene	mg/L		0.0003		<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	0.744
Ethylbenzene	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.291
m,p-Xylenes	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	3.99
o-Xylene	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	0.702
Xylenes	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	4.69
C6 - C10 (F1)	mg/L		0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	9.9
C6 - C10 (F1 minus BTEX)	mg/L		0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	4.2
C>10 - C16	mg/L		0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	1.9
Sediment					Not Present	Not Present	Not Present	Not Present	Not Present	Not Present	Not Present	Not Present
Surrogate	Unit	Acceptable Limits										
Toluene-d8 (BTEX)	%	60-140			86	97	124	103	97	97	99	98
o-Terphenyl (F2-F4)	%	60-140			107	106	106	106	106	105	105	106

Certified By: Elena Gorobets

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C990183

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:

SUNCOR - Petroleum Hydrocarbons (BTEX/F1-F2) in Water

DATE RECEIVED: 2023-01-19

DATE REPORTED: 2023-01-24

				SAMPLE DESCRIPTION:	Trip Blank - 09
				SAMPLE TYPE:	Water
				DATE SAMPLED:	2023-01-19 12:30
Parameter	Unit	G / S	RDL		4705243
Benzene	mg/L		0.0005		<0.0005
Toluene	mg/L		0.0003		<0.0003
Ethylbenzene	mg/L		0.0005		<0.0005
m,p-Xylenes	mg/L		0.0005		<0.0005
o-Xylene	mg/L		0.0005		<0.0005
Xylenes	mg/L		0.0005		<0.0005
C6 - C10 (F1)	mg/L		0.1		<0.1
C6 - C10 (F1 minus BTEX)	mg/L		0.1		<0.1
C>10 - C16	mg/L		0.1		<0.1
Sediment					Not Present
Surrogate	Unit	Acceptable Limits			
Toluene-d8 (BTEX)	%	60-140			103
o-Terphenyl (F2-F4)	%	60-140			94

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

4705028-4705243 The F1 (C6 - C10) fraction is determined by integrating the FID chromatogram from the beginning of the nC6 peak to the apex of the last nC10 peak.
The C6 - C10 fraction is calculated from the FID toluene response factor.
The F2 (C10 - C16) fraction is determined by integrating the FID chromatogram from the apex of the nC10 peak to the apex of the nC16 peak.
The F2 (C10 - C16) fraction is calculated using the average response factor for nC10, nC16, and nC34.
Quality control for the calibration follows the guidelines set out in the CCME Contaminated Sites Method for Soils.
C6 –C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
C>10 – C16 (F2- Napthalene) is a calculated parameter. The calculated value is F2 - Napthalene (if requested). The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
C>16 - C34 (F3-PAH) is a calculated parameter. The calculated value is F3-PAH (if requested). The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
Xylenes is a calculated parameter. The calculated value is the sum of m&p-Xylenes + o-Xylene. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
Sediment parameter is comment only based on visual inspection of the sample prior to extraction and is not an accredited test.
Extraction and holding times were met for this sample.

Analysis performed at AGAT Calgary (unless marked by *)

Certified By: Elena Gorobets

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C990183

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:

Volatile Organic Compounds in Water

DATE RECEIVED: 2023-01-19

DATE REPORTED: 2023-01-23

SAMPLE DESCRIPTION:				Trip Blank-07	Trip Blank-08	Trip Blank - 09
SAMPLE TYPE:				Water	Water	Water
DATE SAMPLED:				2023-01-19 14:45	2023-01-19 15:00	2023-01-19 12:30
Parameter	Unit	G / S	RDL	4705083	4705084	4705243
Chloromethane	mg/L		0.001	<0.001	<0.001	<0.001
Vinyl Chloride	mg/L		0.0008	<0.0008	<0.0008	<0.0008
Bromomethane	mg/L		0.001	<0.001	<0.001	<0.001
Chloroethane	mg/L		0.001	<0.001	<0.001	<0.001
Trichlorofluoromethane	mg/L		0.001	<0.001	<0.001	<0.001
Acetone	mg/L		0.01	<0.01	<0.01	<0.01
1,1-Dichloroethylene	mg/L		0.001	<0.001	<0.001	<0.001
Methylene Chloride	mg/L		0.001	<0.001	<0.001	<0.001
Methyl tert-Butyl Ether	mg/L		0.001	<0.001	<0.001	<0.001
Methyl Ethyl Ketone	mg/L		0.01	<0.01	<0.01	<0.01
trans-1,2-Dichloroethylene	mg/L		0.001	<0.001	<0.001	<0.001
1,1-Dichloroethane	mg/L		0.001	<0.001	<0.001	<0.001
cis-1,2-Dichloroethylene	mg/L		0.001	<0.001	<0.001	<0.001
Chloroform	mg/L		0.001	<0.001	<0.001	<0.001
1,2-Dichloroethane	mg/L		0.001	<0.001	<0.001	<0.001
1,1,1-Trichloroethane	mg/L		0.001	<0.001	<0.001	<0.001
Carbon Tetrachloride	mg/L		0.0005	<0.0005	<0.0005	<0.0005
Benzene	mg/L		0.0005	<0.0005	<0.0005	<0.0005
1,2-Dichloropropane	mg/L		0.001	<0.001	<0.001	<0.001
Trichloroethylene	mg/L		0.00030	<0.0003	<0.0003	<0.0003
Bromodichloromethane	mg/L		0.001	<0.001	<0.001	<0.001
trans-1,3-Dichloropropene	mg/L		0.001	<0.001	<0.001	<0.001
Methyl Isobutyl Ketone	mg/L		0.01	<0.01	<0.01	<0.01
cis-1,3-Dichloropropene	mg/L		0.001	<0.001	<0.001	<0.001
1,1,2-Trichloroethane	mg/L		0.001	<0.001	<0.001	<0.001
Toluene	mg/L		0.0003	<0.0003	<0.0003	<0.0003
2-Hexanone	mg/L		0.02	<0.02	<0.02	<0.02
Dibromochloromethane	mg/L		0.001	<0.001	<0.001	<0.001
Ethylene Dibromide	mg/L		0.001	<0.001	<0.001	<0.001

Certified By: Elena Gorobets

AGAT Laboratories
2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C990183

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:

Volatile Organic Compounds in Water

DATE RECEIVED: 2023-01-19

DATE REPORTED: 2023-01-23

SAMPLE DESCRIPTION:				Trip Blank-07	Trip Blank-08	Trip Blank - 09
SAMPLE TYPE:				Water	Water	Water
DATE SAMPLED:				2023-01-19 14:45	2023-01-19 15:00	2023-01-19 12:30
Parameter	Unit	G / S	RDL	4705083	4705084	4705243
Tetrachloroethene	mg/L		0.001	<0.001	<0.001	<0.001
1,1,1,2-Tetrachloroethane	mg/L		0.001	<0.001	<0.001	<0.001
Chlorobenzene	mg/L		0.0010	<0.001	<0.001	<0.001
Ethylbenzene	mg/L		0.0005	<0.0005	<0.0005	<0.0005
m,p-Xylenes	mg/L		0.0005	<0.0005	<0.0005	<0.0005
Bromoform	mg/L		0.001	<0.001	<0.001	<0.001
Styrene	mg/L		0.001	<0.001	<0.001	<0.001
1,1,2,2-Tetrachloroethane	mg/L		0.001	<0.001	<0.001	<0.001
o-Xylene	mg/L		0.0005	<0.0005	<0.0005	<0.0005
1,3-Dichlorobenzene	mg/L		0.0005	<0.0005	<0.0005	<0.0005
1,4-Dichlorobenzene	mg/L		0.0005	<0.0005	<0.0005	<0.0005
1,2-Dichlorobenzene	mg/L		0.0005	<0.0005	<0.0005	<0.0005
1,2,4-Trichlorobenzene	mg/L		0.001	<0.001	<0.001	<0.001
Xylenes	mg/L		0.0005	<0.0005	<0.0005	<0.0005
Surrogate	Unit	Acceptable Limits				
Toluene-d8	%	50-140		99	89	96

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

4705083-4705243 1,1,2,2-Tetrachloroethane reported only for samples matrices which can be purged. Otherwise N/A.
Xylenes is a calculated parameter. The calculated value is the sum of m&p-Xylenes + o-Xylene. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Calgary (unless marked by *)

Certified By: Elena Gorobets

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C990183

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:

Volatile Organic Compounds in Water - 1,2-DCA

DATE RECEIVED: 2023-01-19

DATE REPORTED: 2023-01-23

		SAMPLE DESCRIPTION:		EX-5	EX-4	BH1704	EX-3	EX-2	BH510A	DUP-08	BH1950A
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2023-01-19 09:00	2023-01-19 09:30	2023-01-19 09:45	2023-01-19 10:00	2023-01-19 10:15	2023-01-19 10:30	2023-01-19 10:30	2023-01-19 10:45
Parameter	Unit	G / S	RDL	4705028	4705061	4705062	4705063	4705064	4705065	4705066	4705067
1,2-Dichloroethane	mg/L		0.001	0.131	0.008	0.020	<0.001	0.002	0.019	0.020	<0.001
Surrogate	Unit	Acceptable Limits									
Toluene-d8	%	50-140		104	121	129	97	99	120	101	106

		SAMPLE DESCRIPTION:		BH1925	BH6006	BH1979	BH1944	BH2004	DUP-09	BH1922	BH6001
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2023-01-19 11:00	2023-01-19 11:30	2023-01-19 12:00	2023-01-19 12:30	2023-01-19 13:00	2023-01-19 13:00	2023-01-19 13:30	2023-01-19 13:45
Parameter	Unit	G / S	RDL	4705068	4705071	4705072	4705073	4705074	4705075	4705076	4705077
1,2-Dichloroethane	mg/L		0.001	<0.001	<0.001	0.009	<0.001	<0.001	<0.001	<0.001	0.021
Surrogate	Unit	Acceptable Limits									
Toluene-d8	%	50-140		99	96	86	100	116	143	110	99

		SAMPLE DESCRIPTION:		EX-7	BH6002	EX-6	Hydra-02	Bailer-02	BH1953	BH1918	BH1980
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2023-01-19 14:00	2023-01-19 14:05	2023-01-19 14:10	2023-01-19 14:15	2023-01-19 14:30	2023-01-19 08:10	2023-01-19 08:30	2023-01-19 08:30
Parameter	Unit	G / S	RDL	4705078	4705079	4705080	4705081	4705082	4705225	4705226	4705227
1,2-Dichloroethane	mg/L		0.001	0.051	0.030	0.035	<0.001	<0.001	<0.001	<0.001	<0.001
Surrogate	Unit	Acceptable Limits									
Toluene-d8	%	50-140		105	106	127	97	95	92	117	101

		SAMPLE DESCRIPTION:		BH1942	DUP-10	BH1919	BH732	BH1982	DUP-11	BH1937	BH1939
		SAMPLE TYPE:		Water	Water	Water	Water	Water	Water	Water	Water
		DATE SAMPLED:		2023-01-19 08:40	2023-01-19 08:50	2023-01-19 09:00	2023-01-19 09:10	2023-01-19 09:20	2023-01-19 09:20	2023-01-19 09:30	2023-01-19 09:40
Parameter	Unit	G / S	RDL	4705229	4705230	4705231	4705232	4705233	4705234	4705235	4705236
1,2-Dichloroethane	mg/L		0.001	<0.001	<0.001	<0.001	<0.001	0.097	0.111	<0.001	0.051
Surrogate	Unit	Acceptable Limits									
Toluene-d8	%	50-140		100	96	101	108	87	86	104	94

Certified By: Elena Gorobets

AGAT Laboratories
2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C990183

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:

Volatile Organic Compounds in Water - 1,2-DCA

DATE RECEIVED: 2023-01-19

DATE REPORTED: 2023-01-23

SAMPLE DESCRIPTION:				BH1972	BH1930	BH1952	BH2011	BH2010	BH6003
SAMPLE TYPE:				Water	Water	Water	Water	Water	Water
DATE SAMPLED:				2023-01-19 10:00	2023-01-19 10:20	2023-01-19 10:30	2023-01-19 10:50	2023-01-19 11:20	2023-01-19 11:40
Parameter	Unit	G / S	RDL	4705237	4705238	4705239	4705240	4705241	4705242
1,2-Dichloroethane	mg/L		0.001	<0.001	<0.001	<0.001	<0.001	<0.001	0.012
Surrogate	Unit	Acceptable Limits							
Toluene-d8	%	50-140		118	104	109	96	105	104

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Analysis performed at AGAT Calgary (unless marked by *)

Certified By: Elena Gorobets

AGAT Laboratories
2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C990183

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:

Water Package - Routine Chemistry Water Analysis - Lab Filtered Cations

DATE RECEIVED: 2023-01-19

DATE REPORTED: 2023-01-25

				SAMPLE DESCRIPTION:	BH1925	BH1944	EX-7	BH1953	BH1918	BH2003	BH2010
				SAMPLE TYPE:	Water	Water	Water	Water	Water	Water	Water
				DATE SAMPLED:	2023-01-19 11:00	2023-01-19 12:30	2023-01-19 14:00	2023-01-19 08:10	2023-01-19 08:30	2023-01-19 08:40	2023-01-19 11:20
Parameter	Unit	G / S	RDL		4705068	4705073	4705078	4705225	4705226	4705228	4705241
pH	pH Units	7.0-10.5	N/A		7.86	7.75	7.41	7.58	7.69	7.81	7.83
p - Alkalinity (as CaCO3)	mg/L		5		<5	<5	<5	<5	<5	<5	<5
T - Alkalinity (as CaCO3)	mg/L		5		486	469	497	651	585	486	359
Bicarbonate	mg/L		5		605	582	619	807	724	604	447
Carbonate	mg/L		5		<5	<5	<5	<5	<5	<5	<5
Hydroxide	mg/L		5		<5	<5	<5	<5	<5	<5	<5
Electrical Conductivity	uS/cm		5		1480	959	1980	2120	2230	1320	778
Chloride	mg/L	(250)	1.0		106	25.6	402	324	389	141	34.7
Fluoride	mg/L	1.5	0.01		0.15	0.12	0.13	0.12	0.05	0.12	0.12
Nitrate	mg/L	45	0.5		12.2	11.0	0.8	43.7	43.7	0.8	12.4
Nitrate-N	mg/L	10	0.02		2.76	2.48	0.18	9.87	9.87	0.18	2.80
Nitrite	mg/L	3	0.05		<0.05	0.16	<0.05	<0.05	<0.05	<0.05	0.46
Nitrite-N	mg/L	1	0.01		<0.01	0.05	<0.01	<0.01	<0.01	<0.01	0.14
Nitrate+Nitrite - Nitrogen	mg/L		0.02		2.76	2.53	0.18	9.87	9.87	0.18	2.94
Sulfate	mg/L	(500)	1.0		158	46.3	2.5	41.6	50.1	60.3	35.4
Dissolved Calcium	mg/L		0.3		70.0	107	144	186	150	100	91.5
Dissolved Magnesium	mg/L		0.2		120	62.3	131	131	141	71.7	42.4
Dissolved Sodium	mg/L	(200)	0.6		48.5	12.2	46.7	78.0	85.1	74.7	6.8
Dissolved Potassium	mg/L		0.6		2.2	2.9	2.2	5.7	4.9	3.1	2.9
Dissolved Iron	mg/L	(0.3)	0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Dissolved Manganese	mg/L	0.12 (0.02)	0.005		<0.005	0.260	0.576	0.182	<0.005	0.044	0.080
Sodium Adsorption Ratio					0.82	0.23	0.68	1.07	1.20	1.39	0.15
Calculated TDS	mg/L		0.6		814	554	1030	1210	1220	749	446
Hardness	mg CaCO3/L		0.5		669	524	899	1000	955	545	403
Ion Balance	%		1		95	97	93	99	93	94	91
Lab Filtration on Routine for IC					Complete	Complete	Complete	Complete	Complete	Complete	Complete
Lab Filtration on Routine for Metals					Complete	Complete	Complete	Complete	Complete	Complete	Complete

Certified By:

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C990183

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:

Water Package - Routine Chemistry Water Analysis - Lab Filtered Cations

DATE RECEIVED: 2023-01-19

DATE REPORTED: 2023-01-25

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to 2020 Canadian Drinking Water Quality MAC (AO)
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

4705068-4705241 < - Values refer to Report Detection Limits.
SAR is a calculated parameter. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
If sodium results in mg/L are less than detection, SAR is non-calculable and is reported as 0.
Ion Balance is a calculated parameter. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
Hardness is a calculated parameter. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
Calculated TDS is a calculated parameter. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Calgary (unless marked by *)

Certified By:

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Quality Assurance

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

AGAT WORK ORDER: 23C990183

PROJECT: 10-12832

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis

RPT Date:			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
SUNCOR - Petroleum Hydrocarbons (BTEX/F1-F2) in Water															
Benzene	4809	4705072	1.11	1.10	0.9%	< 0.0005	85%	60%	140%	89%	60%	140%	89%	60%	140%
Toluene	4809	4705072	<0.0003	<0.0003	NA	< 0.0003	92%	60%	140%	100%	60%	140%	100%	60%	140%
Ethylbenzene	4809	4705072	<0.0005	<0.0005	NA	< 0.0005	94%	60%	140%	101%	60%	140%	102%	60%	140%
m,p-Xylenes	4809	4705072	<0.0005	<0.0005	NA	< 0.0005	92%	60%	140%	103%	60%	140%	107%	60%	140%
o-Xylene	4809	4705072	<0.0005	<0.0005	NA	< 0.0005	92%	60%	140%	103%	60%	140%	107%	60%	140%
Xylenes	4809	4705072	<0.0005	<0.0005	NA	< 0.0005	92%	60%	140%	103%	60%	140%	107%	60%	140%
C6 - C10 (F1)	4809	4705072	1.1	1.1	0.0%	< 0.1	103%	60%	140%	115%	60%	140%	103%	60%	140%
C>10 - C16	8029	4705061	1.0	1.1	9.5%	< 0.1	105%	60%	140%	90%	60%	140%	86%	60%	140%
SUNCOR - Petroleum Hydrocarbons (BTEX/F1-F2) in Water															
Benzene	4810	4705083	<0.0005	<0.0005	NA	< 0.0005	104%	60%	140%	92%	60%	140%	80%	60%	140%
Toluene	4810	4705083	<0.0003	<0.0003	NA	< 0.0003	115%	60%	140%	100%	60%	140%	85%	60%	140%
Ethylbenzene	4810	4705083	<0.0005	<0.0005	NA	< 0.0005	114%	60%	140%	101%	60%	140%	82%	60%	140%
m,p-Xylenes	4810	4705083	<0.0005	<0.0005	NA	< 0.0005	115%	60%	140%	104%	60%	140%	84%	60%	140%
o-Xylene	4810	4705083	<0.0005	<0.0005	NA	< 0.0005	112%	60%	140%	104%	60%	140%	84%	60%	140%
Xylenes	4810	4705083	<0.0005	<0.0005	NA	< 0.0005	115%	60%	140%	104%	60%	140%	84%	60%	140%
C6 - C10 (F1)	4810	4705083	<0.1	<0.1	NA	< 0.1	84%	60%	140%	121%	60%	140%	105%	60%	140%
C>10 - C16	2	4705083	< 0.1	< 0.1	NA	< 0.1	88%	60%	140%	83%	60%	140%	80%	60%	140%
SUNCOR - Petroleum Hydrocarbons (BTEX/F1-F2) in Water															
Benzene	4811	4699473	0.0015	0.0012	NA	< 0.0005	112%	60%	140%	93%	60%	140%	88%	60%	140%
Toluene	4811	4699473	0.0228	0.0198	14.1%	< 0.0003	120%	60%	140%	99%	60%	140%	96%	60%	140%
Ethylbenzene	4811	4699473	0.0162	0.0138	16.0%	< 0.0005	116%	60%	140%	96%	60%	140%	93%	60%	140%
m,p-Xylenes	4811	4699473	0.0691	0.0576	18.2%	< 0.0005	118%	60%	140%	101%	60%	140%	100%	60%	140%
o-Xylene	4811	4699473	0.0526	0.045	15.6%	< 0.0005	117%	60%	140%	101%	60%	140%	100%	60%	140%
Xylenes	4811	4699473	0.122	0.0983	21.5%	< 0.0005	118%	60%	140%	101%	60%	140%	100%	60%	140%
C6 - C10 (F1)	4811	4699473	0.3	0.3	NA	< 0.1	84%	60%	140%	108%	60%	140%	105%	60%	140%
SUNCOR - Petroleum Hydrocarbons (BTEX/F1-F2) in Water															
C>10 - C16	8030	4701819	<0.1	<0.1	NA	< 0.1	93%	60%	140%	83%	60%	140%	79%	60%	140%
Volatile Organic Compounds in Water - 1,2-DCA															
1,2-Dichloroethane	4561	4705072	0.009	0.010	10.5%	< 0.001	90%	50%	140%	105%	60%	130%	101%	50%	140%

Comments: Duplicate NA: results are less than 5X the RDL and RDP will not be calculated.
The sample spikes and dups are not from the same sample ID.

Comments: Duplicate NA: results are less than 5X the RDL and RDP will not be calculated.
The sample spikes and dups are not from the same sample ID.

Comments: Duplicate NA: results are less than 5X the RDL and RDP will not be calculated.
The sample spikes and dups are not from the same sample ID.

Comments: Duplicate NA: results are less than 5X the RDL and RDP will not be calculated.
The sample spikes and dups are not from the same sample ID.

AGAT Laboratories
2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Quality Assurance

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP
AGAT WORK ORDER: 23C990183
PROJECT: 10-12832
ATTENTION TO: Stephen D'Abadie
SAMPLING SITE:
SAMPLED BY:

Trace Organics Analysis (Continued)

RPT Date:			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Comments: Duplicate NA: results are less than 5X the RDL and RDP will not be calculated. The sample spikes and dups are not from the same sample ID.															
Volatile Organic Compounds in Water - 1,2-DCA															
1,2-Dichloroethane	4562	4705083	<0.001	<0.001	NA	< 0.001	98%	50%	140%	106%	60%	130%	101%	50%	140%
Comments: Duplicate NA: results are less than 5X the RDL and RDP will not be calculated. The sample spikes and dups are not from the same sample ID.															
Volatile Organic Compounds in Water - 1,2-DCA															
1,2-Dichloroethane	4563	4705243	<0.001	<0.001	NA	< 0.001	103%	50%	140%	98%	60%	130%	104%	50%	140%
Comments: Duplicate NA: results are less than 5X the RDL and RDP will not be calculated. The sample spikes and dups are not from the same sample ID.															

Certified By: Elena Gorobets

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Quality Assurance

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

AGAT WORK ORDER: 23C990183

PROJECT: 10-12832

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:

Water Analysis

RPT Date:			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Water Package - Routine Chemistry Water Analysis - Lab Filtered Cations															
pH	4701758	4701758	7.71	7.75	0.5%	N/A	100%	90%	110%						
p - Alkalinity (as CaCO3)	4701758	4701758	<5	<5	NA	< 5	NA	80%	120%						
T - Alkalinity (as CaCO3)	4701758	4701758	642	640	0.3%	< 5	103%	80%	120%						
Bicarbonate	4701758	4701758	797	794	0.3%	< 5									
Carbonate	4701758	4701758	<5	<5	NA	< 5									
Hydroxide	4701758	4701758	<5	<5	NA	< 5									
Electrical Conductivity	4701758	4701758	3370	3360	0.3%	< 5	102%	90%	110%						
Chloride	4705228	4705228	141	142	0.7%	< 1.0	97%	70%	130%	96%	80%	120%	NA	70%	130%
Fluoride	4705228	4705228	<0.06	<0.06	NA	< 0.01	90%	70%	130%	85%	80%	120%	86%	70%	130%
Nitrate	4705228	4705228	0.9	1.1	NA	< 0.5	101%	70%	130%	98%	80%	120%	97%	70%	130%
Nitrite	4705228	4705228	<0.20	<0.20	NA	< 0.05	94%	70%	130%	93%	80%	120%	94%	70%	130%
Sulfate	4705228	4705228	61.1	62.0	1.4%	< 1.0	101%	70%	130%	101%	80%	120%	NA	70%	130%
Dissolved Calcium	4701758	4701758	120	120	0.1%	< 0.3	95%	70%	130%	106%	80%	120%	NA	70%	130%
Dissolved Magnesium	4701758	4701758	290	290	0.1%	< 0.2	92%	70%	130%	88%	80%	120%	NA	70%	130%
Dissolved Sodium	4701758	4701758	135	135	0.0%	< 0.6	79%	70%	130%	88%	80%	120%	NA	70%	130%
Dissolved Potassium	4701758	4701758	5.4	5.4	0.2%	< 0.6	81%	70%	130%	93%	80%	120%	NA	70%	130%
Dissolved Iron	4701758	4701758	<0.1	<0.1	NA	< 0.1	104%	70%	130%	95%	80%	120%	95%	70%	130%
Dissolved Manganese	4701758	4701758	0.532	0.544	2.2%	< 0.005	104%	70%	130%	94%	80%	120%	NA	70%	130%

Comments: Matrix spike NA: Spike level < native concentration. Matrix spike acceptance limits do not apply and are not calculated.
Duplicate NA: results are less than 5X the RDL and RDP will not be calculated.

pH has been analyzed past the recommended holding time of 15 minutes from sampling (field measurement ideal if more accurate data required)

Nitrate and Nitrite: The regulatory hold time for the analysis of nitrate and/or nitrite in water is 72 hours.

Certified By:

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Method Summary

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

AGAT WORK ORDER: 23C990183

PROJECT: 10-12832

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Benzene	TO 0332	EPA SW-846 5021 & 8260	GC/MS
Toluene	TO 0332	EPA SW-846 5021 & 8260	GC/MS
Ethylbenzene	TO 0332	EPA SW-846 5021 & 8260	GC/MS
m,p-Xylenes	TO-0542	EPA SW-846 5021/8260-W	GC/MS
o-Xylene	TO-0542	EPA SW-846 5021/8260-W	GC/MS
Xylenes	TO 0332	EPA SW-846 5021 & 8260	GC/MS
C6 - C10 (F1)	TO 0542	CCME Tier 1 Method	GC/FID
C6 - C10 (F1 minus BTEX)	TO 0542	CCME Tier 1 Method	GC/FID
C>10 - C16	TO 0511	CCME Tier 1 Method	GC/FID
Toluene-d8 (BTEX)	TO-0543	EPA SW-846 5021 & 8260	GC/FID
o-Terphenyl (F2-F4)	TO 0511	CCME Tier 1 Method	GC/FID
Sediment	TO-0511	CCME Tier 1 Method	GC/FID
Chloromethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Vinyl Chloride	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Bromomethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Chloroethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Trichlorofluoromethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Acetone	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,1-Dichloroethylene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Methylene Chloride	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Methyl tert-Butyl Ether	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Methyl Ethyl Ketone	TO-0330	EPA SW-846 5030 & 8260	GC/MS
trans-1,2-Dichloroethylene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,1-Dichloroethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
cis-1,2-Dichloroethylene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Chloroform	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,2-Dichloroethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,1,1-Trichloroethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Carbon Tetrachloride	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Benzene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,2-Dichloropropane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Trichloroethylene	TO-0330	EPA SW-846 8260	GC/MS
Bromodichloromethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
trans-1,3-Dichloropropene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Methyl Isobutyl Ketone	TO-0330	EPA SW-846 5030 & 8260	GC/MS
cis-1,3-Dichloropropene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,1,2-Trichloroethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Toluene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
2-Hexanone	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Dibromochloromethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Ethylene Dibromide	TO-0330	EPA SW-846 8260	GC/MS
Tetrachloroethene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,1,1,2-Tetrachloroethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Chlorobenzene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Ethylbenzene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
m,p-Xylenes	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Bromoform	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Styrene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,1,2,2-Tetrachloroethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Method Summary

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

AGAT WORK ORDER: 23C990183

PROJECT: 10-12832

ATTENTION TO: Stephen D'Abadie

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
o-Xylene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,3-Dichlorobenzene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,4-Dichlorobenzene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,2-Dichlorobenzene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,2,4-Trichlorobenzene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Xylenes	TO 0330	EPA SW-846 8260	GC/MS
Toluene-d8	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Water Analysis			
pH	INST 0101, INST 0104	SM 4500 H+	PH METER
p - Alkalinity (as CaCO3)	INST-0100, INST-0101	SM 2320 B	TITRATION
T - Alkalinity (as CaCO3)	INST 0101	SM 2320 B	TITRATION
Bicarbonate	INST 0101	SM 2320 B	PC TITRATE
Carbonate	INST 0101	SM 2320 B	PC TITRATE
Hydroxide	INST 0101	SM 2320 B	PC TITRATE
Electrical Conductivity	INST 0101, INST 0120	SM 2510 B	CONDUCTIVITY METER
Chloride	INST 0150	SM 4110 B	ION CHROMATOGRAPH
Fluoride	INST 0150	SM 4110 B	ION CHROMATOGRAPH
Nitrate	INST 0150	SM 4110 B	ION CHROMATOGRAPH
Nitrate-N	INST 0150	SM 4110 B	CALCULATION
Nitrite	INST 0150	SM 4110 B	ION CHROMATOGRAPH
Nitrite-N	INST 0150	SM 4110 B	CALCULATION
Nitrate+Nitrite - Nitrogen	INST 0150	SM 4110 B	CALCULATION
Sulfate	INST 0150	SM 4110 B	ION CHROMATOGRAPH
Dissolved Calcium	INST 0140	SM 3120B – R	ICP/OES
Dissolved Magnesium	INST 0140	SM 3120B – R	ICP/OES
Dissolved Sodium	INST 0140	SM 3120B – R	ICP/OES
Dissolved Potassium	INST 0140	SM 3120B – R	ICP/OES
Dissolved Iron	INST 0140	SM 3120B – R	ICP/OES
Dissolved Manganese	INST 0140	SM 3120B – R	ICP/OES
Sodium Adsorption Ratio		CARTER & GREGORICH 2007	CALCULATION
Calculated TDS		SM 1030E	CALCULATION
Hardness		SM 2340 B	CALCULATION
Ion Balance		SM 1030E	CALCULATION
Lab Filtration on Routine for IC			N/A
Lab Filtration on Routine for Metals			N/A

AGAT Laboratories

2910 12 Street NE
Calgary, Alberta T2E 7P7
P: 403-735-2005 • F: 403-735-2771
webearth.agatlabs.com

Laboratory Use Only
Arrival Temperature: 4C
AGAT Job Number: 23C990183
Date and Time: 19-JAN-23 PM 3:44

Chain of Custody Record

Emergency Support Services Hotline 1-855-AGAT 245 (1-855-242-8245)

Report Information
Company: PARSONS
Contact: Michelle Patterson
Address: #100, 318 – 11 Ave SE, Calgary AB T2G 0Y2
Phone: (403)294-4215 Fax: (403)294-4240
LSD: 1624 14th Street NW, Calgary, AB
Client Project #: 10-12832
Sampled By: Gavin Clarke
Outlet #: 9445

Invoice To Same Yes ☐ / No ☑
Company: Suncor Energy Products Partnership
Contact: Stephen D'Abadie
Address: P.O. Box 2844, 150 – 6 Avenue S.W.
Calgary, AB T2P 3E3
Phone: 587-223-4146 Fax:
PO/AFE#:

Report Information
1. Name: Michelle Patterson
Email: michelle.patterson@parsons.com
2. Name: Calgary Lab Report
Email: Calgary.labreport@parsons.com
3. Name:
Email:

Turnaround Time Required (TAT)
Regular TAT ☑ 5 to 7 Business Days
Rush TAT ☐ <24 Hours (200%) ☐ Two Day / Next Day (100%) ☐ Three Day (50%) ☐ Four Day (25%)
Date Required:

SEE BACK FOR SURCHARGE BREAKDOWN. CONTACT YOUR CPM FOR ADDITIONAL INFORMATION

Requirements *(Selection may impact detection limits)*
☐ CCME ☑ AB Tier 1
☐ Agricultural ☐ Agricultural
☐ Industrial ☐ Industrial
☐ Residential/Park ☑ Residential/Park
☐ Commercial ☐ Commercial
☐ FWAL ☐ Natural Area
☐ Drinking Water ☐ Alberta Surface Water
☐ Other: ☐ Chronic ☐ Acute

Activity
Assessement A1 ☐ A2 ☐ AR ☐ AV ☐
Remediation RE ☐ RX ☐ RI ☐ RA ☐
Containement Management M ☐ MW ☑ MV ☐

Number of Jars used & not submitted

Detailed Salinity: ☐ AB ☐ SK ☐ BC ☐ D50
☐ CCME/AB : BTEX/F1-F4 ☑ CCME/AB : BTEX /F1-F2
☐ BC: BTEXS/VPH/EPH ☐ BC: LEPH/HEPH
SK: BTEX/TVH/C11-C22, C23-C60
Soil Metals: ☐ HWS-B ☐ SP-B ☐ Hg ☐ Cr^{6+}
Water Metals: ☐ Dissolved ☐ Total ☐ Hg ☐ Cr^{6+}
Routine Water Chemistry
Landfill: ☐ AB Class 2 ☐ BC ☐ SK
Coliforms: ☐ Total ☐ Fecal ☐ E.coli
Particle Size: ☐ Sieve (75µm) ☐ Texture
1,2 DCA
VOC
HOLD FOR 30 DAYS NO ANALYSIS (Additional Fee)
HOLD FOR 30 DAYS AFTER ANALYSIS (Additional Fee)

LABORATORY USE (LAB ID #)	SAMPLE IDENTIFICATION	DEPTH	DATE/TIME SAMPLED	SAMPLE MATRIX	COMMENTS (FILTERED, PRESERVED, HAZARDOUS*) *ADDITIONAL FEE	# OF CONTAINERS VIALS / JARS	BAGS	BOTTLES	Detailed Salinity	CCME/AB : BTEX/F1-F4	CCME/AB : BTEX /F1-F2	BC: BTEXS/VPH/EPH	BC: LEPH/HEPH	SK: BTEX/TVH/C11-C22, C23-C60	Soil Metals: HWS-B	Soil Metals: SP-B	Soil Metals: Hg	Soil Metals: Cr^{6+}	Water Metals: Dissolved	Water Metals: Total	Water Metals: Hg	Water Metals: Cr^{6+}	Routine Water Chemistry	Landfill: AB Class 2	Landfill: BC	Landfill: SK	Coliforms: Total	Coliforms: Fecal	Coliforms: E.coli	Particle Size: Sieve (75µm)	Particle Size: Texture	1,2 DCA	VOC	HOLD FOR 30 DAYS NO ANALYSIS (Additional Fee)	HOLD FOR 30 DAYS AFTER ANALYSIS (Additional Fee)
1	EX-5		01/19/23 09:00	G.W				6		X																					X			
2	EX-4		09:30					6		X																					X			
3	BH1704		09:45					6		X																					X			
4	EX-3		10:00					6		X																					X			
5	EX-2		10:15					6		X																					X			
6	BH510A		10:30					6		X																					X			
7	DUP-08		10:30					6		X																					X			
8	BH1950A		10:45					6		X																					X			
9	BH1925		11:00					7		X													X								X			
10	BH6006		11:30					6		X																					X			

Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Gavin Clarke	01/19/23 15:00	Lanz Ceno	JAN 19 2023
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time

Pink Copy - Client
Yellow Copy - AGAT
White Copy- AGAT

Page 1 of 3

N°: AB

Document ID: DIV-50-1507.007

Date Revised: Apr 20, 2021

AGAT Laboratories
2910 12 Street NE
Calgary, Alberta T2E 7P7
P: 403.735.2005 · F: 403.735.2771
webearth.agatlabs.com

Chain of Custody Record

Emergency Support Services Hotline 1-855-AGAT 245 (1-855-242-8245)

Report to:

Company: PARSONS INC

Same as COC#: 10-12832

LABORATORY USE (LAB ID #)	SAMPLE IDENTIFICATION	DEPTH	DATE/TIME SAMPLED	SAMPLE MATRIX	COMMENTS (FILTERED, PRESERVED, HAZARDOUS*) *ADDITIONAL FEE	# OF CONTAINERS VIALS / JARS	# OF CONTAINERS BAGS	# OF CONTAINERS BOTTLES	Detailed Salinity: ☐AB ☐SK ☐BC ☐D50	☐CCME/AB: BTEX/F1-F4	☒CCME/AB: BTEX/F1-F2	☐BC: BTEXS/VPH/EPH	☐BC: LEPH/HEPH	SK: BTEX/TVH/C11-C22, C23-C60	Soil Metals: ☐HWS-B ☐SP-B ☐Hg ☐Cr6+	Water Metals: ☐Dissolved ☐Total ☐Hg ☐Cr6+	Routine Water Chemistry	Landfill: ☐AB Class 2 ☐BC ☐SK	Coliforms: ☐Total ☐Fecal ☐E.coli	Particle Size: ☐Sieve (75µm) ☐Texture	1,2 Dichloroethane VOCs						HOLD FOR 30 DAYS NO ANALYSIS (Additional Fee)	HOLD FOR 30 DAYS AFTER ANALYSIS (Additional Fee)
1	BH1979		01/19/23 12:00	G.W				6		X											X							
2	BH1944		12:30					7		X							X				X							
3	BH2004		13:00					6		X											X							
4	DUP-09		13:00					6		X											X							
5	BH1922		13:30					6		X											X							
6	BH6001		13:45					6		X											X							
7	EX-7		14:00					7		X							X				X							
8	BH6002		14:05					6		X											X							
9	EX-6		14:10	↓				6		X											X							
10	Hydra-02		14:15	Other				6		X											X							
11	Baile-02		14:30					6		X											X							
12	Trip Blank-07		14:45					6		X												X						
13	Trip Blank-08		15:00	↓				6		X												X						
14																												
15																												
16																												
17																												
18																												
19																												
20																												
21																												
22																												
23																												
24																												
25																												

Samples Relinquished By (Print Name and Sign)	Date/Time	Samples Received By (Print Name and Sign)	Date/Time
Gavin Clarke	01/19/23 15:00	Lanz Cleofe	JAN 19 2023

Pink Copy - Client
Yellow Copy - AGAT
White Copy- AGAT

N°: AB A

AGAT Laboratories
2910 12 Street NE
Calgary, Alberta T2E 7P7
P: 403.735.2005 • F: 403.735.2771
webearth.agatlabs.com

Chain of Custody Record

Emergency Support Services Hotline **1-855-AGAT 245 (1-855-242-8245)**

Report to:

Company: PARSONS INC Same as COC#: 10-12832

LABORATORY USE (LAB ID #)	SAMPLE IDENTIFICATION	DEPTH	DATE/TIME SAMPLED	SAMPLE MATRIX	COMMENTS (FILTERED, PRESERVED, HAZARDOUS*) *ADDITIONAL FEE	# OF CONTAINERS VIALS / JARS	# OF CONTAINERS BAGS	# OF CONTAINERS BOTTLES
1	BH1953	01	01/19/23 8:10	GW				7
2	BH1918		8:20					7
3	BH1980		8:30					6
4	BH2003		8:40					1
5	BH1947		8:50					6
6	Dup-10		8:50					6
7	BH1919		9:00					6
8	BH732		9:10					6
9	BH1982		9:20					6
10	Dup-11		9:20					6
11	BH1937		9:30					6
12	BH1939		9:40					6
13	BH1972		10:00					6
14	BH1930		10:20					6
15	BH1952		10:30					6
16	BH2011		10:50					6
17	BH2010		11:20					6
18	BH6203		11:46					6
19	Trip Blank-09		12:30	GW				6
20								
21								
22								
23								
24								
25								

Detailed Salinity: ☐AB ☐SK ☐BC ☐D50	☐CCME/AB : BTEX/F1-F2 ☐CCME/AB : BTEX/F1-F4	☐BC: LEPH/HEPH ☐BC: BTEXS/VPH/EPH	SK: BTEX/TVH/C11-C22, C23-C60	Soil Metals: ☐HWS-B ☐SP-B ☐Hg ☐Cr⁶⁺	Water Metals: ☐Dissolved ☐Total ☐Hg ☐Cr⁶⁺	Routine Water Chemistry	Landfill: ☐AB Class 2 ☐BC ☐SK	Coliforms: ☐Total ☐Fecal ☐E.coli	Particle Size: ☐Sieve (75µm) ☐Texture			HOLD FOR 30 DAYS NO ANALYSIS (Additional Fee)	HOLD FOR 30 DAYS AFTER ANALYSIS (Additional Fee)
	X					X				X	1,3 Dichloroethene VOC		
	X					X				X			
	X									X			
						X							
	X									X			
	X									X			
	X									X			
	X									X			
	X									X			
	X									X			
	X									X			
	X									X			
	X									X			
	X									X			
	X									X			
	X									X			
	X						X			X			
	X									X			
	X									X			
	X									[ ]	X		

Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
[illegible]	01/19/23 15:00	[illegible]	JAN 19 2023
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time
Samples Relinquished By (Print Name and Sign):	Date/Time	Samples Received By (Print Name and Sign):	Date/Time

Pink Copy - Client
Yellow Copy - AGAT
White Copy- AGAT

Page 3 of 3

N°: AB A

Document ID: DIV-50-1507.007

Date Revised: Apr 20, 2021

AGAT Laboratories

SAMPLE INTEGRITY RECEIPT FORM

RECEIVING BASICS - Shipping

Company/Consultant: Paesons

Courier: DIO Prepaid Collect

Waybill#_____

Branch: EDM GP FN FM RD VAN LYD FSJ EST SASK Other: C

If multiple sites were submitted at once: Yes (No)

Custody Seal Intact: (Yes) No NA

TAT: <24hr 24-48hr 48-72hr Reg Other_____

Cooler Quantity: _____

TIME SENSITIVE ISSUES - Shipping

ALREADY EXCEEDED HOLD TIME? Yes No

Inorganic Tests (Please Circle): Mibi , BOD , Nitrate/Nitrite , Turbidity , Color , Microtox , Ortho PO4 , Tedlar Bag , Residual Chlorine , Chlorophyll* , Chloroamines*

Earliest Expiry:_____

Hydrocarbons: Earliest Expiry _____

SAMPLE INTEGRITY - Shipping

Hazardous Samples: YES NO Precaution Taken:_____

Legal Samples: Yes No

International Samples: Yes No

Tape Sealed: Yes No

Coolant Used: Icepack Bagged Ice Free Ice Free Water None

Temperature (Bottles/Jars only) N/A if only Soil Bags Received

FROZEN (Please Circle if samples received Frozen)

1 (Bottle/Jar) 5 + 6 + 5 = 5 °C 2(Bottle/Jar) 4 + 5 + 4 = 4 °C

3 (Bottle/Jar) 4 + 4 + 5 = 4 °C 4 (Bottle/Jar)___+___+___=____ °C

5 (Bottle/Jar)___+___+___=____ °C 6 (Bottle/Jar)___+___+___=____ °C

7 (Bottle/Jar)___+___+___=____ °C 8 (Bottle/Jar)___+___+___=____ °C

9 (Bottle/Jar)___+___+___=____ °C 10 (Bottle/Jar)___+___+___=____ °C

(If more than 10 coolers are received use another sheet of paper and attach)

LOGISTICS USE ONLY

Workorder No: _____

Samples Damaged: Yes No If YES why?

No Bubble Wrap Frozen Courier

Other: _____

Account Project Manager: _____ have they been notified of the above issues: Yes No

Whom spoken to: _____ Date/Time: _____

CPM Initial_____

General Comments: _____

_____

_____

_____

_____

* Subcontracted Analysis (See CPM)

DATA QUALITY REVIEW CHECKLIST

Consultant: *Parsons Inc.* Sampling Date: *2023/01/20*

Location: *1620 - 14th Avenue NW, Calgary, AB* Laboratory : *AGAT Laboratories*

Consultant Project Number: *10-12832* Sample Submission Number: *23C990277*

Are All Laboratory QC Samples Within Acceptance Criteria (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Surrogate Recovery	*X*			*All lab QC met acceptance criteria.*
Method Blank Concentration	*X*			
Matrix Duplicate RPD	*X*			
Matrix Spike Recovery	*X*			
Other Quality Control Data	*X*			

Are All Field QC Samples Within Alert Limits (Yes, No, Not Applicable)?

	Yes	No	NA	Comments
Equipment Blank Concentration	*X*			*All field QC samples have met alert limits.*
Trip Blank Concentration	*X*			
Field Duplicate RPD	*X*			*All field QC samples have met the acceptable RPD limits.*

Has CoA been signed off (Yes/No)?:	*Yes*
Were all samples analyzed within hold times (Yes/No)?:	*Yes*
All volatiles samples methanol extracted, if required, within 48 hours (Yes, No or N/A)?:	*N/A*
Is Chain of Custody completed and signed (Yes/No)?:	*Yes*
Were sample temperatures acceptable when they reached lab (Yes/No)?:	*Yes*

Is data considered to be reliable (Yes/No)?: *Yes*

If answer is "No", describe and provide rationale:

Performed by (Print): *Danielle Smith*

Reviewed by (Print): *Michelle Patterson*

Reviewed date: *2023/05/08*

Reviewed by (Signature): 

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP
BOX 1720 STN M
CALGARY, AB T2P 0A2

ATTENTION TO: Michelle Patterson

PROJECT: 10-12832

AGAT WORK ORDER: 23C990277

TRACE ORGANICS REVIEWED BY: Elena Gorobets, Report Writer

WATER ANALYSIS REVIEWED BY: Max Dou, Report Writer

DATE REPORTED: Jan 27, 2023

PAGES (INCLUDING COVER): 14

VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (403) 735-2005

*Notes

Disclaimer:

- All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.
- All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.
- AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.
- This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
- The test results reported herewith relate only to the samples as received by the laboratory.
- Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.
- All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C990277

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Michelle Patterson

SAMPLING SITE:

SAMPLED BY:OW

SUNCOR - Petroleum Hydrocarbons (BTEX/F1-F2) in Water

DATE RECEIVED: 2023-01-20

DATE REPORTED: 2023-01-24

				SAMPLE DESCRIPTION:	BH2012	BH1936	Dup-12	BH1964	BH1961	BH1962	BH1963	Trip-10
				SAMPLE TYPE:	Water	Water	Water	Water	Water	Water	Water	Water
				DATE SAMPLED:	2023-01-20 08:30	2023-01-20 09:00	2023-01-20 09:00	2023-01-20 09:30	2023-01-20 09:50	2023-01-20 10:30	2023-01-20 11:00	2023-01-20 12:30
Parameter	Unit	G / S	RDL		4705532	4705533	4705534	4705535	4705536	4705537	4705538	4705539
Benzene	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Toluene	mg/L		0.0003		<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003
Ethylbenzene	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
m,p-Xylenes	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
o-Xylene	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
Xylenes	mg/L		0.0005		<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005	<0.0005
C6 - C10 (F1)	mg/L		0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
C6 - C10 (F1 minus BTEX)	mg/L		0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
C>10 - C16	mg/L		0.1		<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1	<0.1
Sediment					Not Present	Not Present	Not Present	Not Present	Not Present	Not Present	Not Present	Not Present
Surrogate	Unit	Acceptable Limits										
Toluene-d8 (BTEX)	%	60-140			106	65	68	110	104	106	106	99
o-Terphenyl (F2-F4)	%	60-140			106	108	108	106	106	109	106	108

Certified By: Elena Gorobets

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C990277

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Michelle Patterson

SAMPLING SITE:

SAMPLED BY:OW

SUNCOR - Petroleum Hydrocarbons (BTEX/F1-F2) in Water

DATE RECEIVED: 2023-01-20

DATE REPORTED: 2023-01-24

				SAMPLE DESCRIPTION:	Hydro-03	Boiler-03
				SAMPLE TYPE:	Water	Water
				DATE SAMPLED:	2023-01-20 13:30	2023-01-20 13:00
Parameter	Unit	G / S	RDL		4705540	4705541
Benzene	mg/L		0.0005		<0.0005	<0.0005
Toluene	mg/L		0.0003		<0.0003	<0.0003
Ethylbenzene	mg/L		0.0005		<0.0005	<0.0005
m,p-Xylenes	mg/L		0.0005		<0.0005	<0.0005
o-Xylene	mg/L		0.0005		<0.0005	<0.0005
Xylenes	mg/L		0.0005		<0.0005	<0.0005
C6 - C10 (F1)	mg/L		0.1		<0.1	<0.1
C6 - C10 (F1 minus BTEX)	mg/L		0.1		<0.1	<0.1
C>10 - C16	mg/L		0.1		<0.1	<0.1
Sediment					Not Present	Not Present
Surrogate	Unit	Acceptable Limits				
Toluene-d8 (BTEX)	%	60-140			108	107
o-Terphenyl (F2-F4)	%	60-140			107	107

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

4705532-4705541 The F1 (C6 - C10) fraction is determined by integrating the FID chromatogram from the beginning of the nC6 peak to the apex of the last nC10 peak.
The C6 - C10 fraction is calculated from the FID toluene response factor.
The F2 (C10 - C16) fraction is determined by integrating the FID chromatogram from the apex of the nC10 peak to the apex of the nC16 peak.
The F2 (C10 - C16) fraction is calculated using the average response factor for nC10, nC16, and nC34.
Quality control for the calibration follows the guidelines set out in the CCME Contaminated Sites Method for Soils.
C6 –C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
C>10 – C16 (F2- Napthalene) is a calculated parameter. The calculated value is F2 - Napthalene (if requested). The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
C>16 - C34 (F3-PAH) is a calculated parameter. The calculated value is F3-PAH (if requested). The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
Xylenes is a calculated parameter. The calculated value is the sum of m&p-Xylenes + o-Xylene. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
Sediment parameter is comment only based on visual inspection of the sample prior to extraction and is not an accredited test.
Extraction and holding times were met for this sample.

Analysis performed at AGAT Calgary (unless marked by *)

Certified By: Elena Gorobets

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C990277

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Michelle Patterson

SAMPLING SITE:

SAMPLED BY:OW

Volatile Organic Compounds in Water

DATE RECEIVED: 2023-01-20

DATE REPORTED: 2023-01-22

SAMPLE DESCRIPTION:				Trip-10	Hydro-03	Boiler-03
SAMPLE TYPE:				Water	Water	Water
DATE SAMPLED:				2023-01-20 12:30	2023-01-20 13:30	2023-01-20 13:00
Parameter	Unit	G / S	RDL	4705539	4705540	4705541
Chloromethane	mg/L		0.001	<0.001	<0.001	<0.001
Vinyl Chloride	mg/L		0.0008	<0.0008	<0.0008	<0.0008
Bromomethane	mg/L		0.001	<0.001	<0.001	<0.001
Chloroethane	mg/L		0.001	<0.001	<0.001	<0.001
Trichlorofluoromethane	mg/L		0.001	<0.001	<0.001	<0.001
Acetone	mg/L		0.01	<0.01	<0.01	<0.01
1,1-Dichloroethylene	mg/L		0.001	<0.001	<0.001	<0.001
Methylene Chloride	mg/L		0.001	<0.001	<0.001	<0.001
Methyl tert-Butyl Ether	mg/L		0.001	<0.001	<0.001	<0.001
Methyl Ethyl Ketone	mg/L		0.01	<0.01	<0.01	<0.01
trans-1,2-Dichloroethylene	mg/L		0.001	<0.001	<0.001	<0.001
1,1-Dichloroethane	mg/L		0.001	<0.001	<0.001	<0.001
cis-1,2-Dichloroethylene	mg/L		0.001	<0.001	<0.001	<0.001
Chloroform	mg/L		0.001	<0.001	<0.001	<0.001
1,2-Dichloroethane	mg/L		0.001	<0.001	<0.001	<0.001
1,1,1-Trichloroethane	mg/L		0.001	<0.001	<0.001	<0.001
Carbon Tetrachloride	mg/L		0.0005	<0.0005	<0.0005	<0.0005
Benzene	mg/L		0.0005	<0.0005	<0.0005	<0.0005
1,2-Dichloropropane	mg/L		0.001	<0.001	<0.001	<0.001
Trichloroethylene	mg/L		0.00030	<0.0003	<0.0003	<0.0003
Bromodichloromethane	mg/L		0.001	<0.001	<0.001	<0.001
trans-1,3-Dichloropropene	mg/L		0.001	<0.001	<0.001	<0.001
Methyl Isobutyl Ketone	mg/L		0.01	<0.01	<0.01	<0.01
cis-1,3-Dichloropropene	mg/L		0.001	<0.001	<0.001	<0.001
1,1,2-Trichloroethane	mg/L		0.001	<0.001	<0.001	<0.001
Toluene	mg/L		0.0003	<0.0003	<0.0003	<0.0003
2-Hexanone	mg/L		0.02	<0.02	<0.02	<0.02
Dibromochloromethane	mg/L		0.001	<0.001	<0.001	<0.001
Ethylene Dibromide	mg/L		0.001	<0.001	<0.001	<0.001

Certified By: Elena Gorobets

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C990277

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Michelle Patterson

SAMPLING SITE:

SAMPLED BY:OW

Volatile Organic Compounds in Water

DATE RECEIVED: 2023-01-20

DATE REPORTED: 2023-01-22

				SAMPLE DESCRIPTION:	Trip-10	Hydro-03	Boiler-03
				SAMPLE TYPE:	Water	Water	Water
				DATE SAMPLED:	2023-01-20 12:30	2023-01-20 13:30	2023-01-20 13:00
Parameter	Unit	G / S	RDL		4705539	4705540	4705541
Tetrachloroethene	mg/L		0.001		<0.001	<0.001	<0.001
1,1,1,2-Tetrachloroethane	mg/L		0.001		<0.001	<0.001	<0.001
Chlorobenzene	mg/L		0.0010		<0.001	<0.001	<0.001
Ethylbenzene	mg/L		0.0005		<0.0005	<0.0005	<0.0005
m,p-Xylenes	mg/L		0.0005		<0.0005	<0.0005	<0.0005
Bromoform	mg/L		0.001		<0.001	<0.001	<0.001
Styrene	mg/L		0.001		<0.001	<0.001	<0.001
1,1,2,2-Tetrachloroethane	mg/L		0.001		<0.001	<0.001	<0.001
o-Xylene	mg/L		0.0005		<0.0005	<0.0005	<0.0005
1,3-Dichlorobenzene	mg/L		0.0005		<0.0005	<0.0005	<0.0005
1,4-Dichlorobenzene	mg/L		0.0005		<0.0005	<0.0005	<0.0005
1,2-Dichlorobenzene	mg/L		0.0005		<0.0005	<0.0005	<0.0005
1,2,4-Trichlorobenzene	mg/L		0.001		<0.001	<0.001	<0.001
Xylenes	mg/L		0.0005		<0.0005	<0.0005	<0.0005
Surrogate	Unit	Acceptable Limits					
Toluene-d8	%	50-140			91	97	97

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

4705539-4705541 1,1,2,2-Tetrachloroethane reported only for samples matrices which can be purged. Otherwise N/A.
Xylenes is a calculated parameter. The calculated value is the sum of m&p-Xylenes + o-Xylene. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Calgary (unless marked by *)

Certified By: Elena Gorobets

AGAT Laboratories
2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C990277

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Michelle Patterson

SAMPLING SITE:

SAMPLED BY:OW

Volatile Organic Compounds in Water - 1,2-DCA

DATE RECEIVED: 2023-01-20

DATE REPORTED: 2023-01-22

SAMPLE DESCRIPTION:				BH2012	BH1936	Dup-12	BH1964	BH1961	BH1962	BH1963
SAMPLE TYPE:				Water	Water	Water	Water	Water	Water	Water
DATE SAMPLED:				2023-01-20 08:30	2023-01-20 09:00	2023-01-20 09:00	2023-01-20 09:30	2023-01-20 09:50	2023-01-20 10:30	2023-01-20 11:00
Parameter	Unit	G / S	RDL	4705532	4705533	4705534	4705535	4705536	4705537	4705538
1,2-Dichloroethane	mg/L		0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001	<0.001
Surrogate	Unit	Acceptable Limits								
Toluene-d8	%	50-140		98	78	62	101	94	97	97

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard

Analysis performed at AGAT Calgary (unless marked by *)

Certified By: Elena Gorobets

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C990277

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Michelle Patterson

SAMPLING SITE:

SAMPLED BY:OW

Water Package - Routine Chemistry Water Analysis - Lab Filtered Cations

DATE RECEIVED: 2023-01-20

DATE REPORTED: 2023-01-25

		SAMPLE DESCRIPTION:		BH2012	BH1962
		SAMPLE TYPE:		Water	Water
		DATE SAMPLED:		2023-01-20 08:30	2023-01-20 10:30
Parameter	Unit	G / S	RDL	4705532	4705537
pH	pH Units	7.0-10.5	N/A	7.66	7.97
p - Alkalinity (as CaCO3)	mg/L		5	<5	<5
T - Alkalinity (as CaCO3)	mg/L		5	473	319
Bicarbonate	mg/L		5	587	398
Carbonate	mg/L		5	<5	<5
Hydroxide	mg/L		5	<5	<5
Electrical Conductivity	uS/cm		5	1860	580
Chloride	mg/L	(250)	1.0	305	5.0
Fluoride	mg/L	1.5	0.01	0.21	0.28
Nitrate	mg/L	45	0.5	81.5	0.7
Nitrate-N	mg/L	10	0.02	18.4	0.16
Nitrite	mg/L	3	0.05	0.08	0.07
Nitrite-N	mg/L	1	0.01	0.02	0.02
Nitrate+Nitrite - Nitrogen	mg/L		0.02	18.4	0.18
Sulfate	mg/L	(500)	1.0	62.0	20.6
Dissolved Calcium	mg/L		0.3	141	69.1
Dissolved Magnesium	mg/L		0.2	127	29.3
Dissolved Sodium	mg/L	(200)	0.6	45.3	16.0
Dissolved Potassium	mg/L		0.6	4.6	1.9
Dissolved Iron	mg/L	(0.3)	0.1	<0.1	<0.1
Dissolved Manganese	mg/L	0.12 (0.02)	0.005	0.152	0.169
Sodium Adsorption Ratio				0.67	0.41
Calculated TDS	mg/L		0.6	1060	338
Hardness	mg CaCO3/L		0.5	875	293
Ion Balance	%		1	94	93
Lab Filtration on Routine for IC				Complete	Complete
Lab Filtration on Routine for Metals				Complete	Complete

Certified By:

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23C990277

PROJECT: 10-12832

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

ATTENTION TO: Michelle Patterson

SAMPLING SITE:

SAMPLED BY:OW

Water Package - Routine Chemistry Water Analysis - Lab Filtered Cations

DATE RECEIVED: 2023-01-20

DATE REPORTED: 2023-01-25

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to 2020 Canadian Drinking Water Quality MAC (AO)
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

4705532-4705537 < - Values refer to Report Detection Limits.
SAR is a calculated parameter. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
If sodium results in mg/L are less than detection, SAR is non-calculable and is reported as 0.
Ion Balance is a calculated parameter. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
Hardness is a calculated parameter. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.
Calculated TDS is a calculated parameter. The calculated parameter is non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Calgary (unless marked by *)

Certified By:

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Quality Assurance

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

AGAT WORK ORDER: 23C990277

PROJECT: 10-12832

ATTENTION TO: Michelle Patterson

SAMPLING SITE:

SAMPLED BY:OW

Trace Organics Analysis

RPT Date:			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
SUNCOR - Petroleum Hydrocarbons (BTEX/F1-F2) in Water															
Benzene	3272	4705534	<0.0005	<0.0005	NA	< 0.0005	101%	60%	140%	89%	60%	140%	89%	60%	140%
Toluene	3272	4705534	<0.0003	<0.0003	NA	< 0.0003	102%	60%	140%	91%	60%	140%	84%	60%	140%
Ethylbenzene	3272	4705534	<0.0005	<0.0005	NA	< 0.0005	105%	60%	140%	90%	60%	140%	78%	60%	140%
m,p-Xylenes	3272	4705534	<0.0005	<0.0005	NA	< 0.0005	103%	60%	140%	95%	60%	140%	75%	60%	140%
o-Xylene	3272	4705534	<0.0005	<0.0005	NA	< 0.0005	103%	60%	140%	95%	60%	140%	75%	60%	140%
Xylenes	3272	4705534	<0.0005	<0.0005	NA	< 0.0005	103%	60%	140%	95%	60%	140%	75%	60%	140%
C6 - C10 (F1)	3272	4705534	<0.1	<0.1	NA	< 0.1	96%	60%	140%	120%	60%	140%	87%	60%	140%
C>10 - C16	8029	4705539	<0.1	<0.1	NA	< 0.1	105%	60%	140%	90%	60%	140%	89%	60%	140%

Comments: Duplicate NA: results are less than 5X the RDL and RDP will not be calculated.
The sample spikes and dups are not from the same sample ID.

Volatile Organic Compounds in Water - 1,2-DCA															
1,2-Dichloroethane	3272	4705534	<0.001	<0.001	NA	< 0.001	92%	50%	140%	97%	60%	130%	88%	50%	140%

Comments: Duplicate NA: results are less than 5X the RDL and RDP will not be calculated.
The sample spikes and dups are not from the same sample ID.

Certified By: Elena Gorobets

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Quality Assurance

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

AGAT WORK ORDER: 23C990277

PROJECT: 10-12832

ATTENTION TO: Michelle Patterson

SAMPLING SITE:

SAMPLED BY:OW

Water Analysis

RPT Date:			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
Water Package - Routine Chemistry Water Analysis - Lab Filtered Cations															
pH	4701758	4701758	7.71	7.75	0.5%	N/A	100%	90%	110%						
p - Alkalinity (as CaCO3)	4701758	4701758	<5	<5	NA	< 5	NA	80%	120%						
T - Alkalinity (as CaCO3)	4701758	4701758	642	640	0.3%	< 5	103%	80%	120%						
Bicarbonate	4701758	4701758	797	794	0.3%	< 5									
Carbonate	4701758	4701758	<5	<5	NA	< 5									
Hydroxide	4701758	4701758	<5	<5	NA	< 5									
Electrical Conductivity	4701758	4701758	3370	3360	0.3%	< 5	102%	90%	110%						
Chloride	4705537	4705537	4.9	5.0	NA	< 1.0	101%	70%	130%	99%	80%	120%	98%	70%	130%
Fluoride	4705537	4705537	<0.06	<0.06	NA	< 0.01	100%	70%	130%	94%	80%	120%	95%	70%	130%
Nitrate	4705537	4705537	0.9	0.7	NA	< 0.5	103%	70%	130%	101%	80%	120%	100%	70%	130%
Nitrite	4705537	4705537	<0.20	<0.20	NA	< 0.05	99%	70%	130%	98%	80%	120%	99%	70%	130%
Sulfate	4705537	4705537	20.3	23.5	14.9%	< 1.0	102%	70%	130%	104%	80%	120%	105%	70%	130%
Dissolved Calcium	4701758	4701758	120	120	0.1%	< 0.3	95%	70%	130%	106%	80%	120%	NA	70%	130%
Dissolved Magnesium	4701758	4701758	290	290	0.1%	< 0.2	92%	70%	130%	88%	80%	120%	NA	70%	130%
Dissolved Sodium	4701758	4701758	135	135	0.0%	< 0.6	79%	70%	130%	88%	80%	120%	NA	70%	130%
Dissolved Potassium	4701758	4701758	5.4	5.4	0.2%	< 0.6	81%	70%	130%	93%	80%	120%	NA	70%	130%
Dissolved Iron	4701758	4701758	<0.1	<0.1	NA	< 0.1	104%	70%	130%	95%	80%	120%	95%	70%	130%
Dissolved Manganese	4701758	4701758	0.532	0.544	2.2%	< 0.005	104%	70%	130%	94%	80%	120%	NA	70%	130%

Comments: Matrix spike NA: Spike level < native concentration. Matrix spike acceptance limits do not apply and are not calculated.
Duplicate NA: results are less than 5X the RDL and RDP will not be calculated.

pH has been analyzed past the recommended holding time of 15 minutes from sampling (field measurement ideal if more accurate data required)

Nitrate and Nitrite: The regulatory hold time for the analysis of nitrate and/or nitrite in water is 72 hours.

Certified By:

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Method Summary

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

AGAT WORK ORDER: 23C990277

PROJECT: 10-12832

ATTENTION TO: Michelle Patterson

SAMPLING SITE:

SAMPLED BY:OW

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Benzene	TO 0332	EPA SW-846 5021 & 8260	GC/MS
Toluene	TO 0332	EPA SW-846 5021 & 8260	GC/MS
Ethylbenzene	TO 0332	EPA SW-846 5021 & 8260	GC/MS
m,p-Xylenes	TO-0542	EPA SW-846 5021/8260-W	GC/MS
o-Xylene	TO-0542	EPA SW-846 5021/8260-W	GC/MS
Xylenes	TO 0332	EPA SW-846 5021 & 8260	GC/MS
C6 - C10 (F1)	TO 0542	CCME Tier 1 Method	GC/FID
C6 - C10 (F1 minus BTEX)	TO 0542	CCME Tier 1 Method	GC/FID
C>10 - C16	TO 0511	CCME Tier 1 Method	GC/FID
Toluene-d8 (BTEX)	TO-0543	EPA SW-846 5021 & 8260	GC/FID
o-Terphenyl (F2-F4)	TO 0511	CCME Tier 1 Method	GC/FID
Sediment	TO-0511	CCME Tier 1 Method	GC/FID
Chloromethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Vinyl Chloride	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Bromomethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Chloroethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Trichlorofluoromethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Acetone	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,1-Dichloroethylene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Methylene Chloride	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Methyl tert-Butyl Ether	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Methyl Ethyl Ketone	TO-0330	EPA SW-846 5030 & 8260	GC/MS
trans-1,2-Dichloroethylene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,1-Dichloroethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
cis-1,2-Dichloroethylene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Chloroform	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,2-Dichloroethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,1,1-Trichloroethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Carbon Tetrachloride	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Benzene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,2-Dichloropropane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Trichloroethylene	TO-0330	EPA SW-846 8260	GC/MS
Bromodichloromethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
trans-1,3-Dichloropropene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Methyl Isobutyl Ketone	TO-0330	EPA SW-846 5030 & 8260	GC/MS
cis-1,3-Dichloropropene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,1,2-Trichloroethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Toluene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
2-Hexanone	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Dibromochloromethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Ethylene Dibromide	TO-0330	EPA SW-846 8260	GC/MS
Tetrachloroethene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,1,1,2-Tetrachloroethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Chlorobenzene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Ethylbenzene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
m,p-Xylenes	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Bromoform	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Styrene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,1,2,2-Tetrachloroethane	TO-0330	EPA SW-846 5030 & 8260	GC/MS

AGAT Laboratories

2910 12TH STREET NE
CALGARY, ALBERTA
CANADA T2E 7P7
TEL (403)735-2005
FAX (403)735-2771
http://www.agatlabs.com

Method Summary

CLIENT NAME: SUNCOR ENERGY PRODUCTS PARTNERSHIP

AGAT WORK ORDER: 23C990277

PROJECT: 10-12832

ATTENTION TO: Michelle Patterson

SAMPLING SITE:

SAMPLED BY:OW

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
o-Xylene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,3-Dichlorobenzene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,4-Dichlorobenzene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,2-Dichlorobenzene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
1,2,4-Trichlorobenzene	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Xylenes	TO 0330	EPA SW-846 8260	GC/MS
Toluene-d8	TO-0330	EPA SW-846 5030 & 8260	GC/MS
Water Analysis			
pH	INST 0101, INST 0104	SM 4500 H+	PH METER
p - Alkalinity (as CaCO3)	INST-0100, INST-0101	SM 2320 B	TITRATION
T - Alkalinity (as CaCO3)	INST 0101	SM 2320 B	TITRATION
Bicarbonate	INST 0101	SM 2320 B	PC TITRATE
Carbonate	INST 0101	SM 2320 B	PC TITRATE
Hydroxide	INST 0101	SM 2320 B	PC TITRATE
Electrical Conductivity	INST 0101, INST 0120	SM 2510 B	CONDUCTIVITY METER
Chloride	INST 0150	SM 4110 B	ION CHROMATOGRAPH
Fluoride	INST 0150	SM 4110 B	ION CHROMATOGRAPH
Nitrate	INST 0150	SM 4110 B	ION CHROMATOGRAPH
Nitrate-N	INST 0150	SM 4110 B	CALCULATION
Nitrite	INST 0150	SM 4110 B	ION CHROMATOGRAPH
Nitrite-N	INST 0150	SM 4110 B	CALCULATION
Nitrate+Nitrite - Nitrogen	INST 0150	SM 4110 B	CALCULATION
Sulfate	INST 0150	SM 4110 B	ION CHROMATOGRAPH
Dissolved Calcium	INST 0140	SM 3120B – R	ICP/OES
Dissolved Magnesium	INST 0140	SM 3120B – R	ICP/OES
Dissolved Sodium	INST 0140	SM 3120B – R	ICP/OES
Dissolved Potassium	INST 0140	SM 3120B – R	ICP/OES
Dissolved Iron	INST 0140	SM 3120B – R	ICP/OES
Dissolved Manganese	INST 0140	SM 3120B – R	ICP/OES
Sodium Adsorption Ratio		CARTER & GREGORICH 2007	CALCULATION
Calculated TDS		SM 1030E	CALCULATION
Hardness		SM 2340 B	CALCULATION
Ion Balance		SM 1030E	CALCULATION
Lab Filtration on Routine for IC			N/A
Lab Filtration on Routine for Metals			N/A

AGAT Laboratories

2910 12 Street NE
Calgary, Alberta T2E 7P7
P: 403-735-2005 • F: 403-735-2771
webearth.agatlabs.com

Laboratory Use Only
Arrival Temperature: 6 C
AGAT Job Number: 23C900777
Date and Time: 20-JAN '23 PM 1:45

Chain of Custody Record

Emergency Support Services Hotline 1-855-AGAT 245 (1-855-242-8245)

Report Information
Company: PARSONS
Contact: Michelle Patterson
Address: #100, 318 – 11 Ave SE, Calgary AB T2G 0Y2
Phone: (403)294-4215 Fax: (403)294-4240
LSD: 1624 14th Street NW, Calgary, AB
Client Project #: 10-12832
Sampled By: Oscar Wronski
Outlet #: 9445

Report Information
1. Name: Michelle Patterson
Email: michelle.patterson@parsons.com
2. Name: Calgary Lab Report
Email: Calgary.labreport@parsons.com
3. Name:
Email:

Turnaround Time Required (TAT)
Regular TAT ☑ 5 to 7 Business Days
Rush TAT ☐ <24 Hours (200%) ☐ Two Day / Next Day (100%) ☐ Three Day (50%) ☐ Four Day (25%)
Date Required:

SEE BACK FOR SURCHARGE BREAKDOWN. CONTACT YOUR CPM FOR ADDITIONAL INFORMATION

Invoice To Same Yes ☐ / No ☑
Company: Suncor Energy Products Partnership
Contact: Stephen D'Abadie
Address: P.O. Box 2844, 150 – 6 Avenue S.W.
Calgary, AB T2P 3E3
Phone: 587-223-4146 Fax:
PO/AFE#:

Requirements *(Selection may impact detection limits)*
☐ CCME ☑ AB Tier 1
☐ Agricultural ☐ Agricultural
☐ Industrial ☐ Industrial
☐ Residential/Park ☑ Residential/Park
☐ Commercial ☐ Commercial
☐ FWAL ☐ Natural Area
☐ Drinking Water ☐ Alberta Surface Water
☐ Other: ☐ Chronic ☐ Acute

Number of jars used & not submitted

Activity
Assessement A1 ☐ A2 ☐ AR ☐ AV ☐
Remediation RE ☐ RX ☐ RI ☐ RA ☐
Containement Management M ☐ MW ☑ MV ☐

LABORATORY USE (LAB ID #)	SAMPLE IDENTIFICATION	DEPTH	DATE/TIME SAMPLED	SAMPLE MATRIX	COMMENTS (FILTERED, PRESERVED, HAZARDOUS*) *ADDITIONAL FEE	# OF CONTAINERS VIALS / JARS	BAGS	BOTTLES	Detailed Salinity: ☐ AB ☐ SK ☐ BC ☐ D50	☐ CCME/AB : BTEX/F1-F4 ☑ CCME/AB : BTEX /F1-F2	☐ BC: BTEXS/VPH/EPH ☐ BC: LEPH/HEPH	SK: BTEX/TVH/C11-C22, C23-C60	Soil Metals: ☐ HWS-B ☐ SP-B ☐ Hg ☐ Cr^{6+}	Water Metals: ☐ Dissolved ☐ Total ☐ Hg ☐ Cr^{6+}	Routine Water Chemistry	Landfill: ☐ AB Class 2 ☐ BC ☐ SK	Coliforms: ☐ Total ☐ Fecal ☐ E.coli	Particle Size: ☐ Sieve (75µm) ☐ Texture	1,2 DCA	VOC						HOLD FOR 30 DAYS NO ANALYSIS (Additional Fee)	HOLD FOR 30 DAYS AFTER ANALYSIS (Additional Fee)
1	BH 2012		20/01/23 8:30	GW				7		X					X				X								
2	BH 1936		9:00					6		X					X				X								
3	Dup-12		9:00					6		X					X				X								
4	BH 1964		9:30					6		X					X				X								
5	BH 1961		9:50					6		X					X				X								
6	BH 1962		10:30					7		X					X				X								
7	BH 1963		11:00					6		X					X				X								
8	FIP-10		12:30					6		X									X								
9	Hydra-03		13:30					6		X									X								
10	Boiler-03		15:00					6		X									X								

Samples Relinquished By (Print Name and Sign)	Date/Time	Samples Received By (Print Name and Sign)	Date/Time
Oscar Wronski	20/01/23/13:00	Lan7 Cell	1/20/23

Pink Copy - Client
Yellow Copy - AGAT
White Copy- AGAT

Page 1 of 1
No: AB

Document ID: DIV-50-1507.007

Date Revised: Apr 20, 2021

AGAT Laboratories

SAMPLE INTEGRITY RECEIPT FORM

RECEIVING BASICS - Shipping

Company/Consultant: Parsons

Courier: DIO Prepaid Collect

Waybill#

Branch: EDM GP FN FM RD VAN LYD FSJ EST SASK Other: C

If multiple sites were submitted at once: Yes No

Custody Seal Intact: Yes No NA

TAT: <24hr 24-48hr 48-72hr Reg Other

Cooler Quantity: 1 large

TIME SENSITIVE ISSUES - Shipping

ALREADY EXCEEDED HOLD TIME? Yes No

Inorganic Tests (Please Circle): Mibi , BOD , Nitrate/Nitrite , Turbidity , Color , Microtox , Ortho PO4 , Tedlar Bag , Residual Chlorine , Chlorophyll* , Chloroamines*

Earliest Expiry:

Hydrocarbons: Earliest Expiry

SAMPLE INTEGRITY - Shipping

Hazardous Samples: YES NO Precaution Taken:

Legal Samples: Yes No

International Samples: Yes No

Tape Sealed: Yes No

Coolant Used: Icepack Bagged Ice Free Ice Free Water None

Temperature (Bottles/Jars only) N/A if only Soil Bags Received

FROZEN (Please Circle if samples received Frozen)

1 (Bottle/Jar) 6 + 6 + 6 = 6 °C 2(Bottle/Jar)___+___+___=___°C

3 (Bottle/Jar)___+___+___=___°C 4 (Bottle/Jar)___+___+___=___°C

5 (Bottle/Jar)___+___+___=___°C 6 (Bottle/Jar)___+___+___=___°C

7 (Bottle/Jar)___+___+___=___°C 8 (Bottle/Jar)___+___+___=___°C

9 (Bottle/Jar)___+___+___=___°C 10 (Bottle/Jar)___+___+___=___°C

(If more than 10 coolers are received use another sheet of paper and attach)

LOGISTICS USE ONLY

Workorder No: 23C 990277

Samples Damaged: Yes No If YES why?

No Bubble Wrap Frozen Courier

Other:

Account Project Manager: have they been notified of the above issues: Yes No

Whom spoken to: Date/Time:

CPM Initial

General Comments:

* Subcontracted Analysis (See CPM)

Date issued: March 11, 2020
Document ID: SR-9505.004