GROUNDWATER MONITORING AND SAMPLING PROGRAM – JULY 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

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THIS REPORT CONTAINS PROVISIONS LIMITING LIABILITY, THE SCOPE OF THE REPORT AND THIRD-PARTY RELIANCE.

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:	July 4 to July 27, 2023, August 9, 2023, August 23 to August 25, 2023, and October 2 to October 4, 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:	12 of 118 groundwater monitoring wells sampled exceeded guidelines for the vapour inhalation pathway (BH1704, BH1912, BH1915, BH1924, BH1979, BH4002, BH4003A BH4006, BH4007, EX1, EX5 and EX7); five of 118 wells sampled exceeded the guidelines for the ecological direct soil pathway (BH1704, BH1905, BH6003, EX5, and EX7); and 40 of 118 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 Q2 2024, in accordance with the semi-annual GWMS program.

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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 from July 4 to July 27, 2023, and August 9, 2023, in accordance with the semi-annual groundwater monitoring and sampling (GWMS) program, to maintain an audit of subsurface conditions. Between August 23 and August 25, 2023, groundwater recovery tests (bail tests) were performed to estimate the hydraulic conductivity of the water-bearing deposits intersected by the screen interval. Between October 2 and October 4, 2023, additional confirmatory samples were collected to obtain additional data for trend analysis.

1.2 SCOPE OF WORK

The following site activities were conducted on behalf of Suncor in July, August, and October of 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;
- Perform groundwater recovery tests to estimate the hydraulic conductivity of the water-bearing deposits;
- 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 June 26, 2023. During July 4 through July 27, 2023, August 9, 2023, August 23 through August 25, 2023, and October 2 through October 4, 2023, groundwater monitoring was performed on 138 groundwater monitoring and extraction wells across the site, as presented in Table 1.

Between July 4 and July 27, 2023, groundwater samples were collected from 118 groundwater monitoring and extraction wells for laboratory analysis, as presented in Tables 2 and 3. Some of the wells could not be monitored or sampled as they were dry, had insufficient water, were blocked below grade, or could not be located. Due to missing 1,2-Dichloroethane (1,2-DCA) analysis from the original sampling event, groundwater samples were collected from four groundwater monitoring wells (BH1906, BH1917, BH1963, and BH4008A) on August 9, 2023.

Between October 2 and October 4, 2023, additional confirmatory samples were collected from 12 groundwater monitoring wells (BH1943, BH1954, BH1963, BH1979, BH1980, BH2001, BH2005, BH3001A, BH3001B, BH4003A, BH4003B, and BH6003) for additional data for trend analysis.

Between August 23 and August 25, 2023, groundwater recovery tests (bail tests) were performed on nine groundwater monitoring wells (BH1917, BH1923, BH1925, BH1945, BH1947, BH2001, BH2006, BH3001C, and BH6005) to estimate the hydraulic conductivity of the water-bearing deposits intersected by the screen interval.

In addition, well repairs were performed on ten groundwater monitoring wells (BH1903, BH1912, BH1913, BH1942, BH1947, BH2002, BH4004B, BH4008A, BH5001, and BH5002) during the monitoring and sampling visits.

Groundwater Monitoring and Extraction Well Locations:	Drawing No. 3.
Monitoring/Sampling Date(s):	July 4 to July 27, 2023, August 9, 2023, August 23 to August 25, 2023, and October 2 to October 4, 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) ☒Other: Volatile Organic Compounds (select wells only) ☒Other: Additional parameters for the purposes of natural attenuation evaluation (select wells only)
Laboratory:	Bureau Veritas and ALS Canada Ltd.

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 1.08 to 15.03 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 46% of the lower explosive limit (LEL).

Presence of LPH:	LPH was not detected in any of the groundwater monitoring or extraction wells.
Elevation of the Potentiometric Surface:	Presented as Drawing No. 4.
Principal direction of groundwater flow:	The apparent direction of groundwater flow during the July 2023 monitoring event was generally towards the south-southeast.
Hydraulic Conductivity	Presented in Appendix C.

4.2 GROUNDWATER ANALYTICAL RESULTS

BTEX, F1, F2, and 1,2-DCA:	As presented in Table 2, 12 of 118 groundwater monitoring wells sampled exceeded guidelines for the vapour inhalation pathway (BH1704, BH1912, BH1915, BH1924, BH1979, BH4002, BH4003A, BH4006, BH4007, EX1, EX5 and EX7); five of 118 wells sampled exceeded the guidelines for the ecological direct soil pathway (BH1704, BH1905, BH6003, EX5, and EX7); and 40 of 118 wells sampled exceeded the drinking water guidelines for one or more petroleum hydrocarbon constituents (BTEX, F1, F2), or 1,2-DCA.
Volatile Organic Compounds:	Presented as Table 2.
Routine Water Chemistry and Other Associated Parameters:	Presented as Table 3.
Spatial Summary of Analytical Results:	Presented as Drawing No. 5.
Historical Analytical Results:	Results from 2022 and 2023 are presented in Appendix D.
Laboratory Certificates:	Presented in Appendix E.

4.3 QUALITY ASSURANCE AND QUALITY CONTROL (QAQC) RESULTS

Laboratory QAQC:	Appendix E	No laboratory QAQC issues were identified that call into question the reliability of the laboratory data reported.
Field QAQC:	Appendix E	Twelve field duplicate samples were submitted (10 in July and two in October). One duplicate sample had RPD exceedances (DUP-05), and one trip blank sample had detectable concentrations of total xylenes (Trip Blank - 02). The duplicate exceedances fell within the concentration trends for the sample location and was far less than the applicable groundwater guidelines. The total xylene concentration for Trip Blank – 02 (0.0030 mg/L) was also significantly less than the most stringent guideline and should not have skewed the data in any significant way. Therefore, no field QAQC issues were identified that would call into question the overall conclusions of the report.
QAQC Summary:	Appendix E	No QAQC issues were identified that would affect the overall conclusions of the assessment work presented in this report.

5.0 SUMMARY

Groundwater monitoring and sampling was conducted from July 4 to July 27, 2023, and August 9, 2023, in accordance with the semi-annual groundwater monitoring and sampling (GWMS) program, to maintain an audit of subsurface conditions. Between August 23 and August 25, 2023, groundwater recovery tests (bail tests) were performed to estimate the hydraulic conductivity of the water-bearing deposits intersected by the screen interval. Between October 2 and October 4, 2023, additional confirmatory samples were collected to obtain additional data for trend analysis. Groundwater monitoring was performed on 138 groundwater monitoring and extraction wells, with groundwater samples were collected from 118 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 July 4 through July 27, 2023, August 9, 2023, August 23 through August 25, 2023, and October 2 through October 4, 2023, GWMS event are summarized as follows:

- The depth to groundwater varies with the grade elevation and the geological unit, ranging from approximately 1.08 to 15.03 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 46% LEL;
- LPH was not detected in any of the groundwater monitoring or extraction wells monitored;
- The apparent direction of groundwater flow during the July 2023 monitoring event was generally towards the south-southeast; and,
- 12 of 118 groundwater monitoring wells sampled exceeded guidelines for the vapour inhalation pathway (BH1704, BH1912, BH1915, BH1924, BH1979, BH4002, BH4003A, BH4006, BH4007, EX1, EX5 and EX7); five of 118 wells sampled exceeded the guidelines for the ecological direct soil pathway; and 40 of 118 wells sampled exceeded the drinking water guidelines for one or more petroleum hydrocarbon constituents (BTEX, F1, F2), or 1,2-DCA.

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 May 2024, 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,

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66441

2023-11-01

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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

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	7/21/2023	10	ND	13.67	1077.48
BH732	1080.54	1080.60	4.3 - 14.9	7/19/2023	25	ND	5.90	1074.71
BH912	1075.14	1075.23	1.5 - 6.1	7/17/2023	150	ND	3.61	1071.63
BH1102	1089.18	1089.25	7.6 - 15.2	7/17/2023	60	ND	10.46	1078.79
				7/13/2023	NM	ND	10.53	1078.72
BH1701	1088.19	1088.27	6.4 - 12.19	7/20/2023	Could Not Locate	Could Not Locate	Could Not Locate	Could Not Locate
BH1704	1089.46	1089.58	9.1 - 13.7	7/21/2023	10	ND	10.59	1078.99
BH1901	1090.30	1090.44	19.8 - 24.4	7/18/2023	10	ND	15.03	1075.41
BH1902	1089.74	1089.92	19.7 - 30.5	7/18/2023	<5	ND	14.88	1075.04
BH1903	1090.32	1090.42	23.6 - 26.7	7/20/2023	15	ND	13.57	1076.86
BH1904	1090.49	1090.58	12.8 - 16.8	7/18/2023	<5	ND	10.27	1080.31
BH1905	1090.43	1090.57	3.1 - 6.1	7/18/2023	10	ND	4.10	1086.47
BH1906	1090.95	1091.03	11.6 - 19.2	7/17/2023	10	ND	11.60	1079.43
				7/11/2023	NM	ND	11.43	1079.60
BH1907	1090.14	1090.22	8.8 - 18.0	7/17/2023	46%	ND	11.19	1079.03
BH1908	1089.44	1089.55	12.2 - 16.8	7/17/2023	150	ND	10.82	1078.73
BH1909	1089.48	1089.56	5.5 - 7.4	7/17/2023	40	ND	7.33	1082.23
BH1910	1090.08	1090.23	11.0 - 18.6	7/17/2023	40	ND	11.42	1078.80
BH1911	1092.86	1092.96	14.3 - 18.3	7/17/2023	5	ND	14.06	1078.90
BH1912	1091.04	1091.09	13.4 - 21.0	7/19/2023	25	ND	10.71	1080.38
BH1913	1091.05	1091.11	6.4 - 10.0	7/19/2023	20	ND	5.77	1085.34
BH1914	1091.03	1091.08	1.5 - 7.3	7/19/2023	45	ND	5.38	1085.69
BH1915	1091.06	1091.10	10.4 - 18.6	7/19/2023	28%	ND	10.46	1080.64
BH1916	1091.06	1091.12	0.9 - 6.4	7/19/2023	<5	ND	5.63	1085.50
BH1917	1089.39	1089.55	8.8 - 16.2	8/25/2023	NM	ND	12.80	1076.75
				7/19/2023	<5	ND	12.78	1076.77
				7/11/2023	NM	ND	12.42	1077.12
BH1918	1087.23	1087.27	5.8 - 13.1	7/20/2023	45	ND	9.48	1077.79
BH1919	1085.47	1085.52	6.7 - 15.5	7/19/2023	20	ND	9.87	1075.65
				7/4/2023	NM	ND	9.89	1075.63
BH1920	1087.16	1087.27	1.5 - 4.6	7/20/2023	35	DRY	DRY	DRY
BH1921	1088.92	1089.11	8.8 - 18.9	7/17/2023	10	ND	11.55	1077.56
BH1922	1087.65	1087.76	7.9 - 19.2	7/17/2023	<5	ND	11.03	1076.73
BH1923	1088.64	1088.70	7.6 - 15.9	8/23/2023	NM	ND	10.29	1078.41
				7/20/2023	20	ND	10.21	1078.49
BH1924	1093.31	1093.39	14.9 - 19.8	7/21/2023	12%	ND	14.40	1079.00
				7/13/2023	NM	ND	14.29	1079.10
BH1925	1091.15	1091.24	16.4 - 19.8	8/25/2023	NM	ND	13.85	1077.40
				7/21/2023	15	ND	13.80	1077.44
BH1927	1090.31	1090.45	12.2 - 22.3	7/17/2023	45	ND	12.70	1077.75
BH1928	1083.60	1083.72	6.4 - 16.8	7/18/2023	140	ND	8.21	1075.51
BH1929	1082.55	1082.67	5.5 - 14.9	7/17/2023	360	ND	7.83	1074.84
BH1930	1088.51	1088.73	6.4 - 18.3	7/18/2023	55	ND	11.47	1077.26
BH1931	1088.64	1088.74	4.6 - 7.3	7/20/2023	10	DRY	DRY	DRY
BH1932	1088.61	1088.69	1.5 - 4.3	7/20/2023	Could Not Locate	Could Not Locate	Could Not Locate	Could Not Locate
BH1933	1090.41	1090.53	8.8 - 17.1	7/19/2023	<5	ND	11.28	1079.26
BH1934	1090.47	1090.55	5.8 - 8.5	7/19/2023	45	ND	6.53	1084.03
BH1935	1090.48	1090.60	1.5 - 5.2	7/19/2023	<5	ND	4.60	1086.00
BH1936	1082.18	1082.26	5.3 - 14.7	7/17/2023	100	ND	7.66	1074.60
BH1937	1080.60	1080.75	8.8 - 12.8	7/19/2023	<5	ND	6.25	1074.51
BH1938	1082.20	1082.30	3.7 - 5.2	7/18/2023	55	DRY	DRY	DRY
BH1939	1080.66	1080.75	8.1 - 8.7	7/19/2023	<5	ND	6.25	1074.50
BH1941	1073.80	1073.95	7.3 - 11.3	7/18/2023	90	ND	1.89	1072.05
BH1942	1068.37	1068.54	4.4 - 8.5	7/18/2023	150	ND	1.69	1066.86
BH1943	1078.72	1078.91	7.3 - 14.0	10/3/2023	30	ND	6.65	1072.27
				7/20/2023	10	ND	6.57	1072.35
BH1944	1077.12	1077.33	5.9 - 7.6	7/20/2023	25	ND	5.91	1071.43
				7/5/2023	NM	ND	5.79	1071.54

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

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)
BH1945	1069.27	1069.36	3.7 - 6.4	8/24/2023	NM	ND	3.26	1066.10
				7/19/2023	15	ND	3.13	1066.22
BH1946	1064.57	1064.66	4.3 - 6.4	7/18/2023	120	ND	1.40	1063.26
BH1947	1067.72	1067.83	4.3 - 6.1	8/25/2023	NM	ND	1.37	1066.45
				7/18/2023	10	ND	1.57	1066.25
BH1948	1072.45	1072.58	4.0 - 7.9	7/18/2023	Could Not Locate	Could Not Locate	Could Not Locate	Could Not Locate
BH1949	1091.06	1091.10	6.4 - 7.3	7/18/2023	35	ND	7.15	1083.95
BH1950A	1091.04	1091.15	8.5 - 11.1	7/21/2023	5	ND	10.65	1080.50
BH1951	1068.02	1068.12	2.0 - 4.1	7/19/2023	65	ND	3.03	1065.09
BH1952	1090.81	1090.99	7.9 - 18.6	7/18/2023	85	ND	11.94	1079.05
BH1953	1091.28	1091.34	11.3 - 18.6	7/20/2023	<5	ND	14.93	1076.42
BH1954	1076.76	1076.90	5.5 - 13.1	10/2/2023	ND	ND	3.64	1073.26
				7/17/2023	<5	ND	3.50	1073.39
BH1955A	1073.95	1074.13	8.5 - 11.0**	7/17/2023	<5	ND	2.40	1071.73
BH1956	1084.76	1084.92	5.8 - 14.6	7/21/2023	<5	Repairs Required	Repairs Required	Repairs Required
BH1957	1089.87	1089.98	5.8 - 14.1	7/18/2023	35	ND	10.11	1079.88
BH1958	1090.26	1090.41	5.8 - 14.9	7/18/2023	30	ND	9.83	1080.58
				7/10/2023	NM	ND	9.84	1080.57
BH1959	1090.27	1090.42	6.4 - 15.5	7/21/2023	25	ND	9.25	1081.17
BH1960	1090.26	1090.42	1.5 - 3.3	7/20/2023	45	ND	3.29	1087.13
BH1961	1076.67	1076.79	8.5 - 11.9	7/20/2023	<5	ND	4.59	1072.20
BH1962	1078.36	1078.48	9.8 - 12.5	7/20/2023	25	ND	3.31	1075.17
				7/6/2023	NM	ND	3.25	1075.23
BH1963	1080.84	1080.96	5.5 - 11.3	10/3/2023	10	ND	4.15	1076.81
				7/20/2023	<5	ND	4.07	1076.90
				7/11/2023	NM	ND	4.73	1076.23
BH1964	1076.77	1076.90	7.6 - 8.5	7/20/2023	<5	ND	4.44	1072.46
BH1965	1091.27	1091.37	9.8 - 11	7/20/2023	25	ND	11.00	1080.37
BH1966	1089.42	1089.52	7.3 - 16.5	7/17/2023	30	ND	10.72	1078.80
BH1967	1090.10	1090.21	5.5 - 8.5	7/17/2023	<5	ND	7.65	1082.56
BH1968	1090.08	1090.20	1.5 - 5.2	7/17/2023	30	DRY	DRY	DRY
BH1969	1089.39	1089.47	1.5 - 7.6	7/17/2023	10	DRY	DRY	DRY
BH1970	1089.22	1089.30	7.9 - 8.5	7/17/2023	15	ND	8.64	1080.67
BH1971	1090.76	1090.94	7.3 - 11.0	7/17/2023	35	ND	7.60	1083.34
BH1972	1088.79	1088.92	8.2 - 11.0	7/18/2023	85	ND	8.65	1080.27
BH1973	1090.81	1090.93	1.5 - 6.4	10/3/2023	ND	ND	DRY	DRY
				7/17/2023	40	ND	6.52	1084.41
BH1974	1090.07	1090.24	7.6 - 10.4	7/17/2023	5	ND	7.10	1083.15
BH1975	1090.23	1090.39	1.5 - 7.3	7/17/2023	20	ND	6.90	1083.49
BH1976	1092.63	1092.79	9.4 - 14.3	7/17/2023	20	ND	9.17	1083.62
BH1977	1074.04	1074.16	3.1 - 7.6	7/17/2023	<5	ND	1.24	1072.92
BH1978	1069.24	1069.42	0.9 - 3.0	7/19/2023	<5	ND	2.49	1066.93
BH1979	1078.71	1078.78	2.8 - 6.7	10/3/2023	20	ND	5.94	1072.84
				7/20/2023	45	ND	5.84	1072.95
				7/5/2023	NM	ND	5.81	1072.97
BH1980	1074.24	1074.31	4.3 - 6.1	10/2/2023	25	ND	2.59	1071.72
				7/18/2023	10	ND	2.62	1071.69
BH1981	1076.99	1077.06	3.0 - 9.1	7/17/2023	45	ND	3.63	1073.43
BH1982	1080.85	1080.96	1.5 - 7.9	7/19/2023	40	ND	6.45	1074.51
				7/13/2023	NM	ND	6.24	1074.73
BH1983A	1090.59	1090.71	3.7 - 5.2**	7/18/2023	5	ND	9.76	1080.95
BH1984	1090.37	1090.46	7.3 - 15.5	7/18/2023	<5	ND	8.99	1081.47
				7/6/2023	NM	ND	8.99	1081.47
BH1985	1090.21	1090.31	6.4 - 17.4	7/18/2023	110	ND	8.77	1081.55
BH1986	1090.31	1090.42	4.9 - 6.7	7/18/2023	10	DRY	DRY	DRY
BH1987	1090.15	1090.27	4.9 - 6.1	7/18/2023	35	DRY	DRY	DRY
BH1988	1090.16	1090.26	1.5 - 4.4	7/18/2023	35	DRY	DRY	DRY
BH2001	1069.85	1069.94	3.4 - 4.9	10/2/2023	ND	ND	1.07	1068.88
				8/24/2023	NM	ND	1.09	1068.86
				7/19/2023	20	ND	1.08	1068.87

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

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)
BH2002	1070.03	1070.14	1.6 - 3.8	7/17/2023	25	ND	2.49	1067.66
BH2003	1073.31	1073.48	1.5 - 4.6	7/18/2023	10	ND	3.82	1069.66
BH2004	1074.03	1074.18	4.9 - 6.4	7/20/2023	15	ND	5.06	1069.13
BH2005	1076.70	1076.84	3.95 - 7	10/3/2023	10	ND	3.47	1073.37
				7/20/2023	<5	ND	3.39	1073.45
				7/6/2023	NM	ND	3.43	1073.41
BH2006	1074.10	1074.24	2.3 - 4.9	8/24/2023	NM	ND	1.56	1072.68
				7/17/2023	15	ND	1.39	1072.85
BH2007	1091.72	1091.86	12.8 - 18.3	7/17/2023	20	ND	11.34	1080.52
BH2008	1091.80	1091.93	5.2 - 12.8	7/17/2023	5	ND	8.94	1082.99
BH2009	1091.95	1092.02	2.1 - 5.2	7/17/2023	75	DRY	DRY	DRY
BH2010	1094.27	1094.38	14.0 - 18.9	7/18/2023	45	ND	13.91	1080.47
				7/5/2023	NM	ND	13.76	1080.62
BH2011	1094.07	1094.26	9.4 - 14.0	7/18/2023	20	ND	11.48	1082.79
BH2012	1094.72	1094.90	13.4 - 18.3	7/18/2023	40	ND	13.68	1081.22
BH3001A	1070.46	1070.52	1.5 - 3.05	10/2/2023	5	ND	1.71	1068.81
				7/20/2023	40	ND	1.71	1068.81
BH3001B	1070.43	1070.50	3.7 - 4.3	10/2/2023	ND	ND	2.34	1068.16
				7/20/2023	10	ND	2.19	1068.31
BH3001C	1070.35	1070.44	5.2 - 6.1	8/24/2023	NM	ND	3.64	1066.80
				7/20/2023	<5	ND	3.35	1067.09
BH3002A	1073.25	1073.37	1.8 - 3.8	7/20/2023	60	ND	1.90	1071.47
BH3002B	1073.22	1073.30	6.1 - 7.6	7/20/2023	<5	ND	5.85	1067.45
BH3003A	1073.08	1073.15	2.18 - 2.9	7/20/2023	<5	DRY	DRY	DRY
BH3003B	1072.95	1073.07	6.9 - 7.9	7/20/2023	<5	ND	5.70	1067.37
BH4002	1091.10	1091.00	11.7 - 13.2	7/18/2023	60	ND	9.01	1081.99
BH4003A	1090.97	1090.87	10.5 - 12	10/3/2023	10	ND	9.59	1081.28
				7/18/2023	320	ND	9.57	1081.30
BH4003B	1090.97	1090.92	14.9 - 16.4	10/3/2023	ND	ND	9.82	1081.10
				7/18/2023	20	ND	9.13	1081.79
BH4004A	1090.69	1090.62	11.5 - 13	7/18/2023	10	ND	9.46	1081.16
BH4004B	1090.71	1090.64	14.5 - 16	7/18/2023	35	ND	9.79	1080.85
BH4005	1090.41	1090.36	10.7 - 12.2	7/18/2023	90	ND	8.95	1081.40
BH4006	1090.62	1090.51	10.7 - 12.2	7/18/2023	55	ND	8.99	1081.52
BH4007	1090.73	1090.65	10.6 - 12.1	7/18/2023	55	ND	9.30	1081.35
BH4008A	1090.83	1090.74	10.5 - 12	7/18/2023	<5	ND	9.23	1081.52
				7/11/2023	NM	ND	8.70	1082.04
BH4008B	1090.84	1090.76	15.2 - 16.7	7/18/2023	35	ND	9.54	1081.22
BH4009A	1091.52	1091.43	10.5 - 12	7/18/2023	65	ND	10.00	1081.44
BH4009B	1091.56	1091.44	14.5 - 16	7/18/2023	85	ND	10.10	1081.34
BH5001	1069.38	1069.47	1.5 - 3.05	7/17/2023	130	ND	1.59	1067.88
BH5002	1065.68	1065.83	1.5 - 3.05	7/17/2023	110	ND	1.84	1063.99
BH6001	1089.36	1089.47	9.75 - 12.8	7/17/2023	45	ND	11.32	1078.15
BH6002	1089.55	1089.67	10.65 - 13.7	7/17/2023	40	ND	11.22	1078.45
BH6003	1089.77	1089.88	9.75 - 12.8	10/3/2023	55	ND	11.25	1078.63
				7/17/2023	70	ND	11.14	1078.75
BH6004	1089.66	1089.78	9.15 - 12.2	7/17/2023	<5	ND	10.73	1079.05
BH6005	1089.08	1089.31	9.15 - 12.2	8/23/2023	NM	ND	10.49	1078.82
				7/17/2023	85	ND	10.27	1079.04
				7/5/2023	NM	ND	10.29	1079.02
BH6006	1091.38	1091.50	12.2 - 15.2	7/21/2023	15	ND	13.85	1077.65
EX-1	1088.62	1089.25	11.7 - 14.63	7/21/2023	<5	ND	14.32	1074.93
EX-2	1087.85	1088.48	8.8 - 13.41	7/21/2023	20	ND	13.44	1075.05
EX-3	1088.46	1089.09	8.2 - 12.8	7/21/2023	<5	ND	12.13	1076.97
EX-4	1089.44	1090.07	10.3 - 13.72	7/21/2023	75	ND	10.60	1079.47
EX-5	1090.31	1090.94	10.6 - 13.72	7/21/2023	<5	ND	10.95	1080.00
EX-6	1090.45	1091.08	10.6 - 13.11	7/17/2023	50	ND	11.42	1079.66
EX-7	1088.92	1089.55	11.5 - 15.85	7/17/2023	<5	ND	11.67	1077.88

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 - JULY, AUGUST AND OCTOBER 2023
PETROLEUM HYDROCARBONS AND VOLATILE ORGANIC COMPOUNDS

Sample Location	Screen Interval (mbgs)	Guideline Referenced	Sample Date	Benzene	Toluene	Ethylbenzene	Total Xylenes	Petroleum Hydrocarbons F1 (C6-C10)[b]	Petroleum Hydrocarbons F2 (>C10-C16)[c]	1,2-Dichloroethane	Total Trihalomethanes	1,2,3-Trichlorobenzene	1,2,4-Trimethylbenzene	1,3,5-Trichlorobenzene	1,3,5-Trimethylbenzene	Bromodichloromethane	Bromoform	Bromomethane	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	Dibromochloromethane	1,2-Dibromoethane	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,1-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,2-Dichloropropane	cis-1,3-Dichloropropene	trans-1,3-Dichloropropene	Methyl Methacrylate	Methyl t-Butyl Ether	Methylene Chloride	Styrene	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane	Tetrachloroethene	1,2,4-Trichlorobenzene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Trichlorofluoromethane	Vinyl Chloride
CONSTITUENT																																																	
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	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	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	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	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	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	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	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	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	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	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	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	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Most stringent guideline for Routine Parameters				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Most stringent guideline for fine-/coarse-grained and commercial/residential land use for Volatile Organic Compound Scan				NA	NA	NA	NA	NA	NA	NA	0.1	0.014	NG	0.014	NG	NG	NG	NG	0.0015	0.014	NG	0.08	NG	0.19	NG	0.003	NG	0.001	NG	0.014	NG	NG	NG	NG	NG	11	0.015	0.05	2.8	NG	NG	0.01	0.015	NG	NG	0.00032	NG	0.0011
BH510A	11.3 - 17.4	N1	2023-07-24	0.21	0.0097	0.38	0.0094	1.1	0.14	0.026	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-24 Dup	0.081	0.0050	0.14	0.0051	0.85	0.13	0.020	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH732	4.3 - 14.9	N2	2023-07-25	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH812	1.5 - 6.1	S1	2023-07-26	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.00067	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH102	7.6 - 15.2	N1	2023-07-13	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.00050	<0.0010	<0.00050	<0.0020	<0.0010	<0.00020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.0010	<0.0020	<0.00050	<0.0010	<0.00050	<0.00050	<0.00020	<0.00050	<0.00050
BH704	9.1 - 13.7	N1	2023-07-25	1.7	5.4	0.80	4.5	7.9	2.4	0.082	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH301	19.8 - 24.4	Commercial area	2023-07-26	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH302	19.7 - 30.5	Commercial area	2023-07-26	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH303	20.6 - 26.7	Commercial area	2023-07-26	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH304	12.8 - 16.8	Commercial area	2023-07-26	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH305	3.1 - 6.1	Commercial area	2023-07-26	0.23	0.0096	0.19	2.3	2.0	3.2	0.025	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-26 Dup	0.13	0.0088	0.24	2.7	2.8	4.2	0.031	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH306	11.6 - 19.2	N1	2023-08-09	0.41	<0.00040	<0.00040	<0.00080	-	-	0.012	<0.0013	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.00050	<0.0010	<0.00050	<0.0020	<0.0010	<0.00020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.0010	<0.0020	<0.00050	<0.0010	<0.00050	<0.00050	<0.00020	<0.00050	<0.00050
			2023-07-11	1.7	0.00056	0.00048	<0.00089	<0.10	<0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH307	8.8 - 18.0	N1	2023-07-24	0.950	0.055	0.44	1.4	1.7	0.47	0.0023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-24 Dup	0.932	0.055	0.44	1.4	1.8	0.52	0.0025	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH308	12.2 - 16.8	N1	2023-07-24	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH310	11.0 - 18.6	N1	2023-07-24	0.10	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.026	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH311	14.3 - 18.3	N1	2023-07-24	<0.00040	<0.00040	<0.00040	<0.0011	<0.10	<0.10	0.0012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH312	13.4 - 21.0	Residential Buffer	2023-07-19	0.0072	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH313	6.4 - 10.0	Residential Buffer	2023-07-19	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH314	1.5 - 7.3	Residential Buffer	2023-07-19	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH315	10.4 - 18.6	Residential Buffer	2023-07-19	0.20	0.0011	0.0024	0.017	0.90	0.30	0.037	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-19 Dup	0.20	0.0011	0.0024	0.017	0.90	0.29	0.038	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH316	0.9 - 6.4	Residential Buffer	2023-07-19	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH317	8.8 - 16.2	N1	2023-08-09	<0.00040	<0.00040	<0.00040	<0.00080	-	-	<0.00050	<0.0013	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.00050	<0.0010	<0.00050	<0.0020	<0.0010	<0.00020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.0010	<0.0020	<0.00050	<0.0010	<0.00050	<0.00050	<0.00020	<0.00050	<0.00050
			2023-07-11	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH318	5.8 - 13.1	N1	2023-07-25	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH319	6.7 - 15.5	N2	2023-07-04	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.00050	<0.0010	<0.00050	<0.0020	<0.0010	<0.00020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.0010	<0.0020	<0.00050	<0.0010	<0.00050	<0.00050	<0.00020	<0.00050	<0.00050
BH321	8.8 - 18.9	N1	2023-07-25	0.077	0.0092	0.070	0.050	0.74	<0.10	0.042	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-25 Dup	0.077	0.0088	0.067	0.0048	0.83	<0.10	0.040	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH322	7.9 - 19.2	N2	2023-07-25	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH323	7.6 - 15.9	N1	2023-07-24	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH324	14.9 - 18.8	N1	2023-07-13	0.96	0.00099	<0.00040	0.070	0.10	0.10	0.088	<0.0013	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.00050	<0.0010	<0.00050	<0.0020	<0.0010	<0.00020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.0010	<0.0020	<0.00050	<0.0010	<0.00050	0.0012	<0.00020	<0.00050	<0.00050
BH325	16.4 - 19.8	N1	2023-07-24	0.0020	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.0041	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH327	12.2 - 22.3	N1	2023-07-24	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH328	6.4 - 16.8	N2	2023-07-25	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.0017	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH329	5.5 - 14.9	N2	2023-07-25	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH330	6.4 - 18.3	N2	2023-07-25	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH333	8.8 - 17.1	Residential Buffer	2023-07-26	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH334	5.8 - 8.5	Residential Buffer	2023-07-26	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH335	1.5 - 5.2	Residential Buffer	2023-07-26	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH336	5.3 - 14.7	S1	2023-07-25	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH337	8.8 - 12.8	S1	2023-07-25	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH339	8.1 - 8.7	S1	2023-07-25	<0.00045	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.052	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH341	7.3 - 11.3	S2	2023-07-27	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	0.11	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH342	4.4 - 8.5	S2	2023-07-27	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH343	7.3 - 14.0	S1	2023-10-04	0.031	<0.00040	<0.00040	<0.00026	<0.10	<0.10	0.011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-24	0.052	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH344	5.9 - 7.6	S1	2023-07-05	0.012	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.00050	<0.0010	<0.00050	<0.0020	<0.0010	<0.00020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.0010	<0.0020	<0.00050	<0.0010	<0.00050	<0.00050	<0.00020	<0.00050	<0.00050
BH345	3.7 - 6.4	S2	2023-07-25	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.00088	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

a - Alberta Tier 1 and 2 Soil and Groundwater Remediation Guidelines (AEP, 2022ab) 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.

e - Groundwater samples for BH403SA and BH403SB were labelled incorrectly, confirmatory samples were taken in October to verify the July results.

"-" - Not analysed.

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 - JULY, AUGUST AND OCTOBER 2023
PETROLEUM HYDROCARBONS AND VOLATILE ORGANIC COMPOUNDS

Sample Location	Screen Interval (mbgs)	Guideline Referenced	Sample Date	Benzene	Toluene	Ethylbenzene	Total Xylenes	Petroleum Hydrocarbons F1 (C_6-C_{10})[b]	Petroleum Hydrocarbons F2 (>C_{10}-C_{16})[c]	1,2-Dichloroethane	Total Trihalomethanes	1,2,3-Trichlorobenzene	1,2,4-Trimethylbenzene	1,3,5-Trichlorobenzene	1,3,5-Trimethylbenzene	Bromodichloromethane	Bromoform	Bromomethane	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	Dibromochloromethane	1,2-Dibromoethane	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,1-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,2-Dichloropropane	cis-1,3-Dichloropropene	trans-1,3-Dichloropropene	Methyl Methacrylate	Methyl t-Butyl Ether	Methylene Chloride	Styrene	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane	Tetrachloroethene	1,2,4-Trichlorobenzene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Trichlorofluoromethane	Vinyl Chloride
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	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	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	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	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	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	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	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	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	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	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	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	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Most stringent guideline for Routine Parameters				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Most stringent guideline for fine-/coarse-grained and commercial/residential land use for Volatile Organic Compound Scan				NA	NA	NA	NA	NA	NA	NA	0.1	0.014	NG	0.014	NG	NG	NG	NG	0.0015	0.014	NG	0.08	NG	0.19	NG	0.003	NG	0.001	NG	0.014	NG	NG	NG	NG	NG	11	0.015	0.05	2.8	NG	NG	0.01	0.015	NG	NG	0.00032	NG	0.0011
BH1946	4.3 - 6.4	S2	2023-07-25	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1947	4.3 - 6.1	S2	2023-07-25	<0.00040	<0.00040	<0.00040	<0.0011	<0.10	<0.10	0.00071	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1949	6.4 - 7.3	N1	2023-07-24	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1950A	8.5 - 12.1	N1	2023-07-24	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1951	2.0 - 4.1	Residential	2023-07-26	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1952	7.9 - 18.6	N1	2023-07-24	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1953	11.3 - 18.6	N1	2023-07-25	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1954	5.5 - 13.1	S1	2023-10-04	<0.00040	<0.00040	<0.00040	<0.0013	<0.10	<0.10	0.012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-26	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1955A	8.5 - 11.0[d]	S2	2023-07-25	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.0029	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1957	5.8 - 14.1	Commercial area	2023-07-26	<0.00040	<0.00040	<0.00040	<0.0017	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1958	5.8 - 14.9	Commercial area	2023-07-10	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.00050	<0.0010	<0.00050	<0.0020	<0.0010	<0.00020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.0010	<0.0020	<0.00050	<0.0010	<0.00050	<0.00050	<0.00020	<0.00050	<0.00050
BH1959	6.4 - 15.5	Commercial area	2023-07-26	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1961	8.5 - 11.9	N2	2023-07-27	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1962	9.8 - 12.5	N2	2023-07-06	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.00050	<0.0010	<0.00050	<0.0020	<0.0010	<0.00020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.0010	<0.0020	<0.00050	<0.0010	<0.00050	<0.00050	<0.00020	<0.00050	<0.00050
BH1963	5.5 - 11.3	N2	2023-10-04	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-10-04 Dup	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.00061	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-08-09	0.0047	<0.00040	<0.00040	<0.00080	-	-	<0.00050	<0.0013	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.00050	<0.0010	<0.00050	<0.0020	<0.0010	<0.00020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.0010	<0.0020	<0.00050	<0.0010	<0.00050	<0.00050	<0.00020	<0.00050	<0.00050
			2023-07-11	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1964	7.6 - 8.5	N2	2023-07-27	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1966	7.3 - 16.5	N1	2023-07-24	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1967	5.5 - 8.5	N1	2023-07-24	0.074	0.011	0.032	0.0029	3.2	0.30	0.021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-24 Dup	0.078	0.011	0.032	0.0028	3.2	0.29	0.021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1971	7.3 - 11.0	N1	2023-07-24	0.0017	0.00059	0.0030	<0.00089	0.70	0.23	0.024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-24 Dup	0.0019	0.00055	0.0034	<0.00089	0.93	0.23	0.024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1972	8.2 - 11.0	N2	2023-07-25	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.0016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1974	7.6 - 10.4	N1	2023-07-24	0.0014	<0.00040	<0.00040	0.0013	0.21	<0.10	0.030	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1976	9.4 - 14.3	N1	2023-07-24	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1977	3.1 - 7.6	S2	2023-07-25	0.030	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.0028	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1978	0.9 - 3.0	S2	2023-07-25	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1979	2.8 - 6.7	S1	2023-10-04	1.6	<0.00040	<0.00040	<0.0013	<0.10	<0.10	0.015	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-05	2.93	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.024	<0.0013	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.00050	<0.0010	<0.00050	<0.0020	<0.0010	<0.00020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.0010	<0.0020	<0.00050	<0.0010	<0.00050	<0.00050	<0.00020	<0.00050	<0.00050
BH1980	4.3 - 6.1	S2	2023-10-04	<0.00040	<0.00040	<0.00050	<0.0030	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-27	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.0037	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1981	3.0 - 9.1	S1	2023-07-26	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.030	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1982	1.5 - 7.9	S1	2023-07-13	0.098	0.0012	0.0037	<0.00089	<0.10	<0.10	0.037	<0.0013	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.00050	<0.0010	<0.00050	<0.0020	<0.0010	<0.00020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.0010	<0.0020	<0.00050	<0.0010	<0.00050	<0.00050	<0.00020	<0.00050	<0.00050
BH1985A	3.7 - 5.2[d]	Commercial area	2023-07-26	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1984	7.3 - 15.5	Commercial area	2023-07-06	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.00050	<0.0010	<0.00050	<0.0020	<0.0010	<0.00020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.0010	<0.0020	<0.00050	<0.0010	<0.00050	<0.00050	<0.00020	<0.00050	<0.00050
BH1985	6.4 - 17.4	Residential Buffer	2023-07-26	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2001	3.4 - 4.9	S2	2023-10-04	<0.00040	<0.00040	<0.00040	<0.0012	<0.10	<0.10	0.0023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-25	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.0038	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2002	1.6 - 3.8	S2	2023-07-27	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2003	1.5 - 4.6	S2	2023-07-27	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2004	4.9 - 6.4	S2	2023-07-24	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2005	3.95 - 7	S2	2023-10-04	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.0046	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-06	2.29	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.011	<0.0013	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.00050	<0.0010	<0.00050	<0.0020	<0.0010	<0.00020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.0010	<0.0020	<0.00050	<0.0010	<0.00050	<0.00050	<0.00020	<0.00050	<0.00050
BH2006	2.3 - 4.9	S2	2023-07-25	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.0082	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2007	12.8 - 18.3	Residential Buffer	2023-07-24	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2008	5.2 - 12.8	Residential Buffer	2023-07-24	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2010	14.0 - 18.9	Residential Buffer	2023-07-05	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.00050	<0.0010	<0.00050	<0.0020	<0.0010	<0.00020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.0010	<0.0020	<0.00050	<0.0010	<0.00050	<0.00050	<0.00020	<0.00050	<0.00050
BH2011	9.4 - 14.0	Residential Buffer	2023-07-24	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

a - Alberta Tier 1 and 2 Soil and Groundwater Remediation Guidelines (AEP, 2022ab) 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.

e - Groundwater samples for BH4003A and BH4003B were labelled incorrectly, confirmatory samples were taken in October to verify the July results.

"-" - 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 - JULY, AUGUST AND OCTOBER 2023
PETROLEUM HYDROCARBONS AND VOLATILE ORGANIC COMPOUNDS

Sample Location	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	Total Trihalomethanes	1,2,3-Trichlorobenzene	1,2,4-Trimethylbenzene	1,3,5-Trichlorobenzene	1,3,5-Trimethylbenzene	Bromodichloromethane	Bromoform	Bromomethane	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	Dibromochloromethane	1,2-Dibromoethane	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,1-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,2-Dichloropropane	cis-1,3-Dichloropropene	trans-1,3-Dichloropropene	Methyl Methacrylate	Methyl t-Butyl Ether	Methylene Chloride	Styrene	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane	Tetrachloroethene	1,2,4-Trichlorobenzene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Trichlorofluoromethane	Vinyl Chloride
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	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	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	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	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	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	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	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	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	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	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	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	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Most stringent guideline for Routine Parameters				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Most stringent guideline for fine-/coarse-grained and commercial/residential land use for Volatile Organic Compound Scan				NA	NA	NA	NA	NA	NA	NA	0.1	0.014	NG	0.014	NG	NG	NG	NG	0.0015	0.014	NG	0.08	NG	0.19	NG	0.003	NG	0.001	NG	0.014	NG	NG	NG	NG	NG	11	0.015	0.05	2.8	NG	NG	0.01	0.015	NG	NG	0.00032	NG	0.0011
BH2012	13.4 - 18.3	Residential Buffer	2023-07-26	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH3001A	1.5 - 3.05	Residential	2023-10-04	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-27	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.0016	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH3001B	3.7 - 4.3	Residential	2023-10-04	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-10-04 Dup	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-27	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.0043	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH3001C	5.2 - 6.1	Residential	2023-07-27	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH3002A	1.8 - 3.8	Residential	2023-07-27	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH3002B	6.1 - 7.6	Residential	2023-07-27	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH3003B	6.9 - 7.9	Residential	2023-07-27	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4002	11.7 - 13.2	Residential Buffer	2023-07-26	0.0084	0.18	0.00065	2.6	2.2	0.68	0.00059	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4003A	10.5 - 12	Commercial area	2023-10-04	0.69	0.0016	<0.00040	0.053	<0.10	0.12	0.11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-26[e]	0.65	0.0014	<0.00040	0.042	<0.10	0.18	0.11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4003B	14.9 - 16.4	Commercial area	2023-10-04	0.021	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.00095	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-26[e]	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.0011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4004A	11.5 - 13	Commercial area	2023-07-26	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4004B	14.5 - 16	Commercial area	2023-07-26	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-26 Dup	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4005	10.7 - 12.2	Commercial area	2023-07-26	0.022	<0.00040	<0.00040	<0.00089	<0.10	0.25	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4006	10.7 - 12.2	Residential Buffer	2023-07-26	0.42	0.00071	<0.00040	0.038	<0.10	0.28	0.039	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4007	10.6 - 12.1	Commercial area	2023-07-26	0.97	0.0024	<0.00040	0.070	0.90	0.20	0.047	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4008A	10.5 - 12	Residential Buffer	2023-08-09	<0.00040	<0.00040	<0.00040	<0.00080	-	-	<0.00050	<0.0013	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.00050	<0.0010	<0.00050	<0.0020	<0.0010	<0.00020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.0010	<0.0020	<0.00050	<0.0010	<0.00050	<0.00050	<0.00020	<0.00050	<0.00050
			2023-07-11	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4008B	15.2 - 16.7	Residential Buffer	2023-07-26	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4009A	10.5 - 12	Residential Buffer	2023-07-26	0.0080	<0.00040	<0.00040	<0.00089	<0.10	1.3	0.0025	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4009B	14.5 - 16	Residential Buffer	2023-07-26	0.0018	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.0028	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH5001	1.5 - 3.05	S2	2023-07-25	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH5002	1.5 - 3.05	S2	2023-07-25	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH6001	9.75 - 12.8	N1	2023-07-25	<0.00040	<0.00040	<0.00040	<0.0011	<0.10	<0.10	0.022	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH6002	10.65 - 13.7	N1	2023-07-25	0.033	0.050	0.28	1.3	2.0	0.43	0.025	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH6003	9.75 - 12.8	N1	2023-10-04	0.013	0.61	0.20	5.1	1.5	1.9	0.011	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-25	0.020	0.93	0.24	7.1	4.1	2.6	0.012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH6004	9.15 - 12.2	N1	2023-07-24	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.0050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH6005	9.15 - 12.2	N1	2023-07-05	0.62	0.052	0.15	0.084	2.1	0.36	0.027	<0.0013	<0.0010	0.0078	<0.00050	0.031	<0.00050	<0.00050	<0.0020	<0.00050	<0.00050	<0.0010	<0.00050	<0.0020	<0.0010	0.00023	<0.00050	<0.00050	<0.00050	0.00069	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.0010	<0.0020	<0.00050	<0.0010	<0.00050	<0.00050	<0.00020	<0.00050	<0.00050
BH6006	12.2 - 15.2	N1	2023-07-24	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EX1	11.7 - 14.63	N1	2023-07-24	0.68	0.0048	0.10	0.0097	0.74	0.16	0.083	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-24 Dup	0.99	0.0062	0.14	0.011	0.61	0.20	0.084	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EX2	8.8 - 13.41	N1	2023-07-24	0.010	0.00091	0.022	0.0014	<0.10	<0.10	0.0048	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EX3	8.2 - 12.8	N1	2023-07-24	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	0.11	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EX4	10.3 - 13.72	N1	2023-07-25	0.15	0.0082	0.27	0.54	1.8	0.79	0.0081	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EX5	10.6 - 13.72	N1	2023-07-25	4.1	6.3	1.5	6.4	5.3	1.2	0.11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-25 Dup	3.7	5.3	1.5	6.1	12	1.3	0.11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EX6	10.6 - 13.11	N1	2023-07-25	0.26	0.29	0.85	2.3	3.7	0.95	0.038	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EX7	11.5 - 15.85	N1	2023-07-25	0.33	0.32	0.77	1.5	4.6	1.9	0.060	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EB-BAILER-01	NA	Most Stringent	2023-07-24	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EB-BAILER-02	NA	Most Stringent	2023-07-26	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EB-BAILER-03	NA	Most Stringent	2023-07-27	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EB-HYDRA-01	NA	Most Stringent	2023-07-24	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EB-HYDRA-02	NA	Most Stringent	2023-07-26	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EB-HYDRA-04	NA	Most Stringent	2023-07-27	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TRIP BLANK-01	NA	Most Stringent	2023-07-19	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TRIP BLANK-02	NA	Most Stringent	2023-07-24	<0.00040	<0.00040	<0.00040	0.0030	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TRIP BLANK-03	NA	Most Stringent	2023-07-24	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TRIP BLANK-04	NA	Most Stringent	2023-07-25	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TRIP BLANK-05	NA	Most Stringent	2023-07-25	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TRIP BLANK-07	NA	Most Stringent	2023-07-26	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
TRIP BLANK-09	NA	Most Stringent	2023-07-27	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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.
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e - Groundwater samples for BH4003A and BH4003B were labelled incorrectly, confirmatory samples were taken in October to verify the July results.
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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 3

GROUNDWATER ANALYTICAL DATA - JULY, AUGUST AND OCTOBER 2023
ROUTINE PARAMETERS

Sample Location	Screen Interval (mbgs)	Guideline Referenced	CONSTITUENT / Sample Date	Alkalinity (PP as CaCO3)	Alkalinity, Total (as CaCO3)	Bicarbonate (HCO3)	Carbonate (CO3)	Hardness (as CaCO3)	Dissolved Nitrate (as N)	Dissolved Nitrate (NO3)	Dissolved Nitrite (as N)	Dissolved Nitrite (NO2)	Nitrate+Nitrite-N - Dissolved	Total Dissolved Solids (Calculated)	Conductivity (uS/cm)	pH (S.U.)	Hydroxide (OH)	Dissolved Chloride (Cl)	Dissolved Sulphate (SO4)	Dissolved Calcium (Ca)	Dissolved Iron (Fe)	Dissolved Magnesium (Mg)	Dissolved Manganese (Mn)	Dissolved Potassium (K)	Dissolved Sodium (Na)	Methane (L/m3)	Methane	Ammonia	Total Organic Carbon	Dissolved Organic Carbon	Total Sulfide	Sulphide (as H2S)	Nitrogen	Kjeldahl Nitrogen	HCL Preserved Ferrous Iron (Fe+2)
Guidelines[a]:																																				
Domestic Use Aquifer Pathway				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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)				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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)				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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)				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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)				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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)				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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	3	NG	0.02	NG	NG	500	NG	6.5-8.5	NG	120	429	NG	0.3	NG	0.02	NG	200	NG	NG	0.282	NG	NG	0.0019	NG	NG	NG	NG
Most stringent guideline for fine-/coarse-grained and commercial/residential land use for Volatile Organic Compound Scan				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
BH1102	7.6 - 15.2	N1	2023-07-13	<1.0	430	520	<1.0	1100	8.7	38	<0.010	<0.033	8.7	1700	3300	7.94	<1.0	830	31	230	<0.060	130	0.032	6.0	220	<0.005	<0.003	-	2.4	2.1	0.0036	0.0038	9.4	0.75	<0.050
			2023-07-11	<1.0	500	620	<1.0	960	42	190	6.2	20	48	1200	2100	7.58	<1.0	300	39	190	<0.060	110	0.78	5.2	57	0.038	0.025	0.28	4.5	4.3	0.012	0.012	42	<2.0	<0.050
BH1917	8.8 - 16.2	N1	2023-07-11	<1.0	470	580	<1.0	910	5.1	23	0.017	0.056	5.1	1300	2500	7.59	<1.0	480	36	200	<0.060	100	0.23	5.2	150	<0.005	<0.003	<0.015	2.8	3.0	0.013	0.013	4.4	<0.10	<0.050
BH1919	6.7 - 15.5	N2	2023-07-04	<1.0	470	580	<1.0	770	5.2	23	<0.010	<0.033	5.2	820	1500	7.76	<1.0	180	50	170	<0.060	84	<0.0040	4.8	22	<0.005	<0.003	<0.015	1.2	1.5	0.0083	0.0088	5.4	<0.20	<0.020
BH1924	14.9 - 19.8	N1	2023-07-13	<1.0	590	720	<1.0	1900	32	140	6.9	23	39	2600	4700	7.89	<1.0	1200	45	260	<0.060	300	1.6	7.1	250	<0.005	<0.003	1.6	5.8	5.9	0.069	0.073	37	<1.0	<0.050
BH1944	5.9 - 7.6	S1	2023-07-05	<1.0	460	560	<1.0	530	2.8	12	0.049	0.16	2.8	560	980	8.00	<1.0	31	48	100	<0.060	66	0.42	3.2	15	<0.005	<0.003	<0.015	1.5	2.1	<0.0018	<0.0020	2.9	<0.10	<0.020
BH1958	5.8 - 14.9	Commercial area	2023-07-10	<1.0	530	650	<1.0	660	2.2	9.7	<0.010	<0.033	2.2	800	1400	7.78	<1.0	160	43	130	<0.060	82	<0.0040	4.2	56	<0.005	<0.003	<0.015	1.5	1.9	0.024	0.025	2.0	<0.050	<0.050
BH1962	9.8 - 12.5	N2	2023-07-06	<1.0	330	410	<1.0	390	1.6	7.1	<0.010	<0.033	1.6	440	780	8.01	<1.0	47	30	87	<0.060	43	0.0044	5.9	20	<0.005	<0.003	<0.015	2.7	2.7	0.079	0.084	1.9	0.342	<0.020
BH1963	5.5 - 11.3	N2	2023-07-11	<1.0	610	740	<1.0	1000	7.8	34	0.038	0.12	7.8	1200	2100	7.66	<1.0	320	57	160	<0.060	150	0.18	5.5	64	<0.005	<0.003	<0.015	3.3	2.9	0.013	0.013	6.8	<0.10	<0.050
BH1979	2.8 - 6.7	S1	2023-07-05	<1.0	500	610	<1.0	660	1.3	5.7	0.094	0.31	1.4	640	1100	7.83	<1.0	50	52	130	<0.060	84	0.20	3.7	17	<0.005	<0.003	<0.015	2.0	2.9	<0.0018	<0.0020	1.3	<0.050	<0.020
BH1982	1.5 - 7.9	S1	2023-07-13	<1.0	570	690	<1.0	700	7.0	31	0.059	0.19	7.0	770	1300	7.79	<1.0	83	63	120	2.3	95	0.47	2.4	26	<0.005	<0.003	<0.015	2.6	3.4	0.0055	0.0058	7.0	<0.20	1.8
BH1984	7.3 - 15.5	Commercial area	2023-07-06	<1.0	480	590	<1.0	680	7.6	34	0.014	0.045	7.6	700	1200	8.04	<1.0	99	39	110	<0.060	99	0.33	4.8	27	<0.005	<0.003	<0.015	2.1	2.5	0.0069	0.0073	7.9	0.23	<0.020
BH2005	3.95 - 7	S2	2023-07-06	<1.0	540	660	<1.0	920	20	90	4.4	14	25	1100	1900	7.67	<1.0	240	53	160	<0.060	130	0.13	4.1	57	<0.005	<0.003	<0.015	2.6	3.1	<0.0018	<0.0020	23	<0.40	<0.020
BH2010	14.0 - 18.9	Residential Buffer	2023-07-05	<1.0	340	420	<1.0	600	2.8	12	0.048	0.16	2.8	640	1100	7.96	<1.0	150	38	130	0.15	64	0.31	4.0	24	0.005	0.003	<0.015	1.2	1.7	0.022	0.023	3.3	0.46	<0.020
BH4008A	10.5 - 12	Residential Buffer	2023-07-11	<1.0	380	470	<1.0	370	0.025	0.11	<0.010	<0.033	0.025	520	950	8.00	<1.0	78	21	90	<0.060	36	<0.0040	5.2	59	<0.005	<0.003	<0.015	2.1	2.6	<0.0018	<0.0020	0.18	0.155	<0.050
BH6005	9.15 - 12.2	N1	2023-07-05	<1.0	560	690	<1.0	1300	<0.050	<0.22	<0.010	<0.033	<0.050	1500	2700	7.49	<1.0	610	12	260	10	160	3.7	4.2	80	<0.005	<0.003	0.032	5.9	4.1	0.015	0.016	0.26	0.265	10.3

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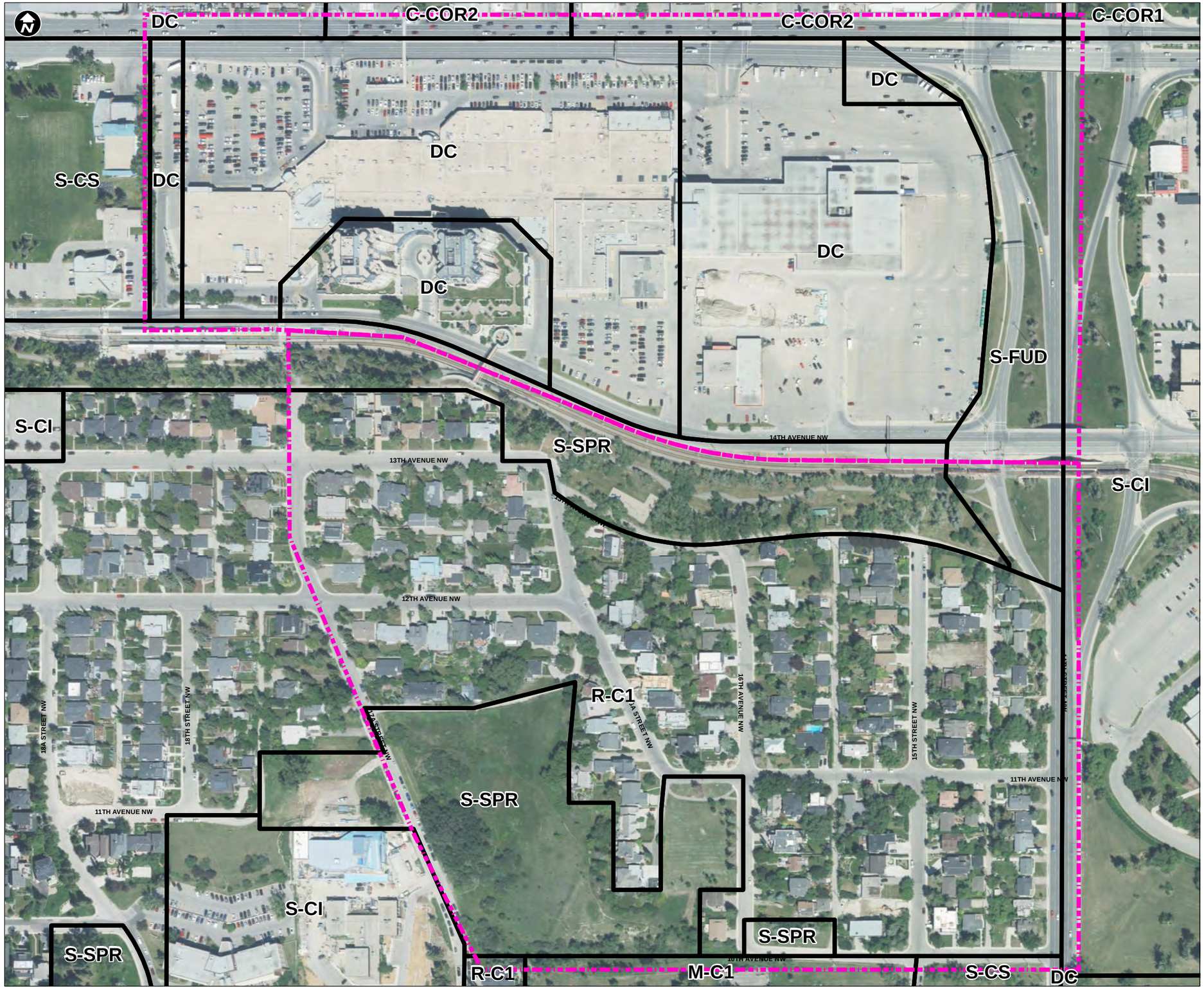


LEGEND

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_Report\2023\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

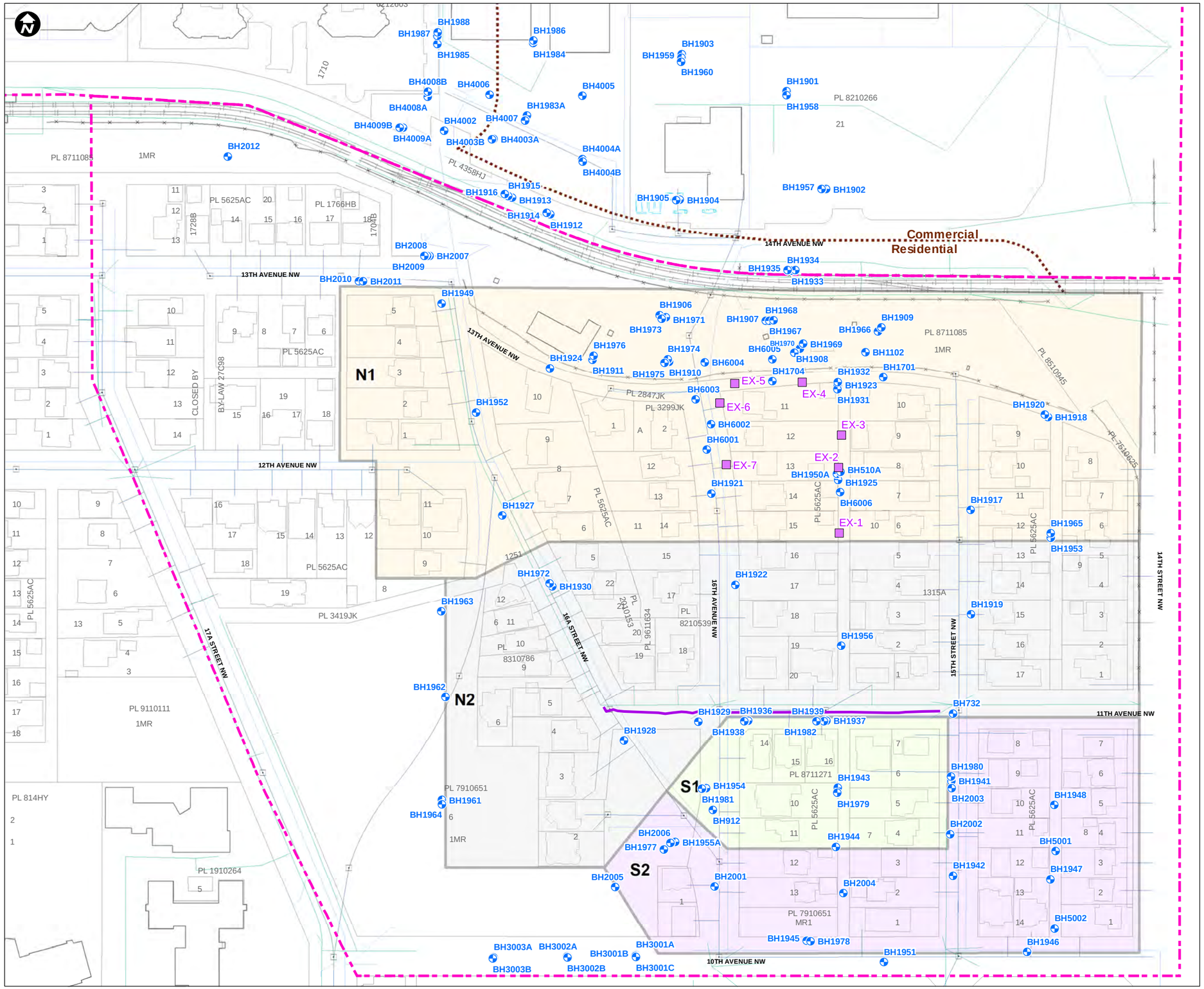
Notes:
- The orthophoto based on City of Calgary Basemap (WMASP), July-August 2022.
- Elevation data based on City of Calgary's Open Data Portal, City Online, Base Map Data service. Downloaded January 2023.

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\12832_SiteTopo_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

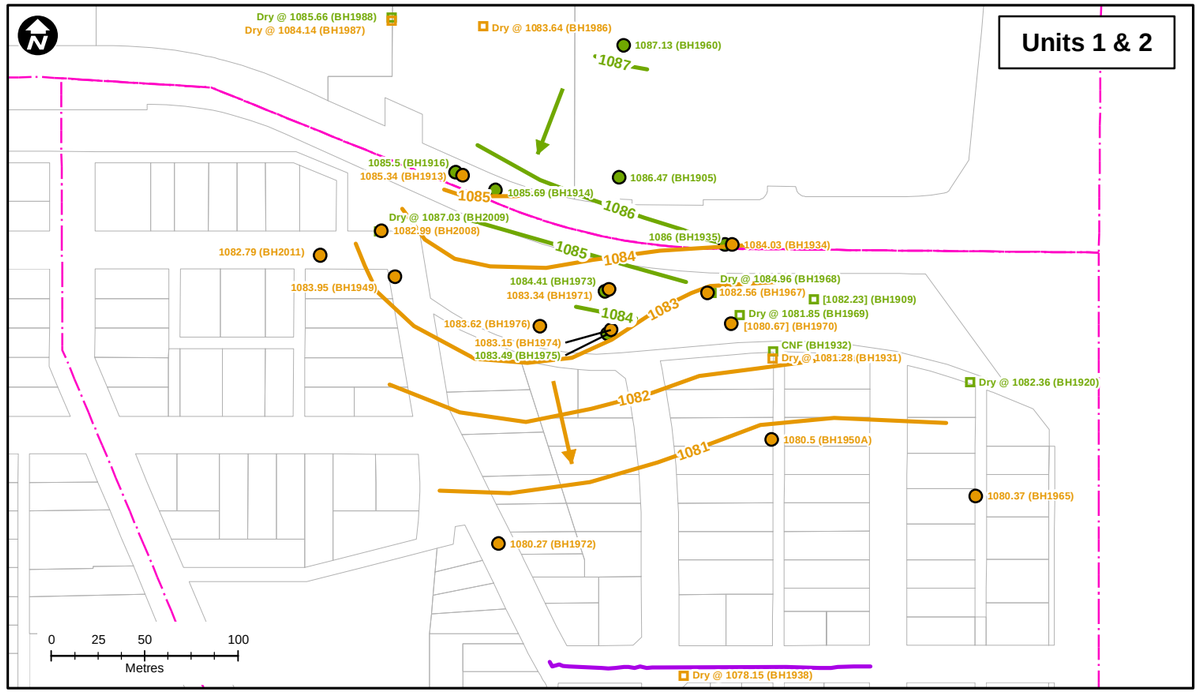
Notes:
- Well locations, on-site features provided as AutoCAD file by Clifton Engineering Group Inc..
- Property parcel and utility data based on City of Calgary's Open Data Portal, City Online, Geospatial Data service. Downloaded March 2023; note only City utilities are shown.
- Building based on City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

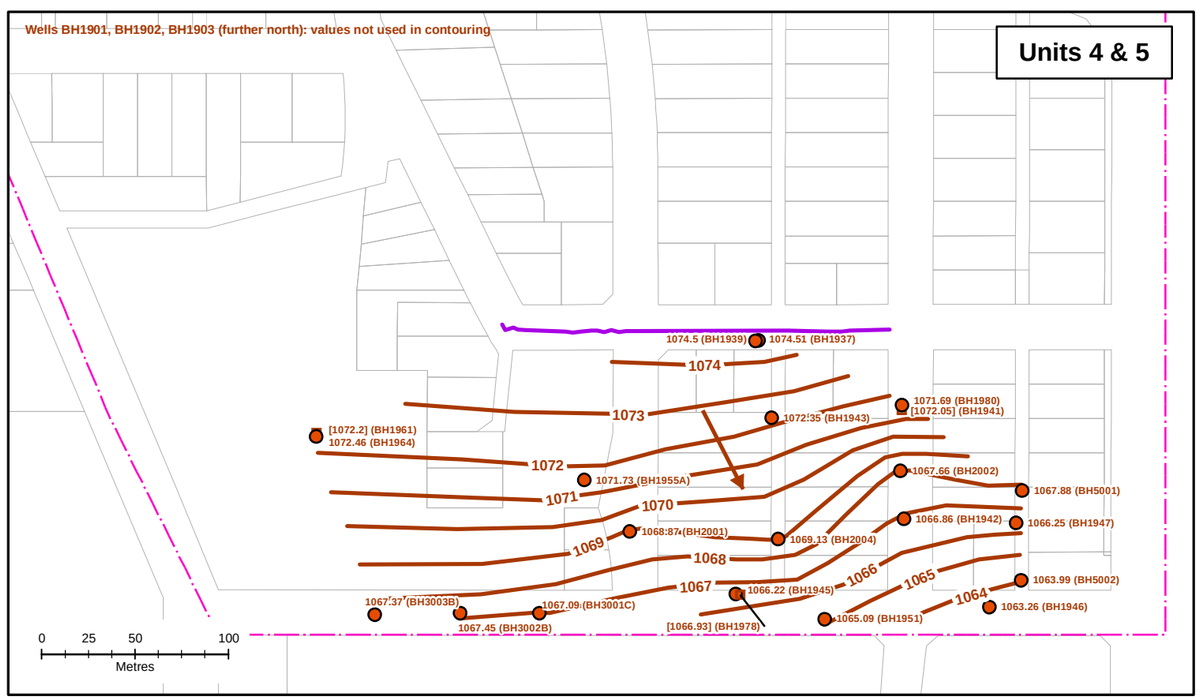
Site Plan
Groundwater Monitoring and Extraction Well Locations

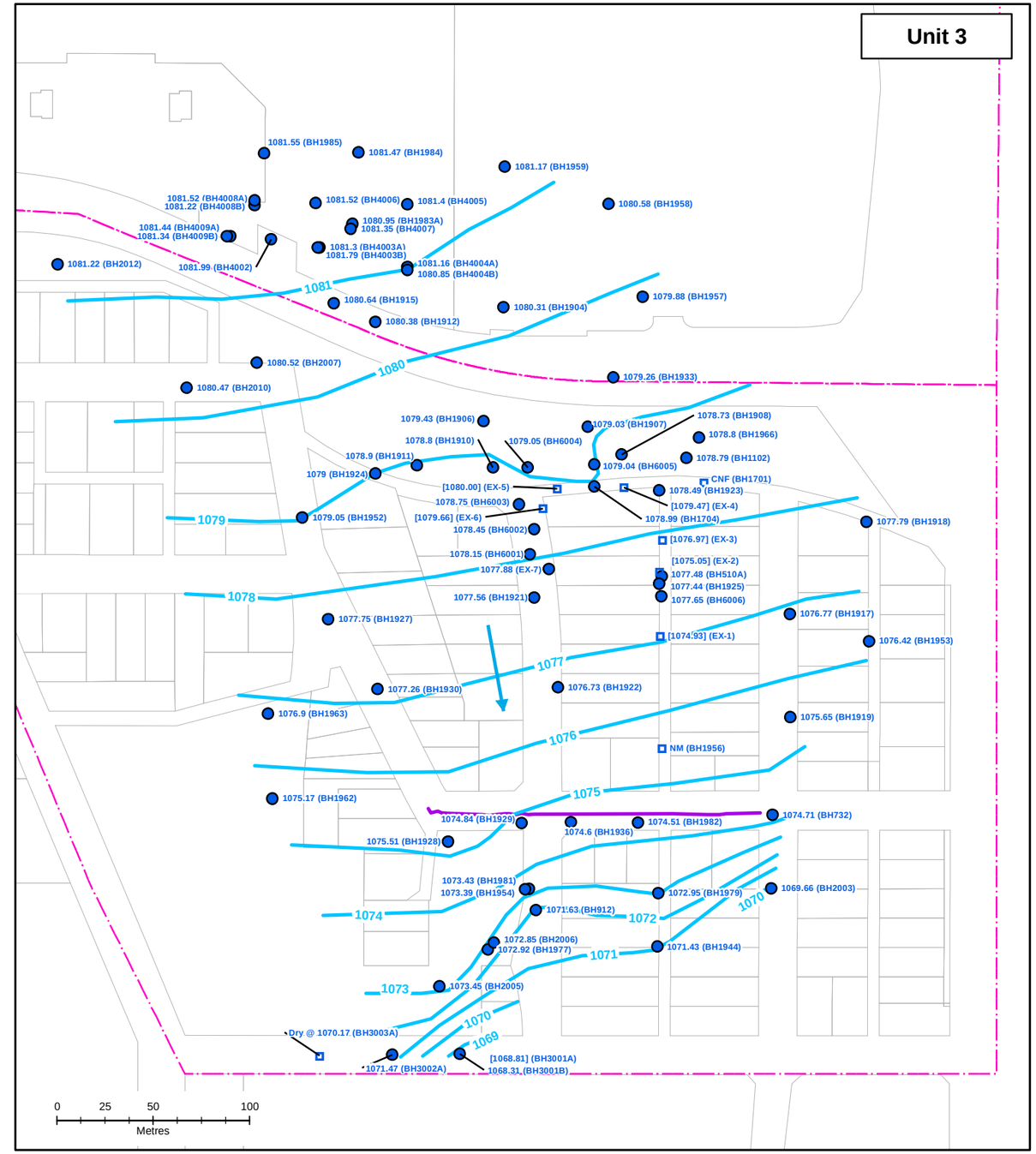
Hounsfield Heights And Lion's Park
1620-14th Ave NW, Calgary, Alberta

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

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







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.

LEGEND

- Permeable Reactive Barrier (2019)
- Site Boundary

Monitoring Well and Potentiometric Surface Elevation (masl):

- Unit 1
- Unit 2
- Unit 3
- Unit 4 and 5
- Well dry, could not be found (CNF), could not be monitored (NM), or value [ ] not used in contouring

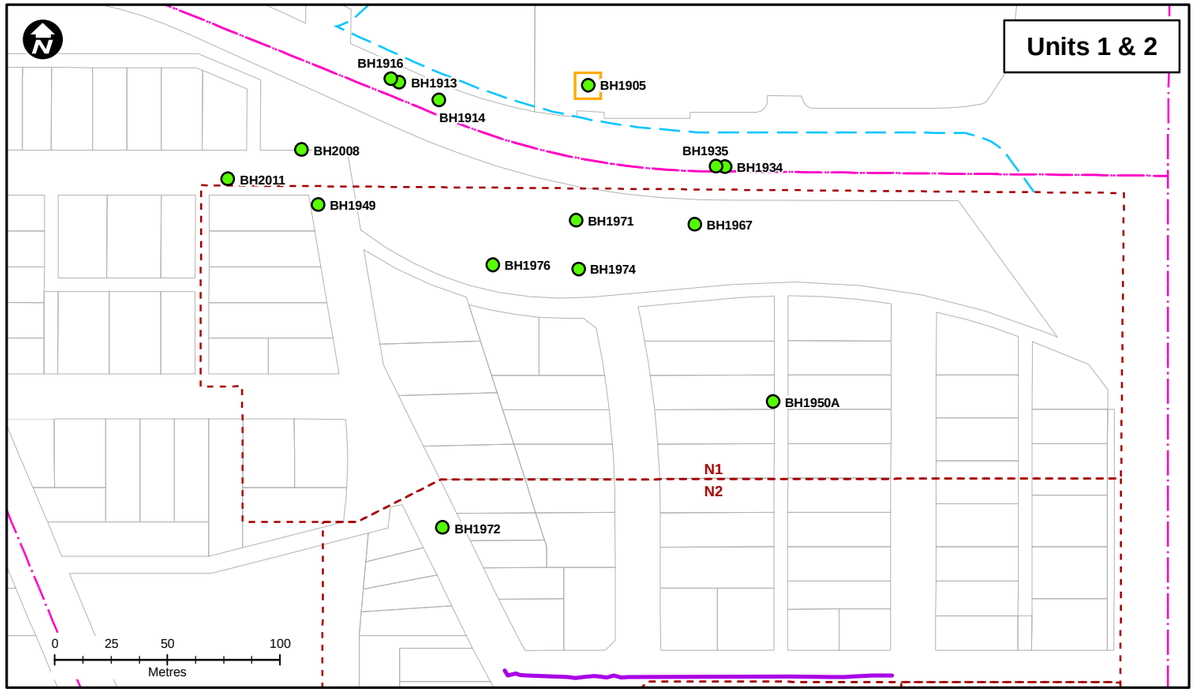
- Inferred direction of groundwater flow
- [ ] Value not used in contouring

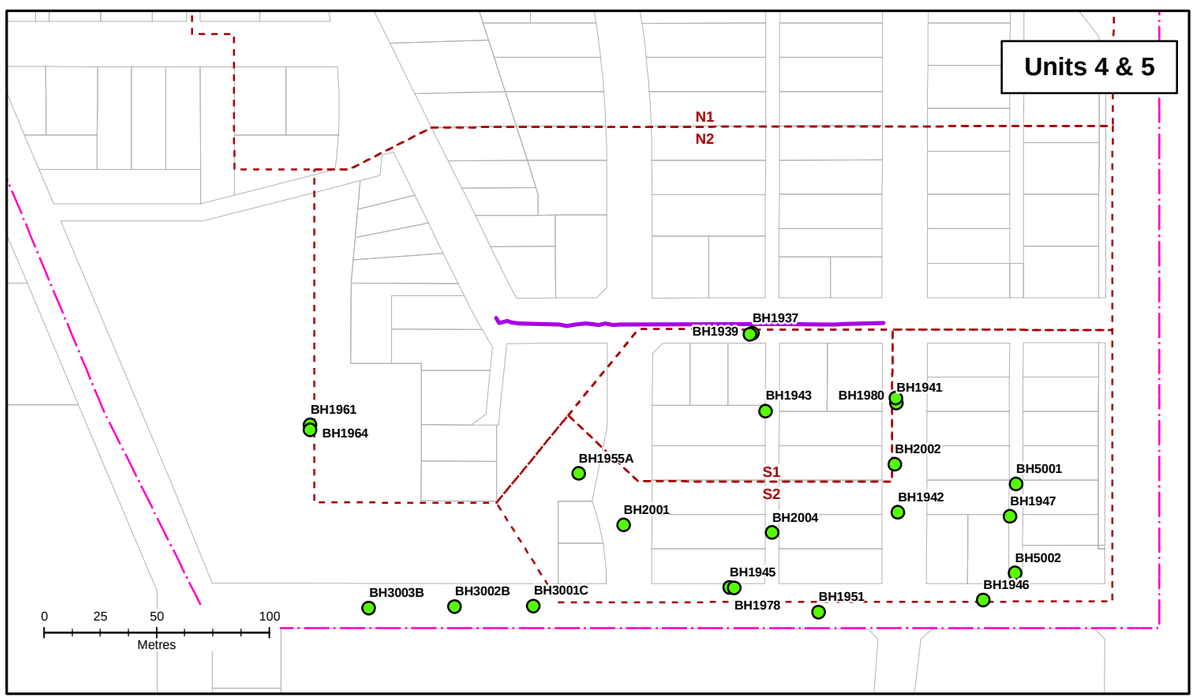
Elevation of the Groundwater Potentiometric Surface (masl) (July 2023)

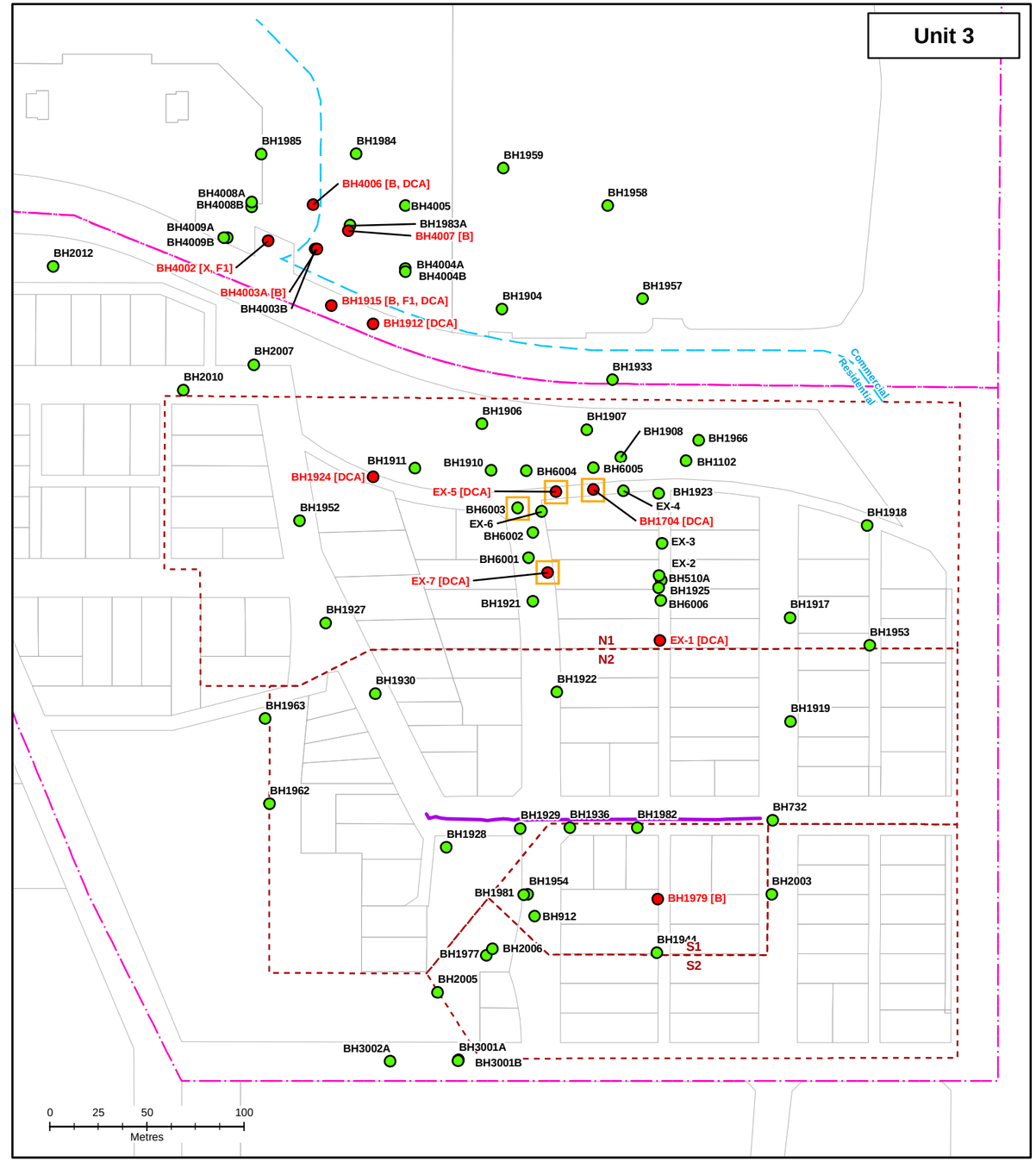
Hounsfield Heights And Lion's Park, 1620-14th Ave NW Calgary, Alberta

	Drawn By: SLD	Ref. No.: 10-12832
	Reviewed By: MP	Date: 30-Oct-2023
PARSONS		Drawing No.: 4

Document Path: C:\Z_Drive\10-12832\MXD\12832_GW_Contour_Jul2023.mxd Coordinate System: NAD83 UTM 114 Longitude Meter Province of Alberta Canada







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).
- B - Benzene, X - Xylenes, F1 - PHC fraction F1 minus BTEX, DCA - 1,2-Dichloroethane

LEGEND

- Less than guidelines (DUA/FAL pathways excluded)
- Exceeds guideline for vapour inhalation pathway (guideline varies based on area)
- Exceeds guideline for ecological soil contact pathway (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
- [ ] Analyte that exceeds vapour inhalation guideline

Summary of Groundwater Analytical Data (July to October 2023) (BTEX, F1, F2, 1,2-DCA)

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

Drawn By: SLD	Ref. No.: 10-12832
Reviewed By: MP	Date: 30-Oct-2023
PARSONS	Drawing No.: 5

Document Path: C:\Z_Drive\10-12832\MXD\12832_GW_2023Oct_Analytical.mxd Coordinate System: NAD83 UTM 114 Longitude Meter Province of Alberta Canada

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, HydraSleeve or low flow sampling method using a bladder pump, 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

A minimum of three well casing volumes of water were purged from the monitoring/extraction well or the well was purged to dryness utilizing a new disposable bailer. 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 new 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 check valve is then opened and the HydraSleeve is allowed 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.

LOW FLOW SAMPLING USING A BLADDER PUMP

A bladder pump was used to gently remove groundwater samples from the mid-point of the monitoring well screened zone. The bladder was lowered into the sample location, where hydrostatic pressure filled the central chamber. A surface pump is then used to pressurize the

space around the central bladder causing it to collapse, pushing the groundwater up into the sample collection line. When the pressure is released, the bladder refills with water, and the cycle is repeated to ensure a steady flow of water up from the well. One-way valves are utilized to ensure that no backflow occurs from the sample line down into the well. The sample line was connected to a flow-through cell equipped with a YSI multimeter probe that measured pH, temperature, electrical conductivity, and dissolved oxygen (DO). The water level in each well was continually monitored and the purging rate was adjusted such that the overall drawdown from the static groundwater level did not exceed approximately 10 cm, thereby reducing turbidity. The groundwater sample was collected when the pH (± 0.1 pH Units), temperature (± 3%), electrical conductivity (± 3%) and DO (± 10%) measurements stabilized, over three consecutive readings, taken at a minimum rate of at least one per every flow-through cell volume. The bladder pump and flow-through cell were connected to the wells with polyethylene and silicone tubing that was individually dedicated to each monitoring well. The groundwater samples were collected using the dedicated tubing.

TABLE A-1

GROUNDWATER SAMPLING METHOD

Borehole ID	July 2023 Sampling Event	August 2023 Sampling	October 2023 Sampling
BH510A	Hydrasleeve	-	-
BH732	Hydrasleeve	-	-
BH912	Bailer	-	-
BH1102	Bladder Pump (Low Flow)	-	-
BH1704	Bailer	-	-
BH1901	Hydrasleeve	-	-
BH1902	Hydrasleeve	-	-
BH1903	Hydrasleeve	-	-
BH1904	Hydrasleeve	-	-
BH1905	Bailer	-	-
BH1906	Bladder Pump (Low Flow)	Hydrasleeve	-
BH1907	Hydrasleeve	-	-
BH1908	Hydrasleeve	-	-
BH1910	Hydrasleeve	-	-
BH1911	Hydrasleeve	-	-
BH1912	Hydrasleeve	-	-
BH1913	Hydrasleeve	-	-
BH1914	Bailer	-	-
BH1915	Bailer	-	-
BH1916	Bailer	-	-
BH1917	Bladder Pump (Low Flow)	Hydrasleeve	-
BH1918	Hydrasleeve	-	-
BH1919	Bladder Pump (Low Flow)	-	-
BH1921	Hydrasleeve	-	-
BH1922	Hydrasleeve	-	-
BH1923	Hydrasleeve	-	-
BH1924	Bladder Pump (Low Flow)	-	-
BH1925	Hydrasleeve	-	-
BH1927	Hydrasleeve	-	-
BH1928	Hydrasleeve	-	-
BH1929	Hydrasleeve	-	-
BH1930	Hydrasleeve	-	-
BH1933	Hydrasleeve	-	-
BH1934	Bailer	-	-
BH1935	Bailer	-	-
BH1936	Hydrasleeve	-	-
BH1937	Hydrasleeve	-	-
BH1939	Bailer	-	-
BH1941	Hydrasleeve	-	-
BH1942	Hydrasleeve	-	-

Borehole ID	July 2023 Sampling Event	August 2023 Sampling	October 2023 Sampling
BH1943	Hydrasleeve	-	Hydrasleeve
BH1944	Bladder Pump (Low Flow)	-	-
BH1945	Bailer	-	-
BH1946	Bailer	-	-
BH1947	Bailer	-	-
BH1949	Bailer	-	-
BH1950A	Bailer	-	-
BH1951	Bailer	-	-
BH1952	Hydrasleeve	-	-
BH1953	Hydrasleeve	-	-
BH1954	Hydrasleeve	-	Hydrasleeve
BH1955A	Bailer	-	-
BH1957	Hydrasleeve	-	-
BH1958	Bladder Pump (Low Flow)	-	-
BH1959	Hydrasleeve	-	-
BH1961	Hydrasleeve	-	-
BH1962	Bladder Pump (Low Flow)	-	-
BH1963	Bladder Pump (Low Flow)	Hydrasleeve	Hydrasleeve
BH1964	Bailer	-	-
BH1966	Hydrasleeve	-	-
BH1967	Bailer	-	-
BH1971	Hydrasleeve	-	-
BH1972	Bailer	-	-
BH1974	Bailer	-	-
BH1976	Hydrasleeve	-	-
BH1977	Hydrasleeve	-	-
BH1978	Bailer	-	-
BH1979	Bladder Pump (Low Flow)	-	Bailer
BH1980	Bailer	-	Bailer
BH1981	Hydrasleeve	-	-
BH1982	Bladder Pump (Low Flow)	-	-
BH1983A	Hydrasleeve	-	-
BH1984	Bladder Pump (Low Flow)	-	-
BH1985	Hydrasleeve	-	-
BH2001	Bailer	-	Bailer
BH2002	Bailer	-	-
BH2003	Bailer	-	-
BH2004	Bailer	-	-
BH2005	Bladder Pump (Low Flow)	-	Hydrasleeve
BH2006	Bailer	-	-

Borehole ID	July 2023 Sampling Event	August 2023 Sampling	October 2023 Sampling
BH2007	Hydrasleeve	-	-
BH2008	Bailer	-	-
BH2010	Bladder Pump (Low Flow)	-	-
BH2011	Bailer	-	-
BH2012	Hydrasleeve	-	-
BH3001A	Bailer	-	Bailer
BH3001B	Bailer	-	Bailer
BH3001C	Bailer	-	-
BH3002A	Bailer	-	-
BH3002B	Bailer	-	-
BH3003B	Bailer	-	-
BH4002	Bailer	-	-
BH4003A	Bailer	-	Bailer
BH4003B	Bailer	-	Bailer
BH4004A	Bailer	-	-
BH4004B	Bailer	-	-
BH4005	Bailer	-	-
BH4006	Bailer	-	-
BH4007	Bailer	-	-
BH4008A	Bladder Pump (Low Flow)	Hydrasleeve	-
BH4008B	Bailer	-	-
BH4009A	Bailer	-	-
BH4009B	Bailer	-	-
BH5001	Bailer	-	-
BH5002	Bailer	-	-
BH6001	Bailer	-	-
BH6002	Bailer	-	-
BH6003	Bailer	-	Bailer
BH6004	Bailer	-	-
BH6005	Bladder Pump (Low Flow)	-	-
BH6006	Bailer	-	-
EX1	Bailer	-	-
EX2	Bailer	-	-
EX3	Bailer	-	-
EX4	Bailer	-	-
EX5	Hydrasleeve	-	-
EX6	Bailer	-	-
EX7	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

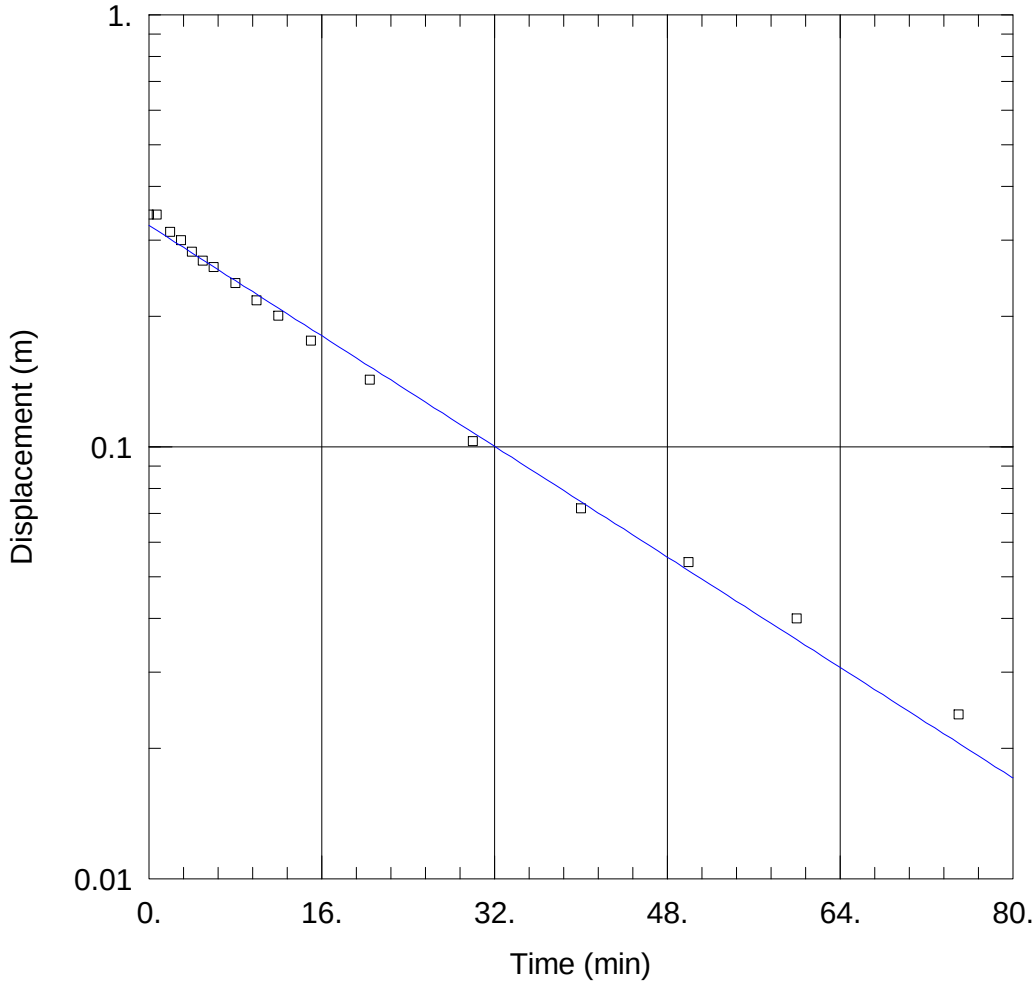
HYDRAULIC CONDUCTIVITY

TABLE C-1

SUMMARY OF HYDRAULIC CONDUCTIVITY TEST RESULTS

Well ID	Test Conducted & Analyzed By	Test Date	Water Level on Test Date (mbg)	Screen Interval (mbg)	Hydraulic Conductivity (m/s)	Saturated Stratigraphy and Geologic Unit	Test Type
BH2006	Parsons	2023-08-24	1.6	2.3 - 4.9	3.7E-07	Silt/Clay [Unit 3]	Rising Head (Bail Test)
BH2001	Parsons	2023-08-24	1.1	3.4 - 4.9	3.2E-07	Sand [Unit 5]	Rising Head (Bail Test)
BH1947	Parsons	2023-08-25	1.4	4.3 - 6.1	2.1E-07	Sand (4.6 - 5.6 mbg) with approximately 40cm of Clay above and below [Unit 5]	Rising Head (Bail Test)
BH3001C	Parsons	2023-08-24	3.6	5.2 - 6.1	3.9E-07	Sandy Silt [Unit 4]	Rising Head (Bail Test)
BH1945	Parsons	2023-08-24	3.3	3.7 - 6.4	4.5E-07	Sand (4.0 - 6.1 mbg) with 30cm of Clay above and below [Unit 5]	Rising Head (Bail Test)
BH6005	Parsons	2023-08-23	10.5	9.15 - 12.2	1.1E-07	Silty Sand [Unit 3]	Rising Head (Bail Test)
BH1923	Parsons	2023-08-23	10.3	7.6 - 15.9	2.0E-06	Sand [Unit 3]	Rising Head (Bail Test)
BH1917	Parsons	2023-08-25	12.8	8.8 - 16.2	3.1E-06	Clayey Silt [Unit 3]	Rising Head (Bail Test)
BH1917	Parsons	2023-08-25	12.8	8.8 - 16.2	3.3E-06	Clayey Silt [Unit 3]	Rising Head (Bail Test)
BH1925	Parsons	2023-08-25	13.8	16.4 - 19.8	2.1E-06	Clayey Silt (16.4 - 17.1 mbg) and Sand (17.1 - 19.8 mbg) [Unit 3]	Rising Head (Bail Test)
BH1925	Parsons	2023-08-25	13.8	16.4 - 19.8	1.7E-06	Clayey Silt (16.4 - 17.1 mbg) and Sand (17.1 - 19.8 mbg) [Unit 3]	Rising Head (Bail Test)

mbg - metres below grade
m/s - metres per second
[ ] - Geological unit as per the report May/June 2022 Monitoring and Sampling Event (Clifton, 2022).



BH2006 RISING TEST

Data Set: C:\...\BH2006_v02.aqt
Date: 09/21/23 Time: 15:01:18

PROJECT INFORMATION

Company: Parsons
Client: Suncor
Project: 10-12832
Location: Alberta
Test Well: BH2006
Test Date: 2023-08-24

AQUIFER DATA

Saturated Thickness: 4.379 m
Anisotropy Ratio (Kz/Kr): 0.1

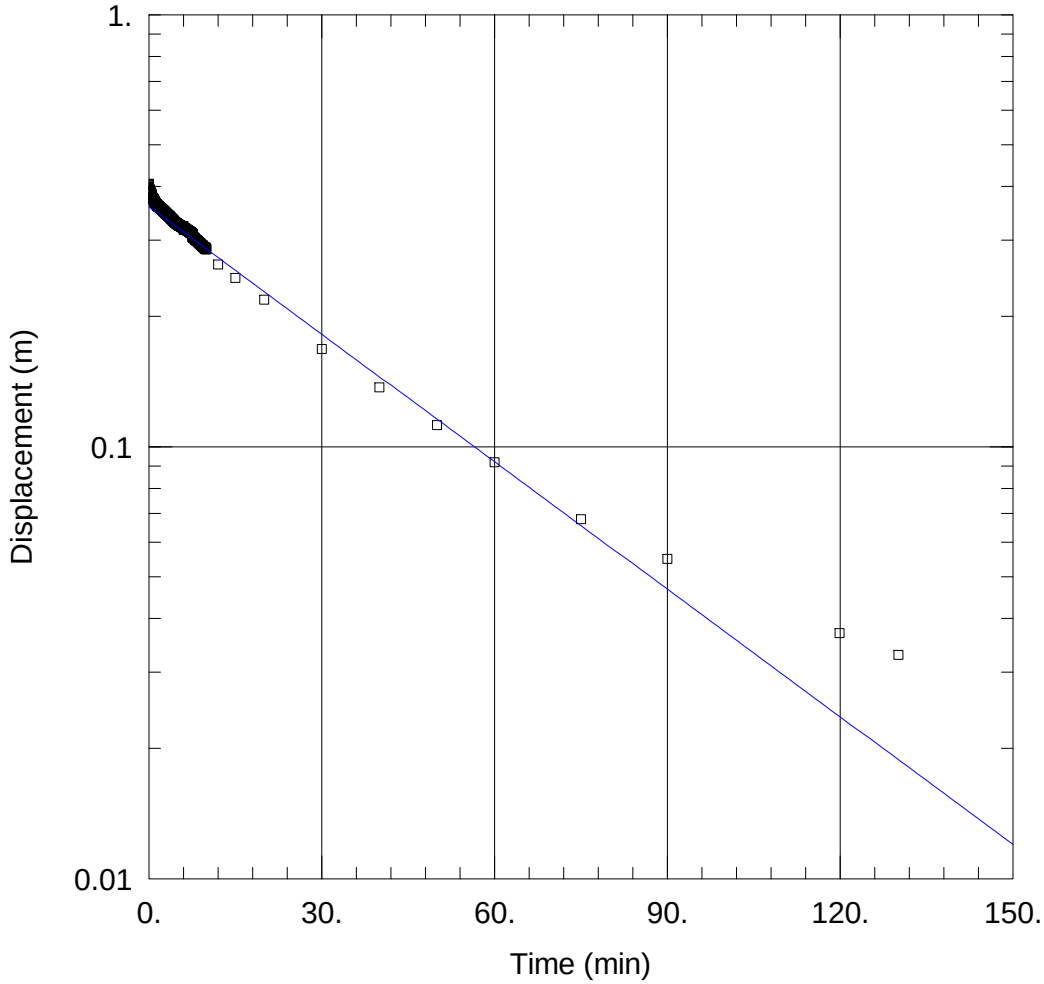
WELL DATA (BH2006)

Initial Displacement: 0.344 m
Total Well Penetration Depth: 3.34 m
Casing Radius: 0.0255 m
Static Water Column Height: 3.34 m
Screen Length: 2.6 m
Well Radius: 0.0762 m
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 3.742E-7 m/sec
y0 = 0.3252 m



BH2001 RISING TEST

Data Set: C:\...\BH2001_v02.aqt
Date: 09/21/23 Time: 15:00:35

PROJECT INFORMATION

Company: Parsons
Client: Suncor
Project: 10-12832
Location: Alberta
Test Well: BH2001
Test Date: 2023-08-24

AQUIFER DATA

Saturated Thickness: 4.72 m
Anisotropy Ratio (Kz/Kr): 0.1

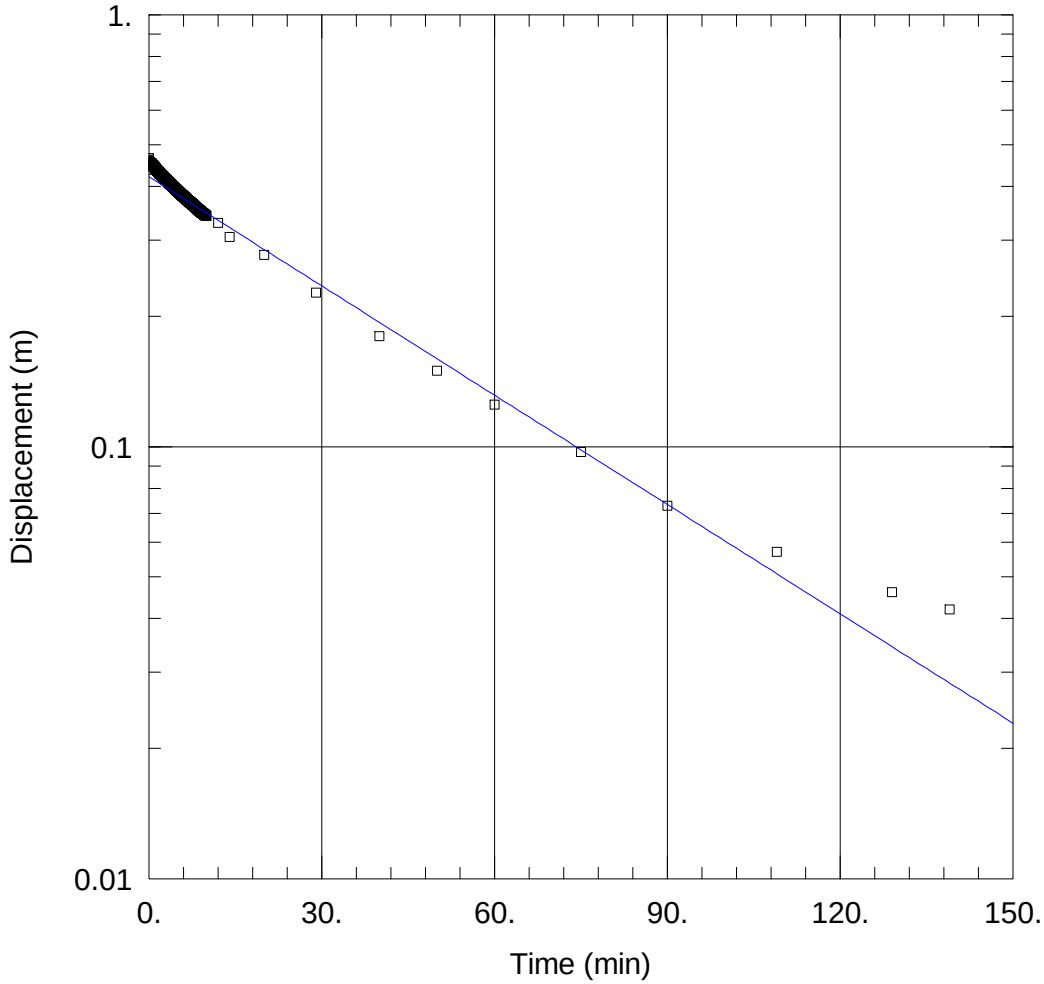
WELL DATA (BH2001)

Initial Displacement: 0.4061 m
Total Well Penetration Depth: 3.813 m
Casing Radius: 0.0255 m
Static Water Column Height: 3.813 m
Screen Length: 1.55 m
Well Radius: 0.0762 m
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 3.153E-7 m/sec
y0 = 0.3594 m



BH1947 RISING TEST

Data Set: C:\...\BH1947_v02.aqt
Date: 09/21/23 Time: 14:59:58

PROJECT INFORMATION

Company: Parsons
Client: Suncor
Project: 10-12832
Location: Alberta
Test Well: BH1947
Test Date: 2023-08-25

AQUIFER DATA

Saturated Thickness: 4.807 m
Anisotropy Ratio (Kz/Kr): 0.1

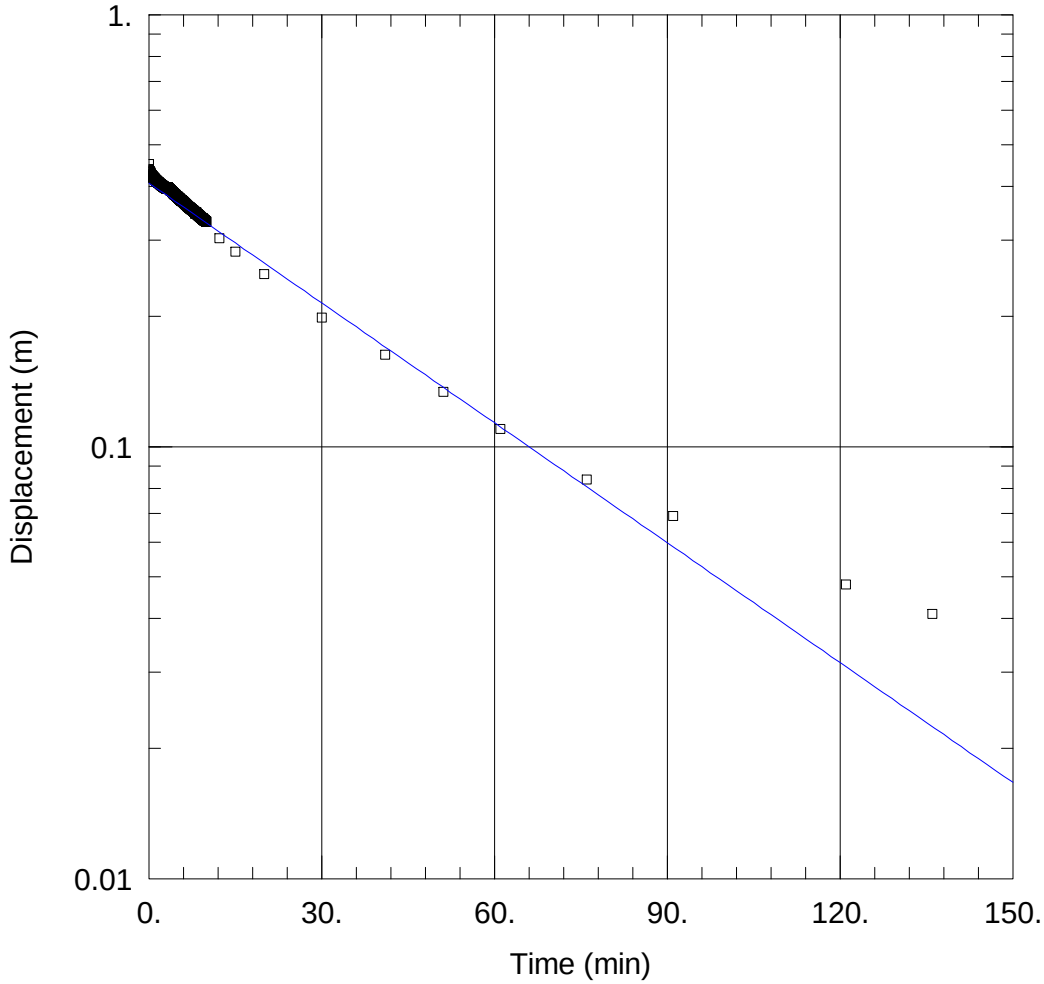
WELL DATA (BH1947)

Initial Displacement: 0.4652 m
Total Well Penetration Depth: 4.368 m
Casing Radius: 0.0255 m
Static Water Column Height: 4.368 m
Screen Length: 1.85 m
Well Radius: 0.0762 m
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 2.103E-7 m/sec
y0 = 0.4218 m



BH3001C RISING TEST

Data Set: C:\...\BH3001C_v02.aqt
Date: 09/21/23 Time: 15:02:27

PROJECT INFORMATION

Company: Parsons
Client: Suncor
Project: 10-12832
Location: Alberta
Test Well: BH3001C
Test Date: 2023-08-24

AQUIFER DATA

Saturated Thickness: 3.377 m
Anisotropy Ratio (Kz/Kr): 0.1

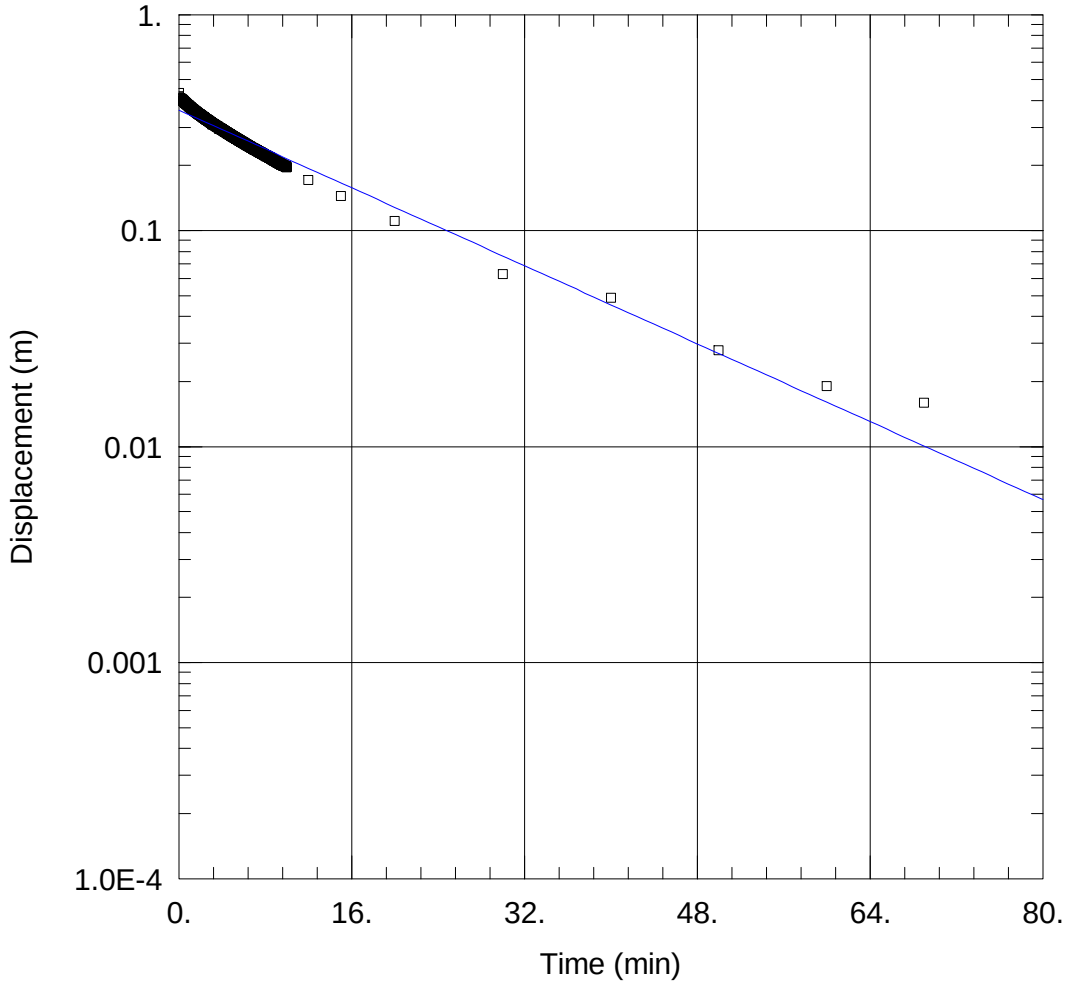
WELL DATA (BH3001C)

Initial Displacement: 0.4515 m
Total Well Penetration Depth: 2.458 m
Casing Radius: 0.0255 m
Static Water Column Height: 2.458 m
Screen Length: 0.91 m
Well Radius: 0.0762 m
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 3.92E-7 m/sec
y0 = 0.4075 m



BH1945 RISING TEST

Data Set: C:\...\BH1945_v02.aqt
Date: 09/21/23 Time: 14:59:26

PROJECT INFORMATION

Company: Parsons
Client: Suncor
Project: 10-12832
Location: Alberta
Test Well: BH1945
Test Date: 2023-08-24

AQUIFER DATA

Saturated Thickness: 2.975 m
Anisotropy Ratio (Kz/Kr): 0.1

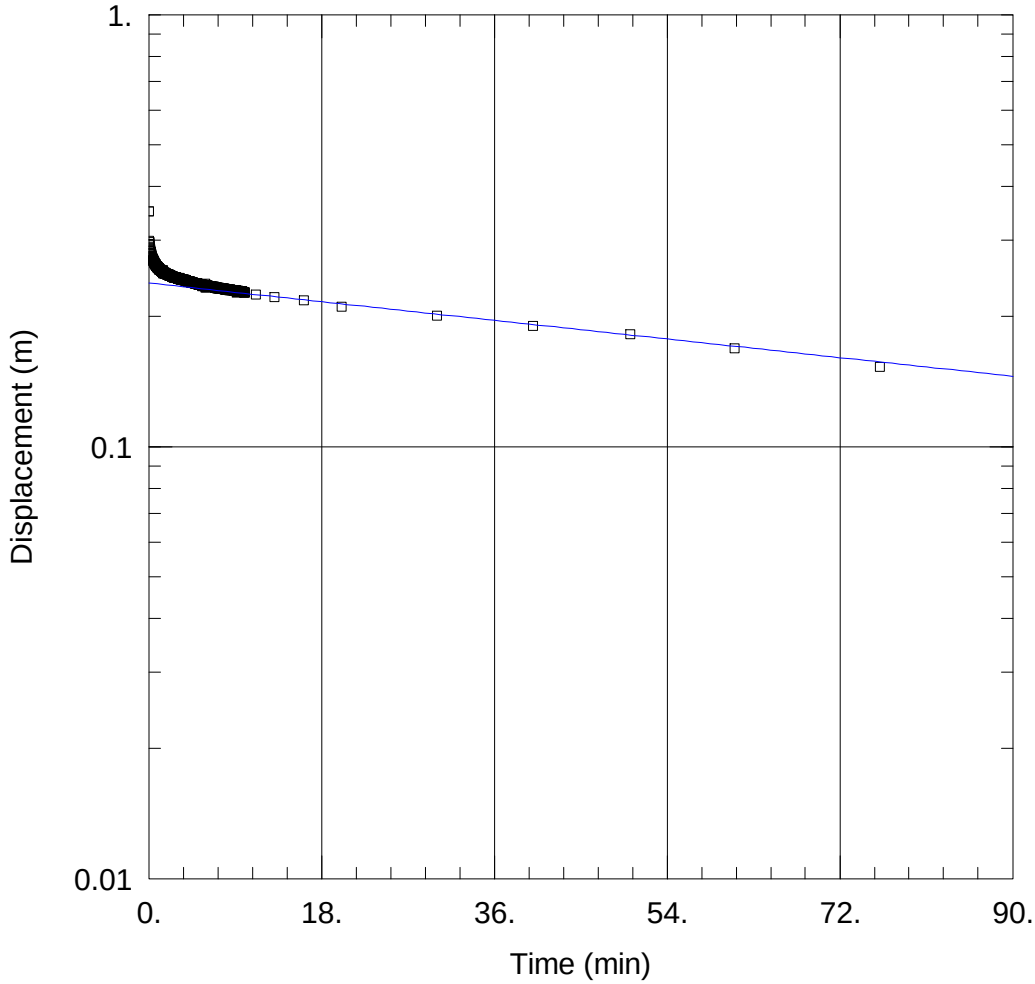
WELL DATA (BH1945)

Initial Displacement: 0.4344 m
Total Well Penetration Depth: 2.975 m
Casing Radius: 0.0255 m
Static Water Column Height: 2.975 m
Screen Length: 2.584 m
Well Radius: 0.0762 m
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 4.531E-7 m/sec
y0 = 0.3618 m



BH6005 RISING TEST

Data Set: C:\...\BH6005.aqt
Date: 09/07/23 Time: 09:31:09

PROJECT INFORMATION

Company: Parsons
Client: Suncor
Project: 10-12832
Location: Alberta
Test Well: BH6005
Test Date: 2023-08-23

AQUIFER DATA

Saturated Thickness: 2.876 m
Anisotropy Ratio (Kz/Kr): 0.1

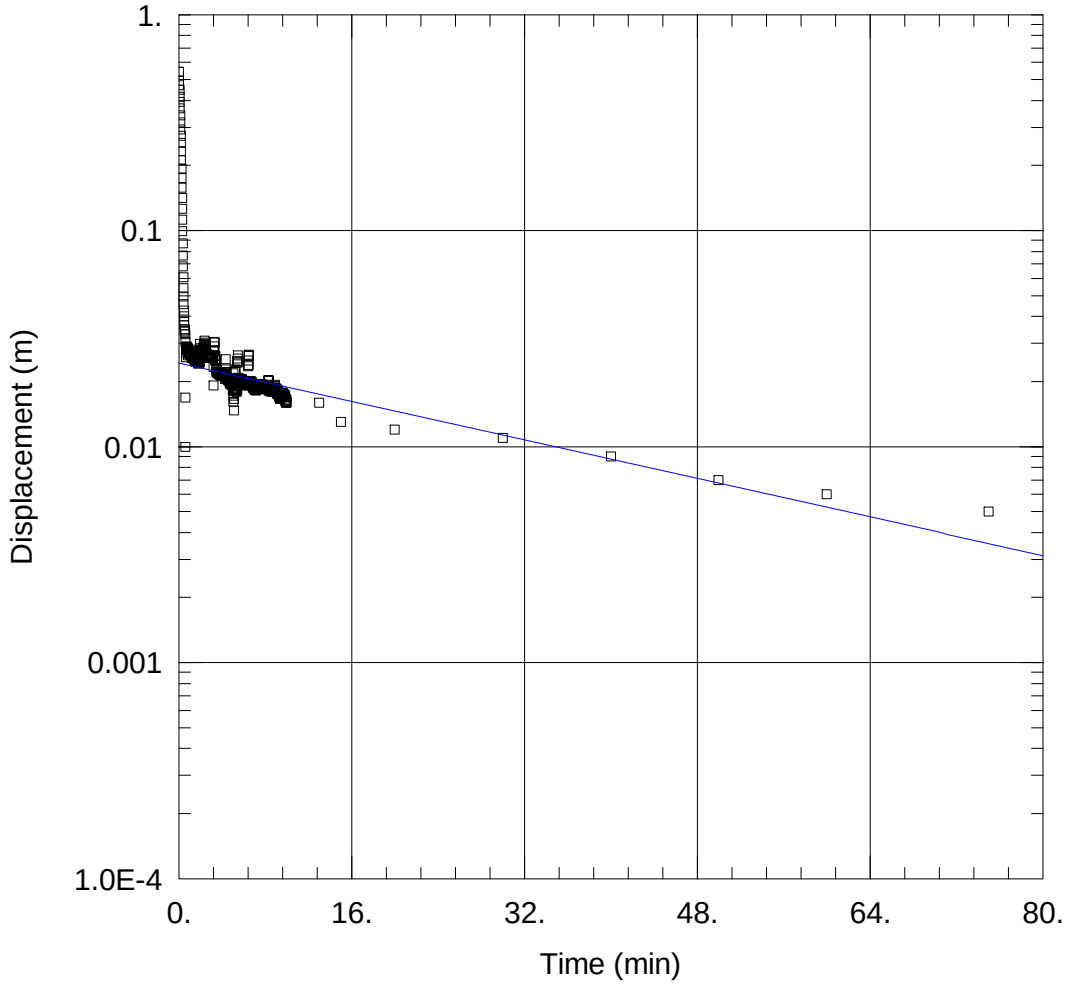
WELL DATA (BH6005)

Initial Displacement: 0.3502 m
Total Well Penetration Depth: 1.711 m
Casing Radius: 0.0255 m
Static Water Column Height: 1.711 m
Screen Length: 1.711 m
Well Radius: 0.0762 m
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 1.047E-7 m/sec
y0 = 0.239 m



BH1923 RISING TEST

Data Set: C:\...\BH1923_v02.aqt
Date: 09/21/23 Time: 14:56:44

PROJECT INFORMATION

Company: Parsons
Client: Suncor
Project: 10-12832
Location: Alberta
Test Well: BH1923
Test Date: 2023-08-23

AQUIFER DATA

Saturated Thickness: 5.99 m
Anisotropy Ratio (Kz/Kr): 0.1

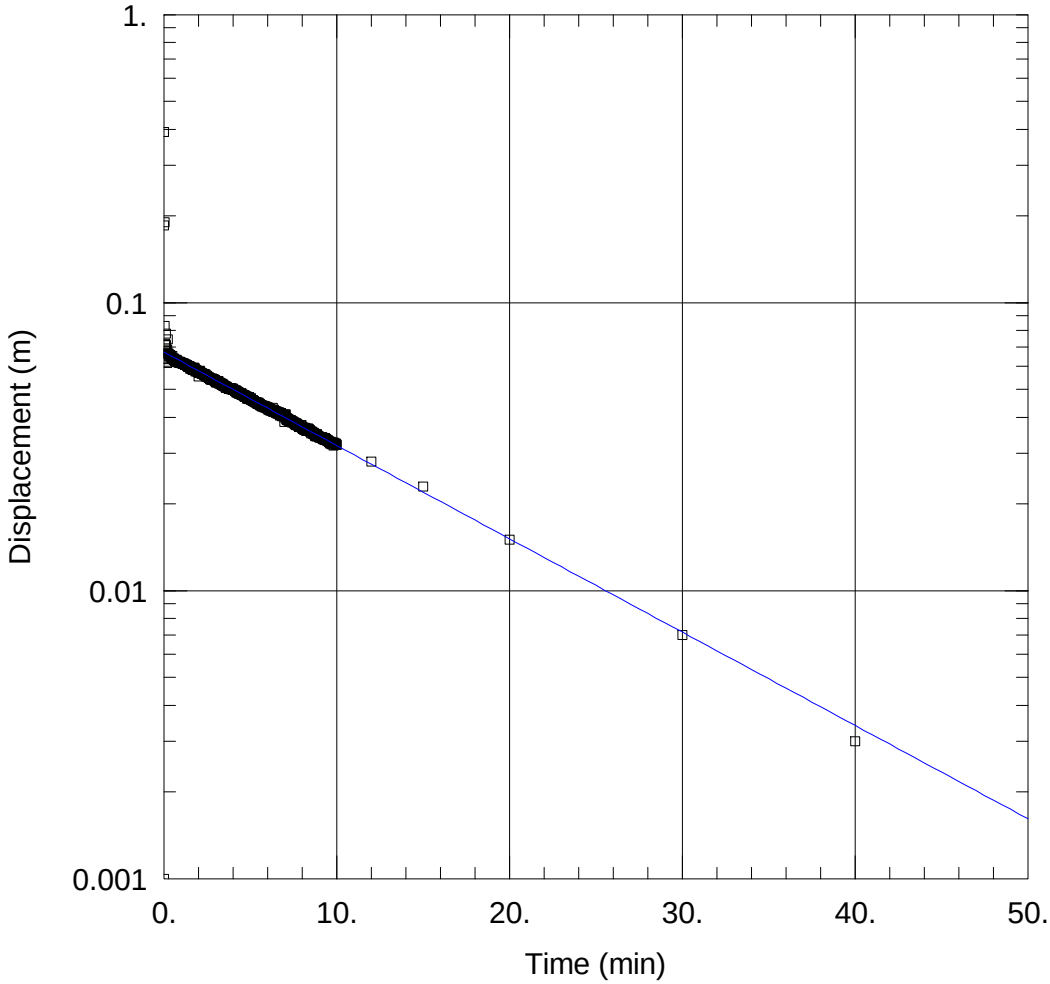
WELL DATA (BH1923)

Initial Displacement: 0.5438 m
Total Well Penetration Depth: 5.565 m
Casing Radius: 0.0255 m
Static Water Column Height: 5.565 m
Screen Length: 5.565 m
Well Radius: 0.0762 m
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 2.042E-6 m/sec
y0 = 0.02433 m



BH1917 RISING TEST (1 OF 2)

Data Set: C:\...\BH1917-1.aqt
Date: 09/07/23 Time: 08:59:40

PROJECT INFORMATION

Company: Parsons
Client: Suncor
Project: 10-12832
Location: Alberta
Test Well: BH1917
Test Date: 2023-08-25

AQUIFER DATA

Saturated Thickness: 4.544 m
Anisotropy Ratio (Kz/Kr): 0.1

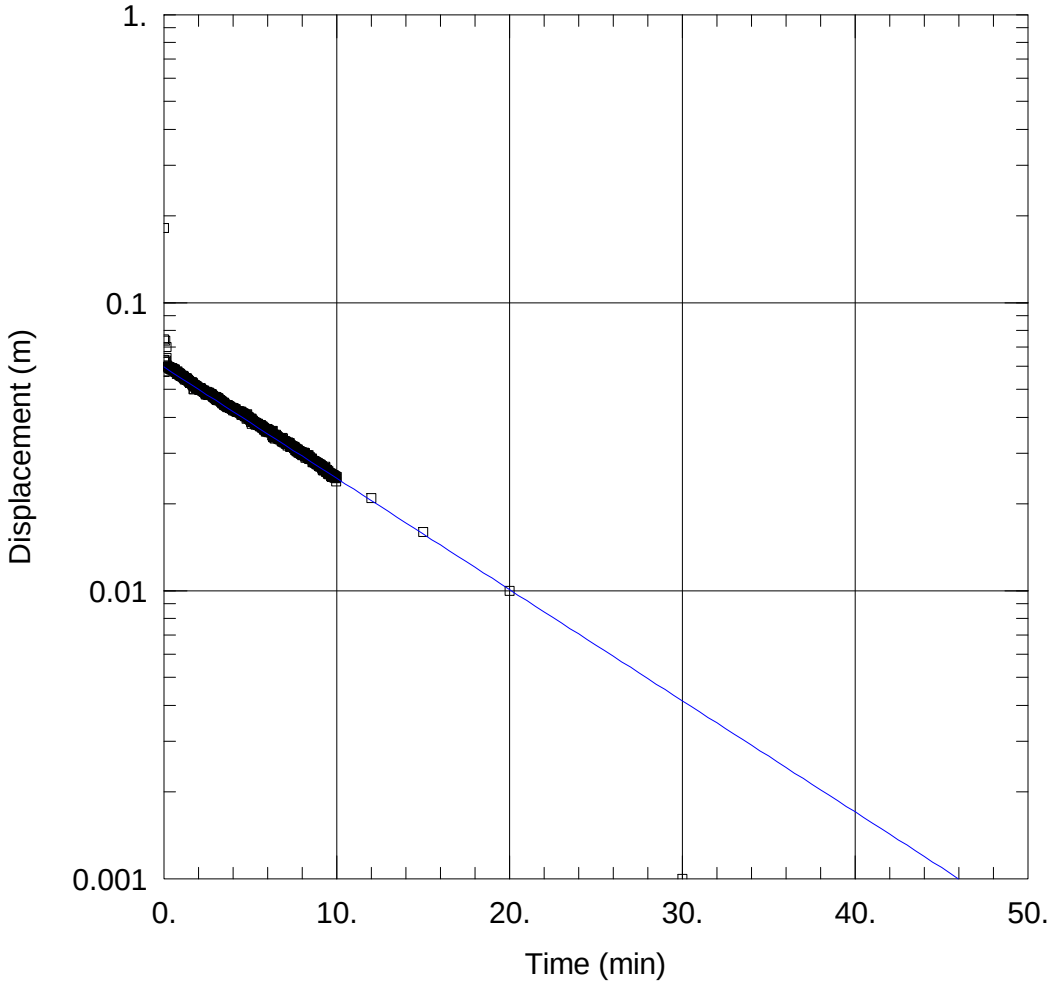
WELL DATA (BH1917)

Initial Displacement: 0.3919 m
Total Well Penetration Depth: 3.355 m
Casing Radius: 0.0255 m
Static Water Column Height: 3.355 m
Screen Length: 3.355 m
Well Radius: 0.0762 m
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined
Solution Method: Bouwer-Rice

K = 3.075E-6 m/sec
y0 = 0.06732 m



BH1917 RISING TEST (2 OF 2)

Data Set: C:\...\BH1917-2.aqt
Date: 09/07/23 Time: 09:02:59

PROJECT INFORMATION

Company: Parsons
Client: Suncor
Project: 10-12832
Location: Alberta
Test Well: BH1917
Test Date: 2023-08-25

AQUIFER DATA

Saturated Thickness: 4.544 m Anisotropy Ratio (Kz/Kr): 0.1

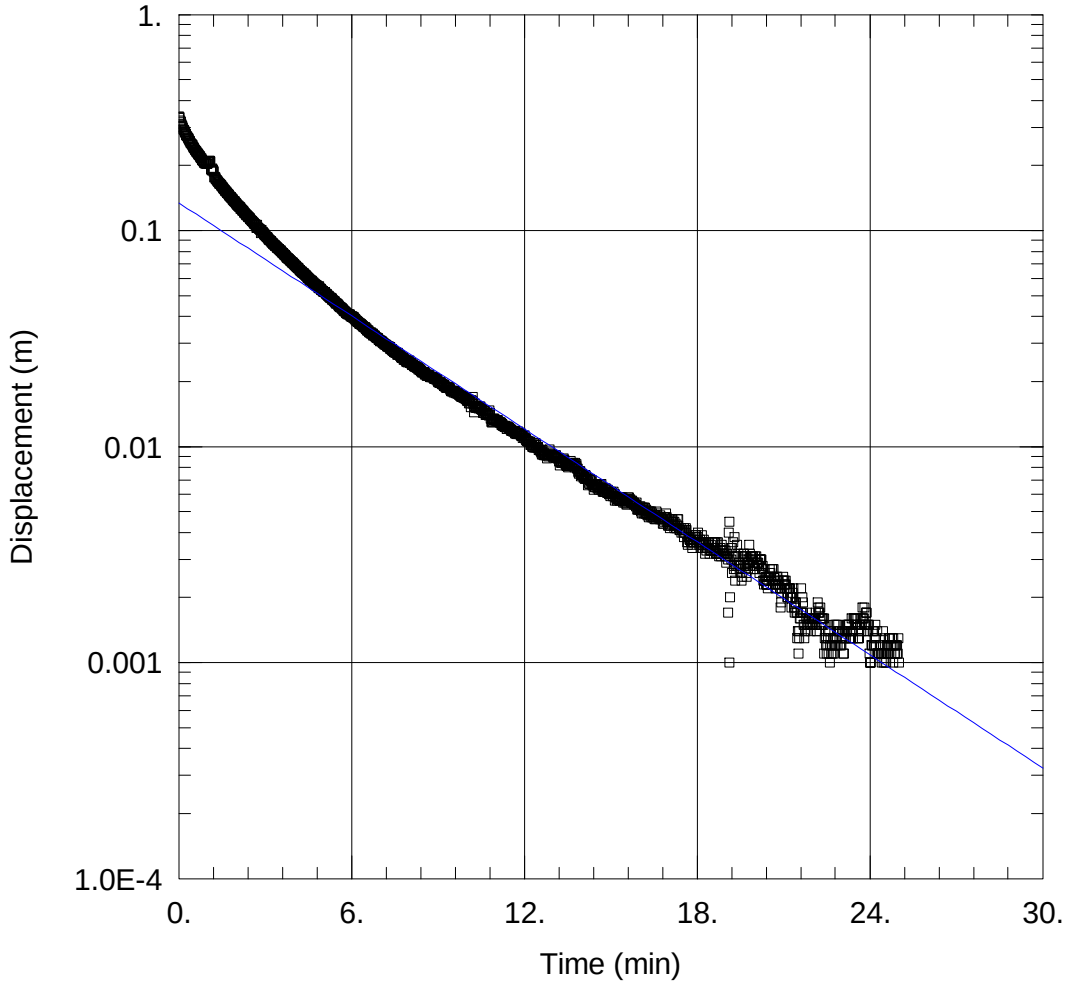
WELL DATA (BH1917)

Initial Displacement: 0.1811 m
Total Well Penetration Depth: 3.355 m
Casing Radius: 0.0255 m
Static Water Column Height: 3.355 m
Screen Length: 3.355 m
Well Radius: 0.0762 m
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 3.305E-6 m/sec y0 = 0.05971 m



BH1925 RISING TEST (1 OF 2)

Data Set: C:\...\BH1925-1_v02.aqt
Date: 09/21/23 Time: 14:57:55

PROJECT INFORMATION

Company: Parsons
Client: Suncor
Project: 10-12832
Location: Alberta
Test Well: BH1925
Test Date: 2023-08-25

AQUIFER DATA

Saturated Thickness: 5.768 m Anisotropy Ratio (Kz/Kr): 0.1

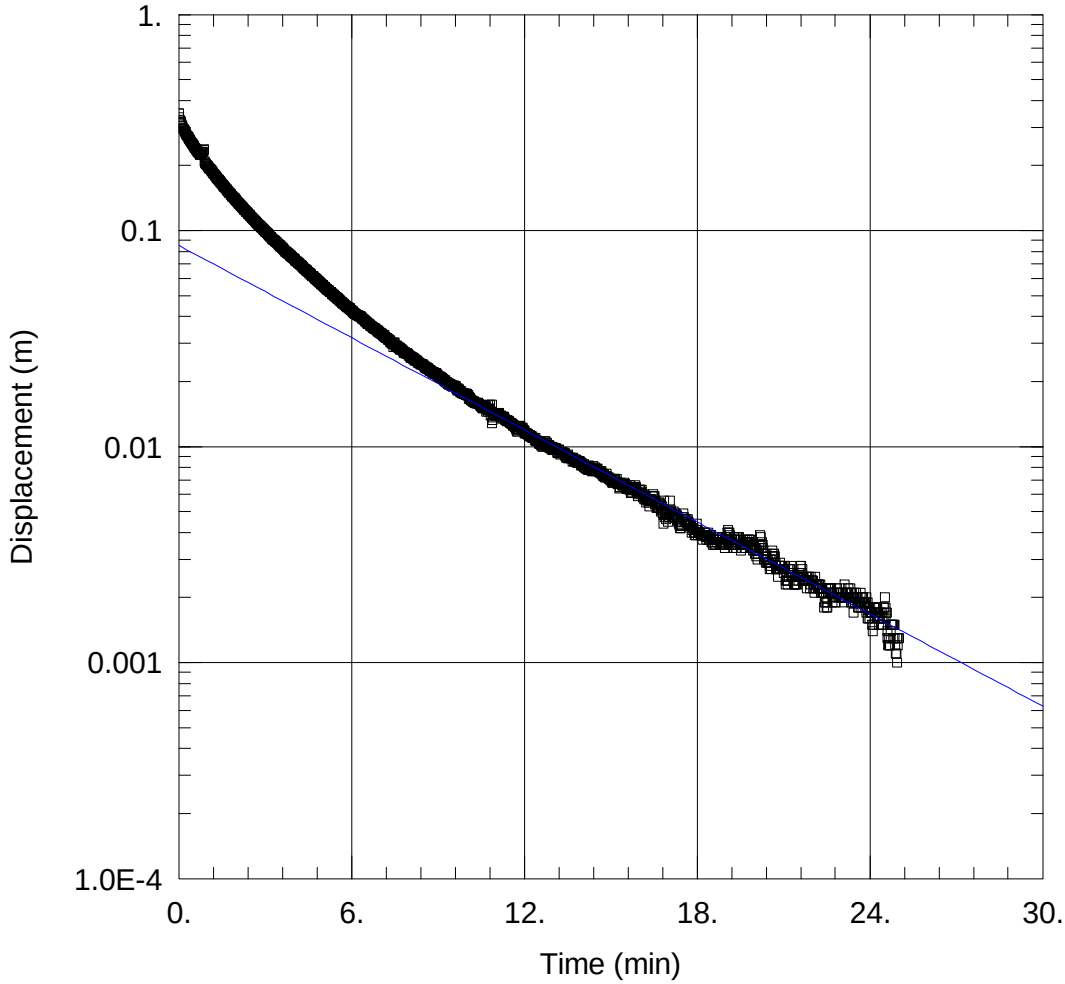
WELL DATA (BH1925)

Initial Displacement: 0.3366 m
Total Well Penetration Depth: 5.768 m
Casing Radius: 0.0255 m
Static Water Column Height: 5.768 m
Screen Length: 3.115 m
Well Radius: 0.0762 m
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 2.11E-6 m/sec y0 = 0.1344 m



BH1925 RISING TEST (2 OF 2)

Data Set: C:\...\BH1925-2.aqt
Date: 09/07/23 Time: 09:14:55

PROJECT INFORMATION

Company: Parsons
Client: Suncor
Project: 10-12832
Location: Alberta
Test Well: BH1925
Test Date: 2023-08-25

AQUIFER DATA

Saturated Thickness: 5.768 m Anisotropy Ratio (Kz/Kr): 0.1

WELL DATA (BH1925)

Initial Displacement: 0.3475 m
Total Well Penetration Depth: 5.768 m
Casing Radius: 0.0255 m
Static Water Column Height: 5.768 m
Screen Length: 3.115 m
Well Radius: 0.0762 m
Gravel Pack Porosity: 0.25

SOLUTION

Aquifer Model: Unconfined Solution Method: Bouwer-Rice

K = 1.666E-6 m/sec y0 = 0.08522 m

APPENDIX D

HISTORICAL GROUNDWATER TABLES

TABLE D-1

HISTORICAL GROUNDWATER ANALYTICAL DATA
PETROLEUM HYDROCARBONS AND VOLATILE ORGANIC COMPOUNDS

(units in mg/L unless otherwise specified)

Sample Location	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	Total Trihalomethanes
Guidelines[a]:											
Domestic Use Aquifer Pathway				0.005	0.024	0.0016	0.02	2.2	1.1	0.005	NG
Vapour Inhalation Pathway:											
N1 Area (Tier 2)				16	NG	NG	NG	540	NG	0.048	NG
N2 Area (Tier 2)				12	NG	NG	NG	420	NG	0.038	NG
S1 Area (Tier 2)				0.67	NG	NG	52	23	NG	0.2	NG
S2 Area (Tier 2)				0.57	NG	NG	44	19	NG	0.17	NG
Commercial area, Coarse-grained				0.37	NG	NG	26	9.1	17	0.13	NG
Residential/Residential Buffer area, Coarse-grained				0.03	45	31	2.2	0.81	1.5	0.01	NG
Residential, Fine-grained				0.57	NG	NG	44	19	NG	0.17	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
Commercial area, Coarse-grained				350	200	110	120	11	3.1	NG	NG
Residential/Residential Buffer area, Coarse-grained				61	59	20	31	7.1	1.8	NG	NG
Residential, Fine-grained				100	82	42	21	6.5	1.8	NG	NG
Most stringent guideline for Routine Parameters				NA	NA	NA	NA	NA	NA	NA	NA
Most stringent guideline for fine-/coarse-grained and commercial/residential land use for Volatile Organic Compound S				NA	NA	NA	NA	NA	NA	NA	0.1
BH510A	11.3 - 17.4	N1	2022-06-12	*0.327*	0.014	*0.406*	*0.049*	0.7	0.2	*0.022*	-
			2022-06-12 Dup	*0.276*	0.012	*0.365*	*0.051*	0.8	0.4	*0.019*	-
			2023-01-19	*0.169*	0.0115	*0.348*	*0.0208*	1.1	0.2	*0.019*	-
			2023-01-19 Dup	*0.172*	0.0114	*0.358*	0.0193	1.0	0.1	*0.020*	-
			2023-07-24	*0.21*	0.0097	*0.36*	0.0094	1.1	0.14	*0.026*	<0.0013
			2023-07-24 Dup	*0.081*	0.0050	*0.14*	0.0051	0.85	0.13	*0.020*	<0.0013
BH732	4.3 - 14.9	N2	2022-06-03	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-
			2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-
			2023-07-25	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	0.024
BH912	1.5 - 6.1	S1	2022-06-02	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-
			2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-
			2023-07-26	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.00067	-
BH1102	7.6 - 15.2	N1	2022-06-03	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-
			2023-01-17	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-
			2023-07-13	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013
BH1701	6.4 - 12.19	N1	2022-06-03	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-
BH1704	9.1 - 13.7	N1	2022-06-07	*0.839*	*2.83*	*0.247*	*12.2*	*5.8*	*5.1*	*0.023*	-
			2023-01-19	*0.121*	*0.655*	*0.0538*	*2.63*	*3.0*	*6.0*	*0.020*	-
			2023-07-25	*1.2*	*5.4*	*0.89*	*6.5*	*7.9*	*2.4*	*0.062*	<0.0013
BH1901	19.8 - 24.4	Commercial area	2023-07-26	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-
BH1902	19.7 - 30.5	Commercial area	2023-07-26	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-
BH1903	23.6 - 26.7	Commercial area	2023-07-26	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-
BH1904	12.8 - 16.8	Commercial area	2022-06-16	*0.174*	<0.0003	0.0016	0.0022	0.3	<0.1	<0.001	-
			2023-01-18	*0.114*	<0.0003	<0.0005	0.0005	<0.1	<0.1	<0.001	-
			2023-01-18 Dup	*0.115*	<0.0003	<0.0005	0.0006	<0.1	<0.1	<0.001	-
			2023-07-26	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-
BH1905	3.1 - 6.1	Commercial area	2022-06-16	*0.036*	0.0174	*0.609*	*4.57*	*3.3*	*8.1*	*0.013*	-
			2023-07-26	*0.13*	0.0066	*0.19*	*2.1*	2.0	*3.2*	*0.025*	-
			2023-07-26 Dup	*0.13*	0.0088	*0.24*	*2.3*	*2.8*	*4.2*	*0.033*	-
BH1906	11.6 - 19.2	N1	2022-06-05	*2.55*	<0.0003	<0.0005	<0.0005	<0.1	<0.1	*0.034*	-
			2023-01-17	*1.65*	<0.0003	<0.0005	<0.0005	<0.1	<0.1	*0.028*	-
			2023-01-17 Dup	*1.62*	<0.0003	<0.0005	<0.0005	<0.1	<0.1	*0.028*	-
			2023-07-11	*1.2*	0.00056	0.00048	<0.00089	<0.10	<0.10	-	-
			2023-08-09	*0.41*	<0.00040	<0.00040	<0.00080	-	-	*0.032*	<0.0013
BH1907	8.8 - 18.0	N1	2022-06-03	*1.13*	*7.63*	*0.546*	*8.5*	*3.0*	0.8	*0.015*	-
			2022-06-03 Dup	*1.13*	*7.48*	*0.541*	*8.34*	*3.4*	0.8	*0.017*	-
			2023-01-17	*0.387*	*2.82*	*0.608*	*4.96*	*2.8*	0.7	*0.007*	-
			2023-07-24	*0.020*	*0.095*	*0.14*	*1.1*	1.7	0.47	0.0023	-
			2023-07-24 Dup	*0.020*	*0.095*	*0.14*	*1.2*	1.8	0.52	0.0025	-
BH1908	12.2 - 16.8	N1	2022-06-03	0.0007	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-
			2023-01-17	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-
			2023-07-24	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-
BH1910	11.0 - 18.6	N1	2022-06-05	*0.171*	<0.0003	<0.0005	<0.0005	<0.1	<0.1	*0.027*	-
			2023-01-17	*0.135*	<0.0003	<0.0005	<0.0005	<0.1	<0.1	*0.022*	-
			2023-01-17 Dup	*0.136*	<0.0003	<0.0005	<0.0005	<0.1	<0.1	*0.021*	-
			2023-07-24	*0.10*	<0.00040	<0.00040	<0.00089	<0.10	<0.10	*0.025*	-
BH1911	14.3 - 18.3	N1	2022-06-02	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-
			2023-01-17	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-
			2023-07-24	<0.00040	<0.00040	<0.00040	<0.0011	<0.10	<0.10	0.0012	-
BH1912	13.4 - 21.0	Residential Buffer	2022-06-23	*0.0099*	<0.0003	<0.0005	<0.0005	<0.1	<0.1	*0.029*	-
			2023-01-13	*0.007*	<0.0003	<0.0005	<0.0005	<0.1	<0.1	*0.015*	-
			2023-07-19	*0.0070*	<0.00040	<0.00040	<0.00089	<0.10	<0.10	*0.014*	<0.0013
BH1913	6.4 - 10.0	Residential Buffer	2022-06-23	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-
			2023-01-13	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-
			2023-07-19	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013
BH1914	1.5 - 7.3	Residential Buffer	2022-06-23	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-
			2023-01-13	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-
			2023-07-19	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013
BH1915	10.4 - 18.6	Residential Buffer	2022-06-23	*0.0115*	0.0007	0.0009	0.0195	0.7	0.3	*0.014*	-
			2022-06-23 Dup	*0.011*	0.0007	0.0008	0.019	0.7	0.3	*0.013*	-
			2023-01-13	*0.0315*	0.0006	*0.0029*	0.013	1.4	0.3	*0.015*	-
			2023-01-13 Dup	*0.033*	0.0007	*0.0033*	0.0128	1.3	0.4	*0.016*	-
			2023-07-19	*0.20*	0.0011	*0.0024*	0.017	0.90	0.30	*0.037*	<0.0013
			2023-07-19 Dup	*0.20*	0.0011	*0.0024*	0.017	0.90	0.29	*0.039*	<0.0013
BH1916	0.9 - 6.4	Residential Buffer	2023-01-13	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-
			2023-07-19	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013
BH1917	8.8 - 16.2	N1	2022-06-12	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-
			2023-07-11	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	-	-
			2023-08-09	<0.00040	<0.00040	<0.00040	<0.00080	-	-	<0.00050	<0.0013
BH1918	5.8 - 13.1	N1	2022-06-07	-	-	-	-	-	-	-	-
			2022-06-07 Dup	-	-	-	-	-	-	-	-
			2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-
			2023-07-25	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013

Sample Location	Sample Date	1,2,3-Trichlorobenzene	1,2,4-Trimethylbenzene	1,3,5-Trichlorobenzene	1,3,5-Trimethylbenzene	Bromodichloromethane	Bromoform	Bromomethane	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	Dibromochloromethane	1,2-Dibromoethane	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,1-Dichloroethane	1,1-Dichloroethene
Domestic Use Aquifer Pathway		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
N1 Area (Tier 2)		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
N2 Area (Tier 2)		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
S1 Area (Tier 2)		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
S2 Area (Tier 2)		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Commercial area, Coarse-grained		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		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential, Fine-grained		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
N1, N2, S1, S2 Areas (Residential, most stringent of fine or coarse-grained)		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Commercial area, Coarse-grained		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		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential, Fine-grained		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		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Most stringent guideline for fine-/coarse-grained and commercial/residential land use for Volatile Organic Compound S		0.014	NG	0.014	NG	NG	NG	NG	0.0015	0.014	NG	0.08	NG	0.19	NG	0.003	NG	0.001	NG	0.014
BH510A	2022-06-12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2022-06-12 Dup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-19 Dup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-24 Dup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH732	2022-06-03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH912	2022-06-02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1102	2022-06-03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-13	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.00050	<0.0010	<0.00050	<0.0020	<0.0010	<0.00020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
BH1701	2022-06-03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1704	2022-06-07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1901	2023-07-26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1902	2023-07-26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1903	2023-07-26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1904	2022-06-16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-18 Dup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1905	2022-06-16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-26 Dup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1906	2022-06-05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-17 Dup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-08-09	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.00050	<0.0010	<0.00050	<0.0020	<0.0010	<0.00020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
BH1907	2022-06-03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2022-06-03 Dup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-24 Dup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1908	2022-06-03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1910	2022-06-05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-17 Dup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1911	2022-06-02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1912	2022-06-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1913	2022-06-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1914	2022-06-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1915	2022-06-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2022-06-23 Dup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-13 Dup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-19 Dup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1916	2023-01-13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1917	2022-06-12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-08-09	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.00050	<0.0010	<0.00050	<0.0020	<0.0010	<0.00020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050
BH1918	2022-06-07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2022-06-07 Dup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample Location	Sample Date	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,2-Dichloropropane	cis-1,3-Dichloropropene	trans-1,3-Dichloropropene	Methyl Methacrylate	Methyl t-Butyl Ether	Methylene Chloride	Styrene	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane	Tetrachloroethene	1,2,4-Trichlorobenzene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Trichlorofluoromethane	Vinyl Chloride
Domestic Use Aquifer Pathway		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
N1 Area (Tier 2)		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
N2 Area (Tier 2)		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
S1 Area (Tier 2)		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
S2 Area (Tier 2)		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Commercial area, Coarse-grained		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential/Residential Buffer area, Coarse-grained		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential, Fine-grained		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
N1, N2, S1, S2 Areas (Residential, most stringent of fine or coarse-grained)		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Commercial area, Coarse-grained		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential/Residential Buffer area, Coarse-grained		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential, Fine-grained		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Most stringent guideline for Routine Parameters		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Most stringent guideline for fine-/coarse-grained and commercial/residential land use for Volatile Organic Compound S		NG	NG	NG	NG	NG	11	0.015	0.05	2.8	NG	NG	0.01	0.015	NG	NG	0.00032	NG	0.0011
BH510A	2022-06-12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2022-06-12 Dup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-19 Dup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-24 Dup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH732	2022-06-03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH912	2022-06-02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1102	2022-06-03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-13	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.0010	<0.0020	<0.00050	<0.0010	<0.00050	<0.00050	<0.00020	<0.00050	<0.00050
BH1701	2022-06-03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1704	2022-06-07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1901	2023-07-26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1902	2023-07-26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1903	2023-07-26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1904	2022-06-16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-18 Dup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1905	2022-06-16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-26 Dup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1906	2022-06-05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-17 Dup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-08-09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.0010	<0.0020	<0.00050	<0.0010	<0.00050	<0.00050	<0.00020	<0.00050	<0.00050
BH1907	2022-06-03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2022-06-03 Dup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-24 Dup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1908	2022-06-03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1910	2022-06-05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-17 Dup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1911	2022-06-02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1912	2022-06-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1913	2022-06-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1914	2022-06-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1915	2022-06-23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2022-06-23 Dup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-13 Dup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-19 Dup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1916	2023-01-13	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1917	2022-06-12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-08-09	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.0010	<0.0020	<0.00050	<0.0010	<0.00050	<0.00050	<0.00020	<0.00050	<0.00050
BH1918	2022-06-07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2022-06-07 Dup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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.
e - Groundwater samples for BH4003A and BH4003B were labelled incorrectly, confirmatory samples were taken in October to verify the July results.
"-" - 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 D-1

HISTORICAL GROUNDWATER ANALYTICAL DATA
PETROLEUM HYDROCARBONS AND VOLATILE ORGANIC COMPOUNDS

(units in mg/L unless otherwise specified)

Sample Location	Screen Interval (mbgs)	Guideline Referenced	CONSTITUENT / Sample Date	Benzene	Toluene	Ethylbenzene	Total Xylenes	Petroleum Hydrocarbons F1 (C6-C10)[d]	Petroleum Hydrocarbons F2 (>C10-C16)[d]	1,2-Dichloroethane	Total Trihalomethanes	1,2,3-Trichlorobenzene	1,2,4-Trimethylbenzene	1,3,5-Trichlorobenzene	1,3,5-Trimethylbenzene	Bromodichloromethane	Bromoform	Bromomethane	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	Dibromochloromethane	1,2-Dibromoethane	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,1-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,2-Dichloropropane	cis-1,3-Dichloropropene	trans-1,3-Dichloropropene	Methyl Methacrylate	Methyl t-Butyl Ether	Methylene Chloride	Styrene	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane	Tetrachloroethene	1,2,4-Trichlorobenzene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Trichlorofluoromethane	Vinyl Chloride
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	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Vapour Inhalation Pathway:																																																	
N2 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	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	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	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	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	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	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	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	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	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	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	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Most stringent guideline for Routine Parameters				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Most stringent guideline for fine-/coarse-grained and commercial/residential land use for Volatile Organic Compound				NA	NA	NA	NA	NA	NA	NA	0.1	0.014	NG	0.014	NG	NG	NG	NG	0.0015	0.014	NG	0.08	NG	0.19	NG	0.003	NG	0.001	NG	0.014	NG	NG	NG	NG	NG	11	0.015	0.05	2.8	NG	0.01	0.015	NG	0.00032	NG	0.0011	
BH1919	6.7 - 15.5	N2	2022-06-09	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-04	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.00050	<0.0010	<0.00050	<0.0020	<0.0010	<0.00020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.0010	<0.0020	<0.00050	<0.0010	<0.00050	<0.00050	<0.00020	<0.00050	<0.00050
BH1921	8.8 - 18.9	N1	2022-06-09	0.0347	0.0019	0.047	0.002	0.7	0.2	0.032	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2022-06-09 Dup	0.0349	0.0021	0.0483	0.0022	0.8	0.2	0.032	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-25	0.007	0.0002	0.075	0.0050	0.74	<0.10	0.040	<0.0013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-25 Dup	0.007	0.0088	0.067	0.0048	0.83	<0.10	0.040	<0.0013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1922	7.0 - 19.2	N2	2022-06-09	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-25	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1923	7.6 - 15.9	N1	2022-06-09	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-24	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1924	14.9 - 19.8	N1	2022-06-02	2.43	0.0009	<0.0005	0.0691	<0.1	<0.1	0.27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-13	0.96	0.00099	<0.00040	0.0702	0.10	0.10	0.088	<0.0013	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.00050	<0.0010	<0.00050	<0.0020	<0.0010	<0.00020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.0010	<0.0020	<0.00050	<0.0010	<0.00050	0.0012	<0.00020	<0.00050	<0.00050
BH1925	16.4 - 19.8	N1	2022-06-12	0.0022	<0.0003	<0.0005	0.0012	0.2	0.1	0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-24	0.0020	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.0041	<0.0013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1927	12.2 - 22.3	N1	2022-06-07	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-24	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1928	6.4 - 16.8	N2	2022-06-12	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	0.3	0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-25	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.0017	<0.0013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1929	5.5 - 14.9	N2	2022-06-03	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18 Dup	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-25	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1930	6.4 - 18.3	N2	2022-06-09	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	<0.0013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-19	0.0029	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-25	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1933	8.8 - 17.1	Residential Buffer	2022-06-02	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-26	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1934	5.8 - 8.5	Residential Buffer	2022-06-02	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-26	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1935	1.5 - 5.2	Residential Buffer	2022-06-02	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-26	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1936	5.3 - 14.7	S1	2022-06-03	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-20	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-20 Dup	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-25	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1937	8.8 - 12.8	S1	2022-06-05	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-25	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1939	8.1 - 8.7	S1	2022-06-07	0.0009	<0.0003	<0.0005	<0.0005	<0.1	0.2	0.062	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2022-06-07 Dup	0.0009	<0.0003	<0.0005	<0.0005	<0.1	0.2	0.059	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.051	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-25	<0.00045	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.092	<0.0013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1941	7.3 - 11.3	S2	2022-06-03	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-27	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	0.11	<0.00050	<0.0013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1942	4.4 - 8.5	S2	2022-06-05	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-19 Dup	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-27	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1943	7.3 - 14.0	S1	2022-06-05	0.298	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-24	0.503	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.014	<0.0013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-10-04	0.232	<0.00040	<0.00040	<0.0026	<0.10	<0.10	0.061	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1944	5.9 - 7.6	S1	5055-06-15	2.5418	<0.0003	<0.0005	<0.0005	0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-19	2.4193	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-05	0.011	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.00050	<0.0010	<0.00050	<0.0020	<0.0010	<0.00020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.0010	<0.0020	<0.00050	<0.0010	<0.00050	<0.00050	<0.00020	<0.00050	<0.00050
BH1945	3.7 - 6.4	S2	2022-06-02	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-25	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.00088	<0.0013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1946	4.3 - 6.4	S2	2022-06-02	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-25	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1947	4.3 - 6.1	S2	2022-06-07	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-25	<0.00040	<0.00040	<0.00040	<0.0011	<0.10	<0.10	0.00071	<0.0013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1949	6.4 - 7.3	N1	2023-07-24	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1950A	8.5 - 11.1	N1	2022-06-15	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-24	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1951	2.0 - 4.1	Residential	2022-06-02	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-26	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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 (Intrisik, 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.
e - Groundwater samples for BH4003A and BH4003B were labelled incorrectly, confirmatory samples were taken in October to verify the July results.
" - " - 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.
RCS D - 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 D-1

HISTORICAL GROUNDWATER ANALYTICAL DATA
PETROLEUM HYDROCARBONS AND VOLATILE ORGANIC COMPOUNDS

(units in mg/L unless otherwise specified)

Sample Location	Screen Interval (mbgs)	Guideline Referenced	Sample Date	Benzene	Toluene	Ethylbenzene	Total Xylenes	Petroleum Hydrocarbons F1 (C6-C10)[d]	Petroleum Hydrocarbons F2 (>C10-C16)[d]	1,2-Dichloroethane	Total Trihalomethanes	1,2,3-Trichlorobenzene	1,2,4-Trimethylbenzene	1,3,5-Trichlorobenzene	1,3,5-Trimethylbenzene	Bromodichloromethane	Bromoform	Bromomethane	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	Dibromochloromethane	1,2-Dibromoethane	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,1-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,2-Dichloropropane	cis-1,3-Dichloropropene	trans-1,3-Dichloropropene	Methyl Methacrylate	Methyl t-Butyl Ether	Methylene Chloride	Styrene	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane	Tetrachloroethene	1,2,4-Trichlorobenzene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Trichlorofluoromethane	Vinyl Chloride
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	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	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	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	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	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	8.1	17	0.13	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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	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	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	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	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	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	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Most stringent guideline for Routine Parameters				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Most stringent guideline for fine-/coarse-grained and commercial/residential land use for Volatile Organic Compound				NA	NA	NA	NA	NA	NA	NA	0.1	0.014	NG	0.014	NG	NG	NG	NG	0.0015	0.014	NG	0.08	NG	0.19	NG	0.003	NG	0.001	NG	0.014	NG	NG	NG	NG	NG	11	0.015	0.05	2.8	NG	0.01	0.015	NG	NG	0.00032	NG	0.0011
BH1952	7.9 - 18.6	N1	2022-06-03	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-24	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1953	11.3 - 18.6	N1	2022-06-07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-25	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1954	5.5 - 13.1	S1	2022-06-02	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-26	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-10-04	<0.00040	<0.00040	<0.00040	<0.0013	<0.10	<0.10	0.012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1955A	8.5 - 11.0[d]	S2	2022-06-02	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-25	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.0029	<0.0013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1956	5.8 - 14.6	N2	2022-06-15	0.0019	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1957	5.8 - 14.1	Commercial area	2022-06-16	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-26	<0.00040	<0.00040	<0.00040	<0.0017	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1958	5.8 - 14.9	Commercial area	2022-06-16	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-10	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.00050	<0.0010	<0.00050	<0.0020	<0.0010	<0.00020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.0010	<0.0020	<0.00050	<0.0010	<0.00050	<0.00050	<0.00020	<0.00050	<0.00050
BH1959	6.4 - 15.5	Commercial area	2023-07-26	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1961	8.5 - 11.9	N2	2022-06-09	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-20	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-27	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1962	9.8 - 12.5	N2	2022-06-09	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-20	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-06	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.00050	<0.0010	<0.00050	<0.0020	<0.0010	<0.00020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.0010	<0.0020	<0.00050	<0.0010	<0.00050	<0.00050	<0.00020	<0.00050	<0.00050
BH1963	5.5 - 11.3	N2	2022-06-09	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-20	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-11	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-08-09	0.0047	<0.00040	<0.00040	<0.00080	-	-	<0.00050	<0.0013	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.00050	<0.0010	<0.00050	<0.0020	<0.0010	<0.00020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.0010	<0.0020	<0.00050	<0.0010	<0.00050	<0.00050	<0.00020	<0.00050	<0.00050
			2023-10-04	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-10-04 Dup	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.00061	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1964	7.6 - 8.5	N2	2022-06-09	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-20	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-27	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1966	7.3 - 16.5	N1	2022-06-03	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-17	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-24	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1967	5.5 - 8.5	N1	2022-06-07	0.127	0.0082	0.0342	0.0015	2.7	0.4	0.022	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2022-06-07 Dup	0.111	0.0079	0.0324	0.0013	2.7	0.4	0.021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-17	0.0900	0.0072	0.0114	0.0009	2.4	0.3	0.019	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-24	0.074	0.011	0.022	0.0029	3.3	0.30	0.021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-24 Dup	0.076	0.011	0.020	0.0028	3.2	0.29	0.021	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1971	7.3 - 11.0	N1	2022-06-03	0.0076	0.0008	0.0168	<0.0005	1.0	0.1	0.047	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2022-06-03 Dup	0.0059	0.0007	0.0146	<0.0005	0.9	0.1	0.052	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-17	0.0037	0.0004	0.0081	<0.0005	1.4	0.2	0.046	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-24	0.0017	0.00059	0.0085	<0.00089	0.70	0.23	0.024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-24 Dup	0.0019	0.00055	0.0094	<0.00089	0.93	0.23	0.024	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1972	8.2 - 11.0	N2	2022-06-15	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-25	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.0016	<0.0013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1973	1.5 - 6.4	N1	2022-06-03	0.0038	0.0013	0.0094	0.0011	0.4	0.2	0.012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-17	0.0034	0.0007	0.0067	<0.0005	0.8	0.2	0.018	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1974	7.6 - 10.4	N1	2022-06-03	0.0024	0.0005	<0.0005	<0.0005	0.2	<0.1	0.014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-17	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-24	0.0014	<0.00040	<0.00040	0.0013	0.21	<0.10	0.092	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1976	9.4 - 14.3	N1	2022-06-02	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-17	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-24	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1977	3.1 - 7.6	S2	2022-06-02	0.0332	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18	0.0049	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-25	0.092	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.0028	<0.0013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1978	0.9 - 3.0	S2	2022-06-02	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-25	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1979	2.8 - 6.7	S1	2022-06-05	1.8	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-19	3.10	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.009	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-05	0.97	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.002	<0.0013	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.00050	<0.0010	<0.00050	<0.0020	<0.0010	<0.00020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.0010	<0.0020	<0.00050	<0.0010	<0.00050	<0.00050	<0.00020	<0.00050	<0.00050
			2023-10-04	2.6	<0.00040	<0.00040	<0.0013	<0.10	<0.10	0.014	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1980	4.3 - 6.1	S2	2022-06-05	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-27	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.0037	<0.0013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-10-04	<0.00040	<0.00040	<0.00050	<0.0030	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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.
e - Groundwater samples for BH4001A and BH4003B were labelled incorrectly, confirmatory samples were taken in October to verify the July results.
"-" - 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 D-1

HISTORICAL GROUNDWATER ANALYTICAL DATA
PETROLEUM HYDROCARBONS AND VOLATILE ORGANIC COMPOUNDS

(units in mg/L unless otherwise specified)

Sample Location	Screen Interval (mbgs)	Guideline Referenced	CONSTITUENT / Sample Date	Benzene	Toluene	Ethylbenzene	Total Xylenes	Petroleum Hydrocarbons F1 (C6-C10)[d]	Petroleum Hydrocarbons F2 (>C10-C16)[d]	1,2-Dichloroethane	Total Trihalomethanes	1,2,3-Trichlorobenzene	1,2,4-Trimethylbenzene	1,3,5-Trichlorobenzene	1,3,5-Trimethylbenzene	Bromodichloromethane	Bromoform	Bromomethane	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	Dibromochloromethane	1,2-Dibromoethane	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,1-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,2-Dichloropropane	cis-1,3-Dichloropropene	trans-1,3-Dichloropropene	Methyl Methacrylate	Methyl t-Butyl Ether	Methylene Chloride	Styrene	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane	Tetrachloroethene	1,2,4-Trichlorobenzene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Trichlorofluoromethane	Vinyl Chloride
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	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	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	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	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	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	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	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	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	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	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	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	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				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Most stringent guideline for fine-/coarse-grained and commercial/residential land use for Volatile Organic Compound				NA	NA	NA	NA	NA	NA	0.1	0.014	NG	0.014	NG	NG	NG	NG	0.0015	0.014	NG	0.08	NG	0.19	NG	0.003	NG	0.001	NG	0.014	NG	NG	NG	NG	NG	11	0.015	0.05	2.8	NG	0.01	0.015	NG	0.00032	NG	0.0011			
BH1981	3.0 - 9.1	S1	2022-06-03	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.027	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.027	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18 Dup	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.026	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-26	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.032	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1982	1.5 - 7.9	S1	2022-06-15	0.298	0.0013	0.0032	<0.0005	0.3	<0.1	0.046	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2022-06-15 Dup	0.292	0.0013	0.0032	<0.0005	0.3	<0.1	0.05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-19	0.0477	0.0055	0.0001	0.0029	0.4	<0.1	0.097	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-19 Dup	0.0462	0.006	0.0006	0.0031	0.4	<0.1	0.104	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-10	0.268	0.0012	0.0007	<0.00089	<0.10	<0.10	0.037	<0.0013	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.00050	<0.0010	<0.00050	<0.0020	<0.0010	<0.00020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.0010	<0.0020	<0.00050	<0.0010	<0.00050	<0.00050	<0.00020	<0.00050	<0.00050
BH1983A	3.7 - 5.2[d]	Commercial area	2022-06-16	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-26	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1984	7.3 - 15.5	Commercial area	2022-06-16	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18	0.0019	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-06	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.00050	<0.0010	<0.00050	<0.0020	<0.0010	<0.00020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.0010	<0.0020	<0.00050	<0.0010	<0.00050	<0.00050	<0.00020	<0.00050	<0.00050
BH1985	6.4 - 17.4	Residential Buffer	2022-06-16	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-26	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2001	3.4 - 4.9	S2	2022-06-02	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.002	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-25	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.0070	<0.0013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-10-04	<0.00040	<0.00040	<0.00040	<0.0012	<0.10	<0.10	0.0023	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2002	1.6 - 3.8	S2	2022-06-05	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-27	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2003	1.5 - 4.6	S2	2022-06-15	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2022-06-15 Dup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-27	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2004	4.9 - 6.4	S2	2022-06-05	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-19 Dup	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-24	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2005	3.95 - 7	S2	2022-06-02	0.226	<0.0003	<0.0005	<0.0005	0.2	<0.1	0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2022-06-02 Dup	0.297	<0.0003	<0.0005	<0.0005	0.2	<0.1	0.005	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18	0.0010	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-06	0.29	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.071	<0.0013	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.00050	<0.0010	<0.00050	<0.0020	<0.0010	<0.00020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.0010	<0.0020	<0.00050	<0.0010	<0.00050	<0.00050	<0.00020	<0.00050	<0.00050
			2023-10-04	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.0046	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2006	2.3 - 4.9	S2	2022-06-02	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.003	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.004	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-25	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.0060	<0.0013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2007	12.8 - 18.3	Residential Buffer	2022-06-02	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-17	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-24	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2008	5.2 - 12.8	Residential Buffer	2022-06-02	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-17	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-24	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2010	14.0 - 18.9	Residential Buffer	2022-06-05	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-05	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.00050	<0.0010	<0.00050	<0.0020	<0.0010	<0.00020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.0010	<0.0020	<0.00050	<0.0010	<0.00050	<0.00050	<0.00020	<0.00050	<0.00050
BH2011	9.4 - 14.0	Residential Buffer	2022-06-03	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-24	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2012	13.4 - 18.3	Residential Buffer	2022-06-05	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-20	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-26	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH3001A	1.5 - 3.05	Residential	2022-06-02	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-27	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.0016	<0.0013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-10-04	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH3001B	3.7 - 4.3	Residential	2022-06-02	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-27	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.0043	<0.0013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-10-04	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-10-04 Dup	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH3001C	5.2 - 6.1	Residential	2022-06-02	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-27	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH3002A	1.8 - 3.8	Residential	2022-06-02	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-27	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH3002B	6.1 - 7.6	Residential	2022-06-02	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-27	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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 (Intrisik, 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.
e - Groundwater samples for BH4003A and BH4003B were labelled incorrectly, confirmatory samples were taken in October to verify the July results.
" - " - 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 D-1

HISTORICAL GROUNDWATER ANALYTICAL DATA
PETROLEUM HYDROCARBONS AND VOLATILE ORGANIC COMPOUNDS

(units in mg/L unless otherwise specified)

Sample Location	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	Total Trihalomethanes
Guidelines[a]:											
Domestic Use Aquifer Pathway				0.005	0.024	0.0016	0.02	2.2	1.1	0.005	NG
Vapour Inhalation Pathway:											
N1 Area (Tier 2)				16	NG	NG	NG	540	NG	0.048	NG
N2 Area (Tier 2)				12	NG	NG	NG	420	NG	0.038	NG
S1 Area (Tier 2)				0.67	NG	NG	52	23	NG	0.2	NG
S2 Area (Tier 2)				0.57	NG	NG	44	19	NG	0.17	NG
Commercial area, Coarse-grained				0.37	NG	NG	26	9.1	17	0.13	NG
Residential/Residential Buffer area, Coarse-grained				0.03	45	31	2.2	0.81	1.5	0.01	NG
Residential, Fine-grained				0.57	NG	NG	44	19	NG	0.17	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
Commercial area, Coarse-grained				350	200	110	120	11	3.1	NG	NG
Residential/Residential Buffer area, Coarse-grained				61	59	20	31	7.1	1.8	NG	NG
Residential, Fine-grained				100	82	42	21	6.5	1.8	NG	NG
Most stringent guideline for Routine Parameters				NA	NA	NA	NA	NA	NA	NA	NA
Most stringent guideline for fine-/coarse-grained and commercial/residential land use for Volatile Organic Compound S				NA	NA	NA	NA	NA	NA	NA	0.1
BH3003A	2.18 - 2.9	Residential	2022-06-02	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-
			2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-
BH3003B	6.9 - 7.9	Residential	2022-06-02	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-
			2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-
			2023-07-27	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013
BH4002	11.7 - 13.2	Residential Buffer	2022-06-15	*0.0073*	*0.0838*	<0.0005	*1.5*	1.3	0.3	<0.001	-
			2023-01-18	*0.0071*	*0.140*	0.0005	*2.66*	1.9	0.5	<0.001	-
			2023-07-26	*0.0084*	*0.18*	0.00065	*2.6*	2.2	0.68	0.00059	-
BH4003A	10.5 - 12	Commercial area	2022-06-15	*2.04*	0.0041	<0.0005	*0.0789*	0.9	0.2	*0.255*	-
			2023-01-18	*2.33*	0.0030	<0.0005	*0.0567*	0.2	0.2	*0.195*	-
			2023-07-26[e]	*0.65*	0.0014	<0.00040	*0.042*	<0.10	0.18	*0.11*	-
			2023-10-04	*0.69*	0.0016	<0.00040	*0.053*	<0.10	0.12	*0.11*	-
BH4003B	14.9 - 16.4	Commercial area	2022-06-15	*0.0164*	<0.0003	<0.0005	<0.0005	<0.1	0.1	<0.001	-
			2023-01-18	*0.0187*	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-
			2023-07-26[e]	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.0011	-
			2023-10-04	*0.021*	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.00095	-
BH4004A	11.5 - 13	Commercial area	2022-06-16	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-
			2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-
			2023-07-26	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-
BH4004B	14.5 - 16	Commercial area	2022-06-16	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-
			2022-06-16 Dup	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-
			2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-
			2023-07-26	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-
			2023-07-26 Dup	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-
BH4005	10.7 - 12.2	Commercial area	2022-06-16	*0.0129*	0.0006	*0.0109*	<0.0005	0.1	<0.1	<0.001	-
			2023-01-18	*0.0117*	0.0004	*0.0048*	<0.0005	0.1	<0.1	<0.001	-
			2023-07-26	*0.022*	<0.00040	<0.00040	<0.00089	<0.10	0.25	<0.00050	-
BH4006	10.7 - 12.2	Residential Buffer	2022-06-16	*0.408*	0.0033	<0.0005	*0.0573*	0.7	0.1	*0.025*	-
			2023-01-18	*0.460*	0.0010	<0.0005	*0.0309*	0.4	<0.1	*0.023*	-
			2023-07-26	*0.42*	0.00071	<0.00040	*0.038*	<0.10	0.28	*0.039*	-
BH4007	10.6 - 12.1	Commercial area	2022-06-16	*0.408*	0.0033	<0.0005	*0.0573*	0.7	0.1	*0.025*	-
			2023-01-18	*0.689*	0.0012	<0.0005	*0.0142*	0.1	0.1	*0.025*	-
			2023-07-26	*0.97*	0.0024	<0.00040	*0.070*	0.90	0.20	*0.047*	-
BH4008A	10.5 - 12	Residential Buffer	2022-06-15	<0.0005	0.0103	<0.0005	*0.246*	0.5	<0.1	<0.001	-
			2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-
			2023-07-11	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	-	-
			2023-07-26	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	-
BH4008B	15.2 - 16.7	Residential Buffer	2022-06-15	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-
			2023-01-18	<0.0005	0.0046	<0.0005	*0.0465*	0.2	<0.1	<0.001	-
			2023-08-09	<0.00040	<0.00040	<0.00040	<0.00080	-	-	<0.00050	<0.0013
BH4009A	10.5 - 12	Residential Buffer	2022-06-15	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.004	-
			2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.004	-
			2023-07-26	*0.0080*	<0.00040	<0.00040	<0.00089	<0.10	*1.3*	0.0025	-
BH4009B	14.5 - 16	Residential Buffer	2022-06-15	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.004	-
			2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	0.003	-
			2023-07-26	0.0018	<0.00040	<0.00040	<0.00089	<0.10	<0.10	0.0028	-
BH5001	1.5 - 3.05	S2	2022-06-07	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-
			2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-
			2023-07-25	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013
BH5002	1.5 - 3.05	S2	2022-06-07	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-
			2023-01-18	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-
			2023-01-18 Dup	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-
			2023-07-25	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013
BH6001	9.75 - 12.8	N1	2022-06-09	*0.0119*	0.005	*0.0172*	0.0019	0.2	0.1	*0.026*	-
			2023-01-19	0.0037	0.0005	*0.0161*	0.0020	0.1	<0.1	*0.021*	-
			2023-07-25	<0.00040	<0.00040	<0.00040	<0.0011	<0.10	<0.10	*0.022*	<0.0013
BH6002	10.65 - 13.7	N1	2022-06-09	*0.0548*	*0.37*	*0.11*	*2.51*	0.2	0.5	*0.034*	-
			2023-01-19	*0.0699*	*0.423*	*0.532*	*4.30*	*3.4*	0.7	*0.030*	-
			2023-07-25	*0.033*	*0.050*	*0.28*	*1.3*	2.0	0.43	*0.025*	<0.0013
BH6003	9.75 - 12.8	N1	2022-06-09	*0.0101*	0.0204	*0.0237*	*0.258*	1.4	1	*0.011*	-
			2023-01-19	*0.0191*	*0.744*	*0.291*	*4.69*	*4.2*	*1.9*	*0.012*	-
			2023-07-25	*0.020*	*0.93*	*0.24*	*7.1*	*4.1*	*2.6*	*0.012*	<0.0013
			2023-10-04	*0.013*	*0.61*	*0.20*	*5.1*	1.5	*1.9*	*0.011*	-
BH6004	9.15 - 12.2	N1	2022-06-07	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	*0.012*	-
			2023-01-17	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	*0.009*	-
			2023-07-24	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	*0.0050*	-
BH6005	9.15 - 12.2	N1	2022-06-07	*1.46*	*1.13*	*0.224*	*1.88*	1.7	0.6	*0.027*	-
			2023-01-17	*0.840*	*0.639*	*0.110*	*0.875*	*2.8*	0.5	*0.024*	-
			2023-07-05	*0.62*	*0.052*	*0.15*	*0.084*	2.1	0.36	*0.027*	<0.0013
BH6006	12.2 - 15.2	N1	2022-06-15	<0.0005	<0.0003	<0.0005	<0.0005	0.2	<0.1	<0.001	-
			2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-
			2023-07-24	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	<0.10	<0.00050	<0.0013

Sample Location	Sample Date	1,2,3-Trichlorobenzene	1,2,4-Trimethylbenzene	1,3,5-Trichlorobenzene	1,3,5-Trimethylbenzene	Bromodichloromethane	Bromoform	Bromomethane	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	Dibromochloromethane	1,2-Dibromoethane	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,1-Dichloroethane	1,1-Dichloroethene	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,2-Dichloropropane	cis-1,3-Dichloropropene	trans-1,3-Dichloropropene	Methyl Methacrylate	Methyl t-Butyl Ether	Methylene Chloride	Styrene	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane	Tetrachloroethene	1,2,4-Trichlorobenzene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Trichlorofluoromethane	Vinyl Chloride
Guidelines[a]:																																						
Domestic Use Aquifer Pathway		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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)		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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)		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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)		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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)		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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)		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Most stringent guideline for fine-/coarse-grained and commercial/residential land use for Volatile Organic Compound S		0.014	NG	0.014	NG	NG	NG	NG	0.0015	0.014	NG	0.08	NG	0.19	NG	0.003	NG	0.001	NG	0.014	NG	NG	NG	NG	NG	11	0.015	0.05	2.8	NG	NG	0.01	0.015	NG	NG	0.00032	NG	0.0011
BH3003A	2022-06-02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH3003B	2022-06-02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4002	2022-06-15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4003A	2022-06-15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-26[e]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-10-04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4003B	2022-06-15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-26[e]	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-10-04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4004A	2022-06-16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4004B	2022-06-16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2022-06-16 Dup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-26 Dup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4005	2022-06-16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4006	2022-06-16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4007	2022-06-16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4008A	2022-06-15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-11	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4008B	2022-06-15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-08-09	<0.0010	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.00050	<0.0010	<0.00050	<0.0020	<0.0010	<0.00020	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.0010	<0.0020	<0.00050	<0.0010	<0.00050	<0.00050	<0.00020	<0.00050	<0.00050
BH4009A	2022-06-15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4009B	2022-06-15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH5001	2022-06-07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH5002	2022-06-07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-18 Dup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH6001	2022-06-09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH6002	2022-06-09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH6003	2022-06-09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-10-04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH6004	2022-06-07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH6005	2022-06-07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-05	<0.0010	0.0078	<0.00050	0.031	<0.00050	<0.00050	<0.0020	<0.00050	<0.00050	<0.0010	<0.00050	<0.0020	<0.0010	0.00023	<0.00050	<0.00050	<0.00050	0.00069	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	<0.0020	<0.00050	<0.0010	<0.0020	<0.00050	<0.0010	<0.00050	<0.00050	<0.00020	<0.00050	<0.00050
BH6006	2022-06-15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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.
e - Groundwater samples for BH4003A and BH4003B were labelled incorrectly, confirmatory samples were taken in October to verify the July results.
"-" - 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 D-1

HISTORICAL GROUNDWATER ANALYTICAL DATA
PETROLEUM HYDROCARBONS AND VOLATILE ORGANIC COMPOUNDS

(units in mg/L unless otherwise specified)

Sample Location	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	Total Trihalomethanes
Guidelines[a]:											
Domestic Use Aquifer Pathway				0.005	0.024	0.0016	0.02	2.2	1.1	0.005	NG
Vapour Inhalation Pathway:											
N1 Area (Tier 2)				16	NG	NG	NG	540	NG	0.048	NG
N2 Area (Tier 2)				12	NG	NG	NG	420	NG	0.038	NG
S1 Area (Tier 2)				0.67	NG	NG	52	23	NG	0.2	NG
S2 Area (Tier 2)				0.57	NG	NG	44	19	NG	0.17	NG
Commercial area, Coarse-grained				0.37	NG	NG	26	9.1	17	0.13	NG
Residential/Residential Buffer area, Coarse-grained				0.03	45	31	2.2	0.81	1.5	0.01	NG
Residential, Fine-grained				0.57	NG	NG	44	19	NG	0.17	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
Commercial area, Coarse-grained				350	200	110	120	11	3.1	NG	NG
Residential/Residential Buffer area, Coarse-grained				61	59	20	31	7.1	1.8	NG	NG
Residential, Fine-grained				100	82	42	21	6.5	1.8	NG	NG
Most stringent guideline for Routine Parameters				NA	NA	NA	NA	NA	NA	NA	NA
Most stringent guideline for fine-/coarse-grained and commercial/residential land use for Volatile Organic Compound S				NA	NA	NA	NA	NA	NA	NA	0.1
EX1	11.7 - 14.63	N1	2022-06-15	*1.18*	0.0066	*0.0472*	0.0051	0.2	<0.1	*0.038*	-
			2022-06-15 Dup	*1.11*	0.0065	*0.0472*	0.0052	0.2	<0.1	*0.04*	
			2023-07-24	*0.68*	0.0048	*0.10*	0.0097	0.74	0.16	*0.083*	<0.0013
			2023-07-24 Dup	*0.99*	0.0062	*0.14*	0.011	0.61	0.20	*0.084*	<0.0013
EX2	8.8 - 13.41	N1	2022-06-15	*0.0353*	0.0031	*0.0346*	0.0078	0.7	<0.1	*0.006*	-
			2023-01-19	0.0035	0.0005	*0.0016*	<0.0005	<0.1	<0.1	0.002	-
			2023-07-24	*0.010*	0.00091	*0.022*	0.0014	<0.10	<0.10	0.0048	<0.0013
EX3	8.2 - 12.8	N1	2022-06-07	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-
			2023-01-19	<0.0005	<0.0003	<0.0005	<0.0005	<0.1	<0.1	<0.001	-
			2023-07-24	<0.00040	<0.00040	<0.00040	<0.00089	<0.10	0.11	<0.00050	<0.0013
EX4	10.3 - 13.72	N1	2022-06-16	*0.151*	0.0091	*0.301*	*0.543*	1.6	*1.2*	*0.01*	-
			2023-01-19	*0.188*	0.0141	*0.304*	*0.683*	1.9	1.0	*0.008*	-
			2023-07-25	*0.15*	0.0082	*0.27*	*0.54*	1.8	0.79	*0.0081*	<0.0013
EX5	10.6 - 13.72	N1	2022-06-12	*3.94*	*8.94*	*0.932*	*5.3*	*5.0*	0.8	*0.059*	-
			2022-06-12 Dup	*3.99*	*9.1*	*0.925*	*5.44*	*4.2*	0.8	-	-
			2023-01-19	*5.46*	*10.1*	*1.46*	*6.71*	*10.2*	*1.2*	*0.131*	-
			2023-07-25	*4.1*	*6.3*	*1.5*	*6.4*	*5.3*	*1.2*	*0.11*	<0.0013
			2023-07-25 Dup	*3.7*	*5.3*	*1.5*	*6.1*	*12*	*1.3*	*0.11*	<0.0013
EX6	10.6 - 13.11	N1	2022-06-12	*0.412*	*0.352*	*1.07*	*3.3*	*7.7*	0.7	*0.043*	-
			2023-01-19	*0.352*	*0.349*	*1.08*	*3.05*	*2.4*	0.7	*0.035*	-
			2023-07-25	*0.26*	*0.29*	*0.85*	*2.3*	*3.7*	0.95	*0.038*	<0.0013
EX7	11.5 - 15.85	N1	2022-06-09	*0.769*	*0.0729*	*0.551*	*0.969*	1.8	*1.2*	*0.079*	-
			2023-01-19	*0.322*	*0.454*	*0.878*	*2.37*	*4.4*	*1.2*	*0.051*	-
			2023-07-25	*0.33*	*0.32*	*0.77*	*1.5*	*4.6*	*1.9*	*0.060*	<0.0013

Sample Location	Sample Date	1,2,3-Trichlorobenzene	1,2,4-Trimethylbenzene	1,3,5-Trichlorobenzene	1,3,5-Trimethylbenzene	Bromodichloromethane	Bromoform	Bromomethane	Carbon Tetrachloride	Chlorobenzene	Chloroethane	Chloroform	Chloromethane	Dibromochloromethane	1,2-Dibromoethane	1,2-Dichlorobenzene	1,3-Dichlorobenzene	1,4-Dichlorobenzene	1,1-Dichloroethane	1,1-Dichloroethene
Guidelines[a]:																				
Domestic Use Aquifer Pathway		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)		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
N2 Area (Tier 2)		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
S1 Area (Tier 2)		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
S2 Area (Tier 2)		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Commercial area, Coarse-grained		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		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential, Fine-grained		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)		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Commercial area, Coarse-grained		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		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential, Fine-grained		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		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Most stringent guideline for fine-/coarse-grained and commercial/residential land use for Volatile Organic Compound S		0.014	NG	0.014	NG	NG	NG	NG	0.0015	0.014	NG	0.08	NG	0.19	NG	0.003	NG	0.001	NG	0.014
EX1	2022-06-15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2022-06-15 Dup																			
	2023-07-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-24 Dup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EX2	2022-06-15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EX3	2022-06-07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EX4	2022-06-16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EX5	2022-06-12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2022-06-12 Dup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-25 Dup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EX6	2022-06-12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EX7	2022-06-09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Sample Location	Sample Date	cis-1,2-Dichloroethene	trans-1,2-Dichloroethene	1,2-Dichloropropane	cis-1,3-Dichloropropene	trans-1,3-Dichloropropene	Methyl Methacrylate	Methyl t-Butyl Ether	Methylene Chloride	Styrene	1,1,1,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane	Tetrachloroethene	1,2,4-Trichlorobenzene	1,1,1-Trichloroethane	1,1,2-Trichloroethane	Trichloroethene	Trichlorofluoromethane	Vinyl Chloride
Guidelines[a]:																			
Domestic Use Aquifer Pathway		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)		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
N2 Area (Tier 2)		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
S1 Area (Tier 2)		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
S2 Area (Tier 2)		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Commercial area, Coarse-grained		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential/Residential Buffer area, Coarse-grained		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential, Fine-grained		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)		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Commercial area, Coarse-grained		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential/Residential Buffer area, Coarse-grained		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Residential, Fine-grained		NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG
Most stringent guideline for Routine Parameters		NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
Most stringent guideline for fine-/coarse-grained and commercial/residential land use for Volatile Organic Compound S		NG	NG	NG	NG	NG	11	0.015	0.05	2.8	NG	NG	0.01	0.015	NG	NG	0.00032	NG	0.0011
EX1	2022-06-15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2022-06-15 Dup																		
	2023-07-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-24 Dup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EX2	2022-06-15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EX3	2022-06-07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EX4	2022-06-16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EX5	2022-06-12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2022-06-12 Dup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-25 Dup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EX6	2022-06-12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
EX7	2022-06-09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-01-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	2023-07-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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.
e - Groundwater samples for BH4003A and BH4003B were labelled incorrectly, confirmatory samples were taken in October to verify the July results.
"-" - 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 D-2

HISTORICAL GROUNDWATER ANALYTICAL DATA

ROUTINE PARAMETERS

(units in mg/L unless otherwise specified)

Sample Location	Screen Interval (mbgs)	Guideline Referenced	CONSTITUENT / Sample Date	Alkalinity (PP as CaCO3)	Alkalinity, Total (as CaCO3)	Bicarbonate (HCO3)	Carbonate (CO3)	Hardness (as CaCO3)	Dissolved Nitrate (as N)	Dissolved Nitrate (NO3)	Dissolved Nitrite (as N)	Dissolved Nitrite (NO2)	Nitrate+Nitrite-N - Dissolved	Total Dissolved Solids (Calculated)	Conductivity (uS/cm)	pH (S.U.)	Hydroxide (OH)	Dissolved Chloride (Cl)	Dissolved Sulphate (SO4)	Dissolved Calcium (Ca)	Dissolved Iron (Fe)	Dissolved Magnesium (Mg)	Dissolved Manganese (Mn)	Dissolved Potassium (K)	Dissolved Sodium (Na)	Methane (L/m3)	Methane	Ammonia	Total Organic Carbon	Dissolved Organic Carbon	Total Sulphide	Sulphide (as H2S)	Nitrogen	Kjeldahl Nitrogen	HCL Preserved Ferrous Iron (Fe+2)
Guidelines[a]:																																			
Domestic Use Aquifer Pathway				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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)				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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)				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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)				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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)				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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)				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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	3	NG	0.02	NG	NG	500	NG	6.5-8.5	NG	120	429	NG	0.3	NG	0.02	NG	200	NG	NG	0.282	NG	NG	0.0019	NG	NG	NG	NG
Most stringent guideline for fine-/coarse-grained and commercial/residential land use for Volatile Organic Compound Sc				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH1102	7.6 - 15.2	N1	2022-06-03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-13	<1.0	430	520	<1.0	1100	8.7	38	<0.010	<0.033	8.7	1700	3300	7.94	<1.0	830	31	230	<0.060	130	0.032	6.0	220	<0.005	<0.003	-	2.4	2.1	0.0036	0.0038	9.4	0.75	<0.050
BH1906	11.6 - 19.2	N1	2022-06-05	-	459	-	-	1030	31.2	138	4.38	14.4	35.6	1100	2080	7.79	<5	-	31.7	-	<0.1	-	0.687	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-17	<5	462	577	<5	-	31.2	138	5.39	17.7	36.6	1130	1970	7.51	<5	311	-	184	<0.1	101	0.677	4.7	50.8	-	-	-	-	-	-	-	-	-	-
			2023-01-17 Dup	<5	459	572	<5	-	31.6	140	5.54	18.2	37.2	1130	1970	7.49	<5	314	-	184	<0.1	100	0.674	4.7	50.0	-	-	-	-	-	-	-	-	-	-
			2023-07-11	<1.0	500	620	<1.0	960	42	190	6.2	20	48	1200	2100	7.58	<1.0	300	39	190	<0.060	110	0.78	5.2	57	0.038	0.025	0.28	4.5	4.3	0.012	0.012	42	<2.0	<0.050
			2023-08-09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1910	11.0 - 18.6	N1	2022-06-05	-	511	-	-	984	0.59	2.6	<0.01	<0.05	0.59	998	2030	7.85	<5	-	23.8	-	<0.1	-	0.638	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-17	<5	585	724	<5	-	1.15	5.1	0.04	0.14	1.19	1060	1940	7.52	<5	347	-	143	<0.1	136	0.573	3.2	46.2	-	-	-	-	-	-	-	-	-	-
			2023-01-17 Dup	<5	584	723	<5	-	1.15	5.1	0.05	0.15	1.20	1060	1940	7.56	<5	341	-	143	<0.1	137	0.577	3.2	46.7	-	-	-	-	-	-	-	-	-	-
			2023-07-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1917	8.8 - 16.2	N1	2022-06-12	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-11	<1.0	470	580	<1.0	910	5.1	23	0.017	0.056	5.1	1300	2500	7.59	<1.0	480	36	200	<0.060	100	0.23	5.2	150	<0.005	<0.003	<0.015	2.8	3.0	0.013	0.013	4.4	<0.10	<0.050
			2023-08-09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1918	5.8 - 13.1	N1	2022-06-07	-	345	-	-	966	0.52	2.3	<0.01	<0.05	0.52	6.1	97.5	7.63	<5	475	47	161	<0.1	137	0.022	6.1	97.5	-	-	-	-	-	-	-	-	-	-
			2022-06-07 Dup	-	576	-	-	1070	0.54	2.4	<0.01	<0.05	0.54	5.5	93.3	7.86	<5	466	47.4	205	<0.1	136	0.014	5.5	93.3	-	-	-	-	-	-	-	-	-	-
			2023-01-19	<5	585	724	<5	-	9.87	43.7	<0.01	<0.05	9.87	1220	2230	7.69	<5	389	-	150	<0.1	141	<0.005	4.9	85.1	-	-	-	-	-	-	-	-	-	-
			2023-07-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1919	6.7 - 15.5	N2	2022-06-09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-04	<1.0	470	580	<1.0	770	5.2	23	<0.010	<0.033	5.2	820	1500	7.76	<1.0	180	50	170	<0.060	84	<0.0040	4.8	22	<0.005	<0.003	<0.015	1.2	1.5	0.0083	0.0088	5.4	<0.20	<0.020
BH1924	14.9 - 19.8	N1	2022-06-02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-13	<1.0	590	720	<1.0	1900	32	140	6.9	23	39	2600	4700	7.89	<1.0	1200	45	260	<0.060	300	1.6	7.1	250	<0.005	<0.003	1.6	5.8	5.9	0.069	0.073	37	<1.0	<0.050
BH1925	16.4 - 19.8	N1	2022-06-12	-	574	-	-	970	1.74	7.7	<0.01	<0.05	1.74	1100	1850	7.85	<5	-	111	-	<0.1	-	0.319	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-19	<5	486	605	<5	-	2.76	12.2	<0.01	<0.05	2.76	814	1480	7.86	<5	106	-	70.0	<0.1	120	<0.005	2.2	48.5	-	-	-	-	-	-	-	-	-	-
			2023-07-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1927	12.2 - 22.3	N1	2022-06-07	-	350	-	-	515	<0.02	<0.5	<0.01	<0.05	<0.02	530	860	7.87	<5	88.6	33.9	121	<0.1	51.8	<0.005	2.7	17.3	-	-	-	-	-	-	-	-	-	-
			2023-07-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1928	6.4 - 16.8	N2	2022-06-12	-	545	-	-	1630	62.1	275	<0.01	<0.10	62.1	2120	3400	7.84	<5	-	39.5	-	<0.1	-	0.024	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18	<5	530	657	<5	-	43.8	194	0.03	0.11	43.9	1950	3380	7.54	<5	797	-	268	<0.1	207	0.014	6.3	110	-	-	-	-	-	-	-	-	-	-
			2023-07-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1944	5.9 - 7.6	S1	5055-06-15	-	394	-	-	495	2.64	11.7	0.04	0.12	2.68	493	784	8.13	<5	-	42.6	-	<0.1	-	0.288	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-19	<5	469	582	<5	-	2.48	11.0	0.05	0.16	2.53	554	959	7.75	<5	25.6	-	107	<0.1	62.3	0.260	2.9	12.2	-	-	-	-	-	-	-	-	-	-
			2023-07-05	<1.0	460	560	<1.0	530	2.8	12	0.049	0.16	2.8	560	980	8.00	<1.0	31	48	100	<0.060	66	0.42	3.2	15	<0.005	<0.003	<0.015	1.5	2.1	<0.0018	<0.0020	2.9	<0.10	<0.020
BH1953	11.3 - 18.6	N1	2022-06-07	-	638	-	-	1090	0.5	2.2	<0.01	<0.05	0.5	1230	2010	7.61	<5	354	43	229	<0.1	127	0.096	5.4	77.8	-	-	-	-	-	-	-	-	-	-
			2023-01-19	<5	651	807	<5	-	9.87	43.7	<0.01	<0.05	9.87	1210	2120	7.58	<5	324	-	186	<0.1	131	0.182	5.7	78.0	-	-	-	-	-	-	-	-	-	-
			2023-07-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1954	5.5 - 13.1	S1	2022-06-02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-10-04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1955A	8.5 - 11.0[d]	S2	2022-06-02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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.
e - Groundwater samples for BH4003A and BH4003B were labelled incorrectly, confirmatory samples were taken in October to verify the July results.
"-" - 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 D-2

HISTORICAL GROUNDWATER ANALYTICAL DATA

ROUTINE PARAMETERS

(units in mg/L unless otherwise specified)

Sample Location	Screen Interval (mbgs)	Guideline Referenced	CONSTITUENT Sample Date	Alkalinity (PP as CaCO3)	Alkalinity, Total (as CaCO3)	Bicarbonate (HCO3)	Carbonate (CO3)	Hardness (as CaCO3)	Dissolved Nitrate (as N)	Dissolved Nitrate (NO3)	Dissolved Nitrite (as N)	Dissolved Nitrite (NO2)	Nitrate+Nitrite-N - Dissolved	Total Dissolved Solids (Calculated)	Conductivity (uS/cm)	pH (S.U.)	Hydroxide (OH)	Dissolved Chloride (Cl)	Dissolved Sulphate (SO4)	Dissolved Calcium (Ca)	Dissolved Iron (Fe)	Dissolved Magnesium (Mg)	Dissolved Manganese (Mn)	Dissolved Potassium (K)	Dissolved Sodium (Na)	Methane (L/m3)	Methane	Ammonia	Total Organic Carbon	Dissolved Organic Carbon	Total Sulphide	Sulphide (as H2S)	Nitrogen	Kjeldahl Nitrogen	HCL Preserved Ferrous Iron (Fe+2)
Guidelines[a]:																																			
Domestic Use Aquifer Pathway				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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)				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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)				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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)				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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)				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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)				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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	3	NG	0.02	NG	NG	500	NG	6.5-8.5	NG	120	429	NG	0.3	NG	0.02	NG	200	NG	NG	0.282	NG	NG	0.0019	NG	NG	NG	NG
Most stringent guideline for fine-/coarse-grained and commercial/residential land use for Volatile Organic Compound Sc				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH1956	5.8 - 14.6	N2	2022-06-15	-	349	-	-	682	15.9	70.5	<0.01	<0.05	15.9	677	1080	8.01	<5	-	49.2	-	<0.1	-	<0.005	-	-	-	-	-	-	-	-	-	-	-	-
BH1957	5.8 - 14.1	Commercial area	2022-06-16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1958	5.8 - 14.9	Commercial area	2022-06-16	-	469	-	-	674	2.37	10.5	<0.01	<0.05	2.37	830	1460	7.84	<5	-	36.6	-	<0.1	-	<0.005	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18	<5	482	600	<5	-	2.42	10.7	<0.01	<0.05	2.42	874	1600	7.67	<5	238	-	140	<0.1	86.7	<0.005	4.0	61.4	-	-	-	-	-	-	-	-	-	-
			2023-07-10	<1.0	530	650	<1.0	660	2.2	9.7	<0.010	<0.033	2.2	800	1400	7.78	<1.0	160	43	130	<0.060	82	<0.0040	4.2	56	<0.005	<0.003	<0.015	1.5	1.9	0.024	0.025	2.0	<0.050	<0.050
BH1962	9.8 - 12.5	N2	2022-06-09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-20	<5	319	398	<5	-	0.16	0.7	0.02	0.07	0.18	338	580	7.97	<5	5.0	-	69.1	<0.1	29.3	0.169	1.9	16.0	-	-	-	-	-	-	-	-	-	-
			2023-07-06	<1.0	330	410	<1.0	390	1.6	7.1	<0.010	<0.033	1.6	440	780	8.01	<1.0	47	30	87	<0.060	43	0.0044	5.9	20	<0.005	<0.003	<0.015	2.7	2.7	0.079	0.084	1.9	0.342	<0.020
BH1963	5.5 - 11.3	N2	2022-06-09	-	279	-	-	287	<0.02	<0.5	<0.01	<0.05	<0.02	305	551	8.07	<5	-	18	-	<0.1	-	0.131	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-20	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-11	<1.0	610	740	<1.0	1000	7.8	34	0.038	0.12	7.8	1200	2100	7.66	<1.0	320	57	160	<0.060	150	0.18	5.5	64	<0.005	<0.003	<0.015	3.3	2.9	0.013	0.013	6.8	<0.10	<0.050
			2023-08-09	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-10-04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-10-04 Dup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1979	2.8 - 6.7	S1	2022-06-05	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-05	<1.0	500	610	<1.0	660	1.3	5.7	0.094	0.31	1.4	640	1100	7.83	<1.0	50	52	130	<0.060	84	0.20	3.7	17	<0.005	<0.003	<0.015	2.0	2.9	<0.0018	<0.0020	1.3	<0.050	<0.020
			2023-10-04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1982	1.5 - 7.9	S1	2022-06-15	-	478	-	-	649	3.07	13.6	0.02	0.08	3.1	670	1100	8.1	<5	-	47.6	-	0.8	-	0.678	-	-	-	-	-	-	-	-	-	-	-	-
			2022-06-15 Dup	-	514	-	-	650	3	13.3	<0.01	<0.05	3	689	1140	8.07	<5	-	47.4	-	0.8	-	0.681	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-19 Dup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-13	<1.0	570	690	<1.0	700	7.0	31	0.069	0.19	7.0	770	1300	7.79	<1.0	83	63	120	2.3	95	0.47	2.4	26	<0.005	<0.003	<0.015	2.6	3.4	0.0055	0.0058	7.0	<0.20	1.8
BH1983A	3.7 - 5.2[d]	Commercial area	2022-06-16	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH1984	7.3 - 15.5	Commercial area	2022-06-16	-	514	-	-	600	6.33	28	<0.01	<0.05	6.33	696	1180	7.83	<5	-	37.6	-	<0.1	-	0.299	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18	<5	538	667	<5	-	8.54	37.8	0.15	0.50	8.69	811	1450	7.72	<5	150	-	114	<0.1	108	0.574	4.1	27.2	-	-	-	-	-	-	-	-	-	-
			2023-07-06	<1.0	480	590	<1.0	680	7.6	34	0.014	0.045	7.6	700	1200	8.04	<1.0	99	39	110	<0.060	99	0.33	4.8	27	<0.005	<0.003	<0.015	2.1	2.5	0.0069	0.0073	7.9	0.23	<0.020
BH2003	1.5 - 4.6	S2	2022-06-15	-	427	-	-	604	0.41	1.8	<0.01	<0.05	0.41	897	1570	8.14	<5	-	56.9	-	<0.1	-	0.327	-	-	-	-	-	-	-	-	-	-	-	-
			2022-06-15 Dup	-	403	-	-	601	0.43	1.9	<0.01	<0.05	0.43	882	1540	8.18	<5	-	56.8	-	<0.1	-	0.325	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-19	<5	486	604	<5	-	0.18	0.8	<0.01	<0.05	0.18	749	1320	7.81	<5	141	-	100	<0.1	71.7	0.044	3.1	74.7	-	-	-	-	-	-	-	-	-	-
			2023-07-27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2005	3.95 - 7	S2	2022-06-02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2022-06-02 Dup	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-06	<1.0	540	660	<1.0	920	20	90	4.4	14	25	1100	1900	7.67	<1.0	240	53	160	<0.060	130	0.13	4.1	57	<0.005	<0.003	<0.015	2.6	3.1	<0.0018	<0.0020	23	<0.40	<0.020
			2023-10-04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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.
e - Groundwater samples for BH4003A and BH4003B were labelled incorrectly, confirmatory samples were taken in October to verify the July results.
"-" - 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 D-2

HISTORICAL GROUNDWATER ANALYTICAL DATA

ROUTINE PARAMETERS

(units in mg/L unless otherwise specified)

Sample Location	Screen Interval (mbgs)	Guideline Referenced	CONSTITUENT / Sample Date	Alkalinity (PP as CaCO3)	Alkalinity, Total (as CaCO3)	Bicarbonate (HCO3)	Carbonate (CO3)	Hardness (as CaCO3)	Dissolved Nitrate (as N)	Dissolved Nitrate (NO3)	Dissolved Nitrite (as N)	Dissolved Nitrite (NO2)	Nitrate+Nitrite-N - Dissolved	Total Dissolved Solids (Calculated)	Conductivity (uS/cm)	pH (S.U.)	Hydroxide (OH)	Dissolved Chloride (Cl)	Dissolved Sulphate (SO4)	Dissolved Calcium (Ca)	Dissolved Iron (Fe)	Dissolved Magnesium (Mg)	Dissolved Manganese (Mn)	Dissolved Potassium (K)	Dissolved Sodium (Na)	Methane (L/m3)	Methane	Ammonia	Total Organic Carbon	Dissolved Organic Carbon	Total Sulphide	Sulphide (as H2S)	Nitrogen	Kjeldahl Nitrogen	HCL Preserved Ferrous Iron (Fe+2)
Guidelines[a]:																																			
Domestic Use Aquifer Pathway				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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)				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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)				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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)				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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)				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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)				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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				NG	NG	NG	NG	NG	NG	NG	NG	NG	NG	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	3	NG	0.02	NG	NG	500	NG	6.5-8.5	NG	120	429	NG	0.3	NG	0.02	NG	200	NG	NG	0.282	NG	NG	0.0019	NG	NG	NG	NG
Most stringent guideline for fine-/coarse-grained and commercial/residential land use for Volatile Organic Compound Sc				NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
BH2010	14.0 - 18.9	Residential Buffer	2022-06-05	-	292	-	-	432	412	2.8	12.4	0.17	0.55	2.97	827	7.97	<5	-	33.6	-	<0.1	-	0.067	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-19	<5	359	447	<5	-	2.80	12.4	0.14	0.46	2.94	446	778	7.83	<5	34.7	-	91.5	<0.1	42.4	0.080	2.9	6.8	-	-	-	-	-	-	-	-	-	-
			2023-07-05	<1.0	340	420	<1.0	600	2.8	12	0.048	0.16	2.8	640	1100	7.96	<1.0	150	38	130	0.15	64	0.31	4.0	24	0.005	0.003	<0.015	1.2	1.7	0.022	0.023	3.3	0.46	<0.020
BH2011	9.4 - 14.0	Residential Buffer	2022-06-03	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-19	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH2012	13.4 - 18.3	Residential Buffer	2022-06-05	-	395	-	-	853	14.6	64.6	<0.01	<0.05	14.6	898	1750	7.96	<5	-	50.5	-	<0.1	-	0.153	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-20	<5	473	587	<5	-	18.4	81.5	0.02	0.08	18.4	1060	1860	7.66	<5	305	-	141	<0.1	127	0.152	4.6	45.3	-	-	-	-	-	-	-	-	-	-
			2023-07-26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH3001A	1.5 - 3.05	Residential	2022-06-02	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18	<5	591	732	<5	-	13.5	59.7	<0.01	<0.05	13.5	1100	1950	7.91	<5	278	-	161	<0.1	122	<0.005	4.5	65.4	-	-	-	-	-	-	-	-	-	-
			2023-07-27	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-10-04	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4007	10.6 - 12.1	Commercial area	2022-06-16	-	612	-	-	1210	17.3	76.5	3.41	11.2	20.7	1440	2610	7.77	<5	-	28	-	<0.1	-	0.421	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18	<5	642	797	<5	-	16.9	75.0	5.63	18.5	22.6	1800	3370	7.71	<5	735	-	120	<0.1	290	0.532	5.4	135	-	-	-	-	-	-	-	-	-	-
			2023-07-26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH4008A	10.5 - 12	Residential Buffer	2022-06-15	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-18	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-11	<1.0	380	470	<1.0	370	0.025	0.11	<0.010	<0.033	0.025	520	950	8.00	<1.0	78	21	90	<0.060	36	<0.0040	5.2	59	<0.005	<0.003	<0.015	2.1	2.6	<0.0018	<0.0020	0.18	0.155	<0.050
			2023-07-26	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
BH6005	9.15 - 12.2	N1	2022-06-07	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-17	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
			2023-07-05	<1.0	560	690	<1.0	1300	<0.050	<0.22	<0.010	<0.033	<0.050	1500	2700	7.49	<1.0	610	12	260	10	160	2.7	4.2	80	<0.005	<0.003	0.032	5.9	4.1	0.015	0.016	0.26	0.265	10.3
EX7	11.5 - 15.85	N1	2022-06-09	-	468	-	-	905	<0.02	<0.5	<0.01	<0.05	<0.02	940	1780	7.67	<5	-	5.3	-	<0.1	-	0.807	-	-	-	-	-	-	-	-	-	-	-	-
			2023-01-19	<5	497	619	<5	-	0.18	0.8	<0.01	<0.05	0.18	1030	1980	7.41	<5	402	-	144	<0.1	131	0.576	2.2	46.7	-	-	-	-	-	-	-	-	-	-
			2023-07-25	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

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.

e - Groundwater samples for BH4003A and BH4003B were labelled incorrectly, confirmatory samples were taken in October to verify the July results.

"-" - 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.

APPENDIX E

QUALITY ASSURANCE AND QUALITY CONTROL

TABLE E-1

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

SAMPLE LOCATIONS	BH1915		DUP-01 FIELD DUPLICATE BH1915			BH1907		DUP-02 FIELD DUPLICATE BH1907			
Bureau Veritas Certificate of Analysis No.	C354737	RDL	C354737	RDL	RPD	C356730	RDL	C356730	RDL	RPD	RPD ALERT LIMITS (%)[a]
Bureau Veritas Sample ID	BUX874		BUX875			BVK756		BVK738			
Screen Interval (mbgs)	10.4 - 18.6		10.4 - 18.6			8.8 - 18.0		8.8 - 18.0			
Date Sampled (yyyy/mm/dd)	2023/07/19		2023/07/19			2023/07/24		2023/07/24			
PARAMETERS											
Benzene	0.20	0.00040	0.20	0.00040	0%	0.020	0.00040	0.020	0.00040	0%	80
Toluene	0.0011	0.00040	0.0011	0.00040	NC	0.095	0.00040	0.095	0.00040	0%	80
Ethylbenzene	0.0024	0.00040	0.0024	0.00040	0%	0.14	0.00040	0.14	0.00040	0%	80
Total Xylenes	0.017	0.00089	0.017	0.00089	0%	1.1	0.00089	1.2	0.00089	9%	80
Petroleum Hydrocarbons F1 (C6-C10)[b]	0.90	0.10	0.90	0.10	0%	1.7	0.10	1.8	0.10	6%	80
Petroleum Hydrocarbons F2 (>C10-C16)[c]	0.30	0.10	0.29	0.10	NC	0.47	0.10	0.52	0.10	NC	80
1,2-Dichloroethane	0.037	0.00050	0.039	0.00050	5%	0.0023	0.00050	0.0025	0.00050	NC	80

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).
mbgs - metres below ground surface
BOLD - Exceeds RPD alert limit.
Results for all paramters are reported in miligrams per litre (mg/L).

TABLE E-1

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

SAMPLE LOCATIONS	BH1967		DUP-03 FIELD DUPLICATE BH1967			BH1971		DUP-04 FIELD DUPLICATE BH1971			
Bureau Veritas Certificate of Analysis No.	C356730	RDL	C356730	RDL	RPD	C356730	RDL	C356730	RDL	RPD	RPD ALERT LIMITS (%)[a]
Bureau Veritas Sample ID	BVK752		BVK737			BVK732		BVK755			
Screen Interval (mbgs)	5.5 - 8.5		5.5 - 8.5			7.3 - 11.0		7.3 - 11.0			
Date Sampled (yyyy/mm/dd)	2023/07/24		2023/07/24			2023/07/24		2023/07/24			
PARAMETERS											
Benzene	0.074	0.00040	0.078	0.00040	5%	0.0017	0.00040	0.0019	0.00040	NC	80
Toluene	0.011	0.00040	0.011	0.00040	0%	0.00059	0.00040	0.00055	0.00040	NC	80
Ethylbenzene	0.022	0.00040	0.022	0.00040	0%	0.0089	0.00040	0.0094	0.00040	5%	80
Total Xylenes	0.0029	0.00089	0.0028	0.00089	NC	<0.00089	0.00089	<0.00089	0.00089	NC	80
Petroleum Hydrocarbons F1 (C6-C10)[b]	3.3	0.10	3.2	0.10	3%	0.70	0.10	0.93	0.10	28%	80
Petroleum Hydrocarbons F2 (>C10-C16)[c]	0.30	0.10	0.29	0.10	NC	0.23	0.10	0.23	0.10	NC	80
1,2-Dichloroethane	0.021	0.00050	0.021	0.00050	0%	0.026	0.00050	0.024	0.00050	8%	80

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).
mbgs - metres below ground surface
BOLD - Exceeds RPD alert limit.
Results for all paramters are reported in miligrams per litre (mg/L).

TABLE E-1

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

SAMPLE LOCATIONS	BH510A		DUP-05 FIELD DUPLICATE BH510A			BH1905		DUP-06 FIELD DUPLICATE BH1905			
Bureau Veritas Certificate of Analysis No.	C356837	RDL	C356837	RDL	RPD	C357542	RDL	C357542	RDL	RPD	RPD ALERT LIMITS (%)[a]
Bureau Veritas Sample ID	BVL609		BVL610			BVO940		BVO941			
Screen Interval (mbgs)	11.3 - 17.4		11.3 - 17.4			3.1 - 6.1		3.1 - 6.1			
Date Sampled (yyyy/mm/dd)	2023/07/24		2023/07/24			2023/07/26		2023/07/26			
PARAMETERS											
Benzene	0.21	0.00040	0.081	0.00040	**89%**	0.13	0.00040	0.13	0.00040	0%	80
Toluene	0.0097	0.00040	0.0050	0.00040	64%	0.0066	0.00040	0.0088	0.00040	29%	80
Ethylbenzene	0.36	0.00040	0.14	0.00040	**88%**	0.19	0.00040	0.24	0.00040	23%	80
Total Xylenes	0.0094	0.00089	0.0051	0.00089	59%	2.1	0.00089	2.3	0.00089	9%	80
Petroleum Hydrocarbons F1 (C6-C10)[b]	1.1	0.10	0.85	0.10	26%	2.0	0.10	2.8	0.10	33%	80
Petroleum Hydrocarbons F2 (>C10-C16)[c]	0.14	0.10	0.13	0.10	NC	3.2	0.10	4.2	0.10	27%	80
1,2-Dichloroethane	0.026	0.00050	0.020	0.00050	26%	0.025	0.00050	0.033	0.00050	28%	80

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).
mbgs - metres below ground surface
BOLD - Exceeds RPD alert limit.
Results for all paramters are reported in miligrams per litre (mg/L).

TABLE E-1

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

SAMPLE LOCATIONS	EX1		DUP-07 FIELD DUPLICATE EX1			EX5		DUP-09 FIELD DUPLICATE EX5			
Bureau Veritas Certificate of Analysis No.	C356837	RDL	C356837	RDL	RPD	C356837	RDL	C356837	RDL	RPD	RPD ALERT LIMITS (%)[a]
Bureau Veritas Sample ID	BVL617		BVL618			BVL604		BVL605			
Screen Interval (mbgs)	11.7 - 14.63		11.7 - 14.63			10.6 - 13.72		10.6 - 13.72			
Date Sampled (yyyy/mm/dd)	2023/07/24		2023/07/24			2023/07/25		2023/07/25			
PARAMETERS											
Benzene	0.68	0.00040	0.99	0.00040	37%	4.1	0.0040	3.7	0.0040	10%	80
Toluene	0.0048	0.00040	0.0062	0.00040	25%	6.3	0.0040	5.3	0.0040	17%	80
Ethylbenzene	0.10	0.00040	0.14	0.00040	33%	1.5	0.0040	1.5	0.0040	0%	80
Total Xylenes	0.0097	0.00089	0.011	0.00089	13%	6.4	0.0080	6.1	0.0080	5%	80
Petroleum Hydrocarbons F1 (C6-C10)[b]	0.74	0.10	0.61	0.10	19%	5.3	1.0	12	1.0	77%	80
Petroleum Hydrocarbons F2 (>C10-C16)[c]	0.16	0.10	0.20	0.10	NC	1.2	0.10	1.3	0.10	8%	80
1,2-Dichloroethane	0.083	0.00050	0.084	0.00050	1%	0.11	0.00050	0.11	0.00050	0%	80

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).
mbgs - metres below ground surface
BOLD - Exceeds RPD alert limit.
Results for all paramters are reported in miligrams per litre (mg/L).

TABLE E-1

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

SAMPLE LOCATIONS	BH1921		DUP-11 FIELD DUPLICATE BH1921			BH4004B		DUP-13 FIELD DUPLICATE BH4004B			
Bureau Veritas Certificate of Analysis No.	C356837	RDL	C356837	RDL	RPD	C357512	RDL	C357512	RDL	RPD	RPD ALERT LIMITS (%)[a]
Bureau Veritas Sample ID	BVL594		BVL595			BVO852		BVO853			
Screen Interval (mbgs)	8.8 - 18.9		8.8 - 18.9			14.5 - 16.0		14.5 - 16.0			
Date Sampled (yyyy/mm/dd)	2023/07/25		2023/07/25			2023/07/26		2023/07/26			
PARAMETERS											
Benzene	0.027	0.00040	0.027	0.00040	0%	<0.00040	0.00040	<0.00040	0.00040	NC	80
Toluene	0.0092	0.00040	0.0088	0.00040	4%	<0.00040	0.00040	<0.00040	0.00040	NC	80
Ethylbenzene	0.070	0.00040	0.067	0.00040	4%	<0.00040	0.00040	<0.00040	0.00040	NC	80
Total Xylenes	0.0050	0.00089	0.0048	0.00089	4%	<0.00089	0.00089	<0.00089	0.00089	NC	80
Petroleum Hydrocarbons F1 (C6-C10)[b]	0.74	0.10	0.83	0.10	11%	<0.10	0.10	<0.10	0.10	NC	80
Petroleum Hydrocarbons F2 (>C10-C16)[c]	<0.10	0.10	<0.10	0.10	NC	<0.10	0.10	<0.10	0.10	NC	80
1,2-Dichloroethane	0.040	0.00050	0.040	0.00050	0%	<0.00050	0.00050	<0.00050	0.00050	NC	80

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).
mbgs - metres below ground surface
BOLD - Exceeds RPD alert limit.
Results for all paramters are reported in miligrams per litre (mg/L).

TABLE E-1

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

SAMPLE LOCATIONS	BH3001B		DUP-01 FIELD DUPLICATE BH3001B			BH1963		DUP-02 FIELD DUPLICATE BH1963			
Bureau Veritas Certificate of Analysis No.	C380452	RDL	C380452	RDL	RPD	C380452	RDL	C380452	RDL	RPD	RPD ALERT LIMITS (%)[a]
Bureau Veritas Sample ID	CBC998		CBC999			CBD000		CBD001			
Screen Interval (mbgs)	Unknown		Unknown			Unknown		Unknown			
Date Sampled (yyyy/mm/dd)	2023/10/04		2023/10/04			2023/10/04		2023/10/04			
PARAMETERS											
Benzene	<0.00040	0.00040	<0.00040	0.00040	NC	<0.00040	0.00040	<0.00040	0.00040	NC	80
Toluene	<0.00040	0.00040	<0.00040	0.00040	NC	<0.00040	0.00040	<0.00040	0.00040	NC	80
Ethylbenzene	<0.00040	0.00040	<0.00040	0.00040	NC	<0.00040	0.00040	<0.00040	0.00040	NC	80
Total Xylenes	<0.00089	0.00089	<0.00089	0.00089	NC	<0.00089	0.00089	<0.00089	0.00089	NC	80
Petroleum Hydrocarbons F1 (C6-C10)[b]	<0.10	0.10	<0.10	0.10	NC	<0.10	0.10	<0.10	0.10	NC	80
Petroleum Hydrocarbons F2 (>C10-C16)[c]	<0.10	0.10	<0.10	0.10	NC	<0.10	0.10	<0.10	0.10	NC	80
1,2-Dichloroethane	<0.00050	0.00050	<0.00050	0.00050	NC	<0.00050	0.00050	0.00061	0.00050	NC	80

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).
mbgs - metres below ground surface
BOLD - Exceeds RPD alert limit.
Results for all paramters are reported in miligrams per litre (mg/L).

TABLE E-2

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

SAMPLE LOCATIONS		TRIP BLANK		TRIP BLANK		TRIP BLANK		TRIP BLANK	
		'TRIP BLANK-01	EXCEEDS ALERT	'TRIP BLANK-02	EXCEEDS ALERT	'TRIP BLANK-03	EXCEEDS ALERT	'TRIP BLANK-04	EXCEEDS ALERT
Bureau Veritas Certificate of Analysis No.	RDL	C354737	LIMIT (yes/no)	C356730	LIMIT (yes/no)	C356837	LIMIT (yes/no)	C356823	LIMIT (yes/no)
Bureau Veritas Sample ID		BUX877		BVK757		BVL623		BVL456	
Date Sampled (yyyy/mm/dd)		2023/07/19		2023/07/24		2023/07/24		2023/07/25	
PARAMETERS									
Benzene	0.0004	<0.00040	No	<0.00040	No	<0.00040	No	<0.00040	No
Toluene	0.0004	<0.00040	No	<0.00040	No	<0.00040	No	<0.00040	No
Ethylbenzene	0.0004	<0.00040	No	<0.00040	No	<0.00040	No	<0.00040	No
Total Xylenes	0.00089	<0.00089	No	**0.0030**	Yes	<0.00089	No	<0.00089	No
Petroleum Hydrocarbons F1 (C6-C10)[a]	0.1	<0.10	No	<0.10	No	<0.10	No	<0.10	No
Petroleum Hydrocarbons F2 (>C10-C16)[b]	0.1	<0.10	No	<0.10	No	<0.10	No	<0.10	No
1,2-Dichloroethane	0.0005	<0.00050	No	<0.00050	No	<0.00050	No	<0.00050	No

a - BTEX have been subtracted from the fraction.
b - Naphthalene has not been subtracted from the fraction.
RDL - Reportable detection limit.
BOLD - Exceeds alert limit.
Note - Alert limits for field blanks and trip blanks are 5x RDL for BTEX; 2x RDL for petroleum hydrocarbons fractions F1 and F2.
Results for all parameters are reported in milligrams per litre (mg/L).

TABLE E-2

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

SAMPLE LOCATIONS		TRIP BLANK		TRIP BLANK		TRIP BLANK	
		'TRIP BLANK-05	EXCEEDS ALERT	'TRIP BLANK-07	EXCEEDS ALERT	'TRIP BLANK-09	EXCEEDS ALERT
Bureau Veritas Certificate of Analysis No.	RDL	C356837	LIMIT (yes/no)	C357524	LIMIT (yes/no)	C357956	LIMIT (yes/no)
Bureau Veritas Sample ID		BVL608		BVO893		BVR200	
Date Sampled (yyyy/mm/dd)		2023/07/25		2023/07/26		2023/07/27	
PARAMETERS							
Benzene	0.0004	<0.00040	No	<0.00040	No	<0.00040	No
Toluene	0.0004	<0.00040	No	<0.00040	No	<0.00040	No
Ethylbenzene	0.0004	<0.00040	No	<0.00040	No	<0.00040	No
Total Xylenes	0.00089	<0.00089	No	<0.00089	No	<0.00089	No
Petroleum Hydrocarbons F1 (C6-C10)[a]	0.1	<0.10	No	<0.10	No	<0.10	No
Petroleum Hydrocarbons F2 (>C10-C16)[b]	0.1	<0.10	No	<0.10	No	<0.10	No
1,2-Dichloroethane	0.0005	<0.00050	No	<0.00050	No	<0.00050	No

a - BTEX have been subtracted from the fraction.
b - Naphthalene has not been subtracted from the fraction.
RDL - Reportable detection limit.
BOLD - Exceeds alert limit.
Note - Alert limits for field blanks and trip blanks are 5x RDL for BTEX; 2x RDL for petroleum hydrocarbons fractions F1 and F2.
Results for all parameters are reported in milligrams per litre (mg/L).

TABLE E-2

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

SAMPLE LOCATIONS		EB-BAILER-01		EB-BAILER-02		EB-BAILER-03	
		'EB-BAILER-01	EXCEEDS ALERT LIMIT (yes/no)	'EB-BAILER-02	EXCEEDS ALERT LIMIT (yes/no)	'EB-BAILER-03	EXCEEDS ALERT LIMIT (yes/no)
Bureau Veritas Certificate of Analysis No.		C356837		C357524		C357956	
Bureau Veritas Sample ID		BVL621		BVO890		BVR198	
Date Sampled (yyyy/mm/dd)	RDL	2023/07/24		2023/07/26		2023/07/27	
PARAMETERS							
Benzene	0.0004	<0.00040	No	<0.00040	No	<0.00040	No
Toluene	0.0004	<0.00040	No	<0.00040	No	<0.00040	No
Ethylbenzene	0.0004	<0.00040	No	<0.00040	No	<0.00040	No
Total Xylenes	0.00089	<0.00089	No	<0.00089	No	<0.00089	No
Petroleum Hydrocarbons F1 (C6-C10)[a]	0.1	<0.10	No	<0.10	No	<0.10	No
Petroleum Hydrocarbons F2 (>C10-C16)[b]	0.1	<0.10	No	<0.10	No	<0.10	No
1,2-Dichloroethane	0.0005	<0.00050	No	<0.00050	No	<0.00050	No

a - BTEX have been subtracted from the fraction.
b - Naphthalene has not been subtracted from the fraction.
RDL - Reportable detection limit.
BOLD - Exceeds alert limit.
Note - Alert limits for field blanks and trip blanks are 5x RDL for BTEX; 2x RDL for petroleum hydrocarbons fractions F1 and F2.
Results for all parameters are reported in milligrams per litre (mg/L).

TABLE E-2

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

SAMPLE LOCATIONS		EB-HYDRA-01		EB-HYDRA-02		EB-HYDRA-04	
		'EB-HYDRA-01	EXCEEDS ALERT LIMIT (yes/no)	'EB-HYDRA-02	EXCEEDS ALERT LIMIT (yes/no)	'EB-HYDRA-04	EXCEEDS ALERT LIMIT (yes/no)
Bureau Veritas Certificate of Analysis No.		C356837		C357524		C357956	
Bureau Veritas Sample ID		BVL622		BVO891		BVR199	
Date Sampled (yyyy/mm/dd)	RDL	2023/07/24		2023/07/26		2023/07/27	
PARAMETERS							
Benzene	0.0004	<0.00040	No	<0.00040	No	<0.00040	No
Toluene	0.0004	<0.00040	No	<0.00040	No	<0.00040	No
Ethylbenzene	0.0004	<0.00040	No	<0.00040	No	<0.00040	No
Total Xylenes	0.00089	<0.00089	No	<0.00089	No	<0.00089	No
Petroleum Hydrocarbons F1 (C6-C10)[a]	0.1	<0.10	No	<0.10	No	<0.10	No
Petroleum Hydrocarbons F2 (>C10-C16)[b]	0.1	<0.10	No	<0.10	No	<0.10	No
1,2-Dichloroethane	0.0005	<0.00050	No	<0.00050	No	<0.00050	No

a - BTEX have been subtracted from the fraction.
b - Naphthalene has not been subtracted from the fraction.
RDL - Reportable detection limit.
BOLD - Exceeds alert limit.
Note - Alert limits for field blanks and trip blanks are 5x RDL for BTEX; 2x RDL for petroleum hydrocarbons fractions F1 and F2.
Results for all parameters are reported in milligrams per litre (mg/L).

DATA QUALITY REVIEW CHECKLIST

Consultant: *Parsons Inc.*

Sampling Date: *2023/7/04*

Location: *1620 14 AVE NW, CALGARY*

Laboratory : *Bureau Veritas, Calgary, AB*

Consultant Project Number: *10-12832*

Sample Submission Number: *C349643*

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

	Yes	No	NA	Comments
Surrogate Recovery	*X*			*The matrix duplicate RPD for Total Sulphide (12%), Total Organic Carbon (68%), Dissolved Organic Carbon (79%), and Styrene (41%) are below the control limit. All other 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
Field 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*
Has lab warranted all tests were in statistical control in CoA (Yes/No)?:	*Yes*
Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?:	*Yes*
Were all samples analyzed within hold times (Yes/No)?:	*Yes*
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): *Mackenzie Robart*

Reviewed by (Print): *Michelle Patterson*

Reviewed date: *2023/10/03*

Reviewed by (Signature):

Your P.O. #: 478621.17104
Your Project #: 10-12832
Site#: 9445
Site Location: 478621.17104
WBS 478621.17104
Outlet Number 9445
Your C.O.C. #: 699215-15-01

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/08/08
Report #: R3377512
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C349643
Received: 2023/07/04, 15:09

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity @25C (pp, total), CO3,HCO3,OH	1	N/A	2023/07/11	AB SOP-00005	SM 23 2320 B m
BTEX/F1 in Water by HS GC/MS/FID	1	N/A	2023/07/09	AB SOP-00039	CCME CWS/EPA 8260d m
F1-BTEX	1	N/A	2023/07/10		Auto Calc
Chloride/Sulphate by Auto Colourimetry	1	N/A	2023/07/11	AB SOP-00020	SM24-4500-Cl/SO4-E m
Carbon (DOC) -Lab Filtered (3)	1	N/A	2023/07/10	AB SOP-00087	MMCW 119 1996 m
Conductivity @25C	1	N/A	2023/07/11	AB SOP-00005	SM 23 2510 B m
Ferrous Iron (Dissolved) (1)	1	N/A	2023/07/13		
CCME Hydrocarbons in Water (F2; C10-C16) (4)	1	2023/07/08	2023/07/09	AB SOP-00037 AB SOP-00040	CCME PHC-CWS m
Sulphide (as H2S)	1	N/A	2023/07/05		Auto Calc
Hardness	1	N/A	2023/07/11		Auto Calc
Elements by ICP-Dissolved-Lab Filtered (5)	1	N/A	2023/07/11	AB SOP-00042	EPA 6010d R5 m
Ion Balance	1	N/A	2023/07/12		Auto Calc
Sum of cations, anions	1	N/A	2023/07/11		Auto Calc
Ammonia-N (Total)	1	N/A	2023/07/10	AB SOP-00007	SM 24 4500 NH3 A G m
Nitrate and Nitrite	1	N/A	2023/07/10		Auto Calc
NO2 (N); NO2 (N) + NO3 (N) in Water	1	N/A	2023/07/09	AB SOP-00091	SM 24 4500 NO3m
Nitrate (as N)	1	2023/07/04	2023/07/10		Auto Calc
pH @25°C (6)	1	N/A	2023/07/11	AB SOP-00005	SM 23 4500-H+B m
Total Sulphide	1	N/A	2023/07/05	AB SOP-00080	SM 23 4500 S2-A D Fm
Total Dissolved Solids (Calculated)	1	N/A	2023/07/12		Auto Calc
Total Trihalomethanes Calculation	1	N/A	2023/07/18		Auto Calc
Total Kjeldahl Nitrogen (Total)	1	N/A	2023/07/10	BBY WI-00033	Auto Calc
Nitrogen (Total)	1	2023/07/10	2023/07/10	AB SOP-00093	SM 24 4500-N C m
Carbon (Total Organic) (7)	1	N/A	2023/07/11	AB SOP-00087	MMCW 119 1996 m
VOCs in Water by HS GC/MS (Std List)	1	N/A	2023/07/18	AB SOP-00056	EPA 5021a/8260d m
Dissolved Gases in Water (2)	1	N/A	2023/07/11	CAM SOP-00219	RSKSOP-175 m
Dissolved Gases in Water in mg/L units (2)	1	N/A	2023/07/05	Calculation	Calculation

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Your P.O. #: 478621.17104
Your Project #: 10-12832
Site#: 9445
Site Location: 478621.17104
WBS 478621.17104
Outlet Number 9445
Your C.O.C. #: 699215-15-01

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/08/08
Report #: R3377512
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C349643
Received: 2023/07/04, 15:09

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) This test was performed by ALS Laboratory Group, 8081 Lougheed HWY , Burnaby, BC, V5A 1W9
(2) This test was performed by Bureau Veritas Campobello, 6740 Campobello Road , Mississauga, ON, L5N 2L8
(3) DOC present in the sample should be considered as non-purgeable DOC. Dissolved > Total Imbalance: When applicable, Dissolved and Total results were reviewed and data quality meets acceptable levels unless otherwise noted.
(4) Silica gel clean up employed.
(5) Dissolved > Total Imbalance: When applicable, Dissolved and Total results were reviewed and data quality meets acceptable levels unless otherwise noted.
(6) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas endeavours to analyze samples as soon as possible after receipt.
(7) TOC present in the sample should be considered as non-purgeable TOC.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Parminder Virk, Key Account Specialist
Email: Parminder.Virk@bureauveritas.com
Phone# (403)735-2235
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Scott Cantwell, General Manager responsible for Alberta Environmental laboratory operations.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C349643
Report Date: 2023/08/08

PARSONS INC.
Client Project #: 10-12832
Site Location: 478621.17104
Your P.O. #: 478621.17104
Sampler Initials: CW

AT1 BTEX AND F1-F2 IN WATER (WATER)

Bureau Veritas ID		BTV678		
Sampling Date		2023/07/04 13:05		
COC Number		699215-15-01		
	UNITS	**BH1919**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon				
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	0.10	B021433
Volatiles				
Benzene	mg/L	<0.00040	0.00040	B024775
Toluene	mg/L	<0.00040	0.00040	B024775
Ethylbenzene	mg/L	<0.00040	0.00040	B024775
m & p-Xylene	mg/L	<0.00080	0.00080	B024775
o-Xylene	mg/L	<0.00040	0.00040	B024775
Xylenes (Total)	mg/L	<0.00089	0.00089	B020661
F1 (C6-C10) - BTEX	mg/L	<0.10	0.10	B020661
F1 (C6-C10)	mg/L	<0.10	0.10	B024775
Surrogate Recovery (%)				
1,4-Difluorobenzene (sur.)	%	107		B024775
4-Bromofluorobenzene (sur.)	%	96		B024775
D4-1,2-Dichloroethane (sur.)	%	107		B024775
O-TERPHENYL (sur.)	%	109		B021433
RDL = Reportable Detection Limit				

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C349643
Report Date: 2023/08/08

PARSONS INC.
Client Project #: 10-12832
Site Location: 478621.17104
Your P.O. #: 478621.17104
Sampler Initials: CW

ROUTINE WATER -LAB FILTERED (WATER)

Bureau Veritas ID		BTV678		
Sampling Date		2023/07/04 13:05		
COC Number		699215-15-01		
	UNITS	**BH1919**	**RDL**	**QC Batch**
Calculated Parameters				
Anion Sum	meq/L	16	N/A	B020261
Cation Sum	meq/L	16	N/A	B020261
Hardness (CaCO3)	mg/L	770	0.50	B020373
Ion Balance (% Difference)	%	1.9	N/A	B020181
Nitrate (N)	mg/L	5.2	0.10	B020185
Nitrate (NO3)	mg/L	23	0.44	B020666
Nitrite (NO2)	mg/L	<0.033	0.033	B020666
Calculated Total Dissolved Solids	mg/L	820	10	B020262
Misc. Inorganics				
Conductivity	uS/cm	1500	2.0	B027715
pH	pH	7.76	N/A	B027709
Anions				
Alkalinity (PP as CaCO3)	mg/L	<1.0	1.0	B027708
Alkalinity (Total as CaCO3)	mg/L	470	1.0	B027708
Bicarbonate (HCO3)	mg/L	580	1.0	B027708
Carbonate (CO3)	mg/L	<1.0	1.0	B027708
Hydroxide (OH)	mg/L	<1.0	1.0	B027708
Chloride (Cl)	mg/L	180	5.0	B029074
Sulphate (SO4)	mg/L	50	1.0	B029074
Nutrients				
Nitrite (N)	mg/L	<0.010	0.010	B026456
Nitrate plus Nitrite (N)	mg/L	5.2	0.10	B026456
Lab Filtered Elements				
Dissolved Calcium (Ca)	mg/L	170	0.30	B027429
Dissolved Iron (Fe)	mg/L	<0.060	0.060	B027429
Dissolved Magnesium (Mg)	mg/L	84	0.20	B027429
Dissolved Manganese (Mn)	mg/L	<0.0040	0.0040	B027429
Dissolved Potassium (K)	mg/L	4.8	0.30	B027429
Dissolved Sodium (Na)	mg/L	22	0.50	B027429

RDL = Reportable Detection Limit
N/A = Not Applicable

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C349643
Report Date: 2023/08/08

PARSONS INC.
Client Project #: 10-12832
Site Location: 478621.17104
Your P.O. #: 478621.17104
Sampler Initials: CW

TOTAL KJELDAHL NITROGEN (TOTAL)

Bureau Veritas ID		BTV678		
Sampling Date		2023/07/04 13:05		
COC Number		699215-15-01		
	UNITS	**BH1919**	**RDL**	**QC Batch**
Calculated Parameters				
Total Total Kjeldahl Nitrogen (Calc)	mg/L	<0.20	0.20	B019587
Nutrients				
Total Nitrogen (N)	mg/L	5.4	0.20	B026882
RDL = Reportable Detection Limit				

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C349643
Report Date: 2023/08/08

PARSONS INC.
Client Project #: 10-12832
Site Location: 478621.17104
Your P.O. #: 478621.17104
Sampler Initials: CW

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID		BTV678		
Sampling Date		2023/07/04 13:05		
COC Number		699215-15-01		
	UNITS	**BH1919**	**RDL**	**QC Batch**
Parameter				
Subcontract Parameter	N/A	ATTACHED	N/A	B032826
Calculated Parameters				
Sulphide (as H2S)	mg/L	0.0088	0.0020	B020310
Misc. Inorganics				
Total Organic Carbon (C)	mg/L	1.2	0.50	B023240
Lab Filtered Inorganics				
Dissolved Organic Carbon (C)	mg/L	1.5 (1)	0.50	B025223
Anions				
Total Sulphide	mg/L	0.0083 (2)	0.0018	B021490
Nutrients				
Total Ammonia (N)	mg/L	<0.015	0.015	B027450

RDL = Reportable Detection Limit
N/A = Not Applicable
(1) Sample filtered and preserved past method specified hold time
(2) Matrix spike exceeds acceptance limits due to matrix interference.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C349643
Report Date: 2023/08/08

PARSONS INC.
Client Project #: 10-12832
Site Location: 478621.17104
Your P.O. #: 478621.17104
Sampler Initials: CW

PERMANENT GASES (WATER)

Bureau Veritas ID		BTV678		
Sampling Date		2023/07/04 13:05		
COC Number		699215-15-01		
	UNITS	**BH1919**	**RDL**	**QC Batch**
Fixed Gases				
Methane	L/m3	<0.005	0.005	B032033
Calculated Methane	mg/L	<0.003	0.003	B032034
RDL = Reportable Detection Limit				

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C349643
Report Date: 2023/08/08

PARSONS INC.
Client Project #: 10-12832
Site Location: 478621.17104
Your P.O. #: 478621.17104
Sampler Initials: CW

VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		BTV678		
Sampling Date		2023/07/04 13:05		
COC Number		699215-15-01		
	UNITS	**BH1919**	**RDL**	**QC Batch**
Volatiles				
Total Trihalomethanes	mg/L	<0.0013	0.0013	B020382
Bromodichloromethane	mg/L	<0.00050	0.00050	B035359
Bromoform	mg/L	<0.00050	0.00050	B035359
Bromomethane	mg/L	<0.0020	0.0020	B035359
Carbon tetrachloride	mg/L	<0.00050	0.00050	B035359
Chlorobenzene	mg/L	<0.00050	0.00050	B035359
Dibromochloromethane	mg/L	<0.0010	0.0010	B035359
Chloroethane	mg/L	<0.0010	0.0010	B035359
Chloroform	mg/L	<0.00050	0.00050	B035359
Chloromethane	mg/L	<0.0020	0.0020	B035359
1,2-dibromoethane	mg/L	<0.00020	0.00020	B035359
1,2-dichlorobenzene	mg/L	<0.00050	0.00050	B035359
1,3-dichlorobenzene	mg/L	<0.00050	0.00050	B035359
1,4-dichlorobenzene	mg/L	<0.00050	0.00050	B035359
1,1-dichloroethane	mg/L	<0.00050	0.00050	B035359
1,2-dichloroethane	mg/L	<0.00050	0.00050	B035359
1,1-dichloroethene	mg/L	<0.00050	0.00050	B035359
cis-1,2-dichloroethene	mg/L	<0.00050	0.00050	B035359
trans-1,2-dichloroethene	mg/L	<0.00050	0.00050	B035359
Dichloromethane	mg/L	<0.0020	0.0020	B035359
1,2-dichloropropane	mg/L	<0.00050	0.00050	B035359
cis-1,3-dichloropropene	mg/L	<0.00050	0.00050	B035359
trans-1,3-dichloropropene	mg/L	<0.00050	0.00050	B035359
Methyl methacrylate	mg/L	<0.00050	0.00050	B035359
Methyl-tert-butylether (MTBE)	mg/L	<0.00050	0.00050	B035359
Styrene	mg/L	<0.00050	0.00050	B035359
1,1,1,2-tetrachloroethane	mg/L	<0.0010	0.0010	B035359
1,1,2,2-tetrachloroethane	mg/L	<0.0020	0.0020	B035359
Tetrachloroethene	mg/L	<0.00050	0.00050	B035359
1,2,3-trichlorobenzene	mg/L	<0.0010	0.0010	B035359
1,2,4-trichlorobenzene	mg/L	<0.0010	0.0010	B035359
RDL = Reportable Detection Limit				

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C349643
Report Date: 2023/08/08

PARSONS INC.
Client Project #: 10-12832
Site Location: 478621.17104
Your P.O. #: 478621.17104
Sampler Initials: CW

VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		BTV678		
Sampling Date		2023/07/04 13:05		
COC Number		699215-15-01		
	UNITS	**BH1919**	**RDL**	**QC Batch**
1,3,5-trichlorobenzene	mg/L	<0.00050	0.00050	B035359
1,1,1-trichloroethane	mg/L	<0.00050	0.00050	B035359
1,1,2-trichloroethane	mg/L	<0.00050	0.00050	B035359
Trichloroethene	mg/L	<0.00020	0.00020	B035359
Trichlorofluoromethane	mg/L	<0.00050	0.00050	B035359
1,2,4-trimethylbenzene	mg/L	<0.00050	0.00050	B035359
1,3,5-trimethylbenzene	mg/L	<0.00050	0.00050	B035359
Vinyl chloride	mg/L	<0.00050	0.00050	B035359
Surrogate Recovery (%)				
1,4-Difluorobenzene (sur.)	%	98		B035359
4-Bromofluorobenzene (sur.)	%	92		B035359
D4-1,2-Dichloroethane (sur.)	%	110		B035359
RDL = Reportable Detection Limit				

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Bureau Veritas Job #: C349643
Report Date: 2023/08/08

PARSONS INC.
Client Project #: 10-12832
Site Location: 478621.17104
Your P.O. #: 478621.17104
Sampler Initials: CW

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	16.3°C

Report re-issued to include EDD.

Report re-issued with updated parameters of dissolved gas analysis on 2023.08.04

Version 4: Revised report issued with updated subcontract report from ALS.

Sample BTV678 [BH1919] : NO2 (N); NO2 (N) + NO3 (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes.

Results relate only to the items tested.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C349643
Report Date: 2023/08/08

QUALITY ASSURANCE REPORT

PARSONS INC.
Client Project #: 10-12832
Site Location: 478621.17104
Your P.O. #: 478621.17104
Sampler Initials: CW

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
B021433	O-TERPHENYL (sur.)	2023/07/09	99	60 - 140	102	60 - 140	100	%				
B024775	1,4-Difluorobenzene (sur.)	2023/07/09	103	50 - 140	102	50 - 140	106	%				
B024775	4-Bromofluorobenzene (sur.)	2023/07/09	97	50 - 140	99	50 - 140	95	%				
B024775	D4-1,2-Dichloroethane (sur.)	2023/07/09	104	50 - 140	101	50 - 140	104	%				
B035359	1,4-Difluorobenzene (sur.)	2023/07/17	102	50 - 140	102	50 - 140	98	%				
B035359	4-Bromofluorobenzene (sur.)	2023/07/17	97	50 - 140	98	50 - 140	90	%				
B035359	D4-1,2-Dichloroethane (sur.)	2023/07/17	95	50 - 140	97	50 - 140	108	%				
B021433	F2 (C10-C16 Hydrocarbons)	2023/07/09	99	60 - 140	101	60 - 140	<0.10	mg/L	NC	30		
B021490	Total Sulphide	2023/07/05	12 (1)	80 - 120	92	80 - 120	<0.0018	mg/L	16	20		
B023240	Total Organic Carbon (C)	2023/07/11	68 (1)	80 - 120	99	80 - 120	<0.50	mg/L	NC	20		
B024775	Benzene	2023/07/09	100	50 - 140	99	60 - 130	<0.00040	mg/L	NC	30		
B024775	Ethylbenzene	2023/07/09	99	50 - 140	97	60 - 130	<0.00040	mg/L	NC	30		
B024775	F1 (C6-C10)	2023/07/09	92	60 - 140	87	60 - 140	<0.10	mg/L	NC	30		
B024775	m & p-Xylene	2023/07/09	96	50 - 140	95	60 - 130	<0.00080	mg/L	NC	30		
B024775	o-Xylene	2023/07/09	97	50 - 140	95	60 - 130	<0.00040	mg/L	NC	30		
B024775	Toluene	2023/07/09	98	50 - 140	96	60 - 130	<0.00040	mg/L	NC	30		
B025223	Dissolved Organic Carbon (C)	2023/07/10	79 (1)	80 - 120	91	80 - 120	<0.50	mg/L	4.5	20		
B026456	Nitrate plus Nitrite (N)	2023/07/09	107	80 - 120	94	80 - 120	<0.010	mg/L	2.9	20		
B026456	Nitrite (N)	2023/07/09	102	80 - 120	97	80 - 120	<0.010	mg/L	NC	20		
B026882	Total Nitrogen (N)	2023/07/10	113	80 - 120	107	80 - 120	<0.020	mg/L	NC	20	104	80 - 120
B027429	Dissolved Calcium (Ca)	2023/07/11	102	80 - 120	102	80 - 120	<0.30	mg/L	2.9	20		
B027429	Dissolved Iron (Fe)	2023/07/11	97	80 - 120	102	80 - 120	<0.060	mg/L	NC	20		
B027429	Dissolved Magnesium (Mg)	2023/07/11	103	80 - 120	105	80 - 120	<0.20	mg/L	1.9	20		
B027429	Dissolved Manganese (Mn)	2023/07/11	99	80 - 120	103	80 - 120	<0.0040	mg/L	8.0	20		
B027429	Dissolved Potassium (K)	2023/07/11	103	80 - 120	102	80 - 120	<0.30	mg/L	3.4	20		
B027429	Dissolved Sodium (Na)	2023/07/11	NC	80 - 120	103	80 - 120	<0.50	mg/L	2.8	20		
B027450	Total Ammonia (N)	2023/07/10	110	80 - 120	109	80 - 120	<0.015	mg/L	NC	20		
B027708	Alkalinity (PP as CaCO3)	2023/07/11					<1.0	mg/L	NC	20		
B027708	Alkalinity (Total as CaCO3)	2023/07/11			98	80 - 120	<1.0	mg/L	0.72	20		
B027708	Bicarbonate (HCO3)	2023/07/11					<1.0	mg/L	0.72	20		
B027708	Carbonate (CO3)	2023/07/11					<1.0	mg/L	NC	20		

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Bureau Veritas Job #: C349643
Report Date: 2023/08/08

QUALITY ASSURANCE REPORT(CONT'D)

PARSONS INC.
Client Project #: 10-12832
Site Location: 478621.17104
Your P.O. #: 478621.17104
Sampler Initials: CW

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
B027708	Hydroxide (OH)	2023/07/11					<1.0	mg/L	NC	20		
B027709	pH	2023/07/11			100	97 - 103			1.7	N/A		
B027715	Conductivity	2023/07/11			104	90 - 110	<2.0	uS/cm	0.28	10		
B029074	Chloride (Cl)	2023/07/11	NC	80 - 120	102	80 - 120	<1.0	mg/L	0.47	20		
B029074	Sulphate (SO4)	2023/07/11	NC	80 - 120	103	80 - 120	<1.0	mg/L	2.7	20		
B032033	Methane	2023/07/11					<0.005	L/m3				
B035359	1,1,1,2-tetrachloroethane	2023/07/17	93	50 - 140	92	60 - 130	<0.0010	mg/L				
B035359	1,1,1-trichloroethane	2023/07/17	89	50 - 140	90	60 - 130	<0.00050	mg/L				
B035359	1,1,2,2-tetrachloroethane	2023/07/17	90	50 - 140	96	60 - 130	<0.0020	mg/L				
B035359	1,1,2-trichloroethane	2023/07/17	91	50 - 140	96	60 - 130	<0.00050	mg/L				
B035359	1,1-dichloroethane	2023/07/17	84	50 - 140	85	60 - 130	<0.00050	mg/L				
B035359	1,1-dichloroethene	2023/07/17	72	50 - 140	84	60 - 130	<0.00050	mg/L				
B035359	1,2,3-trichlorobenzene	2023/07/17	87	50 - 140	89	60 - 130	<0.0010	mg/L				
B035359	1,2,4-trichlorobenzene	2023/07/17	85	50 - 140	87	60 - 130	<0.0010	mg/L				
B035359	1,2,4-trimethylbenzene	2023/07/17	82	50 - 140	85	60 - 130	<0.00050	mg/L				
B035359	1,2-dibromoethane	2023/07/17	90	50 - 140	95	60 - 130	<0.00020	mg/L				
B035359	1,2-dichlorobenzene	2023/07/17	89	50 - 140	92	60 - 130	<0.00050	mg/L				
B035359	1,2-dichloroethane	2023/07/17	91	50 - 140	96	60 - 130	<0.00050	mg/L	NC	30		
B035359	1,2-dichloropropane	2023/07/17	85	50 - 140	87	60 - 130	<0.00050	mg/L				
B035359	1,3,5-trichlorobenzene	2023/07/17	90	50 - 140	91	60 - 130	<0.00050	mg/L				
B035359	1,3,5-trimethylbenzene	2023/07/17	83	50 - 140	86	60 - 130	<0.00050	mg/L				
B035359	1,3-dichlorobenzene	2023/07/17	86	50 - 140	88	60 - 130	<0.00050	mg/L				
B035359	1,4-dichlorobenzene	2023/07/17	89	50 - 140	92	60 - 130	<0.00050	mg/L				
B035359	Bromodichloromethane	2023/07/17	93	50 - 140	96	60 - 130	<0.00050	mg/L				
B035359	Bromoform	2023/07/17	96	50 - 140	102	60 - 130	<0.00050	mg/L				
B035359	Bromomethane	2023/07/17	89	50 - 140	92	60 - 130	<0.0020	mg/L				
B035359	Carbon tetrachloride	2023/07/17	91	50 - 140	91	60 - 130	<0.00050	mg/L				
B035359	Chlorobenzene	2023/07/17	91	50 - 140	91	60 - 130	<0.00050	mg/L				
B035359	Chloroethane	2023/07/17	82	50 - 140	82	60 - 130	<0.0010	mg/L				
B035359	Chloroform	2023/07/17	87	50 - 140	88	60 - 130	<0.00050	mg/L				
B035359	Chloromethane	2023/07/17	80	50 - 140	81	60 - 130	<0.0020	mg/L				

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Bureau Veritas Job #: C349643
Report Date: 2023/08/08

QUALITY ASSURANCE REPORT(CONT'D)

PARSONS INC.
Client Project #: 10-12832
Site Location: 478621.17104
Your P.O. #: 478621.17104
Sampler Initials: CW

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
B035359	cis-1,2-dichloroethene	2023/07/17	86	50 - 140	87	60 - 130	<0.00050	mg/L				
B035359	cis-1,3-dichloropropene	2023/07/17	99	50 - 140	104	60 - 130	<0.00050	mg/L				
B035359	Dibromochloromethane	2023/07/17	97	50 - 140	101	60 - 130	<0.0010	mg/L				
B035359	Dichloromethane	2023/07/17	86	50 - 140	88	60 - 130	<0.0020	mg/L				
B035359	Methyl methacrylate	2023/07/17	52	50 - 140	93	60 - 130	<0.00050	mg/L				
B035359	Methyl-tert-butylether (MTBE)	2023/07/17	84	50 - 140	85	60 - 130	<0.00050	mg/L				
B035359	Styrene	2023/07/17	41 (1)	50 - 140	92	60 - 130	<0.00050	mg/L				
B035359	Tetrachloroethene	2023/07/17	85	50 - 140	84	60 - 130	<0.00050	mg/L				
B035359	trans-1,2-dichloroethene	2023/07/17	78	50 - 140	81	60 - 130	<0.00050	mg/L				
B035359	trans-1,3-dichloropropene	2023/07/17	97	50 - 140	108	60 - 130	<0.00050	mg/L				
B035359	Trichloroethene	2023/07/17	90	50 - 140	93	60 - 130	<0.00020	mg/L				
B035359	Trichlorofluoromethane	2023/07/17	87	50 - 140	86	60 - 130	<0.00050	mg/L				
B035359	Vinyl chloride	2023/07/17	72	50 - 140	79	60 - 130	<0.00050	mg/L				

N/A = Not Applicable

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

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

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

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

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

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

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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Bureau Veritas Job #: C349643
Report Date: 2023/08/08

PARSONS INC.
Client Project #: 10-12832
Site Location: 478621.17104
Your P.O. #: 478621.17104
Sampler Initials: CW

VALIDATION SIGNATURE PAGE

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

Janet Gao, B.Sc., QP, Supervisor, Organics

Jared Wiseman, B.Sc., P.Chem., QP, Senior Analyst, Organics

Suwan (Sze Yeung) Fock, B.Sc., Scientific Specialist

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

Vasan Thiagarajah, Analyst, Compressed Gases

Yifei Yang, Project Solutions Representative

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VALIDATION SIGNATURE PAGE(CONT'D)

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

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

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Bureau Veritas
4000 19st N.E, Calgary, Alberta Canada T2E 6P8 Tel:(403) 291-3077 Toll-free:800-563-6266 Fax:(403) 291-9468 www.bvna.com

04-Jul-23 15:09
Parminder Virk
C349643
SMT INS-0148

Page 1 of 1

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:	
Company Name:	#11243 PARSONS INC.	Company Name:	#31652 PARSONS INC.	Quotation #:	C30805
Attention:	ACCOUNTS PAYABLE	Attention:	Rebecca Neufeld	P.O. #:	
Address:	2751 JOHN STREET	Address:	Unit 510, 214 - 11th Avenue SW	Project:	10-12832
	MARKHAM ON L3R 2Y8		Calgary AB T2R 0K1	Project Name:	~~478692.17104~~
Tel:	(905) 944-8877 Fax:	Tel:	Fax:	Site #:	478621.17104
Email:	ParsonsIncAP.Parsons@parsons.com	Email:	rebecca.neufeld@parsons.com,Michelle.Patterson@par	Sampled By:	Cody Whittaker

Use Only:

Bottle Order #:	COC #:	Project Manager:
699215	C#699215-15-01	Parminder Virk

Regulatory Criteria:
- [x] ATI
- [ ] CCME
- [ ] Other

Special Instructions

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	AT1 BTEX and F1-F2 in Water	VOCs in Water by HS GC/MS (Std List)	Routine Water	Ferrous Iron (Dissolved)	Methane	Ammonia-N (Total)	Total Sulphide	Carbon (Total Organic)	Carbon (DOC)	Total Kjeldahl Nitrogen (Total)	# of Bottles	Comments
1		BH1919	23/07/04	1305	Water		X	X	X	X	X	X	X	X	X	X	12	Ferrous Iron sampled on-site, but
2																		filtered at lab, preservative
3																		was rinsed out on-site
4																		to transport sample to
5																		lab.
6																		
7																		
8																		
9																		
10																		

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT: [x]
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests..
Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details

Job Specific Rush TAT (if applies to entire submission) [ ]
Date Required:
Rush Confirmation Number:
(call lab for #)

RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Laboratory Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
Cody Whittaker	23/07/04	1500	ENEHA MATHEWS	2023/07/04	15:04	Ø	[ ]	14, 15, 20	[x] Yes [ ] No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.
** ALL SAMPLES ARE HELD FOR 60 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

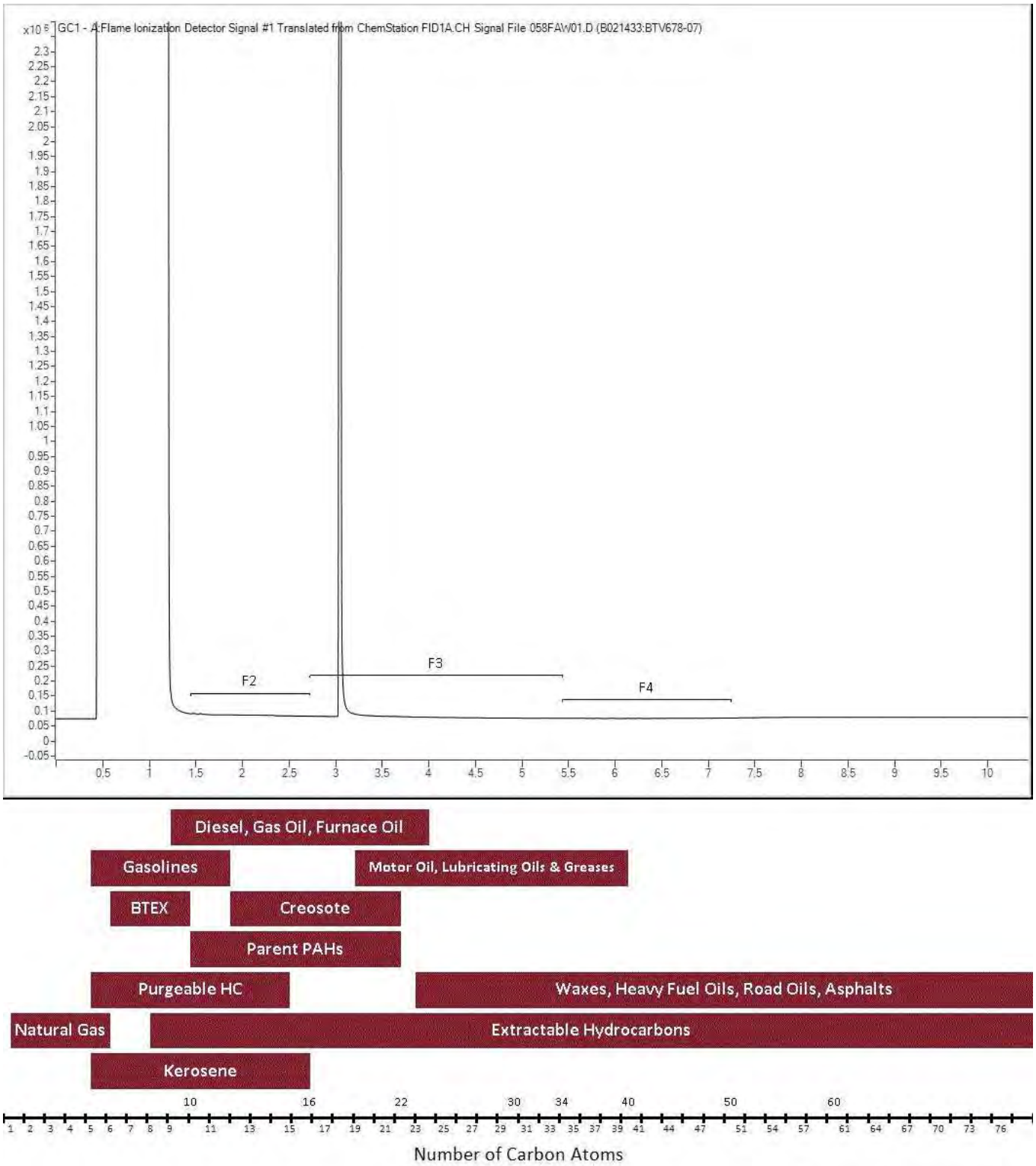
White: Bureau Veritas Yellow: Client

Bureau Veritas Canada (2019) Inc.

Bureau Veritas Job #: C349643
Report Date: 2023/08/08
Bureau Veritas Sample: BTV678

PARSONS INC.
Client Project #: 10-12832
Site Reference: 478621.17104
Client ID: BH1919

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

DATA QUALITY REVIEW CHECKLIST

Consultant: *Parsons Inc.*

Sampling Date: *2023/7/04*

Location: *1620 14 AVE NW, CALGARY*

Laboratory : *ALS Environmental, Vancouver, BC*

Consultant Project Number: *10-12832*

Sample Submission Number: *VA23B5398*

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
Field 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*
Has lab warranted all tests were in statistical control in CoA (Yes/No)?:	*Yes*
Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?:	*Yes*
Were all samples analyzed within hold times (Yes/No)?:	*Yes*
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): *Mackenzie Robart*

Reviewed by (Print): *Michelle Patterson*

Reviewed date: *2023/10/03*

Reviewed by (Signature):

ALS Canada Ltd.

right solutions. right partner.

CERTIFICATE OF ANALYSIS

Work Order	: **VA23B5398**	Page	: 1 of 2
Amendment	: **1**		
Client	: **Bureau Veritas Canada (2019) Inc. (Maxxam Analytics)**	Laboratory	: ALS Environmental - Vancouver
Contact	: Parminder Virk	Account Manager	: Tasnia Tarannum
Address	: 4000 19 St NE Calgary AB Canada T2E 6P8	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	: 4037352235	Telephone	: +1 604 253 4188
Project	: C349643	Date Samples Received	: 06-Jul-2023 09:40
PO	: ----	Date Analysis Commenced	: 12-Jul-2023
C-O-C number	: C349643-CALB-01-01	Issue Date	: 08-Aug-2023 10:59
Sampler	: ----		
Site	: ----		
Quote number	: Vancouver Standing Offer		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Kate Dimitrova	Analsyt	Inorganics, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.
Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
mg/L	milligrams per litre

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical Results

Sub-Matrix: **Water** (Matrix: **Water**)					*Client sample ID*	**BTV678-BH1919**	----	----	----	----
					Client sampling date / time	04-Jul-2023 14:05	----	----	----	----
Analyte	*CAS Number*	*Method/Lab*	*LOR*	*Unit*		**VA23B5398-001**	--------	--------	--------	--------
						Result	----	----	----	----
Sample Preparation										
Dissolved Fe2 filtration location	----	EP541/VA	-	-		Field	----	----	----	----
Speciated Metals										
Iron, ferrous [Fe II], dissolved	15438-31-0	E541/VA	0.020	mg/L		<0.020	----	----	----	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

ALS Canada Ltd.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA23B5398**	Page	: 1 of 5
Amendment	: **1**		
Client	: **Bureau Veritas Canada (2019) Inc. (Maxxam Analytics)**	Laboratory	: ALS Environmental - Vancouver
Contact	: Parminder Virk	Account Manager	: Tasnia Tarannum
Address	: 4000 19 St NE Calgary AB Canada T2E 6P8	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: 4037352235	Telephone	: +1 604 253 4188
Project	: C349643	Date Samples Received	: 06-Jul-2023 09:40
PO	: ----	Issue Date	: 08-Aug-2023 10:59
C-O-C number	: C349643-CALB-01-01		
Sampler	: ----		
Site	: ----		
Quote number	: Vancouver Standing Offer		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Speciated Metals : Dissolved Ferrous Iron in Water by Colour										
Amber glass dissolved (hydrochloric acid)										
BTV678-BH1919	E541	04-Jul-2023	12-Jul-2023	7 days	7 days	×	12-Jul-2023	0 days	0 days	×

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Dissolved Ferrous Iron in Water by Colour	E541	1033762	1	20	5.0	5.0	✓
Laboratory Control Samples (LCS)							
Dissolved Ferrous Iron in Water by Colour	E541	1033762	1	20	5.0	5.0	✓
Method Blanks (MB)							
Dissolved Ferrous Iron in Water by Colour	E541	1033762	1	20	5.0	5.0	✓
Matrix Spikes (MS)							
Dissolved Ferrous Iron in Water by Colour	E541	1033762	1	20	5.0	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by “mod”).

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Ferrous Iron in Water by Colour	E541 ALS Environmental - Vancouver	Water	APHA 3500-Fe B/James Ball et al (1999)	This analysis is carried out using procedures adapted from APHA 3500-Fe B and Environ. Sci. Technol. 1999, 33, 5, 807–813. The procedure involves preliminary sample filtration, and ferrous iron is determined using the "FerroZine" colourimetric method. Holding time is 7 days for 0.45um filtration or 6 months if samples have been filtered using 0.1um filters.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Ferrous Iron in Water by Colour	EP541 ALS Environmental - Vancouver	Water	APHA 3500-Fe B/James Ball et al (1999)	This analysis is carried out using procedures adapted from APHA 3500-Fe B and "A New Method for the Direct Determination of Dissolved Iron Concentration in Acid Mine Waters" published by James W. Ball et al (1999). The procedure involves preliminary sample filtration, and ferrous iron is determined using the "FerroZine" colourimetric method.

ALS Canada Ltd.

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QUALITY CONTROL REPORT

Work Order	: **VA23B5398**	Page	: 1 of 3
Amendment	: **1**		
Client	: Bureau Veritas Canada (2019) Inc. (Maxxam Analytics)	Laboratory	: ALS Environmental - Vancouver
Contact	: Parminder Virk	Account Manager	: Tasnia Tarannum
Address	: 4000 19 St NE Calgary AB Canada T2E 6P8	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	:	Telephone	: +1 604 253 4188
Project	: C349643	Date Samples Received	: 06-Jul-2023 09:40
PO	: ----	Date Analysis Commenced	: 12-Jul-2023
C-O-C number	: C349643-CALB-01-01	Issue Date	: 08-Aug-2023 10:59
Sampler	: ---- 4037352235		
Site	: ----		
Quote number	: Vancouver Standing Offer		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Kate Dimitrova	Analsyt	Vancouver Inorganics, Burnaby, British Columbia

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Speciated Metals (QC Lot: 1033762)											
FJ2301529-001	Anonymous	Iron, ferrous [Fe II], dissolved	15438-31-0	E541	0.020	mg/L	0.065	0.065	0.0003	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	*CAS Number*	*Method*	*LOR*	*Unit*	*Result*	*Qualifier*
Speciated Metals (QCLot: 1033762)						
Iron, ferrous [Fe II], dissolved	15438-31-0	E541	0.02	mg/L	<0.020	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Speciated Metals (QCLot: 1033762)									
Iron, ferrous [Fe II], dissolved	15438-31-0	E541	0.02	mg/L	0.5 mg/L	112	80.0	120	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Speciated Metals (QCLot: 1033762)										
FJ2301529-002	Anonymous	Iron, ferrous [Fe II], dissolved	15438-31-0	E541	0.434 mg/L	0.5 mg/L	86.8	70.0	130	----

Sent To: **ALS Laboratory Group**
8081 Lougheed HWY
Burnaby, BC, V5A 1W9
Tel: (604) 253-4188

CHAIN OF CUSTODY RECORD FOR SUBCONTRACTED WORK

COC # C349643-CALB-01-01

REPORT INFORMATION	
Company:	Bureau Veritas Laboratories
Address:	4000 19st N.E, Calgary, Alberta, T2E 6P8
Contact Name:	Parminder Virk
Email:	Parminder.Virk@bureauveritas.com, Customersolutionswest@bureauveritas.co
Phone:	(403) 735-2235
BV Labs Project #:	C349643

ANALYSIS REQUESTED

#	SAMPLE ID	MATRIX	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	SAMPLER INITIALS	# CONT.	Ferrous Iron (Dissolved)	ADDITIONAL SAMPLE INFORMATION
1	BTV678-BH1919	W	2023/07/04	13:05	CW	1	X	(P: 05)
2								
3								
4								
5								
6								
7								
8								
9								
10								

Environmental Division
Vancouver
Work Order Reference
VA23B5398
Telephone : +1 604 253 4188

REGULATORY CRITERIA

SPECIAL INSTRUCTIONS

Please inform Bureau Veritas immediately if you are not accredited for the requested test(s) or the hold time is approaching.
Please return a copy of this form with the report.
Preservative rinsed out onsite for transport to lab

TURNAROUND TIME

☐ Rush Required

2023/07/11
Date Required

Please inform us if rush charges will be incurred.

COOLER ID:

	YES	NO	Temp: (°C)	1	2	3
Custody Seal Present	✓					
Custody Seal Intact	✓					
Cooling Media Present	✓					

COOLER ID:

	YES	NO	Temp: (°C)	1	2	3
Custody Seal Present						
Custody Seal Intact						
Cooling Media Present						

COOLER ID:

	YES	NO	Temp: (°C)	1	2	3
Custody Seal Present						
Custody Seal Intact						
Cooling Media Present						

RELINQUISHED BY: (SIGN & PRINT)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (SIGN & PRINT)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)
1. Leo Chai	2023/07/05	16:00	1. JC Leo	2023/07/06	8:40am
2.			2.		

DATA QUALITY REVIEW CHECKLIST

Consultant: *Parsons Inc.*

Sampling Date: *2023/7/5*

Location: *1620 14 AVE NW, CALGARY*

Laboratory : *Bureau Veritas, Calgary, AB*

Consultant Project Number: *10-12832*

Sample Submission Number: *C350243*

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

	Yes	No	NA	Comments
Surrogate Recovery	*X*			*The matrix spike recovery for Nitrate plus Nitrite (125%) is above the control limit.*
Method Blank Concentration	*X*			
Matrix Duplicate RPD	*X*			*The matrix spike recovery for Total Organic Carbon (77%) is below the control limit. All other lab QC met acceptance criteria.*
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
Field 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*
Has lab warranted all tests were in statistical control in CoA (Yes/No)?:	*Yes*
Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?:	*Yes*
Were all samples analyzed within hold times (Yes/No)?:	*Yes*
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): *Mackenzie Robart*

Reviewed by (Print): *Michelle Patterson*

Reviewed date: *2023/10/03*

Reviewed by (Signature):

Your P.O. #: 478621.17104
Your Project #: 10-12832
Site#: 9445
WBS 478621.17104
Outlet Number 9445
Your C.O.C. #: C#699215-14-01

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/08/04
Report #: R3376611
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C350243
Received: 2023/07/05, 18:45

Sample Matrix: Water
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity @25C (pp, total), CO3,HCO3,OH	4	N/A	2023/07/10	AB SOP-00005	SM 23 2320 B m
BTEX/F1 in Water by HS GC/MS/FID	1	N/A	2023/07/08	AB SOP-00039	CCME CWS/EPA 8260d m
BTEX/F1 in Water by HS GC/MS/FID	3	N/A	2023/07/09	AB SOP-00039	CCME CWS/EPA 8260d m
F1-BTEX	4	N/A	2023/07/10		Auto Calc
Chloride/Sulphate by Auto Colourimetry	2	N/A	2023/07/11	AB SOP-00020	SM24-4500-Cl/SO4-E m
Chloride/Sulphate by Auto Colourimetry	2	N/A	2023/07/12	AB SOP-00020	SM24-4500-Cl/SO4-E m
Carbon (DOC) (3)	2	N/A	2023/07/12	AB SOP-00087	MMCW 119 1996 m
Carbon (DOC) (3)	2	N/A	2023/07/21	AB SOP-00087	MMCW 119 1996 m
Conductivity @25C	4	N/A	2023/07/10	AB SOP-00005	SM 23 2510 B m
Ferrous Iron (Dissolved) (1)	4	N/A	2023/07/13		
CCME Hydrocarbons in Water (F2; C10-C16) (4)	4	2023/07/08	2023/07/09	AB SOP-00037 AB SOP-00040	CCME PHC-CWS m
Sulphide (as H2S)	4	N/A	2023/07/08		Auto Calc
Hardness	2	N/A	2023/07/09		Auto Calc
Hardness	2	N/A	2023/07/12		Auto Calc
Elements by ICP - Dissolved (5)	2	N/A	2023/07/08	AB SOP-00042	EPA 6010d R5 m
Elements by ICP - Dissolved (5)	2	N/A	2023/07/11	AB SOP-00042	EPA 6010d R5 m
Ion Balance	1	N/A	2023/07/11		Auto Calc
Ion Balance	3	N/A	2023/07/12		Auto Calc
Sum of cations, anions	2	N/A	2023/07/09		Auto Calc
Sum of cations, anions	2	N/A	2023/07/12		Auto Calc
Ammonia-N (Total)	4	N/A	2023/07/10	AB SOP-00007	SM 24 4500 NH3 A G m
Nitrate and Nitrite	4	N/A	2023/07/10		Auto Calc
NO2 (N); NO2 (N) + NO3 (N) in Water	4	N/A	2023/07/09	AB SOP-00091	SM 24 4500 NO3m
Nitrate (as N)	4	2023/07/05	2023/07/10		Auto Calc
pH @25°C (6)	4	N/A	2023/07/10	AB SOP-00005	SM 23 4500-H+B m
Total Sulphide	4	N/A	2023/07/08	AB SOP-00080	SM 23 4500 S2-A D Fm
Total Dissolved Solids (Calculated)	1	N/A	2023/07/11		Auto Calc
Total Dissolved Solids (Calculated)	3	N/A	2023/07/12		Auto Calc
Total Trihalomethanes Calculation	4	N/A	2023/07/10		Auto Calc
Total Kjeldahl Nitrogen (Total)	3	N/A	2023/07/10	BBY WI-00033	Auto Calc
Total Kjeldahl Nitrogen (Total)	1	N/A	2023/07/12	BBY WI-00033	Auto Calc

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Your P.O. #: 478621.17104
Your Project #: 10-12832
Site#: 9445
WBS 478621.17104
Outlet Number 9445
Your C.O.C. #: C#699215-14-01

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/08/04
Report #: R3376611
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C350243
Received: 2023/07/05, 18:45

Sample Matrix: Water
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Nitrogen (Total)	3	2023/07/10	2023/07/10	AB SOP-00093	SM 24 4500-N C m
Nitrogen (Total)	1	2023/07/12	2023/07/12	AB SOP-00093	SM 24 4500-N C m
Carbon (Total Organic) (7)	1	N/A	2023/07/11	AB SOP-00087	MMCW 119 1996 m
Carbon (Total Organic) (7)	1	N/A	2023/07/12	AB SOP-00087	MMCW 119 1996 m
Carbon (Total Organic) (7)	2	N/A	2023/07/21	AB SOP-00087	MMCW 119 1996 m
VOCs in Water by HS GC/MS (Std List)	3	N/A	2023/07/08	AB SOP-00056	EPA 5021a/8260d m
VOCs in Water by HS GC/MS (Std List)	1	N/A	2023/07/10	AB SOP-00056	EPA 5021a/8260d m
Dissolved Gases in Water (2)	4	N/A	2023/07/13	CAM SOP-00219	RSKSOP-175 m
Dissolved Gases in Water in mg/L units (2)	4	N/A	2023/07/07	Calculation	Calculation

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) This test was performed by ALS Laboratory Group, 8081 Lougheed HWY , Burnaby, BC, V5A 1W9
(2) This test was performed by Bureau Veritas Campobello, 6740 Campobello Road , Mississauga, ON, L5N 2L8
(3) DOC present in the sample should be considered as non-purgeable DOC. Dissolved > Total Imbalance: When applicable, Dissolved and Total results were reviewed and data

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Your P.O. #: 478621.17104
Your Project #: 10-12832
Site#: 9445
WBS 478621.17104
Outlet Number 9445
Your C.O.C. #: C#699215-14-01

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/08/04
Report #: R3376611
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C350243
Received: 2023/07/05, 18:45

quality meets acceptable levels unless otherwise noted.
(4) Silica gel clean up employed.
(5) Dissolved > Total Imbalance: When applicable, Dissolved and Total results were reviewed and data quality meets acceptable levels unless otherwise noted.
(6) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas endeavours to analyze samples as soon as possible after receipt.
(7) TOC present in the sample should be considered as non-purgeable TOC.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Parminder Virk, Key Account Specialist
Email: Parminder.Virk@bureauveritas.com
Phone# (403)735-2235
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Scott Cantwell, General Manager responsible for Alberta Environmental laboratory operations.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C350243
Report Date: 2023/08/04

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

AT1 BTEX AND F1-F2 IN WATER (WATER)

Bureau Veritas ID		BTY443	BTY444	BTY445	BTY446		
Sampling Date		2023/07/05 10:30	2023/07/05 11:45	2023/07/05 13:30	2023/07/05 15:30		
COC Number		C#699215-14-01	C#699215-14-01	C#699215-14-01	C#699215-14-01		
	UNITS	**BH2010**	**BH1979**	**BH1944**	**BH6005**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	<0.10	<0.10	0.36	0.10	B022859
Volatiles							
Benzene	mg/L	<0.00040	0.93	0.011	0.62	0.00040	B025160
Toluene	mg/L	<0.00040	<0.00040	<0.00040	0.052	0.00040	B025160
Ethylbenzene	mg/L	<0.00040	<0.00040	<0.00040	0.15	0.00040	B025160
m & p-Xylene	mg/L	<0.00080	<0.00080	<0.00080	0.057	0.00080	B025160
o-Xylene	mg/L	<0.00040	<0.00040	<0.00040	0.026	0.00040	B025160
Xylenes (Total)	mg/L	<0.00089	<0.00089	<0.00089	0.084	0.00089	B022093
F1 (C6-C10) - BTEX	mg/L	<0.10	<0.10	<0.10	2.1	0.10	B022093
F1 (C6-C10)	mg/L	<0.10	0.87	<0.10	3.0	0.10	B025160
Surrogate Recovery (%)							
1,4-Difluorobenzene (sur.)	%	107	96	106	98		B025160
4-Bromofluorobenzene (sur.)	%	99	94	91	94		B025160
D4-1,2-Dichloroethane (sur.)	%	110	90	88	96		B025160
O-TERPHENYL (sur.)	%	100	99	98	98		B022859
RDL = Reportable Detection Limit							

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C350243
Report Date: 2023/08/04

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

ROUTINE WATER (WATER)

Bureau Veritas ID		BTY443			BTY444		BTY445		
Sampling Date		2023/07/05 10:30			2023/07/05 11:45		2023/07/05 13:30		
COC Number		C#699215-14-01			C#699215-14-01		C#699215-14-01		
	UNITS	**BH2010**	**RDL**	**QC Batch**	**BH1979**	**QC Batch**	**BH1944**	**RDL**	**QC Batch**
Calculated Parameters									
Anion Sum	meq/L	12	N/A	B022215	13	B022215	11	N/A	B022215
Cation Sum	meq/L	13	N/A	B022215	14	B022215	11	N/A	B022215
Hardness (CaCO3)	mg/L	600	0.50	B022068	660	B022068	530	0.50	B022068
Ion Balance (% Difference)	%	3.7	N/A	B022069	5.5	B022069	0.34	N/A	B022069
Nitrate (N)	mg/L	2.8	0.050	B022040	1.3	B022040	2.8	0.050	B022040
Nitrate (NO3)	mg/L	12	0.22	B022255	5.7	B022255	12	0.22	B022255
Nitrite (NO2)	mg/L	0.16	0.033	B022255	0.31	B022255	0.16	0.033	B022255
Calculated Total Dissolved Solids	mg/L	640	10	B022075	640	B022075	560	10	B022075
Misc. Inorganics									
Conductivity	uS/cm	1100	2.0	B027722	1100	B027722	980	2.0	B027722
pH	pH	7.96	N/A	B027721	7.83	B027721	8.00	N/A	B027721
Anions									
Alkalinity (PP as CaCO3)	mg/L	<1.0	1.0	B027718	<1.0	B027718	<1.0	1.0	B027718
Alkalinity (Total as CaCO3)	mg/L	340	1.0	B027718	500	B027718	460	1.0	B027718
Bicarbonate (HCO3)	mg/L	420	1.0	B027718	610	B027718	560	1.0	B027718
Carbonate (CO3)	mg/L	<1.0	1.0	B027718	<1.0	B027718	<1.0	1.0	B027718
Hydroxide (OH)	mg/L	<1.0	1.0	B027718	<1.0	B027718	<1.0	1.0	B027718
Chloride (Cl)	mg/L	150	5.0	B029319	50	B029054	31	1.0	B029106
Sulphate (SO4)	mg/L	38	1.0	B029319	52	B029054	48	1.0	B029106
Nutrients									
Nitrite (N)	mg/L	0.048	0.010	B026404	0.094	B026458	0.049	0.010	B026458
Nitrate plus Nitrite (N)	mg/L	2.8	0.050	B026404	1.4	B026458	2.8	0.050	B026458
Elements									
Dissolved Calcium (Ca)	mg/L	130	0.30	B029048	130	B026248	100	0.30	B029048
Dissolved Iron (Fe)	mg/L	0.15	0.060	B029048	<0.060	B026248	<0.060	0.060	B029048
Dissolved Magnesium (Mg)	mg/L	64	0.20	B029048	84	B026248	66	0.20	B029048
Dissolved Manganese (Mn)	mg/L	0.31	0.0040	B029048	0.20	B026248	0.42	0.0040	B029048
Dissolved Potassium (K)	mg/L	4.0	0.30	B029048	3.7	B026248	3.2	0.30	B029048
Dissolved Sodium (Na)	mg/L	24	0.50	B029048	17	B026248	15	0.50	B029048

RDL = Reportable Detection Limit
N/A = Not Applicable

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C350243
Report Date: 2023/08/04

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

ROUTINE WATER (WATER)

Bureau Veritas ID		BTY446		
Sampling Date		2023/07/05 15:30		
COC Number		C#699215-14-01		
	UNITS	**BH6005**	**RDL**	**QC Batch**
Calculated Parameters				
Anion Sum	meq/L	29	N/A	B022215
Cation Sum	meq/L	30	N/A	B022215
Hardness (CaCO3)	mg/L	1300	0.50	B022068
Ion Balance (% Difference)	%	2.6	N/A	B022069
Nitrate (N)	mg/L	<0.050	0.050	B022040
Nitrate (NO3)	mg/L	<0.22	0.22	B022255
Nitrite (NO2)	mg/L	<0.033	0.033	B022255
Calculated Total Dissolved Solids	mg/L	1500	10	B022075
Misc. Inorganics				
Conductivity	uS/cm	2700	2.0	B027722
pH	pH	7.49	N/A	B027721
Anions				
Alkalinity (PP as CaCO3)	mg/L	<1.0	1.0	B027718
Alkalinity (Total as CaCO3)	mg/L	560	1.0	B027718
Bicarbonate (HCO3)	mg/L	690	1.0	B027718
Carbonate (CO3)	mg/L	<1.0	1.0	B027718
Hydroxide (OH)	mg/L	<1.0	1.0	B027718
Chloride (Cl)	mg/L	610	5.0	B029106
Sulphate (SO4)	mg/L	12	1.0	B029106
Nutrients				
Nitrite (N)	mg/L	<0.010	0.010	B026458
Nitrate plus Nitrite (N)	mg/L	<0.050 (1)	0.050	B026458
Elements				
Dissolved Calcium (Ca)	mg/L	260	0.30	B026248
Dissolved Iron (Fe)	mg/L	10	0.060	B026248
Dissolved Magnesium (Mg)	mg/L	160	0.20	B026248
Dissolved Manganese (Mn)	mg/L	3.7	0.0040	B026248
Dissolved Potassium (K)	mg/L	4.2	0.30	B026248
Dissolved Sodium (Na)	mg/L	80	0.50	B026248

RDL = Reportable Detection Limit
N/A = Not Applicable
(1) Detection limits raised due to matrix interference.

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Bureau Veritas Job #: C350243
Report Date: 2023/08/04

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

TOTAL KJELDAHL NITROGEN (TOTAL)

Bureau Veritas ID		BTY443			BTY444			BTY445		
Sampling Date		2023/07/05 10:30			2023/07/05 11:45			2023/07/05 13:30		
COC Number		C#699215-14-01			C#699215-14-01			C#699215-14-01		
	UNITS	**BH2010**	**RDL**	**QC Batch**	**BH1979**	**RDL**	**QC Batch**	**BH1944**	**RDL**	**QC Batch**
Calculated Parameters										
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.46	0.20	B021442	<0.050	0.050	B021442	<0.10	0.10	B021442
Nutrients										
Total Nitrogen (N)	mg/L	3.3 (1)	0.20	B026882	1.3 (2)	0.020	B030260	2.9	0.10	B026882

RDL = Reportable Detection Limit
(1) Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly.
(2) Nitrogen < Nitrate: Both values fall within the method uncertainty for duplicates and are likely equivalent.

Bureau Veritas ID		BTY446		
Sampling Date		2023/07/05 15:30		
COC Number		C#699215-14-01		
	UNITS	**BH6005**	**RDL**	**QC Batch**
Calculated Parameters				
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.265	0.050	B021442
Nutrients				
Total Nitrogen (N)	mg/L	0.26	0.020	B026882

RDL = Reportable Detection Limit

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Bureau Veritas Job #: C350243
Report Date: 2023/08/04

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID		BTY443		BTY444		BTY445		
Sampling Date		2023/07/05 10:30		2023/07/05 11:45		2023/07/05 13:30		
COC Number		C#699215-14-01		C#699215-14-01		C#699215-14-01		
	UNITS	**BH2010**	**QC Batch**	**BH1979**	**QC Batch**	**BH1944**	**RDL**	**QC Batch**
Parameter								
Subcontract Parameter	N/A	ATTACHED	B032826	ATTACHED	B032826	ATTACHED	N/A	B032826
Calculated Parameters								
Sulphide (as H2S)	mg/L	0.023	B021594	<0.0020	B021594	<0.0020	0.0020	B021594
Misc. Inorganics								
Dissolved Organic Carbon (C)	mg/L	1.7	B028217	2.9	B028217	2.1	0.50	B041982
Total Organic Carbon (C)	mg/L	1.2	B029681	2.0	B028228	1.5	0.50	B041314
Anions								
Total Sulphide	mg/L	0.022	B025254	<0.0018	B025254	<0.0018	0.0018	B025254
Nutrients								
Total Ammonia (N)	mg/L	<0.015	B027454	<0.015	B027454	<0.015	0.015	B027567

RDL = Reportable Detection Limit
N/A = Not Applicable

Bureau Veritas ID		BTY446		
Sampling Date		2023/07/05 15:30		
COC Number		C#699215-14-01		
	UNITS	**BH6005**	**RDL**	**QC Batch**
Parameter				
Subcontract Parameter	N/A	ATTACHED	N/A	B032826
Calculated Parameters				
Sulphide (as H2S)	mg/L	0.016	0.0020	B021594
Misc. Inorganics				
Dissolved Organic Carbon (C)	mg/L	4.1	0.50	B041982
Total Organic Carbon (C)	mg/L	5.9	0.50	B041314
Anions				
Total Sulphide	mg/L	0.015 (1)	0.0018	B025254
Nutrients				
Total Ammonia (N)	mg/L	0.032	0.015	B027454

RDL = Reportable Detection Limit
N/A = Not Applicable
(1) Sample pH <9, preservation incomplete. Due to volatility of analyte, a low bias in the results is likely.

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Bureau Veritas Job #: C350243
Report Date: 2023/08/04

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

PERMANENT GASES (WATER)

Bureau Veritas ID		BTY443	BTY444	BTY445	BTY446		
Sampling Date		2023/07/05 10:30	2023/07/05 11:45	2023/07/05 13:30	2023/07/05 15:30		
COC Number		C#699215-14-01	C#699215-14-01	C#699215-14-01	C#699215-14-01		
	UNITS	**BH2010**	**BH1979**	**BH1944**	**BH6005**	**RDL**	**QC Batch**
Fixed Gases							
Methane	L/m3	0.005	<0.005	<0.005	<0.005	0.005	B036605
Calculated Methane	mg/L	0.003	<0.003	<0.003	<0.003	0.003	B036606
RDL = Reportable Detection Limit							

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Bureau Veritas Job #: C350243
Report Date: 2023/08/04

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		BTY443	BTY444	BTY445	BTY446		
Sampling Date		2023/07/05 10:30	2023/07/05 11:45	2023/07/05 13:30	2023/07/05 15:30		
COC Number		C#699215-14-01	C#699215-14-01	C#699215-14-01	C#699215-14-01		
	UNITS	**BH2010**	**BH1979**	**BH1944**	**BH6005**	**RDL**	**QC Batch**
Volatiles							
Total Trihalomethanes	mg/L	<0.0013	<0.0013	<0.0013	<0.0013	0.0013	B021262
Bromodichloromethane	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	B025167
Bromoform	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	B025167
Bromomethane	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	0.0020	B025167
Carbon tetrachloride	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	B025167
Chlorobenzene	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	B025167
Dibromochloromethane	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	B025167
Chloroethane	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	B025167
Chloroform	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	B025167
Chloromethane	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	0.0020	B025167
1,2-dibromoethane	mg/L	<0.00020	<0.00020	<0.00020	0.00023	0.00020	B025167
1,2-dichlorobenzene	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	B025167
1,3-dichlorobenzene	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	B025167
1,4-dichlorobenzene	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	B025167
1,1-dichloroethane	mg/L	<0.00050	<0.00050	<0.00050	0.00069 (1)	0.00050	B025167
1,2-dichloroethane	mg/L	<0.00050	0.012	<0.00050	0.027	0.00050	B025167
1,1-dichloroethene	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	B025167
cis-1,2-dichloroethene	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	B025167
trans-1,2-dichloroethene	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	B025167
Dichloromethane	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	0.0020	B025167
1,2-dichloropropane	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	B025167
cis-1,3-dichloropropene	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	B025167
trans-1,3-dichloropropene	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	B025167
Methyl methacrylate	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	B025167
Methyl-tert-butylether (MTBE)	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	B025167
Styrene	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	B025167
1,1,1,2-tetrachloroethane	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	B025167
1,1,2,2-tetrachloroethane	mg/L	<0.0020	<0.0020	<0.0020	<0.0020	0.0020	B025167
Tetrachloroethene	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	B025167
1,2,3-trichlorobenzene	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	B025167
1,2,4-trichlorobenzene	mg/L	<0.0010	<0.0010	<0.0010	<0.0010	0.0010	B025167

RDL = Reportable Detection Limit
(1) Qualifying ion outside of acceptance criteria. Results are tentatively identified and potentially biased high.

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Bureau Veritas Job #: C350243
Report Date: 2023/08/04

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		BTY443	BTY444	BTY445	BTY446		
Sampling Date		2023/07/05 10:30	2023/07/05 11:45	2023/07/05 13:30	2023/07/05 15:30		
COC Number		C#699215-14-01	C#699215-14-01	C#699215-14-01	C#699215-14-01		
	UNITS	**BH2010**	**BH1979**	**BH1944**	**BH6005**	**RDL**	**QC Batch**
1,3,5-trichlorobenzene	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	B025167
1,1,1-trichloroethane	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	B025167
1,1,2-trichloroethane	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	B025167
Trichloroethene	mg/L	<0.00020	<0.00020	<0.00020	<0.00020	0.00020	B025167
Trichlorofluoromethane	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	B025167
1,2,4-trimethylbenzene	mg/L	<0.00050	<0.00050	<0.00050	0.0078	0.00050	B025167
1,3,5-trimethylbenzene	mg/L	<0.00050	<0.00050	<0.00050	0.031	0.00050	B025167
Vinyl chloride	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	B025167
Surrogate Recovery (%)							
1,4-Difluorobenzene (sur.)	%	101	101	100	103		B025167
4-Bromofluorobenzene (sur.)	%	92	92	91	91		B025167
D4-1,2-Dichloroethane (sur.)	%	105	135	106	112		B025167
RDL = Reportable Detection Limit							

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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	11.3°C

Version #3: Report reissued to include missing Styrene data from VOCs scan 20230803

Report re-issued with updated site and outlet numbers as requested by the client on 2023.07.31.

Report reissued with updated subcontract report from ALS.

Sample BTY443 [BH2010] : NO2 (N); NO2 (N) + NO3 (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes.

Sample BTY444 [BH1979] : NO2 (N); NO2 (N) + NO3 (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes.

Sample BTY445 [BH1944] : NO2 (N); NO2 (N) + NO3 (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes.

Sample BTY446 [BH6005] : NO2 (N); NO2 (N) + NO3 (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes.

Results relate only to the items tested.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C350243
Report Date: 2023/08/04

QUALITY ASSURANCE REPORT

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
B022859	O-TERPHENYL (sur.)	2023/07/09	102	60 - 140	102	60 - 140	103	%				
B025160	1,4-Difluorobenzene (sur.)	2023/07/08	94	50 - 140	103	50 - 140	102	%				
B025160	4-Bromofluorobenzene (sur.)	2023/07/08	103	50 - 140	97	50 - 140	101	%				
B025160	D4-1,2-Dichloroethane (sur.)	2023/07/08	138	50 - 140	106	50 - 140	102	%				
B025167	1,4-Difluorobenzene (sur.)	2023/07/08	105	50 - 140	105	50 - 140	100	%				
B025167	4-Bromofluorobenzene (sur.)	2023/07/08	98	50 - 140	98	50 - 140	92	%				
B025167	D4-1,2-Dichloroethane (sur.)	2023/07/08	97	50 - 140	92	50 - 140	107	%				
B022859	F2 (C10-C16 Hydrocarbons)	2023/07/09	99	60 - 140	98	60 - 140	<0.10	mg/L	NC	30		
B025160	Benzene	2023/07/08	91	50 - 140	96	60 - 130	<0.00040	mg/L	NC	30		
B025160	Ethylbenzene	2023/07/08	86	50 - 140	100	60 - 130	<0.00040	mg/L	NC	30		
B025160	F1 (C6-C10)	2023/07/08	116	60 - 140	103	60 - 140	<0.10	mg/L	NC	30		
B025160	m & p-Xylene	2023/07/08	86	50 - 140	101	60 - 130	<0.00080	mg/L	NC	30		
B025160	o-Xylene	2023/07/08	87	50 - 140	94	60 - 130	<0.00040	mg/L	NC	30		
B025160	Toluene	2023/07/08	90	50 - 140	100	60 - 130	<0.00040	mg/L	NC	30		
B025167	1,1,1,2-tetrachloroethane	2023/07/08	98	50 - 140	99	60 - 130	<0.0010	mg/L	NC	30		
B025167	1,1,1-trichloroethane	2023/07/08	95	50 - 140	95	60 - 130	<0.00050	mg/L	NC	30		
B025167	1,1,2,2-tetrachloroethane	2023/07/08	98	50 - 140	97	60 - 130	<0.0020	mg/L	NC	30		
B025167	1,1,2-trichloroethane	2023/07/08	99	50 - 140	97	60 - 130	<0.00050	mg/L	NC	30		
B025167	1,1-dichloroethane	2023/07/08	89	50 - 140	89	60 - 130	<0.00050	mg/L	NC	30		
B025167	1,1-dichloroethene	2023/07/08	89	50 - 140	90	60 - 130	<0.00050	mg/L	NC	30		
B025167	1,2,3-trichlorobenzene	2023/07/08	89	50 - 140	91	60 - 130	<0.0010	mg/L	NC	30		
B025167	1,2,4-trichlorobenzene	2023/07/08	88	50 - 140	91	60 - 130	<0.0010	mg/L	NC	30		
B025167	1,2,4-trimethylbenzene	2023/07/08	86	50 - 140	89	60 - 130	<0.00050	mg/L	NC	30		
B025167	1,2-dibromoethane	2023/07/08	96	50 - 140	94	60 - 130	<0.00020	mg/L	NC	30		
B025167	1,2-dichlorobenzene	2023/07/08	92	50 - 140	94	60 - 130	<0.00050	mg/L	NC	30		
B025167	1,2-dichloroethane	2023/07/08	96	50 - 140	96	60 - 130	<0.00050	mg/L	NC	30		
B025167	1,2-dichloropropane	2023/07/08	92	50 - 140	91	60 - 130	<0.00050	mg/L	NC	30		
B025167	1,3,5-trichlorobenzene	2023/07/08	89	50 - 140	91	60 - 130	<0.00050	mg/L	NC	30		
B025167	1,3,5-trimethylbenzene	2023/07/08	87	50 - 140	90	60 - 130	<0.00050	mg/L	NC	30		
B025167	1,3-dichlorobenzene	2023/07/08	89	50 - 140	91	60 - 130	<0.00050	mg/L	NC	30		
B025167	1,4-dichlorobenzene	2023/07/08	92	50 - 140	94	60 - 130	<0.00050	mg/L	NC	30		

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Bureau Veritas Job #: C350243
Report Date: 2023/08/04

QUALITY ASSURANCE REPORT(CONT'D)

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
B025167	Bromodichloromethane	2023/07/08	100	50 - 140	99	60 - 130	<0.00050	mg/L	NC	30		
B025167	Bromoform	2023/07/08	104	50 - 140	104	60 - 130	<0.00050	mg/L	NC	30		
B025167	Bromomethane	2023/07/08	93	50 - 140	89	60 - 130	<0.0020	mg/L	NC	30		
B025167	Carbon tetrachloride	2023/07/08	93	50 - 140	98	60 - 130	<0.00050	mg/L	NC	30		
B025167	Chlorobenzene	2023/07/08	96	50 - 140	97	60 - 130	<0.00050	mg/L	NC	30		
B025167	Chloroethane	2023/07/08	87	50 - 140	87	60 - 130	<0.0010	mg/L	NC	30		
B025167	Chloroform	2023/07/08	94	50 - 140	93	60 - 130	<0.00050	mg/L	NC	30		
B025167	Chloromethane	2023/07/08	86	50 - 140	86	60 - 130	<0.0020	mg/L	NC	30		
B025167	cis-1,2-dichloroethene	2023/07/08	92	50 - 140	91	60 - 130	<0.00050	mg/L	NC	30		
B025167	cis-1,3-dichloropropene	2023/07/08	95	50 - 140	88	60 - 130	<0.00050	mg/L	NC	30		
B025167	Dibromochloromethane	2023/07/08	104	50 - 140	104	60 - 130	<0.0010	mg/L	NC	30		
B025167	Dichloromethane	2023/07/08	92	50 - 140	90	60 - 130	<0.0020	mg/L	NC	30		
B025167	Methyl methacrylate	2023/07/08	94	50 - 140	91	60 - 130	<0.00050	mg/L	NC	30		
B025167	Methyl-tert-butylether (MTBE)	2023/07/08	90	50 - 140	90	60 - 130	<0.00050	mg/L	NC	30		
B025167	Styrene	2023/07/08	95	50 - 140	98	60 - 130	<0.00050	mg/L	NC	30		
B025167	Tetrachloroethene	2023/07/08	89	50 - 140	92	60 - 130	<0.00050	mg/L	NC	30		
B025167	trans-1,2-dichloroethene	2023/07/08	85	50 - 140	85	60 - 130	<0.00050	mg/L	NC	30		
B025167	trans-1,3-dichloropropene	2023/07/08	97	50 - 140	86	60 - 130	<0.00050	mg/L	NC	30		
B025167	Trichloroethene	2023/07/08	97	50 - 140	99	60 - 130	<0.00020	mg/L	NC	30		
B025167	Trichlorofluoromethane	2023/07/08	93	50 - 140	94	60 - 130	<0.00050	mg/L	NC	30		
B025167	Vinyl chloride	2023/07/08	84	50 - 140	86	60 - 130	<0.00050	mg/L	NC	30		
B025254	Total Sulphide	2023/07/08	95	80 - 120	93	80 - 120	<0.0018	mg/L	14	20		
B026248	Dissolved Calcium (Ca)	2023/07/09	NC	80 - 120	99	80 - 120	<0.30	mg/L	13	20		
B026248	Dissolved Iron (Fe)	2023/07/09	103	80 - 120	103	80 - 120	<0.060	mg/L	NC	20		
B026248	Dissolved Magnesium (Mg)	2023/07/09	NC	80 - 120	100	80 - 120	<0.20	mg/L	3.2	20		
B026248	Dissolved Manganese (Mn)	2023/07/09	99	80 - 120	101	80 - 120	<0.0040	mg/L	0.67	20		
B026248	Dissolved Potassium (K)	2023/07/09	100	80 - 120	99	80 - 120	<0.30	mg/L	2.3	20		
B026248	Dissolved Sodium (Na)	2023/07/09	NC	80 - 120	95	80 - 120	<0.50	mg/L	2.0	20		
B026404	Nitrate plus Nitrite (N)	2023/07/09	125 (1)	80 - 120	107	80 - 120	<0.010	mg/L	NC	20		
B026404	Nitrite (N)	2023/07/09	100	80 - 120	101	80 - 120	<0.010	mg/L	NC	20		
B026458	Nitrate plus Nitrite (N)	2023/07/09	NC	80 - 120	106	80 - 120	<0.010	mg/L	0.36	20		

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Bureau Veritas Job #: C350243
Report Date: 2023/08/04

QUALITY ASSURANCE REPORT(CONT'D)

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
B026458	Nitrite (N)	2023/07/09	100	80 - 120	99	80 - 120	<0.010	mg/L	NC	20		
B026882	Total Nitrogen (N)	2023/07/10	113	80 - 120	107	80 - 120	<0.020	mg/L	NC	20	104	80 - 120
B027454	Total Ammonia (N)	2023/07/10	110	80 - 120	104	80 - 120	<0.015	mg/L	16	20		
B027567	Total Ammonia (N)	2023/07/10	98	80 - 120	103	80 - 120	<0.015	mg/L	NC	20		
B027718	Alkalinity (PP as CaCO3)	2023/07/10					<1.0	mg/L	NC	20		
B027718	Alkalinity (Total as CaCO3)	2023/07/10			98	80 - 120	<1.0	mg/L	2.2	20		
B027718	Bicarbonate (HCO3)	2023/07/10					<1.0	mg/L	2.2	20		
B027718	Carbonate (CO3)	2023/07/10					<1.0	mg/L	NC	20		
B027718	Hydroxide (OH)	2023/07/10					<1.0	mg/L	NC	20		
B027721	pH	2023/07/10			100	97 - 103			1.2	N/A		
B027722	Conductivity	2023/07/10			101	90 - 110	<2.0	uS/cm	0.85	10		
B028217	Dissolved Organic Carbon (C)	2023/07/12	NC	80 - 120	99	80 - 120	<0.50	mg/L	12	20		
B028228	Total Organic Carbon (C)	2023/07/11	77 (1)	80 - 120	101	80 - 120	<0.50	mg/L	14	20		
B029048	Dissolved Calcium (Ca)	2023/07/11	NC	80 - 120	103	80 - 120	<0.30	mg/L	1.2	20		
B029048	Dissolved Iron (Fe)	2023/07/11	NC	80 - 120	107	80 - 120	<0.060	mg/L	1.4	20		
B029048	Dissolved Magnesium (Mg)	2023/07/11	105	80 - 120	104	80 - 120	<0.20	mg/L	2.5	20		
B029048	Dissolved Manganese (Mn)	2023/07/11	106	80 - 120	109	80 - 120	<0.0040	mg/L	1.5	20		
B029048	Dissolved Potassium (K)	2023/07/11	105	80 - 120	102	80 - 120	<0.30	mg/L	8.2	20		
B029048	Dissolved Sodium (Na)	2023/07/11	104	80 - 120	102	80 - 120	<0.50	mg/L	2.0	20		
B029054	Chloride (Cl)	2023/07/11	103	80 - 120	101	80 - 120	<1.0	mg/L	1.3	20		
B029054	Sulphate (SO4)	2023/07/11	NC	80 - 120	101	80 - 120	<1.0	mg/L	0.16	20		
B029106	Chloride (Cl)	2023/07/12	102	80 - 120	99	80 - 120	<1.0	mg/L	NC	20		
B029106	Sulphate (SO4)	2023/07/12	103	80 - 120	98	80 - 120	<1.0	mg/L				
B029319	Chloride (Cl)	2023/07/11	NC	80 - 120	95	80 - 120	<1.0	mg/L	0.78	20		
B029319	Sulphate (SO4)	2023/07/11	NC	80 - 120	104	80 - 120	<1.0	mg/L	3.2	20		
B029681	Total Organic Carbon (C)	2023/07/12	77 (1)	80 - 120	100	80 - 120	<0.50	mg/L				
B030260	Total Nitrogen (N)	2023/07/12	102	80 - 120	101	80 - 120	<0.020	mg/L	14	20	101	80 - 120
B036605	Methane	2023/07/13					<0.005	L/m3	NC	20		
B041314	Total Organic Carbon (C)	2023/07/21	83	80 - 120	99	80 - 120	<0.50	mg/L	3.9	20		

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Bureau Veritas Job #: C350243
Report Date: 2023/08/04

QUALITY ASSURANCE REPORT(CONT'D)

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
B041982	Dissolved Organic Carbon (C)	2023/07/21	NC	80 - 120	97	80 - 120	<0.50	mg/L	8.1	20		

N/A = Not Applicable

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

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

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

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

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

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

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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Bureau Veritas Job #: C350243
Report Date: 2023/08/04

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

VALIDATION SIGNATURE PAGE

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

Jared Wiseman, B.Sc., P.Chem., QP, Senior Analyst, Organics

Rahul Suryawanshi, Senior Analyst

Sandy Yuan, M.Sc., QP, Scientific Specialist

Suwan (Sze Yeung) Fock, B.Sc., Scientific Specialist

Vasan Thiagarajah, Analyst, Compressed Gases

Yifei Yang, Project Solutions Representative

Bureau Veritas Proprietary Software
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Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the

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VALIDATION SIGNATURE PAGE(CONT'D)

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

reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

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Bureau Veritas
4000 19st N.E, Calgary, Alberta Canada T2E 6P8 Tel:(403) 291-3077 Toll-free:800-563-6266 Fax:(403) 291-9468 www.bvna.com

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE TO:
Company Name: #11243 PARSONS INC.
Attention: ACCOUNTS PAYABLE
Address: 2751 JOHN STREET
MARKHAM ON L3R 2Y8
Tel: (905) 944-8877 Fax:
Email: ParsonsIncAP.Parsons@parsons.com

REPORT TO:
Company Name: #31652 PARSONS INC.
Attention: Rebecca Neufeld
Address: Unit 510, 214 - 11th Avenue SW
Calgary AB T2R 0K1
Tel: Fax:
Email: rebecca.neufeld@parsons.com,Michelle.Patterson@par

PROJECT INFORMATION:
Quotation #: C30805
P.O. #: 478621.17107
Project: 10-12832
Project Name:
Site #:
Sampled By: Rebecca Neufeld

Laboratory Use Only:
Bureau Veritas Job #:
Bottle Order #: 699215
COC #: C#699215-14-01
Project Manager: Parminder Virk

Regulatory Criteria:
- [x] ATI
- [ ] CCME
- [ ] Other

Special Instructions

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	AT1 BTEX and F1-F2 in Water	VOCs in Water by HS GC/MS (Std List)	Routine Water	Ferrous Iron (Dissolved)	Methane	Ammonia-N (Total)	Total Sulphide	Carbon (Total Organic)	Carbon (DOC)	Total Kjeldahl Nitrogen (Total)	# of Bottles	Comments
1		BH2010	07/05/23	1030	Water	Y	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	12	
2		BH1979	↓	1145	Water	Y	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	12	
3		BH1944	↓	1330	Water	Y	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	12	
4		BH6005	07/05/23	1530	Water	Y	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	12	
5																		
6																		
7																		
8																		
9																		
10																		

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects
Regular (Standard) TAT: [x]
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests..
Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details
Job Specific Rush TAT (if applies to entire submission) [ ]
Date Required:
Rush Confirmation Number:
(call lab for #)

mcal-07-996

C350243

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
R Neufeld Rebecca Neufeld	23/07/05	6:30	Marjorie Lantue	2023/07/05	1845	0

Laboratory Use Only
Time Sensitive [ ]
Temperature (°C) on Receipt: 10, 13, 11
Custody Seal Intact on Cooler? [x] Yes [ ] No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.
** ALL SAMPLES ARE HELD FOR 60 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

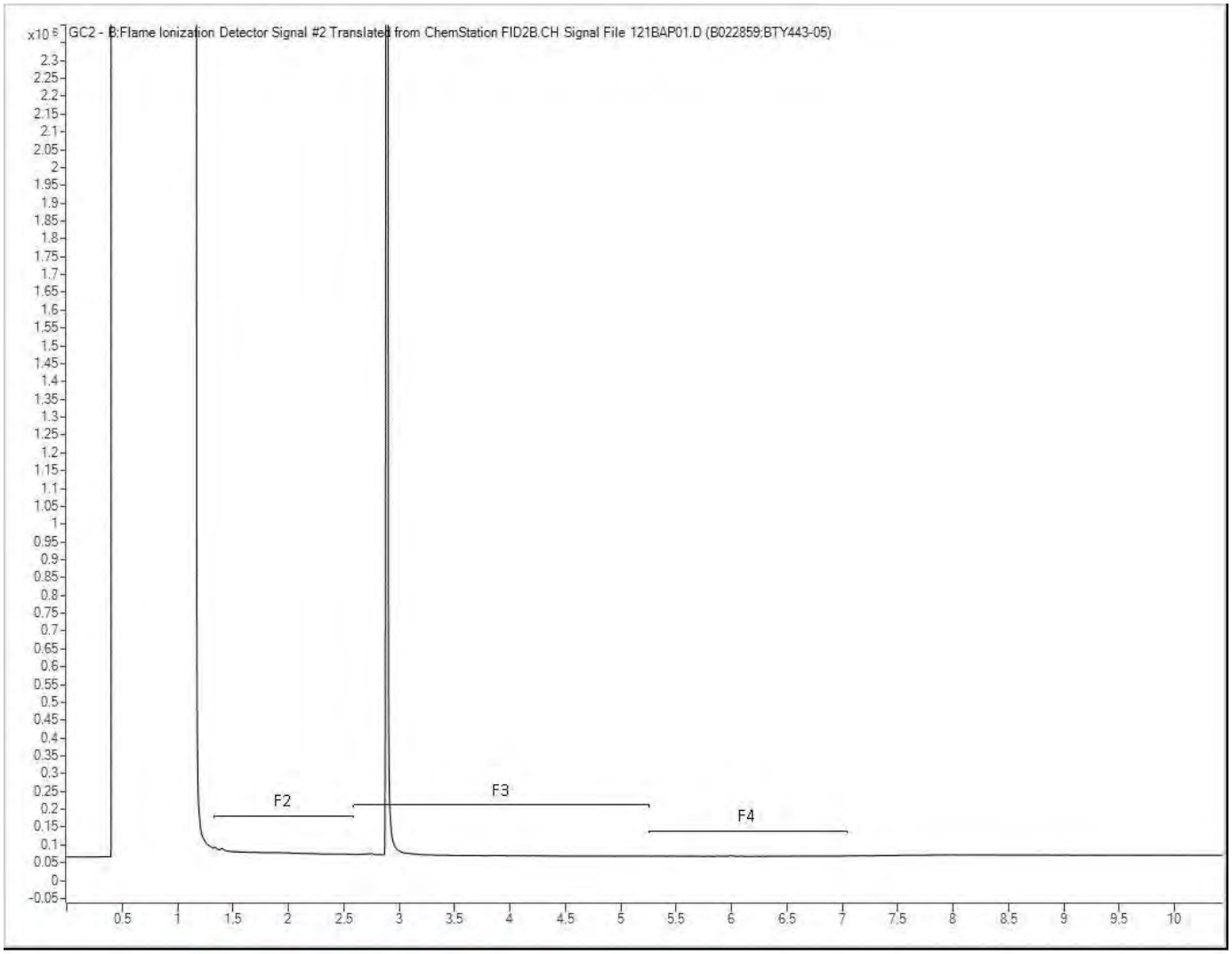
White: Bureau Veritas Yellow: Client
ICED - yes

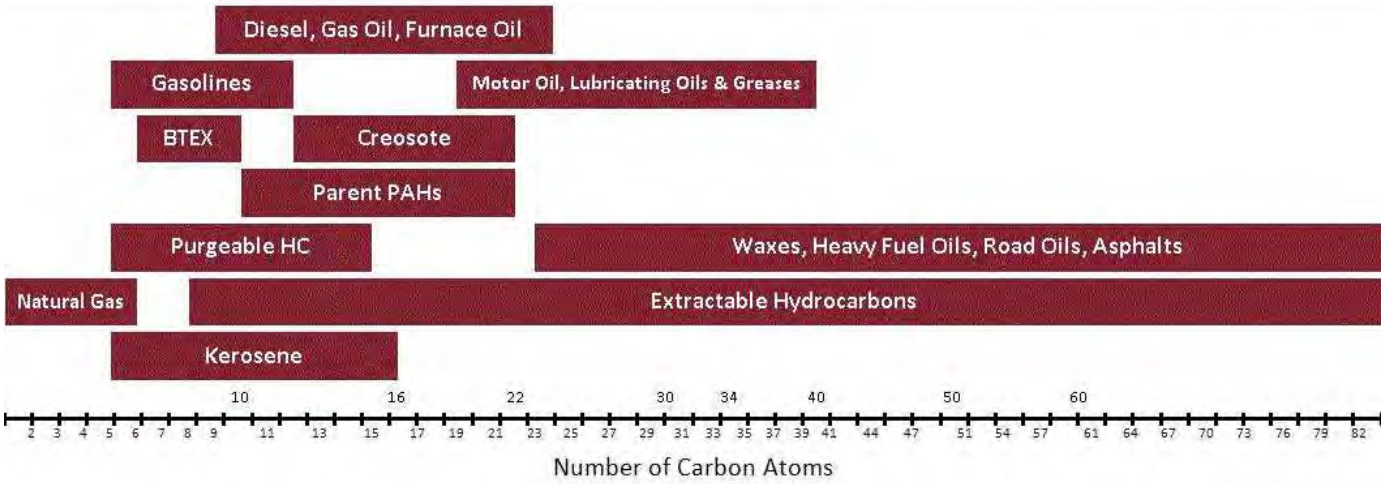
Bureau Veritas Canada (2019) Inc.

Bureau Veritas Job #: C350243
Report Date: 2023/08/04
Bureau Veritas Sample: BTY443

PARSONS INC.
Client Project #: 10-12832
Client ID: BH2010

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





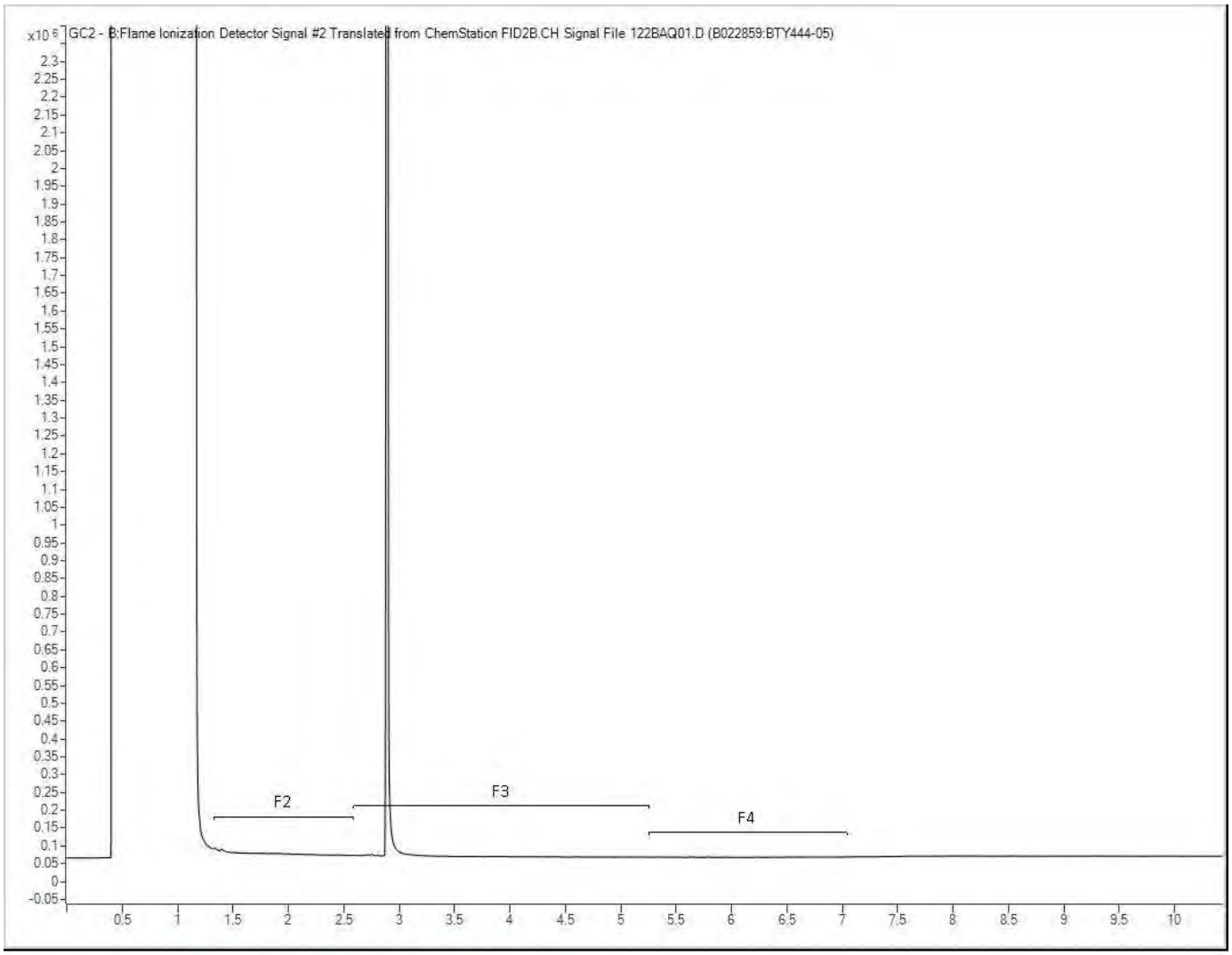
hpchem7\HPchem\1\DATA\2023\07\RUN0707

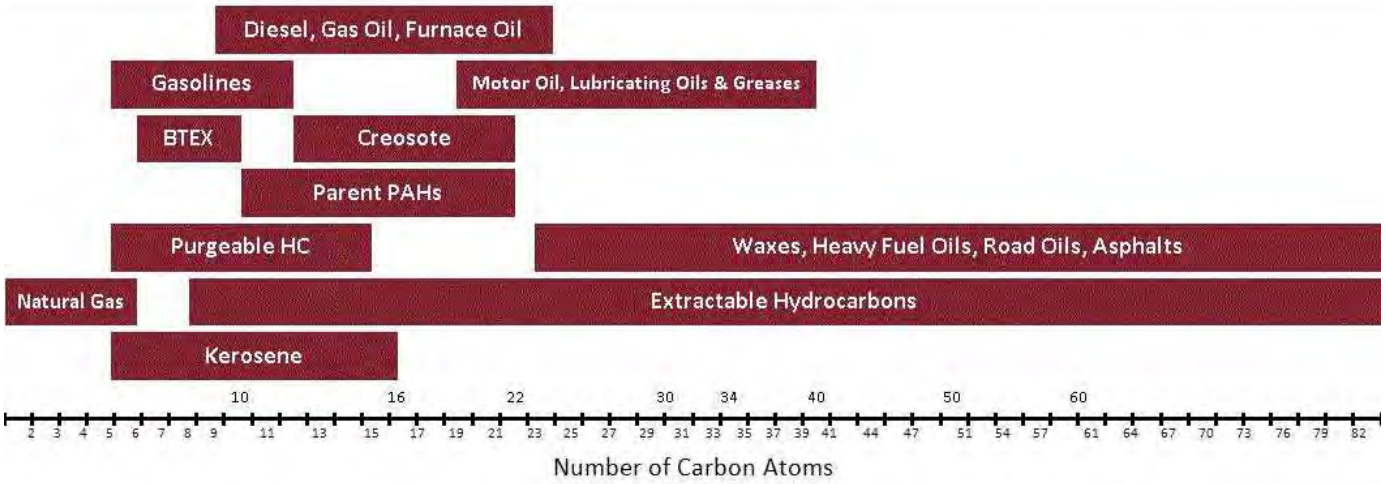
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C350243
Report Date: 2023/08/04
Bureau Veritas Sample: BTY444

PARSONS INC.
Client Project #: 10-12832
Client ID: BH1979

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





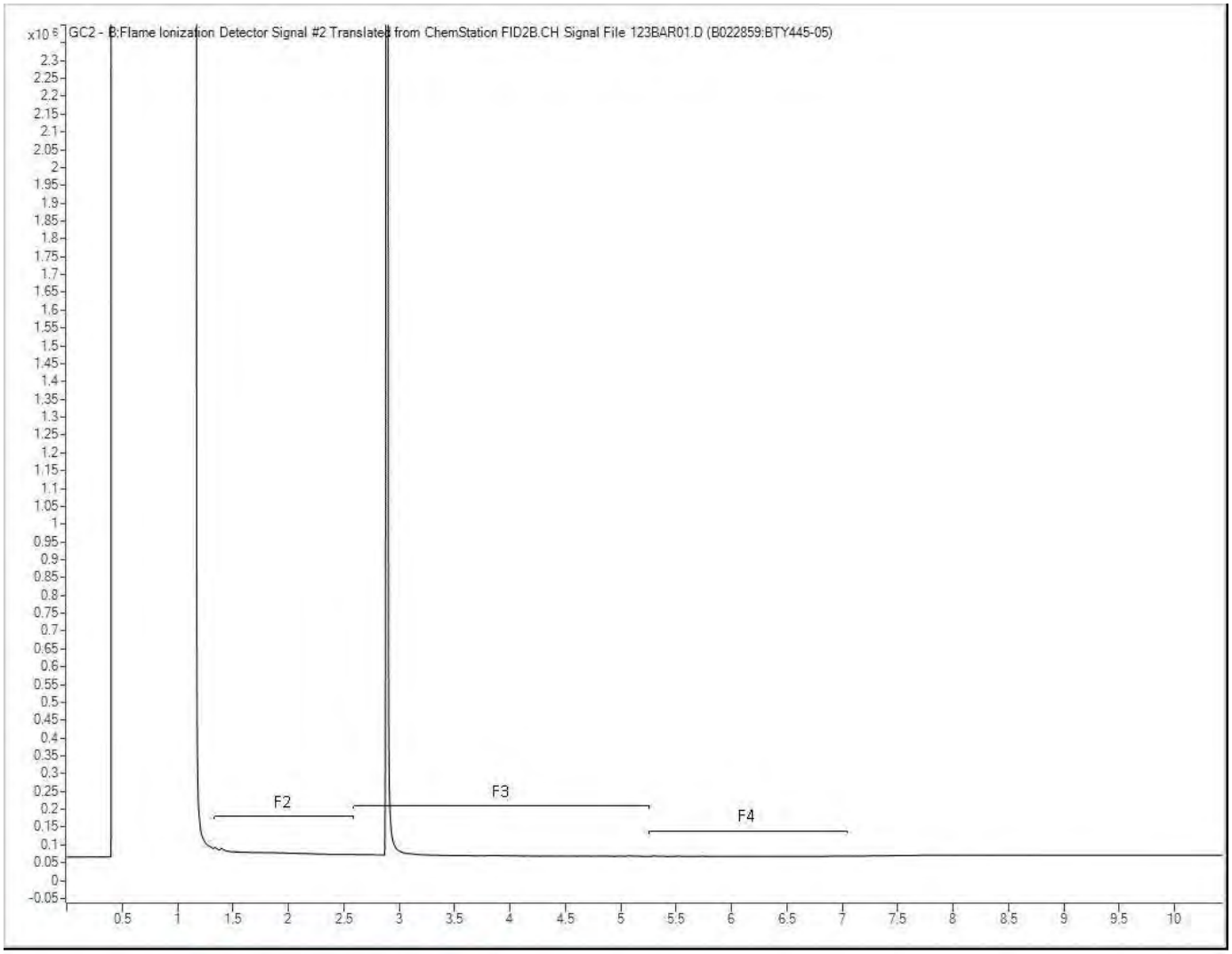
hpchem7\HPchem\1\DATA\2023\07\RUN0707

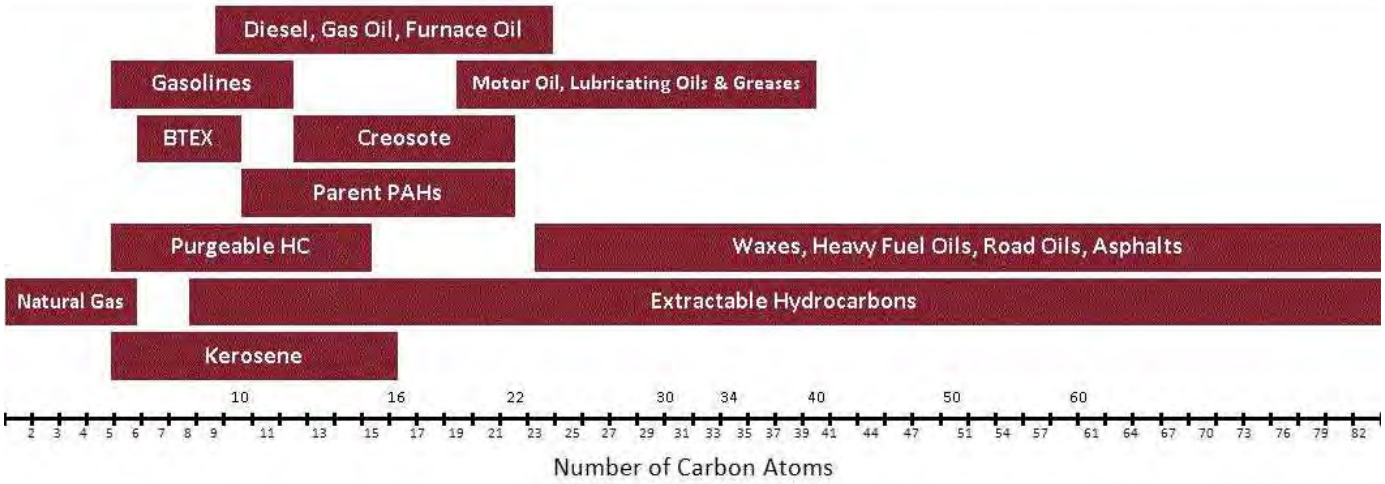
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C350243
Report Date: 2023/08/04
Bureau Veritas Sample: BTY445

PARSONS INC.
Client Project #: 10-12832
Client ID: BH1944

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





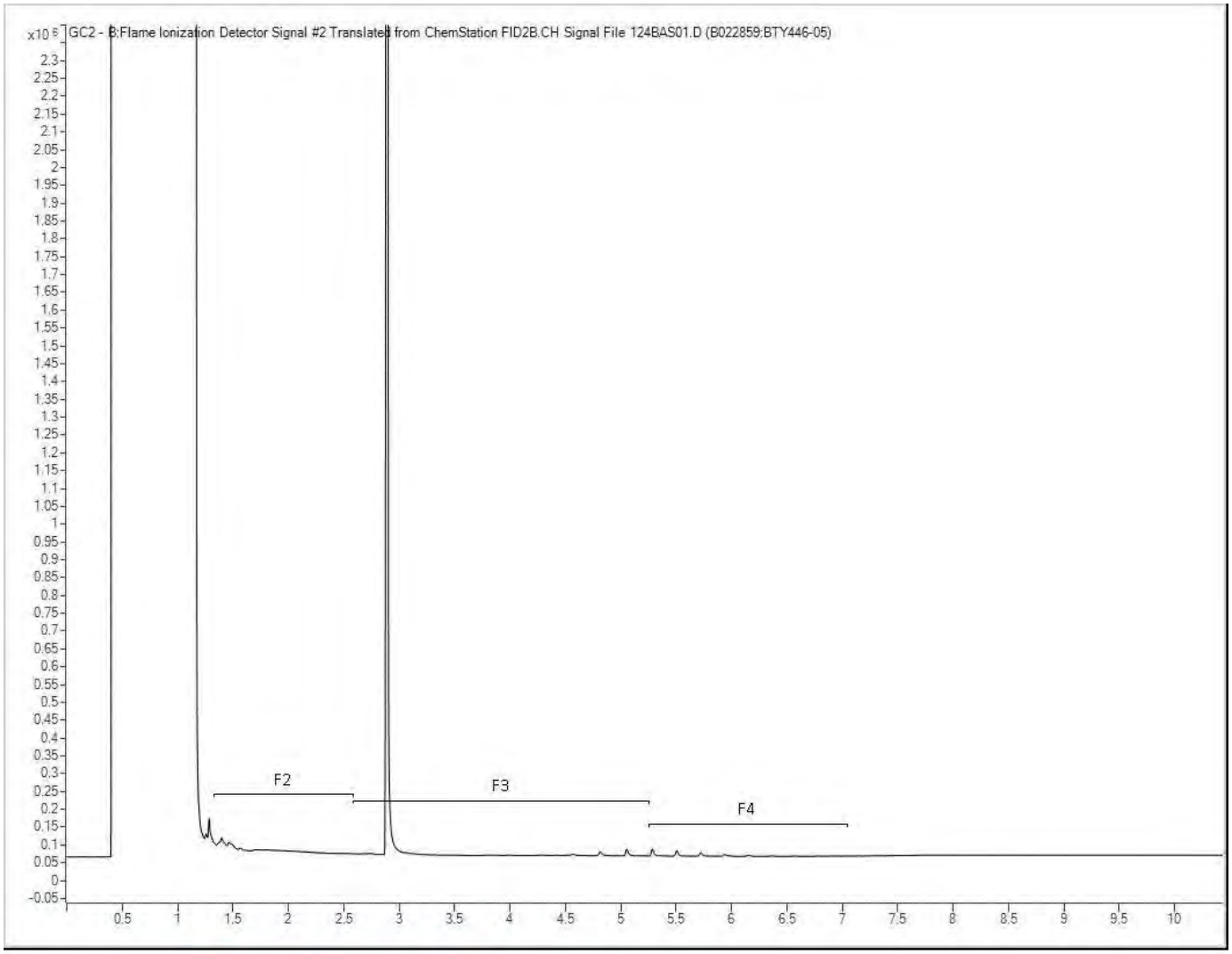
hpchem7\HPchem\1\DATA\2023\07\RUN0707

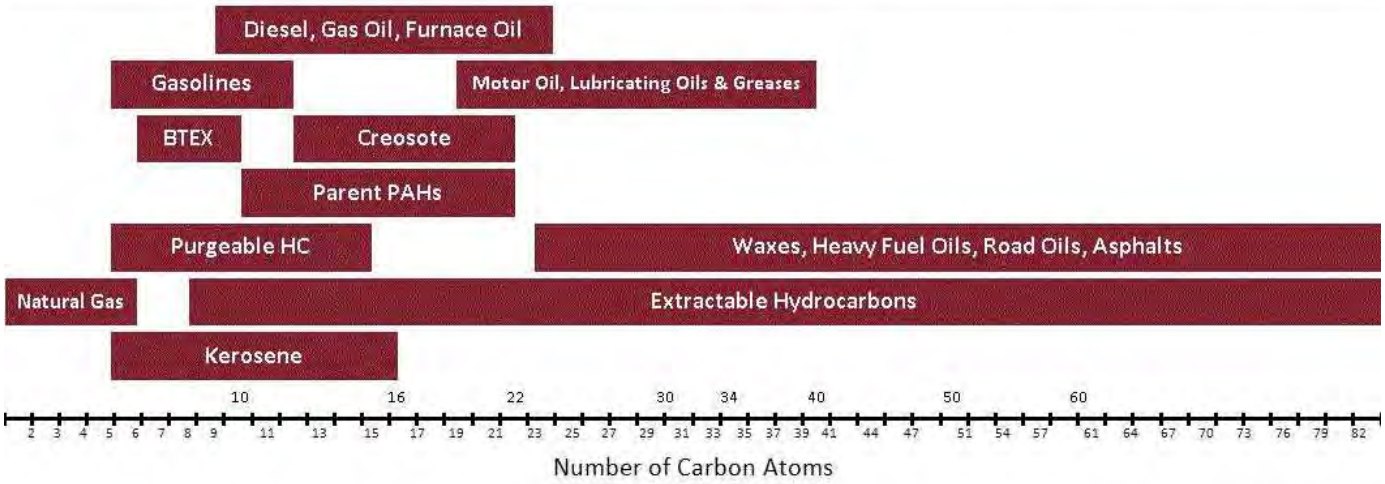
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C350243
Report Date: 2023/08/04
Bureau Veritas Sample: BTY446

PARSONS INC.
Client Project #: 10-12832
Client ID: BH6005

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





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Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

DATA QUALITY REVIEW CHECKLIST

Consultant: *Parsons Inc.*

Sampling Date: *2023/7/05*

Location: *1620 14 AVE NW, CALGARY*

Laboratory : *ALS Environmental, Vancouver, BC*

Consultant Project Number: *10-12832*

Sample Submission Number: *VA23B5563*

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
Field Blank Concentration			*X*	*All field QC samples have met the acceptable RPD limits.*
Trip Blank Concentration			*X*	
Field Duplicate RPD			*X*	

Has CoA been signed off (Yes/No)?:	*Yes*
Has lab warranted all tests were in statistical control in CoA (Yes/No)?:	*Yes*
Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?:	*Yes*
Were all samples analyzed within hold times (Yes/No)?:	*Yes*
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): *Mackenzie Robart*

Reviewed by (Print): *Michelle Patterson*

Reviewed date: *2023/10/03*

Reviewed by (Signature):

ALS Canada Ltd.

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CERTIFICATE OF ANALYSIS

Work Order	: **VA23B5563**	Page	: 1 of 2
Amendment	: **1**		
Client	: **Bureau Veritas Canada (2019) Inc. (Maxxam Analytics)**	Laboratory	: ALS Environmental - Vancouver
Contact	: Parminder Virk	Account Manager	: Tasnia Tarannum
Address	: 4000 19 St NE Calgary AB Canada T2E 6P8	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	: 4037352235	Telephone	: +1 604 253 4188
Project	: C350243	Date Samples Received	: 07-Jul-2023 09:30
PO	: ----	Date Analysis Commenced	: 12-Jul-2023
C-O-C number	: C350243-CALB-01-01	Issue Date	: 02-Aug-2023 15:01
Sampler	: ----		
Site	: ----		
Quote number	: Vancouver Standing Offer		
No. of samples received	: 4		
No. of samples analysed	: 4		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Kate Dimitrova	Analsyt	Inorganics, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.
Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
mg/L	milligrams per litre

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical Results

Sub-Matrix: **Water** (Matrix: **Water**)				*Client sample ID*	**BTY443-BH2010**	**BTY444-BH1979**	**BTY445-BH1944**	**BTY446-BH6005**	**----**
				Client sampling date / time	05-Jul-2023 11:30	05-Jul-2023 12:45	05-Jul-2023 14:30	05-Jul-2023 16:30	----
Analyte	*CAS Number*	*Method/Lab*	*LOR*	*Unit*	**VA23B5563-001**	**VA23B5563-002**	**VA23B5563-003**	**VA23B5563-004**	**--------**
					Result	Result	Result	Result	----
Sample Preparation									
Dissolved Fe2 filtration location	----	EP541/VA	-	-	Field	Field	Field	Field	----
Speciated Metals									
Iron, ferrous [Fe II], dissolved	15438-31-0	E541/VA	0.020	mg/L	<0.020	<0.020	<0.020	10.3	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA23B5563**	Page	: 1 of 5
Amendment	: **1**		
Client	: **Bureau Veritas Canada (2019) Inc. (Maxxam Analytics)**	Laboratory	: ALS Environmental - Vancouver
Contact	: Parminder Virk	Account Manager	: Tasnia Tarannum
Address	: 4000 19 St NE Calgary AB Canada T2E 6P8	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: 4037352235	Telephone	: +1 604 253 4188
Project	: C350243	Date Samples Received	: 07-Jul-2023 09:30
PO	: ----	Issue Date	: 02-Aug-2023 15:01
C-O-C number	: C350243-CALB-01-01		
Sampler	: ----		
Site	: ----		
Quote number	: Vancouver Standing Offer		
No. of samples received	: 4		
No. of samples analysed	: 4		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Speciated Metals : Dissolved Ferrous Iron in Water by Colour										
Amber glass dissolved (hydrochloric acid) BTY444-BH1979	E541	05-Jul-2023	12-Jul-2023	7 days	6 days	✓	12-Jul-2023	1 days	0 days	✓
Speciated Metals : Dissolved Ferrous Iron in Water by Colour										
Amber glass dissolved (hydrochloric acid) BTY445-BH1944	E541	05-Jul-2023	12-Jul-2023	7 days	6 days	✓	12-Jul-2023	1 days	0 days	✓
Speciated Metals : Dissolved Ferrous Iron in Water by Colour										
Amber glass dissolved (hydrochloric acid) BTY446-BH6005	E541	05-Jul-2023	12-Jul-2023	7 days	6 days	✓	12-Jul-2023	1 days	0 days	✓
Speciated Metals : Dissolved Ferrous Iron in Water by Colour										
Amber glass dissolved (hydrochloric acid) BTY443-BH2010	E541	05-Jul-2023	12-Jul-2023	7 days	7 days	✓	12-Jul-2023	0 days	0 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Dissolved Ferrous Iron in Water by Colour	E541	1033763	1	7	14.2	5.0	✓
Laboratory Control Samples (LCS)							
Dissolved Ferrous Iron in Water by Colour	E541	1033763	1	7	14.2	5.0	✓
Method Blanks (MB)							
Dissolved Ferrous Iron in Water by Colour	E541	1033763	1	7	14.2	5.0	✓
Matrix Spikes (MS)							
Dissolved Ferrous Iron in Water by Colour	E541	1033763	1	7	14.2	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by “mod”).

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Ferrous Iron in Water by Colour	E541 ALS Environmental - Vancouver	Water	APHA 3500-Fe B/James Ball et al (1999)	This analysis is carried out using procedures adapted from APHA 3500-Fe B and Environ. Sci. Technol. 1999, 33, 5, 807–813. The procedure involves preliminary sample filtration, and ferrous iron is determined using the "FerroZine" colourimetric method. Holding time is 7 days for 0.45um filtration or 6 months if samples have been filtered using 0.1um filters.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Ferrous Iron in Water by Colour	EP541 ALS Environmental - Vancouver	Water	APHA 3500-Fe B/James Ball et al (1999)	This analysis is carried out using procedures adapted from APHA 3500-Fe B and "A New Method for the Direct Determination of Dissolved Iron Concentration in Acid Mine Waters" published by James W. Ball et al (1999). The procedure involves preliminary sample filtration, and ferrous iron is determined using the "FerroZine" colourimetric method.

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QUALITY CONTROL REPORT

Work Order	: **VA23B5563**	Page	: 1 of 3
Amendment	: **1**		
Client	: Bureau Veritas Canada (2019) Inc. (Maxxam Analytics)	Laboratory	: ALS Environmental - Vancouver
Contact	: Parminder Virk	Account Manager	: Tasnia Tarannum
Address	: 4000 19 St NE Calgary AB Canada T2E 6P8	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	:	Telephone	: +1 604 253 4188
Project	: C350243	Date Samples Received	: 07-Jul-2023 09:30
PO	: ----	Date Analysis Commenced	: 12-Jul-2023
C-O-C number	: C350243-CALB-01-01	Issue Date	: 02-Aug-2023 15:06
Sampler	: ---- 4037352235		
Site	: ----		
Quote number	: Vancouver Standing Offer		
No. of samples received	: 4		
No. of samples analysed	: 4		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Kate Dimitrova	Analsyt	Vancouver Inorganics, Burnaby, British Columbia

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Speciated Metals (QC Lot: 1033763)											
VA23B5491-002	Anonymous	Iron, ferrous [Fe II], dissolved	15438-31-0	E541	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	*CAS Number*	*Method*	*LOR*	*Unit*	*Result*	*Qualifier*
Speciated Metals (QCLot: 1033763)						
Iron, ferrous [Fe II], dissolved	15438-31-0	E541	0.02	mg/L	<0.020	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Speciated Metals (QCLot: 1033763)									
Iron, ferrous [Fe II], dissolved	15438-31-0	E541	0.02	mg/L	0.5 mg/L	111	80.0	120	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Speciated Metals (QCLot: 1033763)										
VA23B5491-003	Anonymous	Iron, ferrous [Fe II], dissolved	15438-31-0	E541	0.820 mg/L	1 mg/L	82.0	70.0	130	----

Sent To: **ALS Laboratory Group**
8081 Lougheed HWY
Burnaby, BC, V5A 1W9
Tel: (604) 253-4188

CHAIN OF CUSTODY RECORD FOR SUBCONTRACTED WORK

COC # C350243-CALB-01-01

REPORT INFORMATION	
Company:	Bureau Veritas Laboratories
Address:	4000 19st N.E, Calgary, Alberta, T2E 6P8
Contact Name:	Parminder Virk
Email:	Parminder.Virk@bureauveritas.com, Customersolutionswest@bureauveritas.co
Phone:	(403) 735-2235
BV Labs Project #:	C350243

ANALYSIS REQUESTED

#	SAMPLE ID	MATRIX	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	SAMPLER INITIALS	# CONT.	Ferrous Iron (Dissolved)	ADDITIONAL SAMPLE INFORMATION
1	BTY443-BH2010	W	2023/07/05	10:30	RN	1	X	(P: 06)
2	BTY444-BH1979	W	2023/07/05	11:45	RN	1	X	(P: 06)
3	BTY445-BH1944	W	2023/07/05	13:30	RN	1	X	(P: 06)
4	BTY446-BH6005	W	2023/07/05	15:30	RN	1	X	(P: 06)
5								
6								
7								
8								
9								
10								

Environmental Division
Vancouver
Work Order Reference
VA23B5563
Telephone : +1 604 253 4188

REGULATORY CRITERIA

SPECIAL INSTRUCTIONS

Please inform Bureau Veritas immediately if you are not accredited for the requested test(s) or the hold time is approaching.
Please return a copy of this form with the report.

TURNAROUND TIME

☐ Rush Required

2023/07/12
Date Required

Please inform us if rush charges will be incurred.

COOLER ID:

	YES	NO	Temp: (°C)	1	2	3
Custody Seal Present	✓					
Custody Seal Intact	✓					
Cooling Media Present	✓					

COOLER ID:

	YES	NO	Temp: (°C)	1	2	3
Custody Seal Present						
Custody Seal Intact						
Cooling Media Present						

COOLER ID:

	YES	NO	Temp: (°C)	1	2	3
Custody Seal Present						
Custody Seal Intact						
Cooling Media Present						

RELINQUISHED BY: (SIGN & PRINT)	**DATE:** (YYYY/MM/DD)	**TIME:** (HH:MM)	**RECEIVED BY:** (SIGN & PRINT)	**DATE:** (YYYY/MM/DD)	**TIME:** (HH:MM)
1. Zoolh Lee Chan	2023/07/06	16:00	1. JC 4°C	2023/07/07	830am
2.			2.		

DATA QUALITY REVIEW CHECKLIST

Consultant: *Parsons Inc.*

Sampling Date: *2023/7/06*

Location: *1620 14 AVE NW, CALGARY*

Laboratory : *Bureau Veritas, Calgary, AB*

Consultant Project Number: *10-12832*

Sample Submission Number: *C350713*

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

	Yes	No	NA	Comments
Surrogate Recovery	*X*			*The matrix spike recovery for Dissolved Organic Carbon (74%) is below the control limit. All other 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
Field 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*
Has lab warranted all tests were in statistical control in CoA (Yes/No)?:	*Yes*
Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?:	*Yes*
Were all samples analyzed within hold times (Yes/No)?:	*No*
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): *Mackenzie Robart*

Reviewed by (Print): *Michelle Patterson*

Reviewed date: *2023/10/03*

Reviewed by (Signature):

Your P.O. #: 478621.17104
Your Project #: 10-12832
Site#: 9445
WBS 478621.17104
Outlet Number 9445
Your C.O.C. #: 699215-12-01

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/08/04
Report #: R3376620
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C350713
Received: 2023/07/06, 17:22

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity @25C (pp, total), CO3,HCO3,OH	1	N/A	2023/07/17	AB SOP-00005	SM 23 2320 B m
Alkalinity @25C (pp, total), CO3,HCO3,OH	1	N/A	2023/07/21	AB SOP-00005	SM 23 2320 B m
BTEX/F1 in Water by HS GC/MS/FID	1	N/A	2023/07/08	AB SOP-00039	CCME CWS/EPA 8260d m
BTEX/F1 in Water by HS GC/MS/FID	1	N/A	2023/07/09	AB SOP-00039	CCME CWS/EPA 8260d m
F1-BTEX	2	N/A	2023/07/10		Auto Calc
Chloride/Sulphate by Auto Colourimetry	2	N/A	2023/07/18	AB SOP-00020	SM24-4500-Cl/SO4-E m
Carbon (DOC) (3)	2	N/A	2023/07/18	AB SOP-00087	MMCW 119 1996 m
Conductivity @25C	1	N/A	2023/07/17	AB SOP-00005	SM 23 2510 B m
Conductivity @25C	1	N/A	2023/07/21	AB SOP-00005	SM 23 2510 B m
Ferrous Iron (Dissolved) (1)	2	N/A	2023/07/13		
CCME Hydrocarbons in Water (F2; C10-C16) (4)	2	2023/07/11	2023/07/11	AB SOP-00037 AB SOP-00040	CCME PHC-CWS m
Sulphide (as H2S)	2	N/A	2023/07/08		Auto Calc
Hardness	2	N/A	2023/07/11		Auto Calc
Elements by ICP - Dissolved (5)	2	N/A	2023/07/10	AB SOP-00042	EPA 6010d R5 m
Ion Balance	1	N/A	2023/07/19		Auto Calc
Ion Balance	1	N/A	2023/07/21		Auto Calc
Sum of cations, anions	2	N/A	2023/07/11		Auto Calc
Ammonia-N (Total)	2	N/A	2023/07/10	AB SOP-00007	SM 24 4500 NH3 A G m
Nitrate and Nitrite	2	N/A	2023/07/10		Auto Calc
NO2 (N); NO2 (N) + NO3 (N) in Water	2	N/A	2023/07/09	AB SOP-00091	SM 24 4500 NO3m
Nitrate (as N)	2	2023/07/06	2023/07/10		Auto Calc
pH @25°C (6)	1	N/A	2023/07/17	AB SOP-00005	SM 23 4500-H+B m
pH @25°C (6)	1	N/A	2023/07/21	AB SOP-00005	SM 23 4500-H+B m
Total Sulphide	2	N/A	2023/07/08	AB SOP-00080	SM 23 4500 S2-A D Fm
Total Dissolved Solids (Calculated)	1	N/A	2023/07/19		Auto Calc
Total Dissolved Solids (Calculated)	1	N/A	2023/07/21		Auto Calc
Total Trihalomethanes Calculation	2	N/A	2023/07/10		Auto Calc
Total Kjeldahl Nitrogen (Total)	1	N/A	2023/07/10	BBY WI-00033	Auto Calc
Total Kjeldahl Nitrogen (Total)	1	N/A	2023/07/13	BBY WI-00033	Auto Calc
Nitrogen (Total)	1	2023/07/09	2023/07/12	AB SOP-00093	SM 24 4500-N C m
Nitrogen (Total)	1	2023/07/10	2023/07/10	AB SOP-00093	SM 24 4500-N C m

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Your P.O. #: 478621.17104
Your Project #: 10-12832
Site#: 9445
WBS 478621.17104
Outlet Number 9445
Your C.O.C. #: 699215-12-01

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/08/04
Report #: R3376620
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C350713
Received: 2023/07/06, 17:22

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Carbon (Total Organic) (7)	2	N/A	2023/07/18	AB SOP-00087	MMCW 119 1996 m
VOCs in Water by HS GC/MS (Std List)	2	N/A	2023/07/08	AB SOP-00056	EPA 5021a/8260d m
Dissolved Gases in Water (2)	2	N/A	2023/07/13	CAM SOP-00219	RSKSOP-175 m
Dissolved Gases in Water in mg/L units (2)	2	N/A	2023/07/08	Calculation	Calculation

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) This test was performed by ALS Laboratory Group, 8081 Lougheed HWY , Burnaby, BC, V5A 1W9
(2) This test was performed by Bureau Veritas Campobello, 6740 Campobello Road , Mississauga, ON, L5N 2L8
(3) DOC present in the sample should be considered as non-purgeable DOC. Dissolved > Total Imbalance: When applicable, Dissolved and Total results were reviewed and data quality meets acceptable levels unless otherwise noted.
(4) Silica gel clean up employed.
(5) Dissolved > Total Imbalance: When applicable, Dissolved and Total results were reviewed and data quality meets acceptable levels unless otherwise noted.
(6) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas endeavours to analyze samples as soon as possible after receipt.
(7) TOC present in the sample should be considered as non-purgeable TOC.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Your P.O. #: 478621.17104
Your Project #: 10-12832
Site#: 9445
WBS 478621.17104
Outlet Number 9445
Your C.O.C. #: 699215-12-01

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/08/04
Report #: R3376620
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C350713
Received: 2023/07/06, 17:22

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Parminder Virk, Key Account Specialist
Email: Parminder.Virk@bureauveritas.com
Phone# (403)735-2235
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Scott Cantwell, General Manager responsible for Alberta Environmental laboratory operations.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C350713
Report Date: 2023/08/04

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

AT1 BTEX AND F1-F2 IN WATER (WATER)

Bureau Veritas ID		BUA870	BUA871		
Sampling Date		2023/07/06 11:30	2023/07/06 15:45		
COC Number		699215-12-01	699215-12-01		
	UNITS	**BH 1962**	**BH 2005**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon					
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	<0.10	0.10	B025358
Volatiles					
Benzene	mg/L	<0.00040	0.29	0.00040	B025160
Toluene	mg/L	<0.00040	<0.00040	0.00040	B025160
Ethylbenzene	mg/L	<0.00040	<0.00040	0.00040	B025160
m & p-Xylene	mg/L	<0.00080	<0.00080	0.00080	B025160
o-Xylene	mg/L	<0.00040	<0.00040	0.00040	B025160
Xylenes (Total)	mg/L	<0.00089	<0.00089	0.00089	B024018
F1 (C6-C10) - BTEX	mg/L	<0.10	<0.10	0.10	B024018
F1 (C6-C10)	mg/L	<0.10	0.20	0.10	B025160
Surrogate Recovery (%)					
1,4-Difluorobenzene (sur.)	%	104	103		B025160
4-Bromofluorobenzene (sur.)	%	100	95		B025160
D4-1,2-Dichloroethane (sur.)	%	107	90		B025160
O-TERPHENYL (sur.)	%	98	98		B025358
RDL = Reportable Detection Limit					

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Bureau Veritas Job #: C350713
Report Date: 2023/08/04

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

ROUTINE WATER (WATER)

Bureau Veritas ID		BUA870			BUA871		
Sampling Date		2023/07/06 11:30			2023/07/06 15:45		
COC Number		699215-12-01			699215-12-01		
	UNITS	**BH 1962**	**RDL**	**QC Batch**	**BH 2005**	**RDL**	**QC Batch**
Calculated Parameters							
Anion Sum	meq/L	8.7	N/A	B023845	20	N/A	B023845
Cation Sum	meq/L	8.9	N/A	B023845	21	N/A	B023845
Hardness (CaCO3)	mg/L	390	0.50	B024025	920	0.50	B024025
Ion Balance (% Difference)	%	1.1	N/A	B024102	1.6	N/A	B024102
Nitrate (N)	mg/L	1.6	0.050	B023925	20	0.25	B023925
Nitrate (NO3)	mg/L	7.1	0.22	B024031	90	1.1	B024031
Nitrite (NO2)	mg/L	<0.033	0.033	B024031	14	0.33	B024031
Calculated Total Dissolved Solids	mg/L	440	10	B023849	1100	10	B023849
Misc. Inorganics							
Conductivity	uS/cm	780	2.0	B041726	1900	2.0	B036752
pH	pH	8.01	N/A	B041725	7.67	N/A	B036751
Anions							
Alkalinity (PP as CaCO3)	mg/L	<1.0	1.0	B041724	<1.0	1.0	B036747
Alkalinity (Total as CaCO3)	mg/L	330	1.0	B041724	540	1.0	B036747
Bicarbonate (HCO3)	mg/L	410	1.0	B041724	660	1.0	B036747
Carbonate (CO3)	mg/L	<1.0	1.0	B041724	<1.0	1.0	B036747
Hydroxide (OH)	mg/L	<1.0	1.0	B041724	<1.0	1.0	B036747
Chloride (Cl)	mg/L	47	1.0	B038639	240	5.0	B038639
Sulphate (SO4)	mg/L	30	1.0	B038639	53	1.0	B038639
Nutrients							
Nitrite (N)	mg/L	<0.010	0.010	B026560	4.4	0.10	B026560
Nitrate plus Nitrite (N)	mg/L	1.6	0.050	B026560	25	0.25	B026560
Elements							
Dissolved Calcium (Ca)	mg/L	87	0.30	B026431	160	0.30	B026431
Dissolved Iron (Fe)	mg/L	<0.060	0.060	B026431	<0.060	0.060	B026431
Dissolved Magnesium (Mg)	mg/L	43	0.20	B026431	130	0.20	B026431
Dissolved Manganese (Mn)	mg/L	0.0044	0.0040	B026431	0.13	0.0040	B026431
Dissolved Potassium (K)	mg/L	5.9	0.30	B026431	4.1	0.30	B026431
Dissolved Sodium (Na)	mg/L	20	0.50	B026431	57	0.50	B026431

RDL = Reportable Detection Limit
N/A = Not Applicable

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Bureau Veritas Job #: C350713
Report Date: 2023/08/04

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

TOTAL KJELDAHL NITROGEN (TOTAL)

Bureau Veritas ID		BUA870			BUA871		
Sampling Date		2023/07/06 11:30			2023/07/06 15:45		
COC Number		699215-12-01			699215-12-01		
	UNITS	**BH 1962**	**RDL**	**QC Batch**	**BH 2005**	**RDL**	**QC Batch**
Calculated Parameters							
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.342	0.050	B023655	<0.40	0.40	B023655
Nutrients							
Total Nitrogen (N)	mg/L	1.9	0.020	B026882	23 (1)	0.40	B031250

RDL = Reportable Detection Limit
(1) Nitrogen < Nitrate: Both values fall within the method uncertainty for duplicates and are likely equivalent.

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Bureau Veritas Job #: C350713
Report Date: 2023/08/04

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID		BUA870		BUA871		
Sampling Date		2023/07/06 11:30		2023/07/06 15:45		
COC Number		699215-12-01		699215-12-01		
	UNITS	**BH 1962**	**QC Batch**	**BH 2005**	**RDL**	**QC Batch**
Parameter						
Subcontract Parameter	N/A	ATTACHED	B032826	ATTACHED	N/A	B032826
Calculated Parameters						
Sulphide (as H2S)	mg/L	0.084	B023371	<0.0020	0.0020	B023371
Misc. Inorganics						
Dissolved Organic Carbon (C)	mg/L	2.7	B032816	3.1	0.50	B032816
Total Organic Carbon (C)	mg/L	2.7	B037514	2.6	0.50	B037514
Anions						
Total Sulphide	mg/L	0.079	B025254	<0.0018	0.0018	B025254
Nutrients						
Total Ammonia (N)	mg/L	<0.015	B027567	<0.015	0.015	B027571

RDL = Reportable Detection Limit
N/A = Not Applicable

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Bureau Veritas Job #: C350713
Report Date: 2023/08/04

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

PERMANENT GASES (WATER)

Bureau Veritas ID		BUA870	BUA871		
Sampling Date		2023/07/06 11:30	2023/07/06 15:45		
COC Number		699215-12-01	699215-12-01		
	UNITS	**BH 1962**	**BH 2005**	**RDL**	**QC Batch**
Fixed Gases					
Methane	L/m3	<0.005	<0.005	0.005	B036605
Calculated Methane	mg/L	<0.003	<0.003	0.003	B036606
RDL = Reportable Detection Limit					

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C350713
Report Date: 2023/08/04

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		BUA870	BUA871		
Sampling Date		2023/07/06 11:30	2023/07/06 15:45		
COC Number		699215-12-01	699215-12-01		
	UNITS	**BH 1962**	**BH 2005**	**RDL**	**QC Batch**
Volatiles					
Total Trihalomethanes	mg/L	<0.0013	<0.0013	0.0013	B023950
Bromodichloromethane	mg/L	<0.00050	<0.00050	0.00050	B025167
Bromoform	mg/L	<0.00050	<0.00050	0.00050	B025167
Bromomethane	mg/L	<0.0020	<0.0020	0.0020	B025167
Carbon tetrachloride	mg/L	<0.00050	<0.00050	0.00050	B025167
Chlorobenzene	mg/L	<0.00050	<0.00050	0.00050	B025167
Dibromochloromethane	mg/L	<0.0010	<0.0010	0.0010	B025167
Chloroethane	mg/L	<0.0010	<0.0010	0.0010	B025167
Chloroform	mg/L	<0.00050	<0.00050	0.00050	B025167
Chloromethane	mg/L	<0.0020	<0.0020	0.0020	B025167
1,2-dibromoethane	mg/L	<0.00020	<0.00020	0.00020	B025167
1,2-dichlorobenzene	mg/L	<0.00050	<0.00050	0.00050	B025167
1,3-dichlorobenzene	mg/L	<0.00050	<0.00050	0.00050	B025167
1,4-dichlorobenzene	mg/L	<0.00050	<0.00050	0.00050	B025167
1,1-dichloroethane	mg/L	<0.00050	<0.00050	0.00050	B025167
1,2-dichloroethane	mg/L	<0.00050	0.011	0.00050	B025167
1,1-dichloroethene	mg/L	<0.00050	<0.00050	0.00050	B025167
cis-1,2-dichloroethene	mg/L	<0.00050	<0.00050	0.00050	B025167
trans-1,2-dichloroethene	mg/L	<0.00050	<0.00050	0.00050	B025167
Dichloromethane	mg/L	<0.0020	<0.0020	0.0020	B025167
1,2-dichloropropane	mg/L	<0.00050	<0.00050	0.00050	B025167
cis-1,3-dichloropropene	mg/L	<0.00050	<0.00050	0.00050	B025167
trans-1,3-dichloropropene	mg/L	<0.00050	<0.00050	0.00050	B025167
Methyl methacrylate	mg/L	<0.00050	<0.00050	0.00050	B025167
Methyl-tert-butylether (MTBE)	mg/L	<0.00050	<0.00050	0.00050	B025167
Styrene	mg/L	<0.00050	<0.00050	0.00050	B025167
1,1,1,2-tetrachloroethane	mg/L	<0.0010	<0.0010	0.0010	B025167
1,1,2,2-tetrachloroethane	mg/L	<0.0020	<0.0020	0.0020	B025167
Tetrachloroethene	mg/L	<0.00050	<0.00050	0.00050	B025167
1,2,3-trichlorobenzene	mg/L	<0.0010	<0.0010	0.0010	B025167
1,2,4-trichlorobenzene	mg/L	<0.0010	<0.0010	0.0010	B025167
1,3,5-trichlorobenzene	mg/L	<0.00050	<0.00050	0.00050	B025167
RDL = Reportable Detection Limit					

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Bureau Veritas Job #: C350713
Report Date: 2023/08/04

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		BUA870	BUA871		
Sampling Date		2023/07/06 11:30	2023/07/06 15:45		
COC Number		699215-12-01	699215-12-01		
	UNITS	**BH 1962**	**BH 2005**	**RDL**	**QC Batch**
1,1,1-trichloroethane	mg/L	<0.00050	<0.00050	0.00050	B025167
1,1,2-trichloroethane	mg/L	<0.00050	<0.00050	0.00050	B025167
Trichloroethene	mg/L	<0.00020	<0.00020	0.00020	B025167
Trichlorofluoromethane	mg/L	<0.00050	<0.00050	0.00050	B025167
1,2,4-trimethylbenzene	mg/L	<0.00050	<0.00050	0.00050	B025167
1,3,5-trimethylbenzene	mg/L	<0.00050	<0.00050	0.00050	B025167
Vinyl chloride	mg/L	<0.00050	<0.00050	0.00050	B025167
Surrogate Recovery (%)					
1,4-Difluorobenzene (sur.)	%	99	101		B025167
4-Bromofluorobenzene (sur.)	%	92	92		B025167
D4-1,2-Dichloroethane (sur.)	%	107	122		B025167
RDL = Reportable Detection Limit					

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Bureau Veritas Job #: C350713
Report Date: 2023/08/04

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	7.3°C

Version #3: Report reissued to include missing Styrene data from VOCs scan 20230803

Report re-issued with updated site and outlet numbers as requested by the client on 2023.07.31.

Report reissued with updated subcontract report from ALS.

Sample BUA870 [BH 1962] : Sample was analyzed past method specified hold time for Alkalinity @25C (pp, total), CO3,HCO3,OH. Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.

Results relate only to the items tested.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C350713
Report Date: 2023/08/04

QUALITY ASSURANCE REPORT

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
B025160	1,4-Difluorobenzene (sur.)	2023/07/08	94	50 - 140	103	50 - 140	102	%				
B025160	4-Bromofluorobenzene (sur.)	2023/07/08	103	50 - 140	97	50 - 140	101	%				
B025160	D4-1,2-Dichloroethane (sur.)	2023/07/08	138	50 - 140	106	50 - 140	102	%				
B025167	1,4-Difluorobenzene (sur.)	2023/07/08	105	50 - 140	105	50 - 140	100	%				
B025167	4-Bromofluorobenzene (sur.)	2023/07/08	98	50 - 140	98	50 - 140	92	%				
B025167	D4-1,2-Dichloroethane (sur.)	2023/07/08	97	50 - 140	92	50 - 140	107	%				
B025358	O-TERPHENYL (sur.)	2023/07/11			100	60 - 140	97	%				
B025160	Benzene	2023/07/08	91	50 - 140	96	60 - 130	<0.00040	mg/L	NC	30		
B025160	Ethylbenzene	2023/07/08	86	50 - 140	100	60 - 130	<0.00040	mg/L	NC	30		
B025160	F1 (C6-C10)	2023/07/08	116	60 - 140	103	60 - 140	<0.10	mg/L	NC	30		
B025160	m & p-Xylene	2023/07/08	86	50 - 140	101	60 - 130	<0.00080	mg/L	NC	30		
B025160	o-Xylene	2023/07/08	87	50 - 140	94	60 - 130	<0.00040	mg/L	NC	30		
B025160	Toluene	2023/07/08	90	50 - 140	100	60 - 130	<0.00040	mg/L	NC	30		
B025167	1,1,1,2-tetrachloroethane	2023/07/08	98	50 - 140	99	60 - 130	<0.0010	mg/L	NC	30		
B025167	1,1,1-trichloroethane	2023/07/08	95	50 - 140	95	60 - 130	<0.00050	mg/L	NC	30		
B025167	1,1,2,2-tetrachloroethane	2023/07/08	98	50 - 140	97	60 - 130	<0.0020	mg/L	NC	30		
B025167	1,1,2-trichloroethane	2023/07/08	99	50 - 140	97	60 - 130	<0.00050	mg/L	NC	30		
B025167	1,1-dichloroethane	2023/07/08	89	50 - 140	89	60 - 130	<0.00050	mg/L	NC	30		
B025167	1,1-dichloroethene	2023/07/08	89	50 - 140	90	60 - 130	<0.00050	mg/L	NC	30		
B025167	1,2,3-trichlorobenzene	2023/07/08	89	50 - 140	91	60 - 130	<0.0010	mg/L	NC	30		
B025167	1,2,4-trichlorobenzene	2023/07/08	88	50 - 140	91	60 - 130	<0.0010	mg/L	NC	30		
B025167	1,2,4-trimethylbenzene	2023/07/08	86	50 - 140	89	60 - 130	<0.00050	mg/L	NC	30		
B025167	1,2-dibromoethane	2023/07/08	96	50 - 140	94	60 - 130	<0.00020	mg/L	NC	30		
B025167	1,2-dichlorobenzene	2023/07/08	92	50 - 140	94	60 - 130	<0.00050	mg/L	NC	30		
B025167	1,2-dichloroethane	2023/07/08	96	50 - 140	96	60 - 130	<0.00050	mg/L	NC	30		
B025167	1,2-dichloropropane	2023/07/08	92	50 - 140	91	60 - 130	<0.00050	mg/L	NC	30		
B025167	1,3,5-trichlorobenzene	2023/07/08	89	50 - 140	91	60 - 130	<0.00050	mg/L	NC	30		
B025167	1,3,5-trimethylbenzene	2023/07/08	87	50 - 140	90	60 - 130	<0.00050	mg/L	NC	30		
B025167	1,3-dichlorobenzene	2023/07/08	89	50 - 140	91	60 - 130	<0.00050	mg/L	NC	30		
B025167	1,4-dichlorobenzene	2023/07/08	92	50 - 140	94	60 - 130	<0.00050	mg/L	NC	30		
B025167	Bromodichloromethane	2023/07/08	100	50 - 140	99	60 - 130	<0.00050	mg/L	NC	30		

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Bureau Veritas Job #: C350713
Report Date: 2023/08/04

QUALITY ASSURANCE REPORT(CONT'D)

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
B025167	Bromoform	2023/07/08	104	50 - 140	104	60 - 130	<0.00050	mg/L	NC	30		
B025167	Bromomethane	2023/07/08	93	50 - 140	89	60 - 130	<0.0020	mg/L	NC	30		
B025167	Carbon tetrachloride	2023/07/08	93	50 - 140	98	60 - 130	<0.00050	mg/L	NC	30		
B025167	Chlorobenzene	2023/07/08	96	50 - 140	97	60 - 130	<0.00050	mg/L	NC	30		
B025167	Chloroethane	2023/07/08	87	50 - 140	87	60 - 130	<0.0010	mg/L	NC	30		
B025167	Chloroform	2023/07/08	94	50 - 140	93	60 - 130	<0.00050	mg/L	NC	30		
B025167	Chloromethane	2023/07/08	86	50 - 140	86	60 - 130	<0.0020	mg/L	NC	30		
B025167	cis-1,2-dichloroethene	2023/07/08	92	50 - 140	91	60 - 130	<0.00050	mg/L	NC	30		
B025167	cis-1,3-dichloropropene	2023/07/08	95	50 - 140	88	60 - 130	<0.00050	mg/L	NC	30		
B025167	Dibromochloromethane	2023/07/08	104	50 - 140	104	60 - 130	<0.0010	mg/L	NC	30		
B025167	Dichloromethane	2023/07/08	92	50 - 140	90	60 - 130	<0.0020	mg/L	NC	30		
B025167	Methyl methacrylate	2023/07/08	94	50 - 140	91	60 - 130	<0.00050	mg/L	NC	30		
B025167	Methyl-tert-butylether (MTBE)	2023/07/08	90	50 - 140	90	60 - 130	<0.00050	mg/L	NC	30		
B025167	Styrene	2023/07/08	95	50 - 140	98	60 - 130	<0.00050	mg/L	NC	30		
B025167	Tetrachloroethene	2023/07/08	89	50 - 140	92	60 - 130	<0.00050	mg/L	NC	30		
B025167	trans-1,2-dichloroethene	2023/07/08	85	50 - 140	85	60 - 130	<0.00050	mg/L	NC	30		
B025167	trans-1,3-dichloropropene	2023/07/08	97	50 - 140	86	60 - 130	<0.00050	mg/L	NC	30		
B025167	Trichloroethene	2023/07/08	97	50 - 140	99	60 - 130	<0.00020	mg/L	NC	30		
B025167	Trichlorofluoromethane	2023/07/08	93	50 - 140	94	60 - 130	<0.00050	mg/L	NC	30		
B025167	Vinyl chloride	2023/07/08	84	50 - 140	86	60 - 130	<0.00050	mg/L	NC	30		
B025254	Total Sulphide	2023/07/08	95	80 - 120	93	80 - 120	<0.0018	mg/L	14	20		
B025358	F2 (C10-C16 Hydrocarbons)	2023/07/11			88	60 - 140	<0.10	mg/L				
B026431	Dissolved Calcium (Ca)	2023/07/10	NC	80 - 120	98	80 - 120	<0.30	mg/L	0.0048	20		
B026431	Dissolved Iron (Fe)	2023/07/10	103	80 - 120	103	80 - 120	<0.060	mg/L	0.49	20		
B026431	Dissolved Magnesium (Mg)	2023/07/10	101	80 - 120	103	80 - 120	<0.20	mg/L	0.48	20		
B026431	Dissolved Manganese (Mn)	2023/07/10	97	80 - 120	98	80 - 120	<0.0040	mg/L	0.82	20		
B026431	Dissolved Potassium (K)	2023/07/10	98	80 - 120	97	80 - 120	<0.30	mg/L	0.14	20		
B026431	Dissolved Sodium (Na)	2023/07/10	NC	80 - 120	92	80 - 120	<0.50	mg/L	0.32	20		
B026560	Nitrate plus Nitrite (N)	2023/07/09	NC	80 - 120	95	80 - 120	<0.010	mg/L	0.44	20		
B026560	Nitrite (N)	2023/07/09	89	80 - 120	99	80 - 120	<0.010	mg/L	0.46	20		
B026882	Total Nitrogen (N)	2023/07/10	113	80 - 120	107	80 - 120	<0.020	mg/L	NC	20	104	80 - 120

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C350713
Report Date: 2023/08/04

QUALITY ASSURANCE REPORT(CONT'D)

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
B027567	Total Ammonia (N)	2023/07/10	98	80 - 120	103	80 - 120	<0.015	mg/L	NC	20		
B027571	Total Ammonia (N)	2023/07/10	92	80 - 120	101	80 - 120	<0.015	mg/L	NC	20		
B031250	Total Nitrogen (N)	2023/07/12	106	80 - 120	97	80 - 120	<0.020	mg/L	10	20	97	80 - 120
B032816	Dissolved Organic Carbon (C)	2023/07/18	74 (1)	80 - 120	100	80 - 120	<0.50	mg/L	7.4	20		
B036605	Methane	2023/07/13					<0.005	L/m3	NC	20		
B036747	Alkalinity (PP as CaCO3)	2023/07/17					<1.0	mg/L	NC	20		
B036747	Alkalinity (Total as CaCO3)	2023/07/17			99	80 - 120	<1.0	mg/L	3.2	20		
B036747	Bicarbonate (HCO3)	2023/07/17					<1.0	mg/L	3.2	20		
B036747	Carbonate (CO3)	2023/07/17					<1.0	mg/L	NC	20		
B036747	Hydroxide (OH)	2023/07/17					<1.0	mg/L	NC	20		
B036751	pH	2023/07/17			100	97 - 103			0.27	N/A		
B036752	Conductivity	2023/07/17			104	90 - 110	<2.0	uS/cm	0.54	10		
B037514	Total Organic Carbon (C)	2023/07/18	83	80 - 120	102	80 - 120	<0.50	mg/L	2.6	20		
B038639	Chloride (Cl)	2023/07/18	95	80 - 120	100	80 - 120	<1.0	mg/L	NC	20		
B038639	Sulphate (SO4)	2023/07/18	97	80 - 120	103	80 - 120	<1.0	mg/L	NC	20		
B041724	Alkalinity (PP as CaCO3)	2023/07/21					<1.0	mg/L	NC	20		
B041724	Alkalinity (Total as CaCO3)	2023/07/21			98	80 - 120	<1.0	mg/L	0.45	20		
B041724	Bicarbonate (HCO3)	2023/07/21					<1.0	mg/L	0.45	20		
B041724	Carbonate (CO3)	2023/07/21					<1.0	mg/L	NC	20		
B041724	Hydroxide (OH)	2023/07/21					<1.0	mg/L	NC	20		
B041725	pH	2023/07/21			100	97 - 103			0.37	N/A		

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Bureau Veritas Job #: C350713
Report Date: 2023/08/04

QUALITY ASSURANCE REPORT(CONT'D)

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
B041726	Conductivity	2023/07/21			102	90 - 110	<2.0	uS/cm	0.44	10		

N/A = Not Applicable

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

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

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

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

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

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

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C350713
Report Date: 2023/08/04

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

VALIDATION SIGNATURE PAGE

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

Ghayasuddin Khan, M.Sc., P.Chem., QP, Scientific Specialist, Inorganics

Gita Pokhrel, Laboratory Supervisor

Rahul Suryawanshi, Senior Analyst

Sandy Yuan, M.Sc., QP, Scientific Specialist

Suwan (Sze Yeung) Fock, B.Sc., Scientific Specialist

Vasan Thiagarajah, Analyst, Compressed Gases

Yifei Yang, Project Solutions Representative

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C350713
Report Date: 2023/08/04

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

VALIDATION SIGNATURE PAGE(CONT'D)

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

Bureau Veritas Proprietary Software
Logiciel Propriétaire de Bureau Veritas

Automated Statchk

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas
4000 19st N.E. Calgary, Alberta Canada T2E 6P5 Tel (403) 291-3077 Toll-free 800-563-6266 Fax (403) 291-9468 www.bvna.com

CHAIN OF CUSTODY RECORD

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#11243 PARSONS INC.	Company Name:	#31652 PARSONS INC.	Quotation #:	C30805	Bureau Veritas Job #:	Bottle Order #:
Attention:	ACCOUNTS PAYABLE	Attention:	Rebecca Neufeld	P.O. #:	479621-17104		699215
Address:	2751 JOHN STREET	Address:	Unit 510, 214 - 11th Avenue SW	Project:	10-12832		
	MARKHAM ON L3R 2Y8		Calgary AB T2R 0K1	Project Name:		COC #:	Project Manager:
Tel:	(905) 944-8877 Fax:	Tel:	Fax:	Site #:		C#699215-12-01	Parminder Virk
Email:	ParsonsIncAP.Parsons@parsons.com	Email:	rebecca.neufeld@parsons.com,Michelle.Patterson@par	Sampled By:	Rebecca Neufeld		

Regulatory Criteria:
- [x] ATI
- [ ] CCME
- [ ] Other

Special Instructions:

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	AT1 BTEX and F1-F2 in Water	VOCs in Water by HS GC/MS (Std List)	Routine Water	Ferrous Iron (Dissolved)	Methane	Ammonia-N (Total)	Total Sulphide	Carbon (Total Organic)	Carbon (DOC)	Total Kjeldahl Nitrogen (Total)	# of Bottles	Comments
1		BH1962	2023/07/06	11:30	Water	Y	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	12	
2		BH2005	2023/07/06	3:45	Water	Y	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	12	
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

06-Jul-23 17:22
Parminder Virk
C350713
OO3 INS-0119

mcal-07-1100

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT: [x]
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details

Job Specific Rush TAT (if applies to entire submission) [ ]
Date Required:
Rush Confirmation Number:
(call lab for #)

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Laboratory Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
Rebecca Neufeld	23/07/06	5:00	Nikhil Soni	23/07/06	17:22	Ø	[ ]	7.7.8	[x] Yes [ ] No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.
** ALL SAMPLES ARE HELD FOR 60 DAYS AFTER SAMPLE RECEIPT. FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

White: Bureau Veritas Yellow: Client

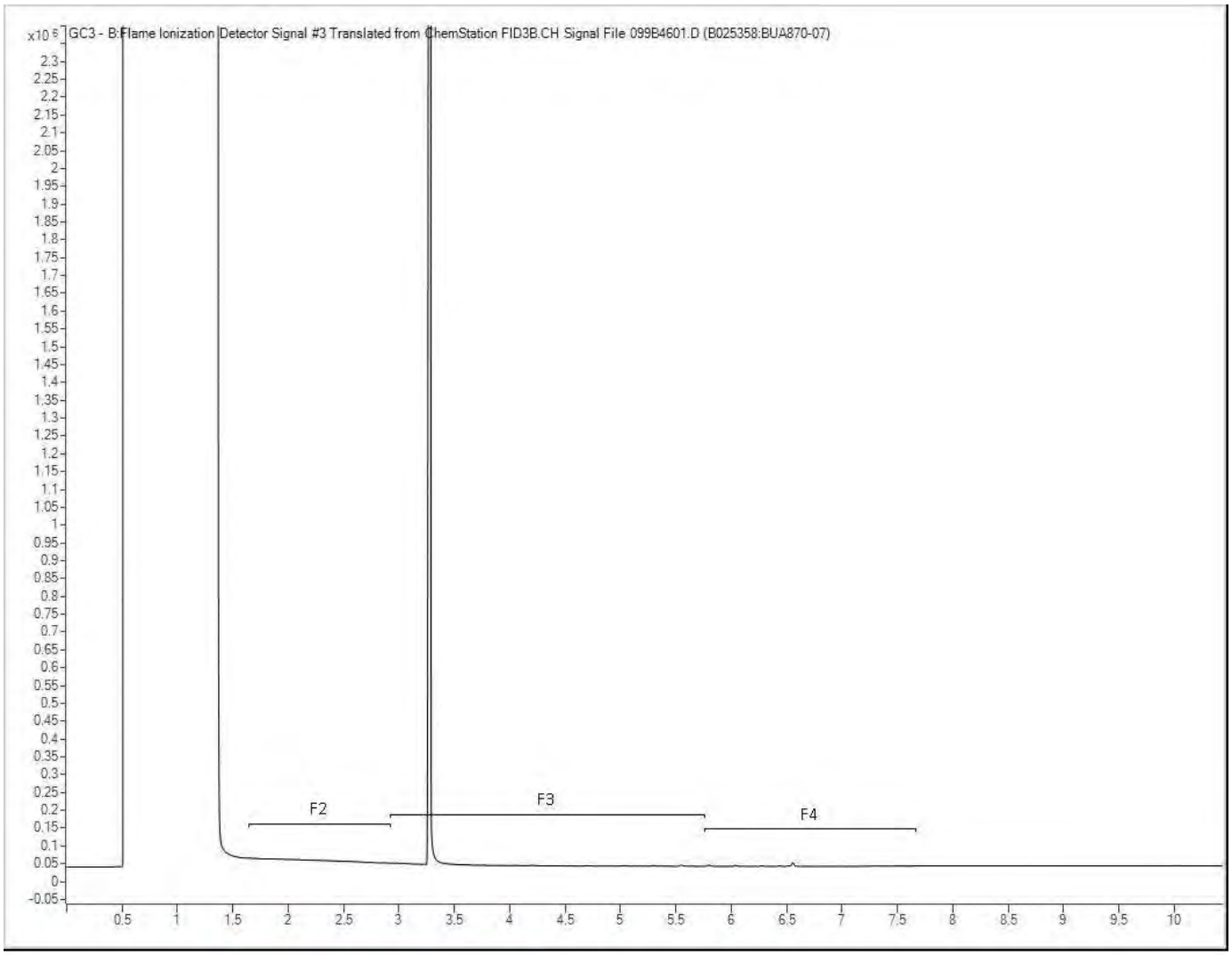
Ice -4

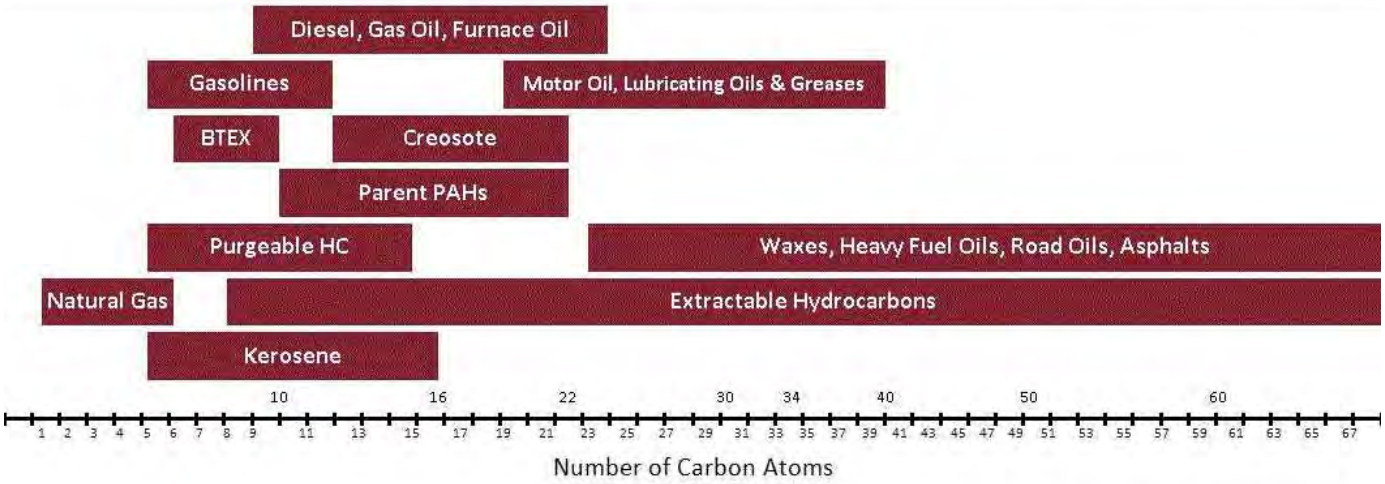
Bureau Veritas Canada (2019) Inc.

Bureau Veritas Job #: C350713
Report Date: 2023/08/04
Bureau Veritas Sample: BUA870

PARSONS INC.
Client Project #: 10-12832
Client ID: BH 1962

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





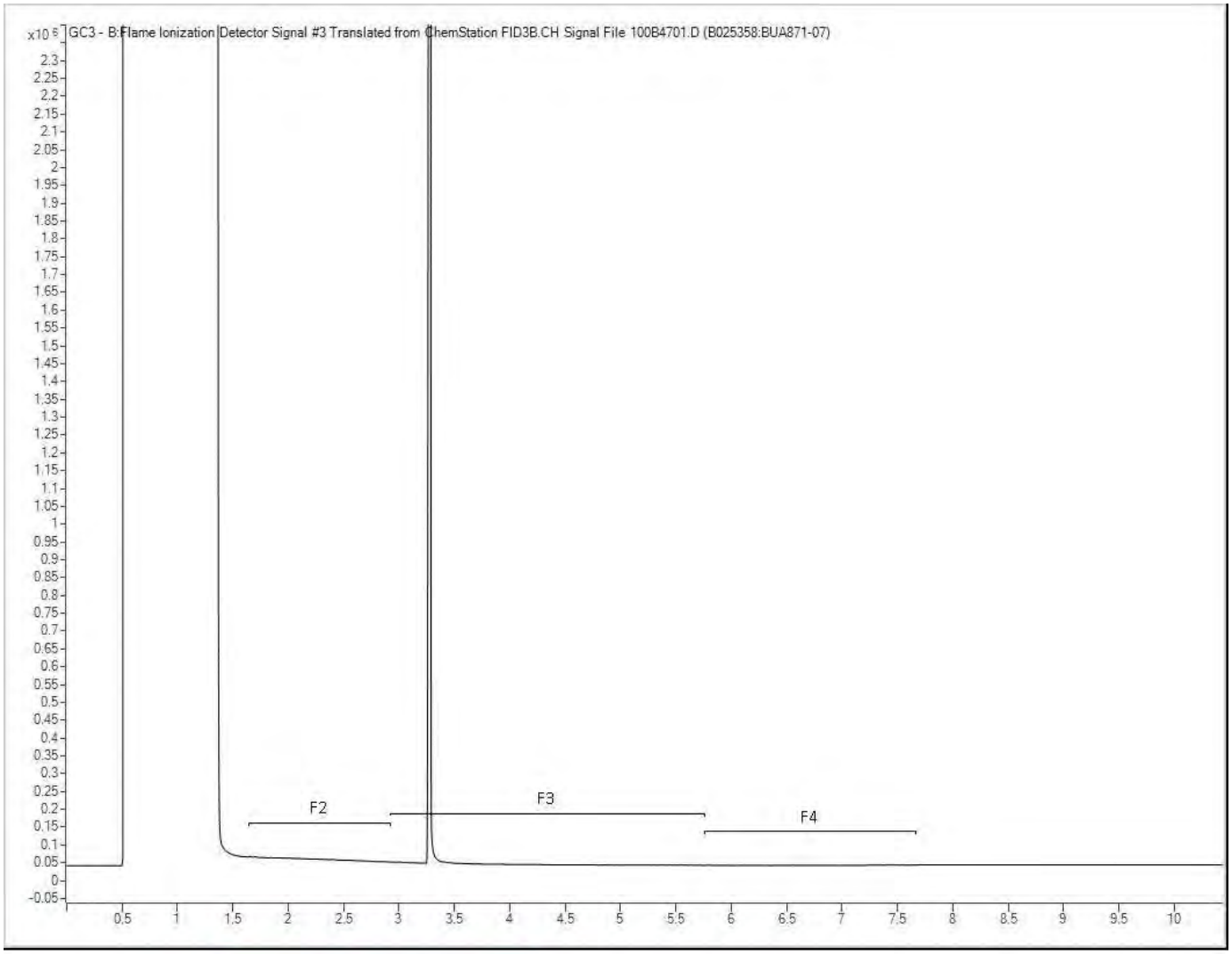
hpchem20\HPchem\1\DATA\2023\07\RUN0711

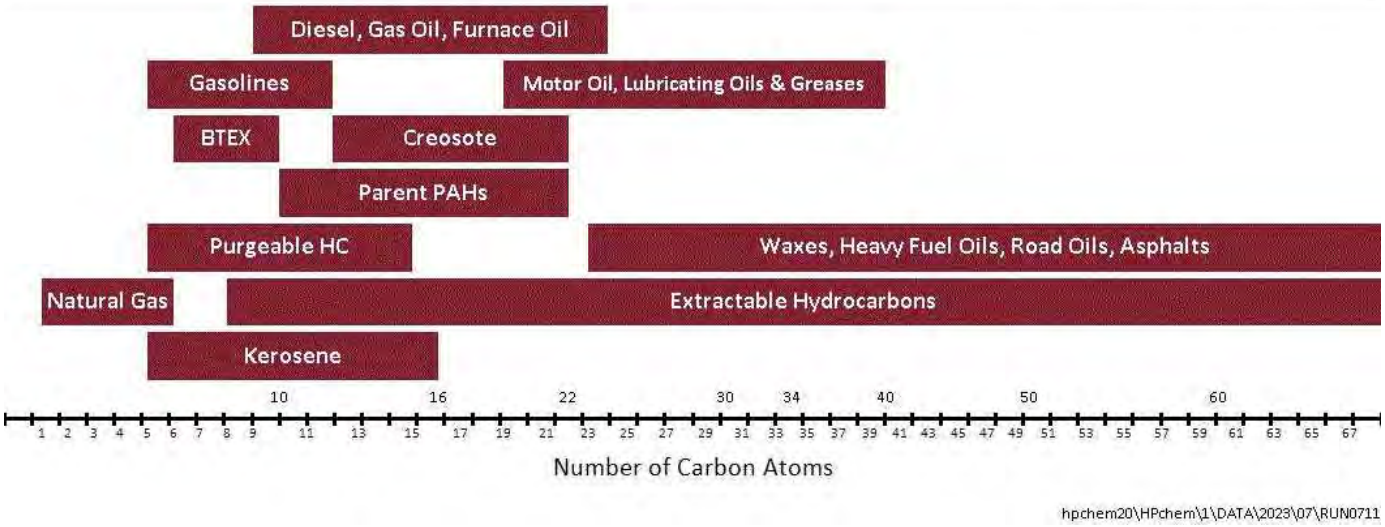
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C350713
Report Date: 2023/08/04
Bureau Veritas Sample: BUA871

PARSONS INC.
Client Project #: 10-12832
Client ID: BH 2005

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





hpchem20\HPchem\1\DATA\2023\07\RUN0711

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

DATA QUALITY REVIEW CHECKLIST

Consultant: *Parsons Inc.*

Sampling Date: *2023/7/06*

Location: *1620 14 AVE NW, CALGARY*

Laboratory : *ALS Environmental, Vancouver, BC*

Consultant Project Number: *10-12832*

Sample Submission Number: *VA23B5953*

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
Field 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*
Has lab warranted all tests were in statistical control in CoA (Yes/No)?:	*Yes*
Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?:	*Yes*
Were all samples analyzed within hold times (Yes/No)?:	*Yes*
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): *Mackenzie Robart*

Reviewed by (Print): *Michelle Patterson*

Reviewed date: *2023/10/03*

Reviewed by (Signature):

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CERTIFICATE OF ANALYSIS

Work Order	: **VA23B5953**	Page	: 1 of 3
Amendment	: **1**		
Client	: **Bureau Veritas Canada (2019) Inc. (Maxxam Analytics)**	Laboratory	: ALS Environmental - Vancouver
Contact	: Parminder Virk	Account Manager	: Tasnia Tarannum
Address	: 4000 19 St NE Calgary AB Canada T2E 6P8	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	: 4037352235	Telephone	: +1 604 253 4188
Project	: C350713	Date Samples Received	: 12-Jul-2023 08:30
PO	: ----	Date Analysis Commenced	: 12-Jul-2023
C-O-C number	: C350713-CALB-01-01	Issue Date	: 02-Aug-2023 14:01
Sampler	: ----		
Site	: ----		
Quote number	: Vancouver Standing Offer		
No. of samples received	: 2		
No. of samples analysed	: 2		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Brieanna Allen	Production/Validation Manager	Inorganics, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.

Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
mg/L	milligrams per litre

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Accreditation

Accreditation	*Description*	*Laboratory*	*Address*
A	CALA ISO/IEC 17025:2017	VA ALS Environmental - Vancouver	8081 Lougheed Highway, Burnaby, BC

Applicable accreditations are indicated in the Method/Lab column as superscripts.

Analytical Results

Sub-Matrix: Water (Matrix: Water)				Client sample ID	BUA870-BH 1962	BUA871-BH 2005	----	----	----
				Client sampling date / time	06-Jul-2023 11:30	06-Jul-2023 15:45	----	----	----
Analyte	CAS Number	Method/Lab	LOR	Unit	VA23B5953-001	VA23B5953-002	--------	--------	--------
					Result	Result	----	----	----
Sample Preparation									
Dissolved Fe2 filtration location	----	EP541/VA	-	-	Field	Field	----	----	----
Speciated Metals									
Iron, ferrous [Fe II], dissolved	15438-31-0	E541/VA A	0.020	mg/L	<0.020	<0.020	----	----	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

ALS Canada Ltd.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA23B5953**	Page	: 1 of 5
Amendment	: **1**		
Client	: **Bureau Veritas Canada (2019) Inc. (Maxxam Analytics)**	Laboratory	: ALS Environmental - Vancouver
Contact	: Parminder Virk	Account Manager	: Tasnia Tarannum
Address	: 4000 19 St NE Calgary AB Canada T2E 6P8	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: 4037352235	Telephone	: +1 604 253 4188
Project	: C350713	Date Samples Received	: 12-Jul-2023 08:30
PO	: ----	Issue Date	: 02-Aug-2023 14:06
C-O-C number	: C350713-CALB-01-01		
Sampler	: ----		
Site	: ----		
Quote number	: Vancouver Standing Offer		
No. of samples received	: 2		
No. of samples analysed	: 2		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Speciated Metals : Dissolved Ferrous Iron in Water by Colour										
Amber glass dissolved (hydrochloric acid)										
BUA870-BH 1962	E541	06-Jul-2023	12-Jul-2023	7 days	6 days	✓	12-Jul-2023	1 days	0 days	✓
Speciated Metals : Dissolved Ferrous Iron in Water by Colour										
Amber glass dissolved (hydrochloric acid)										
BUA871-BH 2005	E541	06-Jul-2023	12-Jul-2023	7 days	6 days	✓	12-Jul-2023	1 days	0 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Dissolved Ferrous Iron in Water by Colour	E541	1036075	1	7	14.2	5.0	✓
Laboratory Control Samples (LCS)							
Dissolved Ferrous Iron in Water by Colour	E541	1036075	1	7	14.2	5.0	✓
Method Blanks (MB)							
Dissolved Ferrous Iron in Water by Colour	E541	1036075	1	7	14.2	5.0	✓
Matrix Spikes (MS)							
Dissolved Ferrous Iron in Water by Colour	E541	1036075	1	7	14.2	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by “mod”).

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Ferrous Iron in Water by Colour	E541 ALS Environmental - Vancouver	Water	APHA 3500-Fe B/James Ball et al (1999)	This analysis is carried out using procedures adapted from APHA 3500-Fe B and Environ. Sci. Technol. 1999, 33, 5, 807–813. The procedure involves preliminary sample filtration, and ferrous iron is determined using the "FerroZine" colourimetric method. Holding time is 7 days for 0.45um filtration or 6 months if samples have been filtered using 0.1um filters.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Ferrous Iron in Water by Colour	EP541 ALS Environmental - Vancouver	Water	APHA 3500-Fe B/James Ball et al (1999)	This analysis is carried out using procedures adapted from APHA 3500-Fe B and "A New Method for the Direct Determination of Dissolved Iron Concentration in Acid Mine Waters" published by James W. Ball et al (1999). The procedure involves preliminary sample filtration, and ferrous iron is determined using the "FerroZine" colourimetric method.

ALS Canada Ltd.

right solutions. right partner.

QUALITY CONTROL REPORT

Work Order	: **VA23B5953**	Page	: 1 of 3
Amendment	: **1**		
Client	: Bureau Veritas Canada (2019) Inc. (Maxxam Analytics)	Laboratory	: ALS Environmental - Vancouver
Contact	: Parminder Virk	Account Manager	: Tasnia Tarannum
Address	: 4000 19 St NE Calgary AB Canada T2E 6P8	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	:	Telephone	: +1 604 253 4188
Project	: C350713	Date Samples Received	: 12-Jul-2023 08:30
PO	: ----	Date Analysis Commenced	: 12-Jul-2023
C-O-C number	: C350713-CALB-01-01	Issue Date	: 02-Aug-2023 14:01
Sampler	: ---- 4037352235		
Site	: ----		
Quote number	: Vancouver Standing Offer		
No. of samples received	: 2		
No. of samples analysed	: 2		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Brieanna Allen	Production/Validation Manager	Vancouver Inorganics, Burnaby, British Columbia

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Speciated Metals (QC Lot: 1036075)											
VA23B5952-001	Anonymous	Iron, ferrous [Fe II], dissolved	15438-31-0	E541	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	*CAS Number*	*Method*	*LOR*	*Unit*	*Result*	*Qualifier*
Speciated Metals (QCLot: 1036075)						
Iron, ferrous [Fe II], dissolved	15438-31-0	E541	0.02	mg/L	<0.020	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Speciated Metals (QCLot: 1036075)									
Iron, ferrous [Fe II], dissolved	15438-31-0	E541	0.02	mg/L	0.5 mg/L	100	80.0	120	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Speciated Metals (QCLot: 1036075)										
VA23B5952-001	Anonymous	Iron, ferrous [Fe II], dissolved	15438-31-0	E541	0.490 mg/L	0.5 mg/L	98.0	70.0	130	----

Sent To: **ALS Laboratory Group**
8081 Lougheed HWY
Burnaby, BC, V5A 1W9
Tel: (604) 253-4188

CHAIN OF CUSTODY RECORD FOR SUBCONTRACTED WORK

COC # C350713-CALB-01-01

REPORT INFORMATION	
Company:	Bureau Veritas Laboratories
Address:	4000 19st N.E, Calgary, Alberta, T2E 6P8
Contact Name:	Parminder Virk
Email:	Parminder.Virk@bureauveritas.com, Customersolutionswest@bureauveritas.co
Phone:	(403) 735-2235
BV Labs Project #:	C350713

ANALYSIS REQUESTED

Environmental Division
Vancouver
Work Order Reference
VA23B5953
Telephone : +1 604 253 4188

#	SAMPLE ID	MATRIX	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	SAMPLER INITIALS	# CONT.	Ferrous Iron (Dissolved)	ADDITIONAL SAMPLE INFORMATION
1	BUA870-BH 1962	W	2023/07/06	11:30	RN	1	X	(P: 06)
2	BUA871-BH 2005	W	2023/07/06	15:45	RN	1	X	(P: 06)
3								
4								
5								
6								
7								
8								
9								
10								

REGULATORY CRITERIA

SPECIAL INSTRUCTIONS

Please inform Bureau Veritas immediately if you are not accredited for the requested test(s) or the hold time is approaching.
Please return a copy of this form with the report.

TURNAROUND TIME

☐ Rush Required

2023/07/13

Date Required

Please inform us if rush charges will be incurred.

9°C

COOLER ID:	YES	NO	Temp: (°C) 1	2	3
Custody Seal Present	✓		9		
Custody Seal Intact	✓				
Cooling Media Present	✓				

COOLER ID:	YES	NO	Temp: (°C) 1	2	3
Custody Seal Present					
Custody Seal Intact					
Cooling Media Present					

COOLER ID:	YES	NO	Temp: (°C) 1	2	3
Custody Seal Present					
Custody Seal Intact					
Cooling Media Present					

RELINQUISHED BY: (SIGN & PRINT)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (SIGN & PRINT)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)
1. Zuoth Lee Choi	2023/07/11	16:00	1.		
2.			2. VP	7/12/23	8:30AM

Ice

DATA QUALITY REVIEW CHECKLIST

Consultant: *Parsons Inc.*

Sampling Date: *2023/7/06*

Location: *1620 14 AVE NW, CALGARY*

Laboratory : *Bureau Veritas, Calgary, AB*

Consultant Project Number: *10-12832*

Sample Submission Number: *C350719*

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

	Yes	No	NA	Comments
Surrogate Recovery	*X*			*The matrix spike recovery for Total Organic Carbon (77%) and Dissolved Organic Carbon (56%) are below the control limit. All other 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
Field 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*
Has lab warranted all tests were in statistical control in CoA (Yes/No)?:	*Yes*
Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?:	*Yes*
Were all samples analyzed within hold times (Yes/No)?:	*Yes*
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): *Mackenzie Robart*

Reviewed by (Print): *Michelle Patterson*

Reviewed date: *2023/10/03*

Reviewed by (Signature):

Your P.O. #: 478621.17104
Your Project #: 10-12832
Site#: 9445
WBS # 478621.17104
Outlet Number 9445
Your C.O.C. #: 699215-13-01

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/08/03
Report #: R3375990
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C350719
Received: 2023/07/06, 17:22

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity @25C (pp, total), CO3,HCO3,OH	1	N/A	2023/07/11	AB SOP-00005	SM 23 2320 B m
BTEX/F1 in Water by HS GC/MS/FID	1	N/A	2023/07/08	AB SOP-00039	CCME CWS/EPA 8260d m
F1-BTEX	1	N/A	2023/07/10		Auto Calc
Chloride/Sulphate by Auto Colourimetry	1	N/A	2023/07/12	AB SOP-00020	SM24-4500-Cl/SO4-E m
Carbon (DOC) (3)	1	N/A	2023/07/13	AB SOP-00087	MMCW 119 1996 m
Conductivity @25C	1	N/A	2023/07/11	AB SOP-00005	SM 23 2510 B m
Ferrous Iron (Dissolved) (1)	1	N/A	2023/07/13		
CCME Hydrocarbons in Water (F2; C10-C16) (4)	1	2023/07/11	2023/07/11	AB SOP-00037 AB SOP-00040	CCME PHC-CWS m
Sulphide (as H2S)	1	N/A	2023/07/10		Auto Calc
Hardness	1	N/A	2023/07/11		Auto Calc
Elements by ICP - Dissolved (5)	1	N/A	2023/07/10	AB SOP-00042	EPA 6010d R5 m
Ion Balance	1	N/A	2023/07/12		Auto Calc
Sum of cations, anions	1	N/A	2023/07/11		Auto Calc
Ammonia-N (Total)	1	N/A	2023/07/10	AB SOP-00007	SM 24 4500 NH3 A G m
Nitrate and Nitrite	1	N/A	2023/07/10		Auto Calc
NO2 (N); NO2 (N) + NO3 (N) in Water	1	N/A	2023/07/09	AB SOP-00091	SM 24 4500 NO3m
Nitrate (as N)	1	2023/07/06	2023/07/10		Auto Calc
pH @25°C (6)	1	N/A	2023/07/11	AB SOP-00005	SM 23 4500-H+B m
Total Sulphide	1	N/A	2023/07/08	AB SOP-00080	SM 23 4500 S2-A D Fm
Total Dissolved Solids (Calculated)	1	N/A	2023/07/12		Auto Calc
Total Trihalomethanes Calculation	1	N/A	2023/07/10		Auto Calc
Total Kjeldahl Nitrogen (Total)	1	N/A	2023/07/10	BBY WI-00033	Auto Calc
Nitrogen (Total)	1	2023/07/10	2023/07/10	AB SOP-00093	SM 24 4500-N C m
Carbon (Total Organic) (7)	1	N/A	2023/07/12	AB SOP-00087	MMCW 119 1996 m
VOCs in Water by HS GC/MS (Std List)	1	N/A	2023/07/08	AB SOP-00056	EPA 5021a/8260d m
Dissolved Gases in Water (2)	1	N/A	2023/07/13	CAM SOP-00219	RSKSOP-175 m
Dissolved Gases in Water in mg/L units (2)	1	N/A	2023/07/08	Calculation	Calculation

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Your P.O. #: 478621.17104
Your Project #: 10-12832
Site#: 9445
WBS # 478621.17104
Outlet Number 9445
Your C.O.C. #: 699215-13-01

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/08/03
Report #: R3375990
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C350719
Received: 2023/07/06, 17:22

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) This test was performed by ALS Laboratory Group, 8081 Lougheed HWY , Burnaby, BC, V5A 1W9
(2) This test was performed by Bureau Veritas Campobello, 6740 Campobello Road , Mississauga, ON, L5N 2L8
(3) DOC present in the sample should be considered as non-purgeable DOC. Dissolved > Total Imbalance: When applicable, Dissolved and Total results were reviewed and data quality meets acceptable levels unless otherwise noted.
(4) Silica gel clean up employed.
(5) Dissolved > Total Imbalance: When applicable, Dissolved and Total results were reviewed and data quality meets acceptable levels unless otherwise noted.
(6) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas endeavours to analyze samples as soon as possible after receipt.
(7) TOC present in the sample should be considered as non-purgeable TOC.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Parminder Virk, Key Account Specialist
Email: Parminder.Virk@bureauveritas.com
Phone# (403)735-2235
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Scott Cantwell, General Manager responsible for Alberta Environmental laboratory operations.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C350719
Report Date: 2023/08/03

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

AT1 BTEX AND F1-F2 IN WATER (WATER)

Bureau Veritas ID		BUA933		
Sampling Date		2023/07/06 07:45		
COC Number		699215-13-01		
	UNITS	**BH 1984**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon				
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	0.10	B025358
Volatiles				
Benzene	mg/L	<0.00040	0.00040	B025160
Toluene	mg/L	<0.00040	0.00040	B025160
Ethylbenzene	mg/L	<0.00040	0.00040	B025160
m & p-Xylene	mg/L	<0.00080	0.00080	B025160
o-Xylene	mg/L	<0.00040	0.00040	B025160
Xylenes (Total)	mg/L	<0.00089	0.00089	B024018
F1 (C6-C10) - BTEX	mg/L	<0.10	0.10	B024018
F1 (C6-C10)	mg/L	<0.10	0.10	B025160
Surrogate Recovery (%)				
1,4-Difluorobenzene (sur.)	%	104		B025160
4-Bromofluorobenzene (sur.)	%	99		B025160
D4-1,2-Dichloroethane (sur.)	%	107		B025160
O-TERPHENYL (sur.)	%	98		B025358
RDL = Reportable Detection Limit				

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C350719
Report Date: 2023/08/03

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

ROUTINE WATER (WATER)

Bureau Veritas ID		BUA933		
Sampling Date		2023/07/06 07:45		
COC Number		699215-13-01		
	UNITS	BH 1984	RDL	QC Batch
Calculated Parameters				
Anion Sum	meq/L	14	N/A	B023845
Cation Sum	meq/L	15	N/A	B023845
Hardness (CaCO3)	mg/L	680	0.50	B024025
Ion Balance (% Difference)	%	3.7	N/A	B024102
Nitrate (N)	mg/L	7.6	0.10	B023925
Nitrate (NO3)	mg/L	34	0.44	B024031
Nitrite (NO2)	mg/L	0.045	0.033	B024031
Calculated Total Dissolved Solids	mg/L	700	10	B023849
Misc. Inorganics				
Conductivity	uS/cm	1200	2.0	B027764
pH	pH	8.04	N/A	B027761
Anions				
Alkalinity (PP as CaCO3)	mg/L	<1.0	1.0	B027758
Alkalinity (Total as CaCO3)	mg/L	480	1.0	B027758
Bicarbonate (HCO3)	mg/L	590	1.0	B027758
Carbonate (CO3)	mg/L	<1.0	1.0	B027758
Hydroxide (OH)	mg/L	<1.0	1.0	B027758
Chloride (Cl)	mg/L	99	1.0	B031212
Sulphate (SO4)	mg/L	39	1.0	B031212
Nutrients				
Nitrite (N)	mg/L	0.014	0.010	B026560
Nitrate plus Nitrite (N)	mg/L	7.6	0.10	B026560
Elements				
Dissolved Calcium (Ca)	mg/L	110	0.30	B026431
Dissolved Iron (Fe)	mg/L	<0.060	0.060	B026431
Dissolved Magnesium (Mg)	mg/L	99	0.20	B026431
Dissolved Manganese (Mn)	mg/L	0.33	0.0040	B026431
Dissolved Potassium (K)	mg/L	4.8	0.30	B026431
Dissolved Sodium (Na)	mg/L	27	0.50	B026431

RDL = Reportable Detection Limit
N/A = Not Applicable

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C350719
Report Date: 2023/08/03

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

TOTAL KJELDAHL NITROGEN (TOTAL)

Bureau Veritas ID		BUA933		
Sampling Date		2023/07/06 07:45		
COC Number		699215-13-01		
	UNITS	**BH 1984**	**RDL**	**QC Batch**
Calculated Parameters				
Total Total Kjeldahl Nitrogen (Calc)	mg/L	0.23	0.20	B023655
Nutrients				
Total Nitrogen (N)	mg/L	7.9	0.20	B026882
RDL = Reportable Detection Limit				

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C350719
Report Date: 2023/08/03

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID		BUA933		
Sampling Date		2023/07/06 07:45		
COC Number		699215-13-01		
	UNITS	**BH 1984**	**RDL**	**QC Batch**
Parameter				
Subcontract Parameter	N/A	ATTACHED	N/A	B032826
Calculated Parameters				
Sulphide (as H2S)	mg/L	0.0073	0.0020	B023371
Misc. Inorganics				
Dissolved Organic Carbon (C)	mg/L	2.5	0.50	B031344
Total Organic Carbon (C)	mg/L	2.1	0.50	B029681
Anions				
Total Sulphide	mg/L	0.0069	0.0018	B025245
Nutrients				
Total Ammonia (N)	mg/L	<0.015	0.015	B027567

RDL = Reportable Detection Limit
N/A = Not Applicable

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C350719
Report Date: 2023/08/03

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

PERMANENT GASES (WATER)

Bureau Veritas ID		BUA933		
Sampling Date		2023/07/06 07:45		
COC Number		699215-13-01		
	UNITS	**BH 1984**	**RDL**	**QC Batch**
Fixed Gases				
Methane	L/m3	<0.005	0.005	B036605
Calculated Methane	mg/L	<0.003	0.003	B036606
RDL = Reportable Detection Limit				

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C350719
Report Date: 2023/08/03

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		BUA933		
Sampling Date		2023/07/06 07:45		
COC Number		699215-13-01		
	UNITS	**BH 1984**	**RDL**	**QC Batch**
Volatiles				
Total Trihalomethanes	mg/L	<0.0013	0.0013	B023950
Bromodichloromethane	mg/L	<0.00050	0.00050	B025167
Bromoform	mg/L	<0.00050	0.00050	B025167
Bromomethane	mg/L	<0.0020	0.0020	B025167
Carbon tetrachloride	mg/L	<0.00050	0.00050	B025167
Chlorobenzene	mg/L	<0.00050	0.00050	B025167
Dibromochloromethane	mg/L	<0.0010	0.0010	B025167
Chloroethane	mg/L	<0.0010	0.0010	B025167
Chloroform	mg/L	<0.00050	0.00050	B025167
Chloromethane	mg/L	<0.0020	0.0020	B025167
1,2-dibromoethane	mg/L	<0.00020	0.00020	B025167
1,2-dichlorobenzene	mg/L	<0.00050	0.00050	B025167
1,3-dichlorobenzene	mg/L	<0.00050	0.00050	B025167
1,4-dichlorobenzene	mg/L	<0.00050	0.00050	B025167
1,1-dichloroethane	mg/L	<0.00050	0.00050	B025167
1,2-dichloroethane	mg/L	<0.00050	0.00050	B025167
1,1-dichloroethene	mg/L	<0.00050	0.00050	B025167
cis-1,2-dichloroethene	mg/L	<0.00050	0.00050	B025167
trans-1,2-dichloroethene	mg/L	<0.00050	0.00050	B025167
Dichloromethane	mg/L	<0.0020	0.0020	B025167
1,2-dichloropropane	mg/L	<0.00050	0.00050	B025167
cis-1,3-dichloropropene	mg/L	<0.00050	0.00050	B025167
trans-1,3-dichloropropene	mg/L	<0.00050	0.00050	B025167
Methyl methacrylate	mg/L	<0.00050	0.00050	B025167
Methyl-tert-butylether (MTBE)	mg/L	<0.00050	0.00050	B025167
Styrene	mg/L	<0.00050	0.00050	B025167
1,1,1,2-tetrachloroethane	mg/L	<0.0010	0.0010	B025167
1,1,2,2-tetrachloroethane	mg/L	<0.0020	0.0020	B025167
Tetrachloroethene	mg/L	<0.00050	0.00050	B025167
1,2,3-trichlorobenzene	mg/L	<0.0010	0.0010	B025167
1,2,4-trichlorobenzene	mg/L	<0.0010	0.0010	B025167
1,3,5-trichlorobenzene	mg/L	<0.00050	0.00050	B025167
RDL = Reportable Detection Limit				

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Bureau Veritas Job #: C350719
Report Date: 2023/08/03

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		BUA933		
Sampling Date		2023/07/06 07:45		
COC Number		699215-13-01		
	UNITS	**BH 1984**	**RDL**	**QC Batch**
1,1,1-trichloroethane	mg/L	<0.00050	0.00050	B025167
1,1,2-trichloroethane	mg/L	<0.00050	0.00050	B025167
Trichloroethene	mg/L	<0.00020	0.00020	B025167
Trichlorofluoromethane	mg/L	<0.00050	0.00050	B025167
1,2,4-trimethylbenzene	mg/L	<0.00050	0.00050	B025167
1,3,5-trimethylbenzene	mg/L	<0.00050	0.00050	B025167
Vinyl chloride	mg/L	<0.00050	0.00050	B025167
Surrogate Recovery (%)				
1,4-Difluorobenzene (sur.)	%	99		B025167
4-Bromofluorobenzene (sur.)	%	92		B025167
D4-1,2-Dichloroethane (sur.)	%	103		B025167
RDL = Reportable Detection Limit				

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C350719
Report Date: 2023/08/03

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	7.3°C

Report re-issued with updated site and outlet numbers as per client request on 2023.07.31.

Version 3: Report reissued with updated subcontract report from ALS.

Results relate only to the items tested.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C350719
Report Date: 2023/08/03

QUALITY ASSURANCE REPORT

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
B025160	1,4-Difluorobenzene (sur.)	2023/07/08	94	50 - 140	103	50 - 140	102	%				
B025160	4-Bromofluorobenzene (sur.)	2023/07/08	103	50 - 140	97	50 - 140	101	%				
B025160	D4-1,2-Dichloroethane (sur.)	2023/07/08	138	50 - 140	106	50 - 140	102	%				
B025167	1,4-Difluorobenzene (sur.)	2023/07/08	105	50 - 140	105	50 - 140	100	%				
B025167	4-Bromofluorobenzene (sur.)	2023/07/08	98	50 - 140	98	50 - 140	92	%				
B025167	D4-1,2-Dichloroethane (sur.)	2023/07/08	97	50 - 140	92	50 - 140	107	%				
B025358	O-TERPHENYL (sur.)	2023/07/11			100	60 - 140	97	%				
B025160	Benzene	2023/07/08	91	50 - 140	96	60 - 130	<0.00040	mg/L	NC	30		
B025160	Ethylbenzene	2023/07/08	86	50 - 140	100	60 - 130	<0.00040	mg/L	NC	30		
B025160	F1 (C6-C10)	2023/07/08	116	60 - 140	103	60 - 140	<0.10	mg/L	NC	30		
B025160	m & p-Xylene	2023/07/08	86	50 - 140	101	60 - 130	<0.00080	mg/L	NC	30		
B025160	o-Xylene	2023/07/08	87	50 - 140	94	60 - 130	<0.00040	mg/L	NC	30		
B025160	Toluene	2023/07/08	90	50 - 140	100	60 - 130	<0.00040	mg/L	NC	30		
B025167	1,1,1,2-tetrachloroethane	2023/07/08	98	50 - 140	99	60 - 130	<0.0010	mg/L	NC	30		
B025167	1,1,1-trichloroethane	2023/07/08	95	50 - 140	95	60 - 130	<0.00050	mg/L	NC	30		
B025167	1,1,2,2-tetrachloroethane	2023/07/08	98	50 - 140	97	60 - 130	<0.0020	mg/L	NC	30		
B025167	1,1,2-trichloroethane	2023/07/08	99	50 - 140	97	60 - 130	<0.00050	mg/L	NC	30		
B025167	1,1-dichloroethane	2023/07/08	89	50 - 140	89	60 - 130	<0.00050	mg/L	NC	30		
B025167	1,1-dichloroethene	2023/07/08	89	50 - 140	90	60 - 130	<0.00050	mg/L	NC	30		
B025167	1,2,3-trichlorobenzene	2023/07/08	89	50 - 140	91	60 - 130	<0.0010	mg/L	NC	30		
B025167	1,2,4-trichlorobenzene	2023/07/08	88	50 - 140	91	60 - 130	<0.0010	mg/L	NC	30		
B025167	1,2,4-trimethylbenzene	2023/07/08	86	50 - 140	89	60 - 130	<0.00050	mg/L	NC	30		
B025167	1,2-dibromoethane	2023/07/08	96	50 - 140	94	60 - 130	<0.00020	mg/L	NC	30		
B025167	1,2-dichlorobenzene	2023/07/08	92	50 - 140	94	60 - 130	<0.00050	mg/L	NC	30		
B025167	1,2-dichloroethane	2023/07/08	96	50 - 140	96	60 - 130	<0.00050	mg/L	NC	30		
B025167	1,2-dichloropropane	2023/07/08	92	50 - 140	91	60 - 130	<0.00050	mg/L	NC	30		
B025167	1,3,5-trichlorobenzene	2023/07/08	89	50 - 140	91	60 - 130	<0.00050	mg/L	NC	30		
B025167	1,3,5-trimethylbenzene	2023/07/08	87	50 - 140	90	60 - 130	<0.00050	mg/L	NC	30		
B025167	1,3-dichlorobenzene	2023/07/08	89	50 - 140	91	60 - 130	<0.00050	mg/L	NC	30		
B025167	1,4-dichlorobenzene	2023/07/08	92	50 - 140	94	60 - 130	<0.00050	mg/L	NC	30		
B025167	Bromodichloromethane	2023/07/08	100	50 - 140	99	60 - 130	<0.00050	mg/L	NC	30		

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Bureau Veritas Job #: C350719
Report Date: 2023/08/03

QUALITY ASSURANCE REPORT(CONT'D)

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
B025167	Bromoform	2023/07/08	104	50 - 140	104	60 - 130	<0.00050	mg/L	NC	30		
B025167	Bromomethane	2023/07/08	93	50 - 140	89	60 - 130	<0.0020	mg/L	NC	30		
B025167	Carbon tetrachloride	2023/07/08	93	50 - 140	98	60 - 130	<0.00050	mg/L	NC	30		
B025167	Chlorobenzene	2023/07/08	96	50 - 140	97	60 - 130	<0.00050	mg/L	NC	30		
B025167	Chloroethane	2023/07/08	87	50 - 140	87	60 - 130	<0.0010	mg/L	NC	30		
B025167	Chloroform	2023/07/08	94	50 - 140	93	60 - 130	<0.00050	mg/L	NC	30		
B025167	Chloromethane	2023/07/08	86	50 - 140	86	60 - 130	<0.0020	mg/L	NC	30		
B025167	cis-1,2-dichloroethene	2023/07/08	92	50 - 140	91	60 - 130	<0.00050	mg/L	NC	30		
B025167	cis-1,3-dichloropropene	2023/07/08	95	50 - 140	88	60 - 130	<0.00050	mg/L	NC	30		
B025167	Dibromochloromethane	2023/07/08	104	50 - 140	104	60 - 130	<0.0010	mg/L	NC	30		
B025167	Dichloromethane	2023/07/08	92	50 - 140	90	60 - 130	<0.0020	mg/L	NC	30		
B025167	Methyl methacrylate	2023/07/08	94	50 - 140	91	60 - 130	<0.00050	mg/L	NC	30		
B025167	Methyl-tert-butylether (MTBE)	2023/07/08	90	50 - 140	90	60 - 130	<0.00050	mg/L	NC	30		
B025167	Styrene	2023/07/08	95	50 - 140	98	60 - 130	<0.00050	mg/L				
B025167	Tetrachloroethene	2023/07/08	89	50 - 140	92	60 - 130	<0.00050	mg/L	NC	30		
B025167	trans-1,2-dichloroethene	2023/07/08	85	50 - 140	85	60 - 130	<0.00050	mg/L	NC	30		
B025167	trans-1,3-dichloropropene	2023/07/08	97	50 - 140	86	60 - 130	<0.00050	mg/L	NC	30		
B025167	Trichloroethene	2023/07/08	97	50 - 140	99	60 - 130	<0.00020	mg/L	NC	30		
B025167	Trichlorofluoromethane	2023/07/08	93	50 - 140	94	60 - 130	<0.00050	mg/L	NC	30		
B025167	Vinyl chloride	2023/07/08	84	50 - 140	86	60 - 130	<0.00050	mg/L	NC	30		
B025245	Total Sulphide	2023/07/08	95	80 - 120	86	80 - 120	<0.0018	mg/L	NC	20		
B025358	F2 (C10-C16 Hydrocarbons)	2023/07/11			88	60 - 140	<0.10	mg/L				
B026431	Dissolved Calcium (Ca)	2023/07/10	NC	80 - 120	98	80 - 120	<0.30	mg/L	0.0048	20		
B026431	Dissolved Iron (Fe)	2023/07/10	103	80 - 120	103	80 - 120	<0.060	mg/L	0.49	20		
B026431	Dissolved Magnesium (Mg)	2023/07/10	101	80 - 120	103	80 - 120	<0.20	mg/L	0.48	20		
B026431	Dissolved Manganese (Mn)	2023/07/10	97	80 - 120	98	80 - 120	<0.0040	mg/L	0.82	20		
B026431	Dissolved Potassium (K)	2023/07/10	98	80 - 120	97	80 - 120	<0.30	mg/L	0.14	20		
B026431	Dissolved Sodium (Na)	2023/07/10	NC	80 - 120	92	80 - 120	<0.50	mg/L	0.32	20		
B026560	Nitrate plus Nitrite (N)	2023/07/09	NC	80 - 120	95	80 - 120	<0.010	mg/L	0.44	20		
B026560	Nitrite (N)	2023/07/09	89	80 - 120	99	80 - 120	<0.010	mg/L	0.46	20		
B026882	Total Nitrogen (N)	2023/07/10	113	80 - 120	107	80 - 120	<0.020	mg/L	NC	20	104	80 - 120

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Bureau Veritas Job #: C350719
Report Date: 2023/08/03

QUALITY ASSURANCE REPORT(CONT'D)

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
B027567	Total Ammonia (N)	2023/07/10	98	80 - 120	103	80 - 120	<0.015	mg/L	NC	20		
B027758	Alkalinity (PP as CaCO3)	2023/07/11					<1.0	mg/L	NC	20		
B027758	Alkalinity (Total as CaCO3)	2023/07/11			99	80 - 120	<1.0	mg/L	2.9	20		
B027758	Bicarbonate (HCO3)	2023/07/11					<1.0	mg/L	2.9	20		
B027758	Carbonate (CO3)	2023/07/11					<1.0	mg/L	NC	20		
B027758	Hydroxide (OH)	2023/07/11					<1.0	mg/L	NC	20		
B027761	pH	2023/07/11			100	97 - 103			0.65	N/A		
B027764	Conductivity	2023/07/11			103	90 - 110	<2.0	uS/cm	0.49	10		
B029681	Total Organic Carbon (C)	2023/07/12	77 (1)	80 - 120	100	80 - 120	<0.50	mg/L				
B031212	Chloride (Cl)	2023/07/12	NC	80 - 120	100	80 - 120	<1.0	mg/L	0.0055	20		
B031212	Sulphate (SO4)	2023/07/12	NC	80 - 120	99	80 - 120	<1.0	mg/L	1.4	20		
B031344	Dissolved Organic Carbon (C)	2023/07/13	56 (1)	80 - 120	103	80 - 120	<0.50	mg/L				
B036605	Methane	2023/07/13					<0.005	L/m3	NC	20		

N/A = Not Applicable

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

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

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

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

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

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

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C350719
Report Date: 2023/08/03

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

VALIDATION SIGNATURE PAGE

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

Gita Pokhrel, Laboratory Supervisor

Rahul Suryawanshi, Senior Analyst

Sandy Yuan, M.Sc., QP, Scientific Specialist

Vasan Thiagarajah, Analyst, Compressed Gases

Yifei Yang, Project Solutions Representative

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Logiciel Propriétaire de Bureau Veritas

Automated Statchk

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas
4000 19st N.E, Calgary, Alberta Canada T2E 6P8 Tel:(403) 291-3077 Toll-free:800-563-6266 Fax:(403) 291-9468 www.bvna.com

Page 1 of 1

CHAIN OF CUSTODY RECORD

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#11243 PARSONS INC.	Company Name:	#31652 PARSONS INC.	Quotation #:	C30805	Bureau Veritas Job #:	Bottle Order #:
Attention:	ACCOUNTS PAYABLE	Attention:	Rebecca Neufeld	P.O. #:	~~478092~~ RN # 478 6021 · 17104		699215
Address:	2751 JOHN STREET	Address:	Unit 510, 214 - 11th Avenue SW	Project:	10-12832	COC #:	Project Manager:
	MARKHAM ON L3R 2Y8		Calgary AB T2R 0K1	Project Name:			
Tel:	(905) 944-8877 Fax:	Tel:	Fax:	Site #:		C#699215-13-01	Parminder Virk
Email:	ParsonsIncAP.Parsons@parsons.com	Email:	rebecca.neufeld@parsons.com,Michelle.Patterson@par	Sampled By:	Rebecca Neufeld		

Regulatory Criteria:
- [x] ATI
- [ ] CCME
- [ ] Other

Special Instructions

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	AT1 BTEX and F1-F2 in Water	VOCs in Water by HS GC/MS (Std List)	Routine Water	Ferrous Iron (Dissolved)	Methane	Ammonia-N (Total)	Total Sulphide	Carbon (Total Organic)	Carbon (DOC)	Total Kjeldahl Nitrogen (Total)	# of Bottles	Comments
1		BH 1984	2023/07/06	7.45	GW	Y	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	12	
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

06-Jul-23 17:22
Parminder Virk
C350719
OO3 INS-0119

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT: [x]
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details

Job Specific Rush TAT (if applies to entire submission) [ ]
Date Required:
Rush Confirmation Number:
(call lab for #)

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
Rebecca Neufeld	23/07/06	5:00	Nirkamal Soni	23/07/06	17:22	Ø	[ ]	7.7.8	[x] Yes [ ] No

Laboratory Use Only

ICL-4

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.

IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** ALL SAMPLES ARE HELD FOR 60 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

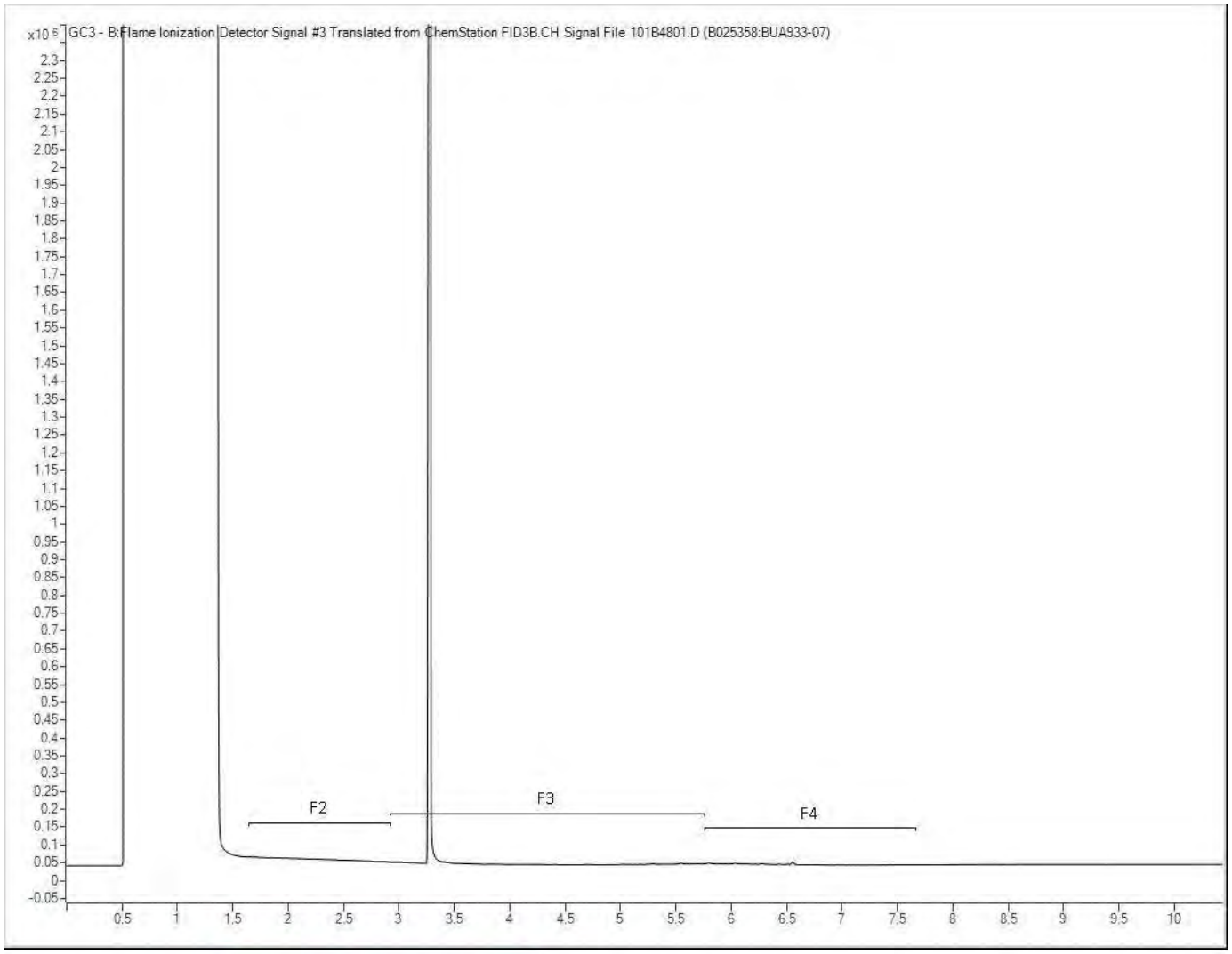
White: Bureau Veritas Yellow: Client

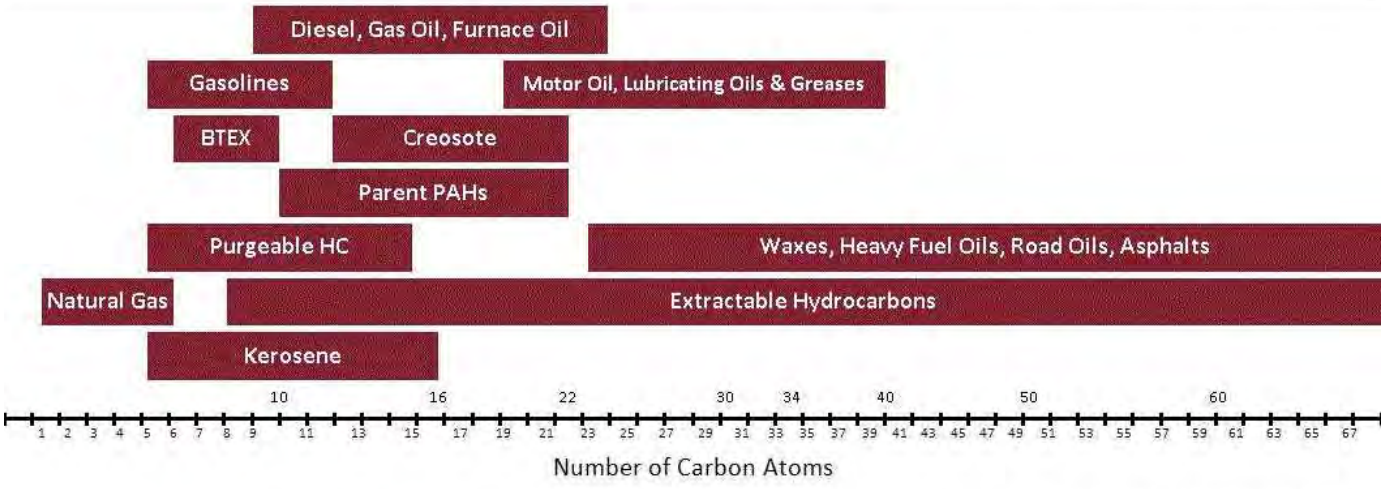
Bureau Veritas Canada (2019) Inc.

Bureau Veritas Job #: C350719
Report Date: 2023/08/03
Bureau Veritas Sample: BUA933

PARSONS INC.
Client Project #: 10-12832
Client ID: BH 1984

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





hpchem20\HPchem\1\DATA\2023\07\RUN0711

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

DATA QUALITY REVIEW CHECKLIST

Consultant: *Parsons Inc.*

Sampling Date: *2023/7/06*

Location: *1620 14 AVE NW, CALGARY*

Laboratory : *ALS Environmental, Vancouver, BC*

Consultant Project Number: *10-12832*

Sample Submission Number: *VA23B5952*

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
Field 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*
Has lab warranted all tests were in statistical control in CoA (Yes/No)?:	*Yes*
Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?:	*Yes*
Were all samples analyzed within hold times (Yes/No)?:	*Yes*
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): *Mackenzie Robart*

Reviewed by (Print): *Michelle Patterson*

Reviewed date: *2023/10/03*

Reviewed by (Signature):

ALS Canada Ltd.

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CERTIFICATE OF ANALYSIS

Work Order	: **VA23B5952**	Page	: 1 of 2
Amendment	: **1**		
Client	: **Bureau Veritas Canada (2019) Inc. (Maxxam Analytics)**	Laboratory	: ALS Environmental - Vancouver
Contact	: Parminder Virk	Account Manager	: Tasnia Tarannum
Address	: 4000 19 St NE Calgary AB Canada T2E 6P8	Address	: 8081 Lougheed Highway Burnaby BC Canada V5A 1W9
Telephone	: 4037352235	Telephone	: +1 604 253 4188
Project	: C350719	Date Samples Received	: 12-Jul-2023 08:30
PO	: ----	Date Analysis Commenced	: 12-Jul-2023
C-O-C number	: C350719-CALB-01-01	Issue Date	: 01-Aug-2023 17:06
Sampler	: ----		
Site	: ----		
Quote number	: Vancouver Standing Offer		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Certificate of Analysis contains the following information:

- General Comments
- Analytical Results

Additional information pertinent to this report will be found in the following separate attachments: Quality Control Report, QC Interpretive report to assist with Quality Review and Sample Receipt Notification (SRN).

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Brieanna Allen	Production/Validation Manager	Inorganics, Burnaby, British Columbia

General Comments

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Refer to the ALS Quality Control Interpretive report (QCI) for applicable references and methodology summaries. Reference methods may incorporate modifications to improve performance.

Where a reported less than (<) result is higher than the LOR, this may be due to primary sample extract/digestate dilution and/or insufficient sample for analysis.

Where the LOR of a reported result differs from standard LOR, this may be due to high moisture content, insufficient sample (reduced weight employed) or matrix interference.
Please refer to Quality Control Interpretive report (QCI) for information regarding Holding Time compliance.

Key : CAS Number: Chemical Abstracts Services number is a unique identifier assigned to discrete substances
LOR: Limit of Reporting (detection limit).

Unit	*Description*
-	no units
mg/L	milligrams per litre

<: less than.

>: greater than.

Surrogate: An analyte that is similar in behavior to target analyte(s), but that does not occur naturally in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED on SRN or QCI Report, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical Results

Sub-Matrix: **Water** (Matrix: **Water**)					*Client sample ID*	**BUA933-BH 1984**	----	----	----	----
					Client sampling date / time	06-Jul-2023 07:45	----	----	----	----
Analyte	*CAS Number*	*Method/Lab*	*LOR*	*Unit*		**VA23B5952-001**	--------	--------	--------	--------
						Result	----	----	----	----
Sample Preparation										
Dissolved Fe2 filtration location	----	EP541/VA	-	-		Field	----	----	----	----
Speciated Metals										
Iron, ferrous [Fe II], dissolved	15438-31-0	E541/VA	0.020	mg/L		<0.020	----	----	----	----

Please refer to the General Comments section for an explanation of any result qualifiers detected.

Please refer to the Accreditation section for an explanation of analyte accreditations.

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QUALITY CONTROL INTERPRETIVE REPORT

Work Order	: **VA23B5952**	Page	: 1 of 5
Amendment	: **1**		
Client	: **Bureau Veritas Canada (2019) Inc. (Maxxam Analytics)**	Laboratory	: ALS Environmental - Vancouver
Contact	: Parminder Virk	Account Manager	: Tasnia Tarannum
Address	: 4000 19 St NE Calgary AB Canada T2E 6P8	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	: 4037352235	Telephone	: +1 604 253 4188
Project	: C350719	Date Samples Received	: 12-Jul-2023 08:30
PO	: ----	Issue Date	: 01-Aug-2023 17:06
C-O-C number	: C350719-CALB-01-01		
Sampler	: ----		
Site	: ----		
Quote number	: Vancouver Standing Offer		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report is automatically generated by the ALS LIMS (Laboratory Information Management System) through evaluation of Quality Control (QC) results and other QA parameters associated with this submission, and is intended to facilitate rapid data validation by auditors or reviewers. The report highlights any exceptions and outliers to ALS Data Quality Objectives, provides holding time details and exceptions, summarizes QC sample frequencies, and lists applicable methodology references and summaries.

Key

Anonymous: Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number: Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO: Data Quality Objective.
LOR: Limit of Reporting (detection limit).
RPD: Relative Percent Difference.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Summary of Outliers

Outliers : Quality Control Samples

- No Method Blank value outliers occur.
- No Duplicate outliers occur.
- No Laboratory Control Sample (LCS) outliers occur
- No Matrix Spike outliers occur.
- No Test sample Surrogate recovery outliers exist.

Outliers: Reference Material (RM) Samples

- No Reference Material (RM) Sample outliers occur.

Outliers : Analysis Holding Time Compliance (Breaches)

- No Analysis Holding Time Outliers exist.

Outliers : Frequency of Quality Control Samples

- No Quality Control Sample Frequency Outliers occur.

Analysis Holding Time Compliance

This report summarizes extraction / preparation and analysis times and compares each with ALS recommended holding times, which are selected to meet known provincial and /or federal requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by organizations such as CCME, US EPA, APHA Standard Methods, ASTM, or Environment Canada (where available). Dates and holding times reported below represent the first dates of extraction or analysis. If subsequent tests or dilutions exceeded holding times, qualifiers are added (refer to COA).

If samples are identified below as having been analyzed or extracted outside of recommended holding times, measurement uncertainties may be increased, and this should be taken into consideration when interpreting results.

Where actual sampling date is not provided on the chain of custody, the date of receipt with time at 00:00 is used for calculation purposes.

Where only the sample date without time is provided on the chain of custody, the sampling date at 00:00 is used for calculation purposes.

Matrix: **Water**

Evaluation: × = Holding time exceedance ; ✓ = Within Holding Time

Analyte Group / Container / Client Sample ID(s)	Method	Sampling Date	Extraction / Preparation				Analysis			
			Preparation Date	Holding Times Rec	Holding Times Actual	Eval	Analysis Date	Holding Times Rec	Holding Times Actual	Eval
Speciated Metals : Dissolved Ferrous Iron in Water by Colour										
Amber glass dissolved (hydrochloric acid)										
BUA933-BH 1984	E541	06-Jul-2023	12-Jul-2023	7 days	7 days	✓	12-Jul-2023	0 days	0 days	✓

Legend & Qualifier Definitions

Rec. HT: ALS recommended hold time (see units).

Quality Control Parameter Frequency Compliance

The following report summarizes the frequency of laboratory QC samples analyzed within the analytical batches (QC lots) in which the submitted samples were processed. The actual frequency should be greater than or equal to the expected frequency.

Matrix: **Water**

Evaluation: × = *QC frequency outside specification*; ✓ = *QC frequency within specification.*

Quality Control Sample Type			Count		Frequency (%)		
Analytical Methods	*Method*	*QC Lot #*	*QC*	*Regular*	*Actual*	*Expected*	*Evaluation*
Laboratory Duplicates (DUP)							
Dissolved Ferrous Iron in Water by Colour	E541	1036075	1	7	14.2	5.0	✓
Laboratory Control Samples (LCS)							
Dissolved Ferrous Iron in Water by Colour	E541	1036075	1	7	14.2	5.0	✓
Method Blanks (MB)							
Dissolved Ferrous Iron in Water by Colour	E541	1036075	1	7	14.2	5.0	✓
Matrix Spikes (MS)							
Dissolved Ferrous Iron in Water by Colour	E541	1036075	1	7	14.2	5.0	✓

Methodology References and Summaries

The analytical methods used by ALS are developed using internationally recognized reference methods (where available), such as those published by US EPA, APHA Standard Methods, ASTM, ISO, Environment Canada, BC MOE, and Ontario MOE. Reference methods may incorporate modifications to improve performance (indicated by “mod”).

Analytical Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Ferrous Iron in Water by Colour	E541 ALS Environmental - Vancouver	Water	APHA 3500-Fe B/James Ball et al (1999)	This analysis is carried out using procedures adapted from APHA 3500-Fe B and Environ. Sci. Technol. 1999, 33, 5, 807–813. The procedure involves preliminary sample filtration, and ferrous iron is determined using the "FerroZine" colourimetric method. Holding time is 7 days for 0.45um filtration or 6 months if samples have been filtered using 0.1um filters.

Preparation Methods	Method / Lab	Matrix	Method Reference	Method Descriptions
Dissolved Ferrous Iron in Water by Colour	EP541 ALS Environmental - Vancouver	Water	APHA 3500-Fe B/James Ball et al (1999)	This analysis is carried out using procedures adapted from APHA 3500-Fe B and "A New Method for the Direct Determination of Dissolved Iron Concentration in Acid Mine Waters" published by James W. Ball et al (1999). The procedure involves preliminary sample filtration, and ferrous iron is determined using the "FerroZine" colourimetric method.

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QUALITY CONTROL REPORT

Work Order	: **VA23B5952**	Page	: 1 of 3
Amendment	: **1**		
Client	: Bureau Veritas Canada (2019) Inc. (Maxxam Analytics)	Laboratory	: ALS Environmental - Vancouver
Contact	: Parminder Virk	Account Manager	: Tasnia Tarannum
Address	: 4000 19 St NE Calgary AB Canada T2E 6P8	Address	: 8081 Lougheed Highway Burnaby, British Columbia Canada V5A 1W9
Telephone	:	Telephone	: +1 604 253 4188
Project	: C350719	Date Samples Received	: 12-Jul-2023 08:30
PO	: ----	Date Analysis Commenced	: 12-Jul-2023
C-O-C number	: C350719-CALB-01-01	Issue Date	: 01-Aug-2023 17:06
Sampler	: ---- 4037352235		
Site	: ----		
Quote number	: Vancouver Standing Offer		
No. of samples received	: 1		
No. of samples analysed	: 1		

This report supersedes any previous report(s) with this reference. Results apply to the sample(s) as submitted. This document shall not be reproduced, except in full.

This Quality Control Report contains the following information:

- Laboratory Duplicate (DUP) Report; Relative Percent Difference (RPD) and Data Quality Objectives
- Matrix Spike (MS) Report; Recovery and Data Quality Objectives
- Method Blank (MB) Report; Recovery and Data Quality Objectives
- Laboratory Control Sample (LCS) Report; Recovery and Data Quality Objectives

Signatories

This document has been electronically signed by the authorized signatories below. Electronic signing is conducted in accordance with US FDA 21 CFR Part 11.

Signatories	*Position*	*Laboratory Department*
Brieanna Allen	Production/Validation Manager	Vancouver Inorganics, Burnaby, British Columbia

General Comments

The ALS Quality Control (QC) report is optionally provided to ALS clients upon request. ALS test methods include comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against predetermined Data Quality Objectives (DQOs) to provide confidence in the accuracy of associated test results. This report contains detailed results for all QC results applicable to this sample submission. Please refer to the ALS Quality Control Interpretation report (QCI) for applicable method references and methodology summaries.

Key :

Anonymous = Refers to samples which are not part of this work order, but which formed part of the QC process lot.
CAS Number = Chemical Abstracts Service number is a unique identifier assigned to discrete substances.
DQO = Data Quality Objective.
LOR = Limit of Reporting (detection limit).
RPD = Relative Percent Difference
# = Indicates a QC result that did not meet the ALS DQO.

Workorder Comments

Holding times are displayed as "---" if no guidance exists from CCME, Canadian provinces, or broadly recognized international references.

Laboratory Duplicate (DUP) Report

A Laboratory Duplicate (DUP) is a randomly selected intralaboratory replicate sample. Laboratory Duplicates provide information regarding method precision and sample heterogeneity. ALS DQOs for Laboratory Duplicates are expressed as test-specific limits for Relative Percent Difference (RPD), or as an absolute difference limit of 2 times the LOR for low concentration duplicates within ~ 4-10 times the LOR (cut-off is test-specific).

Sub-Matrix: **Water**

					Laboratory Duplicate (DUP) Report						
Laboratory sample ID	*Client sample ID*	*Analyte*	*CAS Number*	*Method*	*LOR*	*Unit*	*Original Result*	*Duplicate Result*	*RPD(%) or Difference*	*Duplicate Limits*	*Qualifier*
Speciated Metals (QC Lot: 1036075)											
VA23B5952-001	BUA933-BH 1984	Iron, ferrous [Fe II], dissolved	15438-31-0	E541	0.020	mg/L	<0.020	<0.020	0	Diff <2x LOR	----

Method Blank (MB) Report

A Method Blank is an analyte-free matrix that undergoes sample processing identical to that carried out for test samples. Method Blank results are used to monitor and control for potential contamination from the laboratory environment and reagents. For most tests, the DQO for Method Blanks is for the result to be < LOR.

Sub-Matrix: **Water**

Analyte	*CAS Number*	*Method*	*LOR*	*Unit*	*Result*	*Qualifier*
Speciated Metals (QCLot: 1036075)						
Iron, ferrous [Fe II], dissolved	15438-31-0	E541	0.02	mg/L	<0.020	----

Laboratory Control Sample (LCS) Report

A Laboratory Control Sample (LCS) is an analyte-free matrix that has been fortified (spiked) with test analytes at known concentration and processed in an identical manner to test samples. LCS results are expressed as percent recovery, and are used to monitor and control test method accuracy and precision, independent of test sample matrix.

Sub-Matrix: **Water**

					Laboratory Control Sample (LCS) Report				
					Spike	Recovery (%)	Recovery Limits (%)		
Analyte	CAS Number	Method	LOR	Unit	Concentration	LCS	Low	High	Qualifier
Speciated Metals (QCLot: 1036075)									
Iron, ferrous [Fe II], dissolved	15438-31-0	E541	0.02	mg/L	0.5 mg/L	100	80.0	120	----

Matrix Spike (MS) Report

A Matrix Spike (MS) is a randomly selected intra-laboratory replicate sample that has been fortified (spiked) with test analytes at known concentration, and processed in an identical manner to test samples. Matrix Spikes provide information regarding analyte recovery and potential matrix effects. MS DQO exceedances due to sample matrix may sometimes be unavoidable; in such cases, test results for the associated sample (or similar samples) may be subject to bias. ND – Recovery not determined, background level >= 1x spike level.

Sub-Matrix: **Water**

					Matrix Spike (MS) Report					
					Spike		Recovery (%)	Recovery Limits (%)		
Laboratory sample ID	Client sample ID	Analyte	CAS Number	Method	Concentration	Target	MS	Low	High	Qualifier
Speciated Metals (QCLot: 1036075)										
VA23B5952-001	BUA933-BH 1984	Iron, ferrous [Fe II], dissolved	15438-31-0	E541	0.490 mg/L	0.5 mg/L	98.0	70.0	130	----

Sent To: ALS Laboratory Group
8081 Lougheed HWY
Burnaby, BC, V5A 1W9
Tel: (604) 253-4188

CHAIN OF CUSTODY RECORD FOR SUBCONTRACTED WORK

COC # C350719-CALB-01-01

REPORT INFORMATION

Company:	Bureau Veritas Laboratories
Address:	4000 19st N.E, Calgary, Alberta, T2E 6P8
Contact Name:	Parminder Virk
Email:	Parminder.Virk@bureauveritas.com, Customersolutionswest@bureauveritas.co
Phone:	(403) 735-2235
BV Labs Project #:	C350719

ANALYSIS REQUESTED

#	SAMPLE ID	MATRIX	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	SAMPLER INITIALS	# CONT.	Ferrous Iron (Dissolved)	ADDITIONAL SAMPLE INFORMATION
1	BUA933-BH 1984	W	2023/07/06	07:45	RN	1	X	(P: 06)
2								
3								
4								
5								
6								
7								
8								
9								
10								

Environmental Division
Vancouver
Work Order Reference
VA23B5952
Telephone : +1 604 253 4188

REGULATORY CRITERIA

SPECIAL INSTRUCTIONS

Please inform Bureau Veritas immediately if you are not accredited for the requested test(s) or the hold time is approaching.
Please return a copy of this form with the report.

TURNAROUND TIME

☐ Rush Required

2023/07/13
Date Required

Please inform us if rush charges will be incurred.

COOLER ID:

	YES	NO	Temp: (°C)	1	2	3
Custody Seal Present						
Custody Seal Intact						
Cooling Media Present						

COOLER ID:

	YES	NO	Temp: (°C)	1	2	3
Custody Seal Present						
Custody Seal Intact						
Cooling Media Present						

COOLER ID:

	YES	NO	Temp: (°C)	1	2	3
Custody Seal Present						
Custody Seal Intact						
Cooling Media Present						

RELINQUISHED BY: (SIGN & PRINT)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (SIGN & PRINT)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)
1. Leo Choi	2023/07/11	16:00	1.		
2.			2.		

UP 7/12/23 830AM
ice

DATA QUALITY REVIEW CHECKLIST

Consultant: *Parsons Inc.*

Sampling Date: *2023/7/10*

Location: *1620 14 AVE NW, CALGARY*

Laboratory : *Bureau Veritas, Calgary, BC*

Consultant Project Number: *10-12832*

Sample Submission Number: *C351648*

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

	Yes	No	NA	Comments
Surrogate Recovery	*X*			*The matrix spike recovery for Dissolved Organic Carbon (79%) is below the control limit. All other 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
Field 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*
Has lab warranted all tests were in statistical control in CoA (Yes/No)?:	*Yes*
Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?:	*Yes*
Were all samples analyzed within hold times (Yes/No)?:	*Yes*
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): *Mackenzie Robart*

Reviewed by (Print): *Michelle Patterson*

Reviewed date: *2023/10/03*

Reviewed by (Signature):

Your P.O. #: 478092.17104
Your Project #: 10-12832
Site#: 9445
WBS 478621.17104
Outlet Number 9445
Your C.O.C. #: 699215-01-01

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/08/01
Report #: R3374181
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C351648
Received: 2023/07/11, 06:00

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity @25C (pp, total), CO3,HCO3,OH	1	N/A	2023/07/16	AB SOP-00005	SM 23 2320 B m
BTEX/F1 in Water by HS GC/MS/FID	1	N/A	2023/07/12	AB SOP-00039	CCME CWS/EPA 8260d m
F1-BTEX	1	N/A	2023/07/13		Auto Calc
Chloride/Sulphate by Auto Colourimetry	1	N/A	2023/07/17	AB SOP-00020	SM24-4500-Cl/SO4-E m
Carbon (DOC) (2)	1	N/A	2023/07/17	AB SOP-00087	MMCW 119 1996 m
Conductivity @25C	1	N/A	2023/07/16	AB SOP-00005	SM 23 2510 B m
CCME Hydrocarbons in Water (F2; C10-C16) (3)	1	2023/07/13	2023/07/14	AB SOP-00037 AB SOP-00040	CCME PHC-CWS m
Ferrous Iron (Dissolved)	1	N/A	2023/07/11	AB SOP-00041	SM 23 3500-Fe A,B m
Sulphide (as H2S)	1	N/A	2023/07/12		Auto Calc
Hardness	1	N/A	2023/07/14		Auto Calc
Elements by ICP - Dissolved (4)	1	N/A	2023/07/13	AB SOP-00042	EPA 6010d R5 m
Ion Balance	1	N/A	2023/07/18		Auto Calc
Sum of cations, anions	1	N/A	2023/07/14		Auto Calc
Ammonia-N (Total)	1	N/A	2023/07/15	AB SOP-00007	SM 24 4500 NH3 A G m
Nitrate and Nitrite	1	N/A	2023/07/17		Auto Calc
NO2 (N); NO2 (N) + NO3 (N) in Water	1	N/A	2023/07/15	AB SOP-00091	SM 24 4500 NO3m
Nitrate (as N)	1	2023/07/11	2023/07/17		Auto Calc
pH @25°C (5)	1	N/A	2023/07/16	AB SOP-00005	SM 23 4500-H+B m
Total Sulphide	1	N/A	2023/07/12	AB SOP-00080	SM 23 4500 S2-A D Fm
Total Dissolved Solids (Calculated)	1	N/A	2023/07/18		Auto Calc
Total Trihalomethanes Calculation	1	N/A	2023/07/12		Auto Calc
Total Kjeldahl Nitrogen (Total)	1	N/A	2023/07/17	BBY WI-00033	Auto Calc
Nitrogen (Total)	1	2023/07/13	2023/07/13	AB SOP-00093	SM 24 4500-N C m
Carbon (Total Organic) (6)	1	N/A	2023/07/17	AB SOP-00087	MMCW 119 1996 m
VOCs in Water by HS GC/MS (Std List)	1	N/A	2023/07/11	AB SOP-00056	EPA 5021a/8260d m
Dissolved Gases in Water (1)	1	N/A	2023/07/20	CAM SOP-00219	RSKSOP-175 m
Dissolved Gases in Water in mg/L units (1)	1	N/A	2023/07/12	Calculation	Calculation

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Your P.O. #: 478092.17104
Your Project #: 10-12832
Site#: 9445
WBS 478621.17104
Outlet Number 9445
Your C.O.C. #: 699215-01-01

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/08/01
Report #: R3374181
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C351648
Received: 2023/07/11, 06:00

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) This test was performed by Bureau Veritas Campobello, 6740 Campobello Road , Mississauga, ON, L5N 2L8
(2) DOC present in the sample should be considered as non-purgeable DOC. Dissolved > Total Imbalance: When applicable, Dissolved and Total results were reviewed and data quality meets acceptable levels unless otherwise noted.
(3) Silica gel clean up employed.
(4) Dissolved > Total Imbalance: When applicable, Dissolved and Total results were reviewed and data quality meets acceptable levels unless otherwise noted.
(5) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas endeavours to analyze samples as soon as possible after receipt.
(6) TOC present in the sample should be considered as non-purgeable TOC.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Parminder Virk, Key Account Specialist
Email: Parminder.Virk@bureauveritas.com
Phone# (403)735-2235
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Scott Cantwell, General Manager responsible for Alberta Environmental laboratory operations.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C351648
Report Date: 2023/08/01

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478092.17104
Sampler Initials: CW

AT1 BTEX AND F1-F2 IN WATER (WATER)

Bureau Veritas ID		BUG361		
Sampling Date		2023/07/10 07:45		
COC Number		699215-01-01		
	UNITS	**BH1958**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon				
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	0.10	B028851
Volatiles				
Benzene	mg/L	<0.00040	0.00040	B029552
Toluene	mg/L	<0.00040	0.00040	B029552
Ethylbenzene	mg/L	<0.00040	0.00040	B029552
m & p-Xylene	mg/L	<0.00080	0.00080	B029552
o-Xylene	mg/L	<0.00040	0.00040	B029552
Xylenes (Total)	mg/L	<0.00089	0.00089	B028625
F1 (C6-C10) - BTEX	mg/L	<0.10	0.10	B028625
F1 (C6-C10)	mg/L	<0.10	0.10	B029552
Surrogate Recovery (%)				
1,4-Difluorobenzene (sur.)	%	101		B029552
4-Bromofluorobenzene (sur.)	%	92		B029552
D4-1,2-Dichloroethane (sur.)	%	92		B029552
O-TERPHENYL (sur.)	%	97		B028851
RDL = Reportable Detection Limit				

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Report Date: 2023/08/01

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478092.17104
Sampler Initials: CW

ROUTINE WATER (WATER)

Bureau Veritas ID		BUG361		
Sampling Date		2023/07/10 07:45		
COC Number		699215-01-01		
	UNITS	**BH1958**	**RDL**	**QC Batch**
Calculated Parameters				
Anion Sum	meq/L	16	N/A	B028794
Cation Sum	meq/L	16	N/A	B028794
Hardness (CaCO3)	mg/L	660	0.50	B028910
Ion Balance (% Difference)	%	1.3	N/A	B028792
Nitrate (N)	mg/L	2.2	0.050	B028799
Nitrate (NO3)	mg/L	9.7	0.22	B028798
Nitrite (NO2)	mg/L	<0.033	0.033	B028798
Calculated Total Dissolved Solids	mg/L	800	10	B028803
Misc. Inorganics				
Conductivity	uS/cm	1400	2.0	B035448
pH	pH	7.78	N/A	B035447
Anions				
Alkalinity (PP as CaCO3)	mg/L	<1.0	1.0	B035445
Alkalinity (Total as CaCO3)	mg/L	530	1.0	B035445
Bicarbonate (HCO3)	mg/L	650	1.0	B035445
Carbonate (CO3)	mg/L	<1.0	1.0	B035445
Hydroxide (OH)	mg/L	<1.0	1.0	B035445
Chloride (Cl)	mg/L	160	5.0	B036156
Sulphate (SO4)	mg/L	43	1.0	B036156
Nutrients				
Nitrite (N)	mg/L	<0.010	0.010	B035374
Nitrate plus Nitrite (N)	mg/L	2.2	0.050	B035374
Elements				
Dissolved Calcium (Ca)	mg/L	130	0.30	B033281
Dissolved Iron (Fe)	mg/L	<0.060	0.060	B033281
Dissolved Magnesium (Mg)	mg/L	82	0.20	B033281
Dissolved Manganese (Mn)	mg/L	<0.0040	0.0040	B033281
Dissolved Potassium (K)	mg/L	4.2	0.30	B033281
Dissolved Sodium (Na)	mg/L	56	0.50	B033281

RDL = Reportable Detection Limit
N/A = Not Applicable

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PARSONS INC.
Client Project #: 10-12832
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Sampler Initials: CW

TOTAL KJELDAHL NITROGEN (TOTAL)

Bureau Veritas ID		BUG361		
Sampling Date		2023/07/10 07:45		
COC Number		699215-01-01		
	UNITS	**BH1958**	**RDL**	**QC Batch**
Calculated Parameters				
Total Total Kjeldahl Nitrogen (Calc)	mg/L	<0.050	0.050	B028804
Nutrients				
Total Nitrogen (N)	mg/L	2.0 (1)	0.040	B032523

RDL = Reportable Detection Limit
(1) Nitrogen < Nitrate: Both values fall within the method uncertainty for duplicates and are likely equivalent.

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PARSONS INC.
Client Project #: 10-12832
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Sampler Initials: CW

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID		BUG361		
Sampling Date		2023/07/10 07:45		
COC Number		699215-01-01		
	UNITS	**BH1958**	**RDL**	**QC Batch**
Calculated Parameters				
Sulphide (as H2S)	mg/L	0.025	0.0020	B028626
Misc. Inorganics				
HCl Preserved Iron (Fe+2 Ferrous)	mg/L	<0.050	0.050	B029097
Dissolved Organic Carbon (C)	mg/L	1.9	0.50	B032845
Total Organic Carbon (C)	mg/L	1.5	0.50	B032854
Anions				
Total Sulphide	mg/L	0.024	0.0018	B030205
Nutrients				
Total Ammonia (N)	mg/L	<0.015	0.015	B034974
RDL = Reportable Detection Limit				

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PARSONS INC.
Client Project #: 10-12832
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Sampler Initials: CW

PERMANENT GASES (WATER)

Bureau Veritas ID		BUG361		
Sampling Date		2023/07/10 07:45		
COC Number		699215-01-01		
	UNITS	**BH1958**	**RDL**	**QC Batch**
Fixed Gases				
Methane	L/m3	<0.005	0.005	B045503
Calculated Methane	mg/L	<0.003	0.003	B041088
RDL = Reportable Detection Limit				

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Bureau Veritas Job #: C351648
Report Date: 2023/08/01

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478092.17104
Sampler Initials: CW

VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		BUG361		
Sampling Date		2023/07/10 07:45		
COC Number		699215-01-01		
	UNITS	**BH1958**	**RDL**	**QC Batch**
Volatiles				
Total Trihalomethanes	mg/L	<0.0013	0.0013	B028935
Bromodichloromethane	mg/L	<0.00050	0.00050	B029562
Bromoform	mg/L	<0.00050	0.00050	B029562
Bromomethane	mg/L	<0.0020	0.0020	B029562
Carbon tetrachloride	mg/L	<0.00050	0.00050	B029562
Chlorobenzene	mg/L	<0.00050	0.00050	B029562
Dibromochloromethane	mg/L	<0.0010	0.0010	B029562
Chloroethane	mg/L	<0.0010	0.0010	B029562
Chloroform	mg/L	<0.00050	0.00050	B029562
Chloromethane	mg/L	<0.0020	0.0020	B029562
1,2-dibromoethane	mg/L	<0.00020	0.00020	B029562
1,2-dichlorobenzene	mg/L	<0.00050	0.00050	B029562
1,3-dichlorobenzene	mg/L	<0.00050	0.00050	B029562
1,4-dichlorobenzene	mg/L	<0.00050	0.00050	B029562
1,1-dichloroethane	mg/L	<0.00050	0.00050	B029562
1,2-dichloroethane	mg/L	<0.00050	0.00050	B029562
1,1-dichloroethene	mg/L	<0.00050	0.00050	B029562
cis-1,2-dichloroethene	mg/L	<0.00050	0.00050	B029562
trans-1,2-dichloroethene	mg/L	<0.00050	0.00050	B029562
Dichloromethane	mg/L	<0.0020	0.0020	B029562
1,2-dichloropropane	mg/L	<0.00050	0.00050	B029562
cis-1,3-dichloropropene	mg/L	<0.00050	0.00050	B029562
trans-1,3-dichloropropene	mg/L	<0.00050	0.00050	B029562
Methyl methacrylate	mg/L	<0.00050	0.00050	B029562
Methyl-tert-butylether (MTBE)	mg/L	<0.00050	0.00050	B029562
Styrene	mg/L	<0.00050	0.00050	B029562
1,1,1,2-tetrachloroethane	mg/L	<0.0010	0.0010	B029562
1,1,2,2-tetrachloroethane	mg/L	<0.0020	0.0020	B029562
Tetrachloroethene	mg/L	<0.00050	0.00050	B029562
1,2,3-trichlorobenzene	mg/L	<0.0010	0.0010	B029562
1,2,4-trichlorobenzene	mg/L	<0.0010	0.0010	B029562
1,3,5-trichlorobenzene	mg/L	<0.00050	0.00050	B029562
RDL = Reportable Detection Limit				

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Bureau Veritas Job #: C351648
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PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478092.17104
Sampler Initials: CW

VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		BUG361		
Sampling Date		2023/07/10 07:45		
COC Number		699215-01-01		
	UNITS	**BH1958**	**RDL**	**QC Batch**
1,1,1-trichloroethane	mg/L	<0.00050	0.00050	B029562
1,1,2-trichloroethane	mg/L	<0.00050	0.00050	B029562
Trichloroethene	mg/L	<0.00020	0.00020	B029562
Trichlorofluoromethane	mg/L	<0.00050	0.00050	B029562
1,2,4-trimethylbenzene	mg/L	<0.00050	0.00050	B029562
1,3,5-trimethylbenzene	mg/L	<0.00050	0.00050	B029562
Vinyl chloride	mg/L	<0.00050	0.00050	B029562
Surrogate Recovery (%)				
1,4-Difluorobenzene (sur.)	%	101		B029562
4-Bromofluorobenzene (sur.)	%	92		B029562
D4-1,2-Dichloroethane (sur.)	%	104		B029562
RDL = Reportable Detection Limit				

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PARSONS INC.
Client Project #: 10-12832
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Sampler Initials: CW

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	4.7°C

Report re-issued with updated Site and Outlet numbers as per client request on 2023.07.31.

Sample BUG361 [BH1958] : NO2 (N); NO2 (N) + NO3 (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes.

Results relate only to the items tested.

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Bureau Veritas Job #: C351648
Report Date: 2023/08/01

QUALITY ASSURANCE REPORT

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478092.17104
Sampler Initials: CW

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
B028851	O-TERPHENYL (sur.)	2023/07/13			94	60 - 140	96	%				
B029552	1,4-Difluorobenzene (sur.)	2023/07/12	100	50 - 140	103	50 - 140	105	%				
B029552	4-Bromofluorobenzene (sur.)	2023/07/12	90	50 - 140	99	50 - 140	88	%				
B029552	D4-1,2-Dichloroethane (sur.)	2023/07/12	91	50 - 140	96	50 - 140	91	%				
B029562	1,4-Difluorobenzene (sur.)	2023/07/11	104	50 - 140	104	50 - 140	99	%				
B029562	4-Bromofluorobenzene (sur.)	2023/07/11	99	50 - 140	97	50 - 140	91	%				
B029562	D4-1,2-Dichloroethane (sur.)	2023/07/11	103	50 - 140	93	50 - 140	110	%				
B028851	F2 (C10-C16 Hydrocarbons)	2023/07/13			83	60 - 140	<0.10	mg/L				
B029097	HCl Preserved Iron (Fe+2 Ferrous)	2023/07/11	88	80 - 120	97	90 - 110	<0.050	mg/L	NC	20		
B029552	Benzene	2023/07/12	94	50 - 140	99	60 - 130	<0.00040	mg/L	NC	30		
B029552	Ethylbenzene	2023/07/12	94	50 - 140	99	60 - 130	<0.00040	mg/L	NC	30		
B029552	F1 (C6-C10)	2023/07/12	82	60 - 140	101	60 - 140	<0.10	mg/L	NC	30		
B029552	m & p-Xylene	2023/07/12	97	50 - 140	102	60 - 130	<0.00080	mg/L	NC	30		
B029552	o-Xylene	2023/07/12	92	50 - 140	96	60 - 130	<0.00040	mg/L	NC	30		
B029552	Toluene	2023/07/12	92	50 - 140	96	60 - 130	<0.00040	mg/L	NC	30		
B029562	1,1,1,2-tetrachloroethane	2023/07/11	94	50 - 140	93	60 - 130	<0.0010	mg/L	NC	30		
B029562	1,1,1-trichloroethane	2023/07/11	92	50 - 140	93	60 - 130	<0.00050	mg/L	NC	30		
B029562	1,1,2,2-tetrachloroethane	2023/07/11	95	50 - 140	91	60 - 130	<0.0020	mg/L	NC	30		
B029562	1,1,2-trichloroethane	2023/07/11	87	50 - 140	93	60 - 130	<0.00050	mg/L	NC	30		
B029562	1,1-dichloroethane	2023/07/11	86	50 - 140	86	60 - 130	<0.00050	mg/L	NC	30		
B029562	1,1-dichloroethene	2023/07/11	88	50 - 140	89	60 - 130	<0.00050	mg/L	NC	30		
B029562	1,2,3-trichlorobenzene	2023/07/11	85	50 - 140	87	60 - 130	<0.0010	mg/L	NC	30		
B029562	1,2,4-trichlorobenzene	2023/07/11	86	50 - 140	87	60 - 130	<0.0010	mg/L	NC	30		
B029562	1,2,4-trimethylbenzene	2023/07/11	80	50 - 140	86	60 - 130	<0.00050	mg/L	2.7	30		
B029562	1,2-dibromoethane	2023/07/11	97	50 - 140	91	60 - 130	<0.00020	mg/L	NC	30		
B029562	1,2-dichlorobenzene	2023/07/11	90	50 - 140	90	60 - 130	<0.00050	mg/L	NC	30		
B029562	1,2-dichloroethane	2023/07/11	98	50 - 140	94	60 - 130	<0.00050	mg/L	NC	30		
B029562	1,2-dichloropropane	2023/07/11	89	50 - 140	87	60 - 130	<0.00050	mg/L	NC	30		
B029562	1,3,5-trichlorobenzene	2023/07/11	91	50 - 140	92	60 - 130	<0.00050	mg/L	NC	30		
B029562	1,3,5-trimethylbenzene	2023/07/11	82	50 - 140	87	60 - 130	<0.00050	mg/L	7.7	30		
B029562	1,3-dichlorobenzene	2023/07/11	88	50 - 140	88	60 - 130	<0.00050	mg/L	NC	30		

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QUALITY ASSURANCE REPORT(CONT'D)

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478092.17104
Sampler Initials: CW

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
B029562	1,4-dichlorobenzene	2023/07/11	92	50 - 140	91	60 - 130	<0.00050	mg/L	NC	30		
B029562	Bromodichloromethane	2023/07/11	97	50 - 140	96	60 - 130	<0.00050	mg/L	NC	30		
B029562	Bromoform	2023/07/11	101	50 - 140	97	60 - 130	<0.00050	mg/L	NC	30		
B029562	Bromomethane	2023/07/11	102	50 - 140	99	60 - 130	<0.0020	mg/L	NC	30		
B029562	Carbon tetrachloride	2023/07/11	93	50 - 140	95	60 - 130	<0.00050	mg/L	NC	30		
B029562	Chlorobenzene	2023/07/11	93	50 - 140	92	60 - 130	<0.00050	mg/L	NC	30		
B029562	Chloroethane	2023/07/11	86	50 - 140	86	60 - 130	<0.0010	mg/L	NC	30		
B029562	Chloroform	2023/07/11	89	50 - 140	89	60 - 130	<0.00050	mg/L	NC	30		
B029562	Chloromethane	2023/07/11	88	50 - 140	87	60 - 130	<0.0020	mg/L	NC	30		
B029562	cis-1,2-dichloroethene	2023/07/11	89	50 - 140	89	60 - 130	<0.00050	mg/L	NC	30		
B029562	cis-1,3-dichloropropene	2023/07/11	123	50 - 140	117	60 - 130	<0.00050	mg/L	NC	30		
B029562	Dibromochloromethane	2023/07/11	101	50 - 140	98	60 - 130	<0.0010	mg/L	NC	30		
B029562	Dichloromethane	2023/07/11	91	50 - 140	89	60 - 130	<0.0020	mg/L	NC	30		
B029562	Methyl methacrylate	2023/07/11	93	50 - 140	89	60 - 130	<0.00050	mg/L	NC	30		
B029562	Methyl-tert-butylether (MTBE)	2023/07/11	86	50 - 140	86	60 - 130	<0.00050	mg/L	NC	30		
B029562	Styrene	2023/07/11	94	50 - 140	94	60 - 130	<0.00050	mg/L	NC	30		
B029562	Tetrachloroethene	2023/07/11	88	50 - 140	89	60 - 130	<0.00050	mg/L	NC	30		
B029562	trans-1,2-dichloroethene	2023/07/11	84	50 - 140	85	60 - 130	<0.00050	mg/L	NC	30		
B029562	trans-1,3-dichloropropene	2023/07/11	127	50 - 140	117	60 - 130	<0.00050	mg/L	NC	30		
B029562	Trichloroethene	2023/07/11	96	50 - 140	97	60 - 130	<0.00020	mg/L	NC	30		
B029562	Trichlorofluoromethane	2023/07/11	90	50 - 140	91	60 - 130	<0.00050	mg/L	NC	30		
B029562	Vinyl chloride	2023/07/11	83	50 - 140	85	60 - 130	<0.00050	mg/L	NC	30		
B030205	Total Sulphide	2023/07/12	85	80 - 120	84	80 - 120	<0.0018	mg/L	10	20		
B032523	Total Nitrogen (N)	2023/07/13	NC	80 - 120	108	80 - 120	<0.020	mg/L	3.1	20	109	80 - 120
B032845	Dissolved Organic Carbon (C)	2023/07/17	79 (1)	80 - 120	95	80 - 120	<0.50	mg/L	9.5	20		
B032854	Total Organic Carbon (C)	2023/07/17	87	80 - 120	102	80 - 120	<0.50	mg/L	15	20		
B033281	Dissolved Calcium (Ca)	2023/07/13			96	80 - 120	<0.30	mg/L				
B033281	Dissolved Iron (Fe)	2023/07/13	94	80 - 120	93	80 - 120	<0.060	mg/L	0.88	20		
B033281	Dissolved Magnesium (Mg)	2023/07/13	NC	80 - 120	97	80 - 120	<0.20	mg/L				
B033281	Dissolved Manganese (Mn)	2023/07/13	94	80 - 120	95	80 - 120	<0.0040	mg/L	0.82	20		
B033281	Dissolved Potassium (K)	2023/07/13	93	80 - 120	94	80 - 120	<0.30	mg/L				

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QUALITY ASSURANCE REPORT(CONT'D)

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478092.17104
Sampler Initials: CW

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
B033281	Dissolved Sodium (Na)	2023/07/13	NC	80 - 120	97	80 - 120	<0.50	mg/L				
B034974	Total Ammonia (N)	2023/07/15	101	80 - 120	100	80 - 120	<0.015	mg/L	0.091	20		
B035374	Nitrate plus Nitrite (N)	2023/07/15	92	80 - 120	101	80 - 120	<0.010	mg/L	NC	20		
B035374	Nitrite (N)	2023/07/15	102	80 - 120	98	80 - 120	<0.010	mg/L	NC	20		
B035445	Alkalinity (PP as CaCO3)	2023/07/16					<1.0	mg/L	NC	20		
B035445	Alkalinity (Total as CaCO3)	2023/07/16			109	80 - 120	<1.0	mg/L	0.16	20		
B035445	Bicarbonate (HCO3)	2023/07/16					<1.0	mg/L	0.16	20		
B035445	Carbonate (CO3)	2023/07/16					<1.0	mg/L	NC	20		
B035445	Hydroxide (OH)	2023/07/16					<1.0	mg/L	NC	20		
B035447	pH	2023/07/16			100	97 - 103			2.2	N/A		
B035448	Conductivity	2023/07/16			103	90 - 110	<2.0	uS/cm	1.1	10		
B036156	Chloride (Cl)	2023/07/17	NC	80 - 120	97	80 - 120	<1.0	mg/L	3.4	20		
B036156	Sulphate (SO4)	2023/07/17	101	80 - 120	104	80 - 120	<1.0	mg/L	1.6	20		
B045503	Methane	2023/07/20					<0.005	L/m3				

N/A = Not Applicable

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

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

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

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

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

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

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C351648
Report Date: 2023/08/01

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478092.17104
Sampler Initials: CW

VALIDATION SIGNATURE PAGE

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

Tom Mitchell, B.Sc, Supervisor, Compressed Gases

Ghayasuddin Khan, M.Sc., P.Chem., QP, Scientific Specialist, Inorganics

Janet Gao, B.Sc., QP, Supervisor, Organics

Jared Wiseman, B.Sc., P.Chem., QP, Senior Analyst, Organics

Rahul Suryawanshi, Senior Analyst

Suwan (Sze Yeung) Fock, B.Sc., Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas
4000 19st N.E. Calgary, Alberta Canada T2E 6P8 Tel:(403) 291-3077 Toll-free:800-563-6266 Fax:(403) 291-9466 www.bvna.com

Page 1 of 1

CHAIN OF CUSTODY RECORD

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#11243 PARSONS INC.	Company Name:	#31652 PARSONS INC.	Quotation #:	C30805	Bureau Veritas Job #:	Bottle Order #: 699215
Attention:	ACCOUNTS PAYABLE	Attention:	Rebecca Neufeld	P.O. #:	478092.17104		
Address:	2751 JOHN STREET MARKHAM ON L3R 2Y8	Address:	Unit 510, 214 - 11th Avenue SW Calgary AB T2R 0K1	Project:	10-12832	COC #: C#699215-11-01	Project Manager: Parminder Virk
Tel:	(905) 944-8877 Fax:	Tel:	Fax:	Project Name:			
Email:	ParsonsIncAP.Parsons@parsons.com	Email:	rebecca.neufeld@parsons.com,Michelle.Patterson@par	Site #:			
				Sampled By:	Cody Whittaker		

Regulatory Criteria:
- [x] ATI
- [ ] CCME
- [ ] Other

Special Instructions:

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	AT1 BTEX and F1-F2 in Water	VOCs in Water by HS GC/MS (Std List)	Routine Water	Ferrous Iron (Dissolved)	Methane	Ammonia-N (Total)	Total Sulphide	Carbon (Total Organic)	Carbon (DOC)	Total Kjeldahl Nitrogen (Total)	# of Bottles	Comments
1		BH1958	07/10/23	0945	GW	Y	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	12	Sediment Present
2																		
3																		
4																		
5																		
6																		
7																		
8																		
9																		
10																		

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT: [x]
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details

Job Specific Rush TAT (if applies to entire submission) [ ]
Date Required:
Rush Confirmation Number: *(call lab for #)*

mcal-07-1367
C351648

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Laboratory Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
Cody Whittaker	23/07/11	0440	A.JRAVER CELL	2023/07/11	0600	0	[ ]	4/5/5	[ ] Yes [x] No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.
** ALL SAMPLES ARE HELD FOR 60 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

White: Bureau Veritas Yellow: Client

ice-Y

Bureau Veritas Canada (2019) Inc.

DATA QUALITY REVIEW CHECKLIST

Consultant: *Parsons Inc.*

Sampling Date: *2023/7/11*

Location: *1620 14 AVE NW, CALGARY*

Laboratory : *Bureau Veritas, Calgary, AB*

Consultant Project Number: *10-12832*

Sample Submission Number: *C352024*

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

	Yes	No	NA	Comments
Surrogate Recovery	*X*			*The method blank concentration for Toluene (<0.00045) is outside the standard control limits.*
Method Blank Concentration	*X*			
Matrix Duplicate RPD	*X*			
Matrix Spike Recovery		*X*		*The matrix spike recovery for Dissolved Organic Carbon (74%) is below the control limit. All other lab QC met acceptance criteria.*
Other Quality Control Data	*X*			

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

	Yes	No	NA	Comments
Field 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*
Has lab warranted all tests were in statistical control in CoA (Yes/No)?:	*Yes*
Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?:	*Yes*
Were all samples analyzed within hold times (Yes/No)?:	*No*
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): *Mackenzie Robart*

Reviewed by (Print): *Michelle Patterson*

Reviewed date: *2023/10/03*

Reviewed by (Signature):

Your P.O. #: 478092.17104
Your Project #: 10-12832
Site#: 9445
WBS 478621.17104
Outlet Number 9445
Your C.O.C. #: 1 of 1

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/08/01
Report #: R3374241
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C352024
Received: 2023/07/11, 17:29

Sample Matrix: Water
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity @25C (pp, total), CO3,HCO3,OH	4	N/A	2023/07/17	AB SOP-00005	SM 23 2320 B m
BTEX/F1 in Water by HS GC/MS/FID	4	N/A	2023/07/14	AB SOP-00039	CCME CWS/EPA 8260d m
F1-BTEX	4	N/A	2023/07/15		Auto Calc
Chloride/Sulphate by Auto Colourimetry	4	N/A	2023/07/17	AB SOP-00020	SM24-4500-Cl/SO4-E m
Carbon (DOC) (2)	3	N/A	2023/07/18	AB SOP-00087	MMCW 119 1996 m
Carbon (DOC) (2)	1	N/A	2023/07/25	AB SOP-00087	MMCW 119 1996 m
Conductivity @25C	4	N/A	2023/07/17	AB SOP-00005	SM 23 2510 B m
CCME Hydrocarbons in Water (F2; C10-C16) (3)	4	2023/07/14	2023/07/14	AB SOP-00037 AB SOP-00040	CCME PHC-CWS m
Ferrous Iron (Dissolved)	4	N/A	2023/07/13	AB SOP-00041	SM 23 3500-Fe A,B m
Sulphide (as H2S)	4	N/A	2023/07/13		Auto Calc
Hardness	4	N/A	2023/07/14		Auto Calc
Elements by ICP - Dissolved (4)	4	N/A	2023/07/13	AB SOP-00042	EPA 6010d R5 m
Ion Balance	4	N/A	2023/07/18		Auto Calc
Sum of cations, anions	4	N/A	2023/07/14		Auto Calc
Ammonia-N (Total)	4	N/A	2023/07/18	AB SOP-00007	SM 24 4500 NH3 A G m
Nitrate and Nitrite	3	N/A	2023/07/17		Auto Calc
Nitrate and Nitrite	1	N/A	2023/07/19		Auto Calc
NO2 (N); NO2 (N) + NO3 (N) in Water	3	N/A	2023/07/16	AB SOP-00091	SM 24 4500 NO3m
NO2 (N); NO2 (N) + NO3 (N) in Water	1	N/A	2023/07/17	AB SOP-00091	SM 24 4500 NO3m
Nitrate (as N)	3	2023/07/12	2023/07/17		Auto Calc
Nitrate (as N)	1	2023/07/12	2023/07/19		Auto Calc
pH @25°C (5)	4	N/A	2023/07/17	AB SOP-00005	SM 23 4500-H+B m
Total Sulphide	4	N/A	2023/07/13	AB SOP-00080	SM 23 4500 S2-A D Fm
Total Dissolved Solids (Calculated)	4	N/A	2023/07/18		Auto Calc
Total Kjeldahl Nitrogen (Total)	3	N/A	2023/07/17	BBY WI-00033	Auto Calc
Total Kjeldahl Nitrogen (Total)	1	N/A	2023/07/19	BBY WI-00033	Auto Calc
Nitrogen (Total)	3	2023/07/17	2023/07/17	AB SOP-00093	SM 24 4500-N C m
Nitrogen (Total)	1	2023/07/17	2023/07/18	AB SOP-00093	SM 24 4500-N C m
Carbon (Total Organic) (6)	3	N/A	2023/07/18	AB SOP-00087	MMCW 119 1996 m
Carbon (Total Organic) (6)	1	N/A	2023/07/25	AB SOP-00087	MMCW 119 1996 m
Dissolved Gases in Water (1)	4	N/A	2023/07/20	CAM SOP-00219	RSKSOP-175 m

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Your P.O. #: 478092.17104
Your Project #: 10-12832
Site#: 9445
WBS 478621.17104
Outlet Number 9445
Your C.O.C. #: 1 of 1

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/08/01
Report #: R3374241
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C352024
Received: 2023/07/11, 17:29

Sample Matrix: Water
Samples Received: 4

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Dissolved Gases in Water in mg/L units (1)	4	N/A	2023/07/13	Calculation	Calculation

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) This test was performed by Bureau Veritas Campobello, 6740 Campobello Road , Mississauga, ON, L5N 2L8
(2) DOC present in the sample should be considered as non-purgeable DOC. Dissolved > Total Imbalance: When applicable, Dissolved and Total results were reviewed and data quality meets acceptable levels unless otherwise noted.
(3) Silica gel clean up employed.
(4) Dissolved > Total Imbalance: When applicable, Dissolved and Total results were reviewed and data quality meets acceptable levels unless otherwise noted.
(5) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas endeavours to analyze samples as soon as possible after receipt.
(6) TOC present in the sample should be considered as non-purgeable TOC.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Your P.O. #: 478092.17104
Your Project #: 10-12832
Site#: 9445
WBS 478621.17104
Outlet Number 9445
Your C.O.C. #: 1 of 1

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/08/01
Report #: R3374241
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C352024
Received: 2023/07/11, 17:29

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Parminder Virk, Key Account Specialist
Email: Parminder.Virk@bureauveritas.com
Phone# (403)735-2235
==========
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Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C352024
Report Date: 2023/08/01

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478092.17104
Sampler Initials: CW

AT1 BTEX AND F1-F2 IN WATER (WATER)

Bureau Veritas ID		BUJ189		BUJ190		BUJ191	BUJ192		
Sampling Date		2023/07/11 13:35		2023/07/11 11:30		2023/07/11 09:30	2023/07/11 07:30		
COC Number		1 of 1		1 of 1		1 of 1	1 of 1		
	UNITS	**BH1917**	**RDL**	**BH1906**	**RDL**	**BH1963**	**BH4008 A**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	0.10	<0.10	0.10	<0.10	<0.10	0.10	B031447
Volatiles									
Benzene	mg/L	<0.00040	0.00040	1.2	0.0020	<0.00040	<0.00040	0.00040	B031087
Toluene	mg/L	<0.00040	0.00040	0.00056	0.00040	<0.00040	<0.00040	0.00040	B031087
Ethylbenzene	mg/L	<0.00040	0.00040	0.00048	0.00040	<0.00040	<0.00040	0.00040	B031087
m & p-Xylene	mg/L	<0.00080	0.00080	<0.00080	0.00080	<0.00080	<0.00080	0.00080	B031087
o-Xylene	mg/L	<0.00040	0.00040	0.00075	0.00040	<0.00040	<0.00040	0.00040	B031087
Xylenes (Total)	mg/L	<0.00089	0.00089	<0.00089	0.00089	<0.00089	<0.00089	0.00089	B030250
F1 (C6-C10) - BTEX	mg/L	<0.10	0.10	<0.10	0.10	<0.10	<0.10	0.10	B030250
F1 (C6-C10)	mg/L	<0.10	0.10	1.2	0.10	<0.10	<0.10	0.10	B031087
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	102		98		100	100		B031087
4-Bromofluorobenzene (sur.)	%	99		99		99	98		B031087
D4-1,2-Dichloroethane (sur.)	%	99		105		96	97		B031087
O-TERPHENYL (sur.)	%	99		96		101	98		B031447
RDL = Reportable Detection Limit									

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C352024
Report Date: 2023/08/01

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478092.17104
Sampler Initials: CW

ROUTINE WATER (WATER)

Bureau Veritas ID		BUJ189			BUJ190			BUJ191		
Sampling Date		2023/07/11 13:35			2023/07/11 11:30			2023/07/11 09:30		
COC Number		1 of 1			1 of 1			1 of 1		
	UNITS	**BH1917**	**RDL**	**QC Batch**	**BH1906**	**RDL**	**QC Batch**	**BH1963**	**RDL**	**QC Batch**
Calculated Parameters										
Anion Sum	meq/L	24	N/A	B030174	19	N/A	B030174	23	N/A	B030174
Cation Sum	meq/L	25	N/A	B030174	22	N/A	B030174	23	N/A	B030174
Hardness (CaCO3)	mg/L	910	0.50	B030172	960	0.50	B030172	1000	0.50	B030172
Ion Balance (% Difference)	%	1.0	N/A	B030173	6.1	N/A	B030173	0.71	N/A	B030173
Nitrate (N)	mg/L	5.1	0.10	B030176	42	0.50	B030176	7.8	0.10	B030176
Nitrate (NO3)	mg/L	23	0.44	B030175	190	0.044	B030175	34	0.44	B030175
Nitrite (NO2)	mg/L	0.056	0.033	B030175	20	0.82	B030175	0.12	0.033	B030175
Calculated Total Dissolved Solids	mg/L	1300	10	B030179	1200	10	B030179	1200	10	B030179
Misc. Inorganics										
Conductivity	uS/cm	2500	2.0	B036663	2100	2.0	B036663	2100	2.0	B036663
pH	pH	7.59	N/A	B036662	7.58	N/A	B036662	7.66	N/A	B036662
Anions										
Alkalinity (PP as CaCO3)	mg/L	<1.0	1.0	B036660	<1.0	1.0	B036660	<1.0	1.0	B036660
Alkalinity (Total as CaCO3)	mg/L	470	1.0	B036660	500	1.0	B036660	610	1.0	B036660
Bicarbonate (HCO3)	mg/L	580	1.0	B036660	620	1.0	B036660	740	1.0	B036660
Carbonate (CO3)	mg/L	<1.0	1.0	B036660	<1.0	1.0	B036660	<1.0	1.0	B036660
Hydroxide (OH)	mg/L	<1.0	1.0	B036660	<1.0	1.0	B036660	<1.0	1.0	B036660
Chloride (Cl)	mg/L	480	5.0	B036831	300	5.0	B036831	320	5.0	B036831
Sulphate (SO4)	mg/L	36	1.0	B036831	39	1.0	B036831	57	1.0	B036831
Nutrients										
Nitrite (N)	mg/L	0.017	0.010	B035662	6.2	0.25	B035663	0.038	0.010	B035662
Nitrate plus Nitrite (N)	mg/L	5.1	0.10	B035662	48	0.50	B035663	7.8	0.10	B035662
Elements										
Dissolved Calcium (Ca)	mg/L	200	0.30	B033263	190	0.30	B033263	160	0.30	B033263
Dissolved Iron (Fe)	mg/L	<0.060	0.060	B033263	<0.060	0.060	B033263	<0.060	0.060	B033263
Dissolved Magnesium (Mg)	mg/L	100	0.20	B033263	110	0.20	B033263	150	0.20	B033263
Dissolved Manganese (Mn)	mg/L	0.23	0.0040	B033263	0.78	0.0040	B033263	0.18	0.0040	B033263
Dissolved Potassium (K)	mg/L	5.2	0.30	B033263	5.2	0.30	B033263	5.5	0.30	B033263
Dissolved Sodium (Na)	mg/L	150	0.50	B033263	57	0.50	B033263	64	0.50	B033263

RDL = Reportable Detection Limit
N/A = Not Applicable

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C352024
Report Date: 2023/08/01

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478092.17104
Sampler Initials: CW

ROUTINE WATER (WATER)

Bureau Veritas ID		BUJ192		
Sampling Date		2023/07/11 07:30		
COC Number		1 of 1		
	UNITS	**BH4008 A**	**RDL**	**QC Batch**
Calculated Parameters				
Anion Sum	meq/L	10	N/A	B030174
Cation Sum	meq/L	10	N/A	B030174
Hardness (CaCO3)	mg/L	370	0.50	B030172
Ion Balance (% Difference)	%	0.75	N/A	B030173
Nitrate (N)	mg/L	0.025	0.010	B030176
Nitrate (NO3)	mg/L	0.11	0.044	B030175
Nitrite (NO2)	mg/L	<0.033	0.033	B030175
Calculated Total Dissolved Solids	mg/L	520	10	B030179
Misc. Inorganics				
Conductivity	uS/cm	950	2.0	B036663
pH	pH	8.00	N/A	B036662
Anions				
Alkalinity (PP as CaCO3)	mg/L	<1.0	1.0	B036660
Alkalinity (Total as CaCO3)	mg/L	380	1.0	B036660
Bicarbonate (HCO3)	mg/L	470	1.0	B036660
Carbonate (CO3)	mg/L	<1.0	1.0	B036660
Hydroxide (OH)	mg/L	<1.0	1.0	B036660
Chloride (Cl)	mg/L	78	1.0	B036831
Sulphate (SO4)	mg/L	21	1.0	B036831
Nutrients				
Nitrite (N)	mg/L	<0.010	0.010	B035662
Nitrate plus Nitrite (N)	mg/L	0.025	0.010	B035662
Elements				
Dissolved Calcium (Ca)	mg/L	90	0.30	B033263
Dissolved Iron (Fe)	mg/L	<0.060	0.060	B033263
Dissolved Magnesium (Mg)	mg/L	36	0.20	B033263
Dissolved Manganese (Mn)	mg/L	<0.0040	0.0040	B033263
Dissolved Potassium (K)	mg/L	5.2	0.30	B033263
Dissolved Sodium (Na)	mg/L	59	0.50	B033263

RDL = Reportable Detection Limit
N/A = Not Applicable

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C352024
Report Date: 2023/08/01

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478092.17104
Sampler Initials: CW

TOTAL KJELDAHL NITROGEN (TOTAL)

Bureau Veritas ID		BUJ189			BUJ190			BUJ191		BUJ192		
Sampling Date		2023/07/11 13:35			2023/07/11 11:30			2023/07/11 09:30		2023/07/11 07:30		
COC Number		1 of 1			1 of 1			1 of 1		1 of 1		
	UNITS	**BH1917**	**RDL**	**QC Batch**	**BH1906**	**RDL**	**QC Batch**	**BH1963**	**RDL**	**BH4008 A**	**RDL**	**QC Batch**
Calculated Parameters												
Total Total Kjeldahl Nitrogen (Calc)	mg/L	<0.10	0.10	B030253	<2.0	2.0	B030253	<0.10	0.10	0.155	0.020	B030253
Nutrients												
Total Nitrogen (N)	mg/L	4.4 (1)	0.10	B035962	42 (1)	2.0	B037351	6.8 (1)	0.10	0.18	0.020	B035962

RDL = Reportable Detection Limit
(1) Nitrogen < Nitrate: Both values fall within the method uncertainty for duplicates and are likely equivalent.

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Bureau Veritas Job #: C352024
Report Date: 2023/08/01

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478092.17104
Sampler Initials: CW

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID		BUJ189	BUJ190		BUJ191		BUJ192		
Sampling Date		2023/07/11 13:35	2023/07/11 11:30		2023/07/11 09:30		2023/07/11 07:30		
COC Number		1 of 1	1 of 1		1 of 1		1 of 1		
	UNITS	**BH1917**	**BH1906**	**QC Batch**	**BH1963**	**QC Batch**	**BH4008 A**	**RDL**	**QC Batch**
Calculated Parameters									
Sulphide (as H2S)	mg/L	0.013	0.012	B030251	0.013	B030251	<0.0020	0.0020	B030251
Misc. Inorganics									
HCl Preserved Iron (Fe+2 Ferrous)	mg/L	<0.050	<0.050	B032534	<0.050	B032534	<0.050	0.050	B032534
Dissolved Organic Carbon (C)	mg/L	3.0	4.3	B032816	2.9	B045498	2.6	0.50	B032816
Total Organic Carbon (C)	mg/L	2.8	4.5	B037616	3.3	B046308	2.1	0.50	B037616
Anions									
Total Sulphide	mg/L	0.013	0.012 (1)	B032560	0.013	B032560	<0.0018	0.0018	B032560
Nutrients									
Total Ammonia (N)	mg/L	<0.015	0.28	B037804	<0.015	B037804	<0.015	0.015	B037804

RDL = Reportable Detection Limit
(1) Sample pH <9, preservation incomplete. Due to volatility of analyte, a low bias in the results is likely.

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Bureau Veritas Job #: C352024
Report Date: 2023/08/01

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478092.17104
Sampler Initials: CW

PERMANENT GASES (WATER)

Bureau Veritas ID		BUJ189	BUJ190	BUJ191	BUJ192		
Sampling Date		2023/07/11 13:35	2023/07/11 11:30	2023/07/11 09:30	2023/07/11 07:30		
COC Number		1 of 1	1 of 1	1 of 1	1 of 1		
	UNITS	**BH1917**	**BH1906**	**BH1963**	**BH4008 A**	**RDL**	**QC Batch**
Fixed Gases							
Methane	L/m3	<0.005	0.038	<0.005	<0.005	0.005	B045503
Calculated Methane	mg/L	<0.003	0.025	<0.003	<0.003	0.003	B045506
RDL = Reportable Detection Limit							

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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	8.0°C

Report re-issued with updated outlet and WBS numbers as per client request on 2023.08.01.

Sample BUJ189 [BH1917] : NO2 (N); NO2 (N) + NO3 (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes.

Sample BUJ190 [BH1906] : Sample was analyzed past method specified hold time for NO2 (N); NO2 (N) + NO3 (N) in Water. Exceedance of hold time increases the uncertainty of test results but does not necessarily imply that results are compromised.

Sample BUJ191 [BH1963] : NO2 (N); NO2 (N) + NO3 (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes.

Sample BUJ192 [BH4008 A] : NO2 (N); NO2 (N) + NO3 (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes.

ROUTINE WATER (WATER) Comments

Sample BUJ190 [BH1906] NO2 (N); NO2 (N) + NO3 (N) in Water: Sample was originally processed within hold time. Data quality required investigation. Re-analysis was completed past recommended hold time.

Results relate only to the items tested.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C352024
Report Date: 2023/08/01

QUALITY ASSURANCE REPORT

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478092.17104
Sampler Initials: CW

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
B031087	1,4-Difluorobenzene (sur.)	2023/07/14	97	50 - 140	100	50 - 140	102	%				
B031087	4-Bromofluorobenzene (sur.)	2023/07/14	99	50 - 140	99	50 - 140	99	%				
B031087	D4-1,2-Dichloroethane (sur.)	2023/07/14	105	50 - 140	99	50 - 140	99	%				
B031447	O-TERPHENYL (sur.)	2023/07/14			96	60 - 140	100	%				
B031087	Benzene	2023/07/14	94	50 - 140	93	60 - 130	<0.00040	mg/L	NC	30		
B031087	Ethylbenzene	2023/07/14	91	50 - 140	88	60 - 130	<0.00040	mg/L	NC	30		
B031087	F1 (C6-C10)	2023/07/14	79	60 - 140	100	60 - 140	<0.10	mg/L	NC	30		
B031087	m & p-Xylene	2023/07/14	92	50 - 140	89	60 - 130	<0.00080	mg/L	NC	30		
B031087	o-Xylene	2023/07/14	93	50 - 140	89	60 - 130	<0.00040	mg/L	NC	30		
B031087	Toluene	2023/07/14	92	50 - 140	90	60 - 130	<0.00045 (1)	mg/L	NC	30		
B031447	F2 (C10-C16 Hydrocarbons)	2023/07/14			91	60 - 140	<0.10	mg/L				
B032534	HCl Preserved Iron (Fe+2 Ferrous)	2023/07/13	98	80 - 120	96	90 - 110	<0.050	mg/L	NC	20		
B032560	Total Sulphide	2023/07/13	90	80 - 120	93	80 - 120	<0.0018	mg/L	NC	20		
B032816	Dissolved Organic Carbon (C)	2023/07/18	74 (2)	80 - 120	100	80 - 120	<0.50	mg/L	7.4	20		
B033263	Dissolved Calcium (Ca)	2023/07/14	NC	80 - 120	101	80 - 120	<0.30	mg/L	0.80	20		
B033263	Dissolved Iron (Fe)	2023/07/14	112	80 - 120	104	80 - 120	<0.060	mg/L	5.0	20		
B033263	Dissolved Magnesium (Mg)	2023/07/14	NC	80 - 120	106	80 - 120	<0.20	mg/L	0.73	20		
B033263	Dissolved Manganese (Mn)	2023/07/14	NC	80 - 120	105	80 - 120	<0.0040	mg/L	1.6	20		
B033263	Dissolved Potassium (K)	2023/07/14	103	80 - 120	104	80 - 120	<0.30	mg/L	0.91	20		
B033263	Dissolved Sodium (Na)	2023/07/14	NC	80 - 120	102	80 - 120	<0.50	mg/L	1.3	20		
B035662	Nitrate plus Nitrite (N)	2023/07/16	NC	80 - 120	111	80 - 120	<0.010	mg/L	2.3	20		
B035662	Nitrite (N)	2023/07/16	105	80 - 120	102	80 - 120	<0.010	mg/L	0.17	20		
B035663	Nitrate plus Nitrite (N)	2023/07/18	NC	80 - 120	110	80 - 120	<0.010	mg/L	0.79	20		
B035663	Nitrite (N)	2023/07/18	88	80 - 120	103	80 - 120	<0.010	mg/L	NC	20		
B035962	Total Nitrogen (N)	2023/07/17	113	80 - 120	97	80 - 120	<0.020	mg/L	64 (2)	20	97	80 - 120
B036660	Alkalinity (PP as CaCO3)	2023/07/17					<1.0	mg/L	NC	20		
B036660	Alkalinity (Total as CaCO3)	2023/07/17			108	80 - 120	<1.0	mg/L	1.2	20		
B036660	Bicarbonate (HCO3)	2023/07/17					<1.0	mg/L	1.2	20		
B036660	Carbonate (CO3)	2023/07/17					<1.0	mg/L	NC	20		
B036660	Hydroxide (OH)	2023/07/17					<1.0	mg/L	NC	20		
B036662	pH	2023/07/17			100	97 - 103			1.1	N/A		

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Bureau Veritas Job #: C352024
Report Date: 2023/08/01

QUALITY ASSURANCE REPORT(CONT'D)

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478092.17104
Sampler Initials: CW

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
B036663	Conductivity	2023/07/17			108	90 - 110	<2.0	uS/cm	1.3	10		
B036831	Chloride (Cl)	2023/07/17	NC	80 - 120	98	80 - 120	<1.0	mg/L	0.63	20		
B036831	Sulphate (SO4)	2023/07/17	NC	80 - 120	102	80 - 120	<1.0	mg/L	0.48	20		
B037351	Total Nitrogen (N)	2023/07/18	NC	80 - 120	106	80 - 120	<0.020	mg/L	NC	20	111	80 - 120
B037616	Total Organic Carbon (C)	2023/07/18	93	80 - 120	104	80 - 120	<0.50	mg/L	NC	20		
B037804	Total Ammonia (N)	2023/07/18	104	80 - 120	99	80 - 120	<0.015	mg/L	NC	20		
B045498	Dissolved Organic Carbon (C)	2023/07/25	NC	80 - 120	109	80 - 120	<0.50	mg/L	0.26	20		
B045503	Methane	2023/07/20					<0.005	L/m3				
B046308	Total Organic Carbon (C)	2023/07/25	86	80 - 120	109	80 - 120	<0.50	mg/L	NC	20		

N/A = Not Applicable

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

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

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

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

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

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

(1) Detection limit raised due to interferent.

(2) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C352024
Report Date: 2023/08/01

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478092.17104
Sampler Initials: CW

VALIDATION SIGNATURE PAGE

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

Tom Mitchell, B.Sc, Supervisor, Compressed Gases

Gita Pokhrel, Laboratory Supervisor

Sandy Yuan, M.Sc., QP, Scientific Specialist

Suwan (Sze Yeung) Fock, B.Sc., Scientific Specialist

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

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Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas
4000 19st N.E, Calgary, Alberta Canada T2E 6P9 Tel (403) 291-3077 Toll-free 800-563-6266 Fax (403) 291-9468 www.bvna.com

CHAIN OF CUSTODY RECORD

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#11243 PARSONS INC.	Company Name:	#31652 PARSONS INC.	Quotation #:	C30805	Bureau Veritas Job #:	Bottle Order #:
Attention:	ACCOUNTS PAYABLE	Attention:	Rebecca Neufeld	P.O. #:	4780912.17104		699215
Address:	2751 JOHN STREET	Address:	Unit 510, 214 - 11th Avenue SW	Project:	10-12832	COC #:	Project Manager:
	MARKHAM ON L3R 2Y8		Calgary AB T2R 0K1	Project Name:		C#699215-10-01	Parminder Virk
Tel:	(905) 944-8877 Fax:	Tel:	Fax:	Site #:			
Email:	ParsonsIncAP.Parsons@parsons.com	Email:	rebecca.neufeld@parsons.com,Michelle.Patterson@par	Sampled By:	Cody Whittaker		

Regulatory Criteria:
- [x] ATI
- [ ] CCME
- [ ] Other

Special Instructions:

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects
Regular (Standard) TAT: [x]
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests..
Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details
Job Specific Rush TAT (if applies to entire submission) [ ]
Date Required:
Rush Confirmation Number: *(call lab for #)*

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	AT1 BTEX and F1-F2 in Water	VOCs in Water by HS GC/MS (Std List)	Routine Water	Ferrous Iron (Dissolved)	Methane	Ammonia-N (Total)	Total Sulphide	Carbon (Total Organic)	Carbon (DOC)	Total Kjeldahl Nitrogen (Total)	# of Bottles	Comments
1		BH1917	07/11/23	1335	GW	Y	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	12	
2		BH1906	07/11/23	1130	GW	X	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	12	
3		BH1963	07/11/23	0930	GW	Y	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	12	
4		BH4008A	07/11/23	0730	GW	Y	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	12	Methane needs to be shipped.
5																		
6																		
7																		
8																		
9																		
10																		

mcal-07-1448

C352024

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Laboratory Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
Cody Whittaker	07/11/23	1705	Maxime Carter	2023/07/11	1729	8	[ ]	7.9.8	[x] Yes [ ] No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.
** ALL SAMPLES ARE HELD FOR 60 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

White: Bureau Veritas Yellow: Client

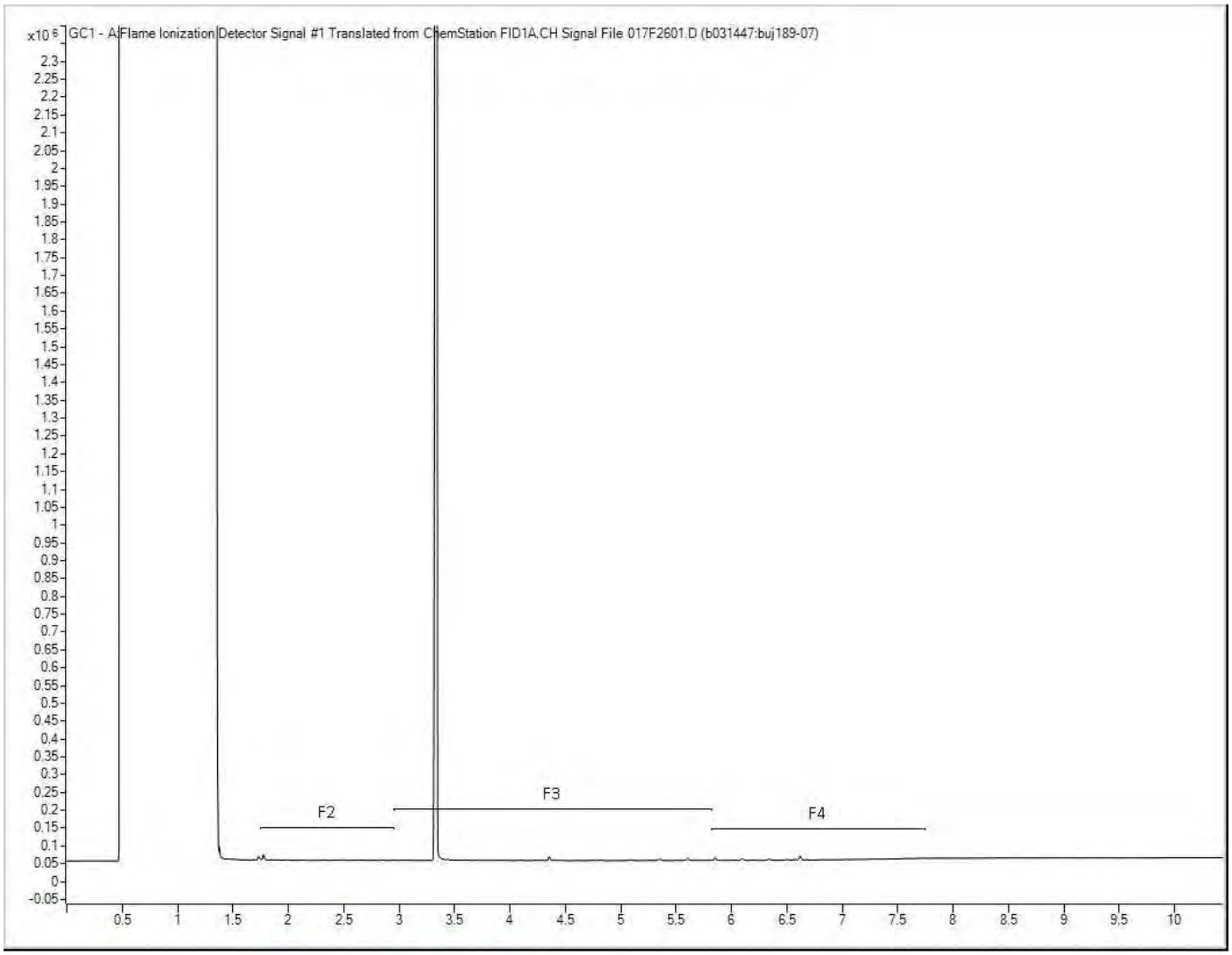
ICED - Yes

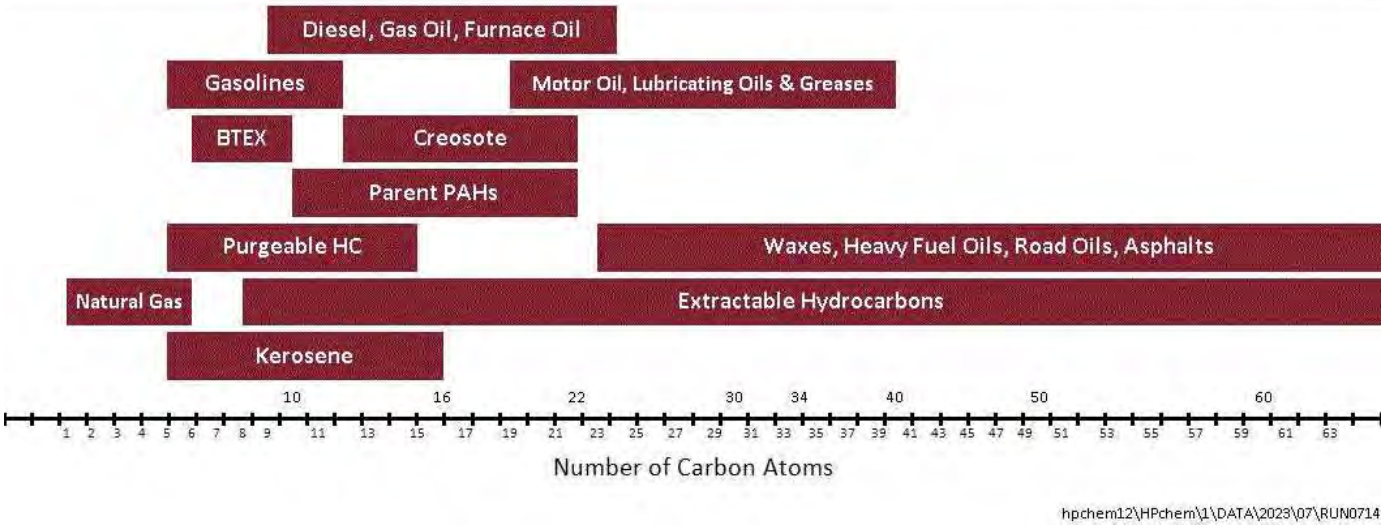
Bureau Veritas Canada (2019) Inc.

Bureau Veritas Job #: C352024
Report Date: 2023/08/01
Bureau Veritas Sample: BUJ189

PARSONS INC.
Client Project #: 10-12832
Client ID: BH1917

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





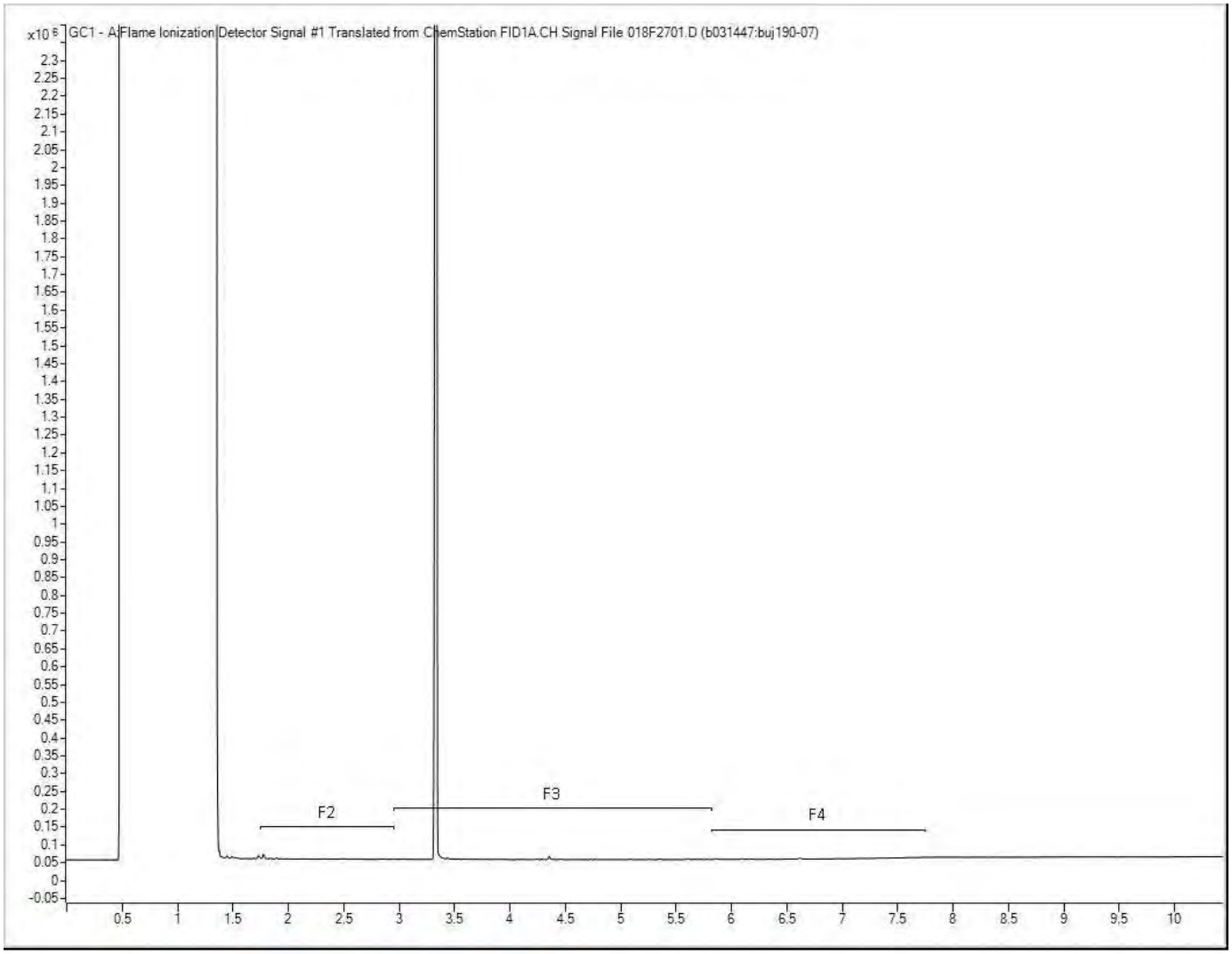
hpchem12\HPchem\1\DATA\2023\07\RUN0714

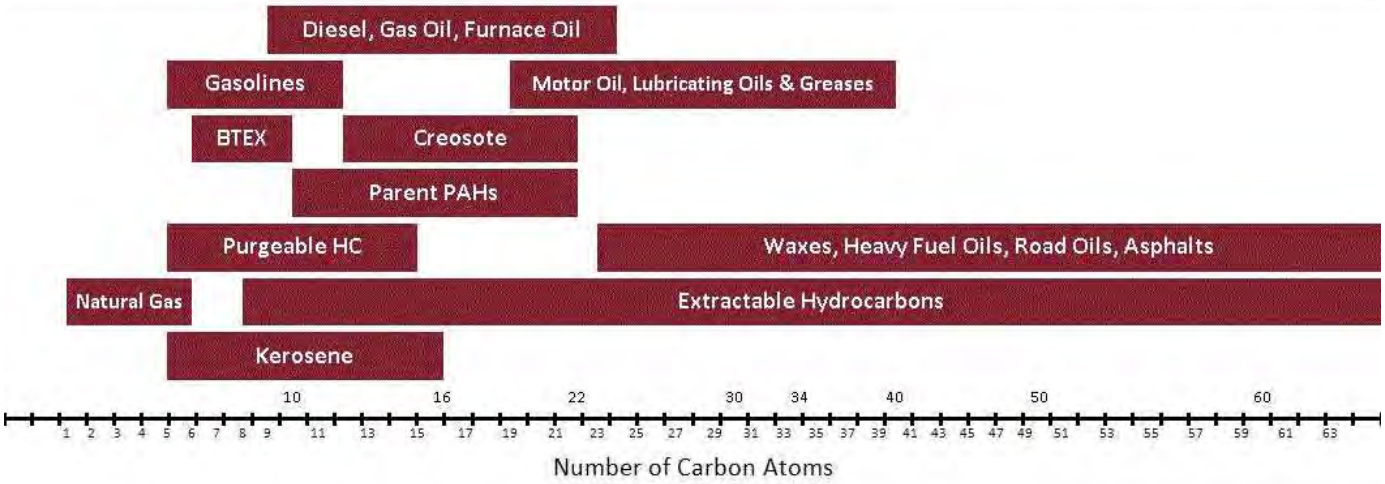
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C352024
Report Date: 2023/08/01
Bureau Veritas Sample: BUJ190

PARSONS INC.
Client Project #: 10-12832
Client ID: BH1906

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





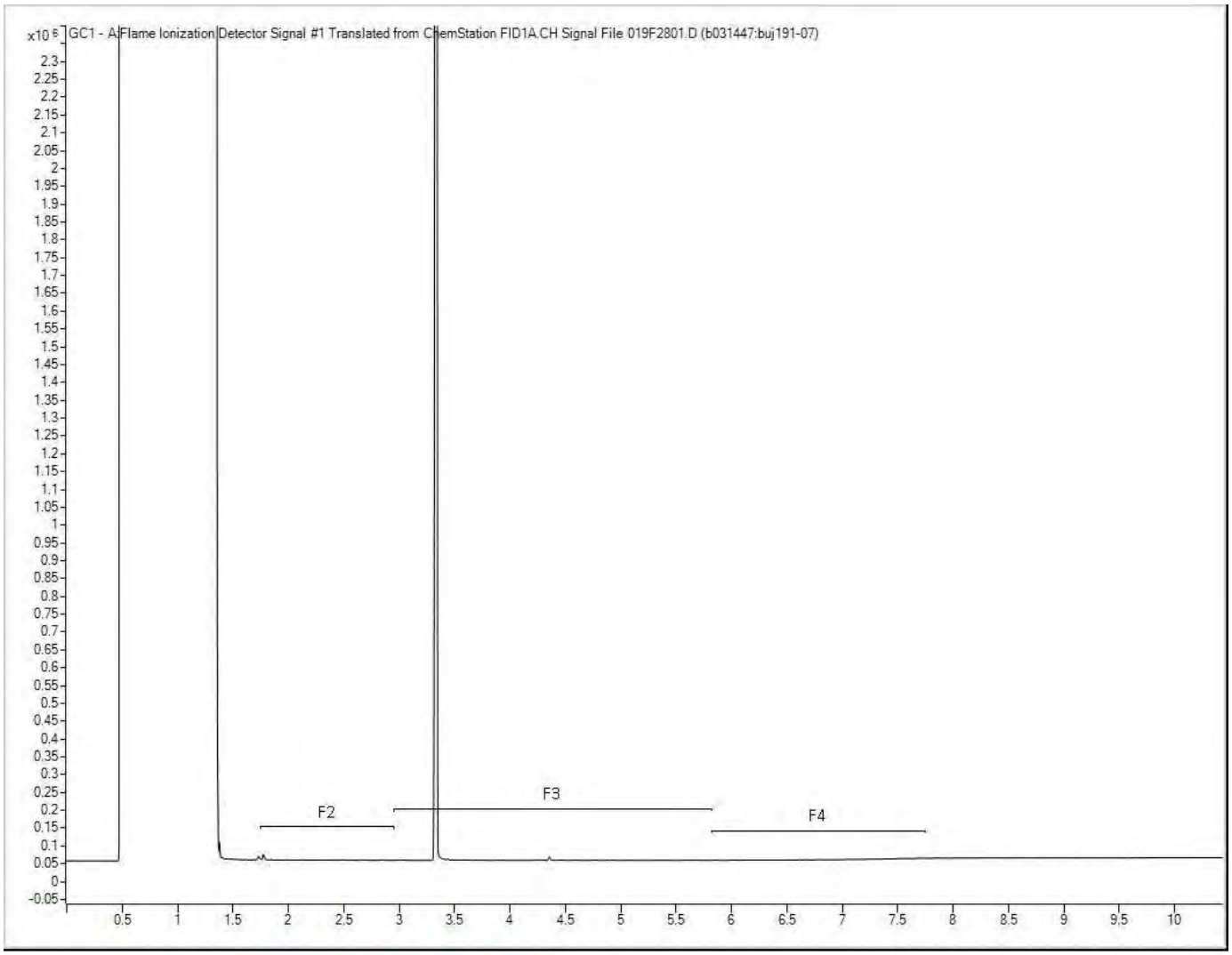
hpchem12\HPchem\1\DATA\2023\07\RUN0714

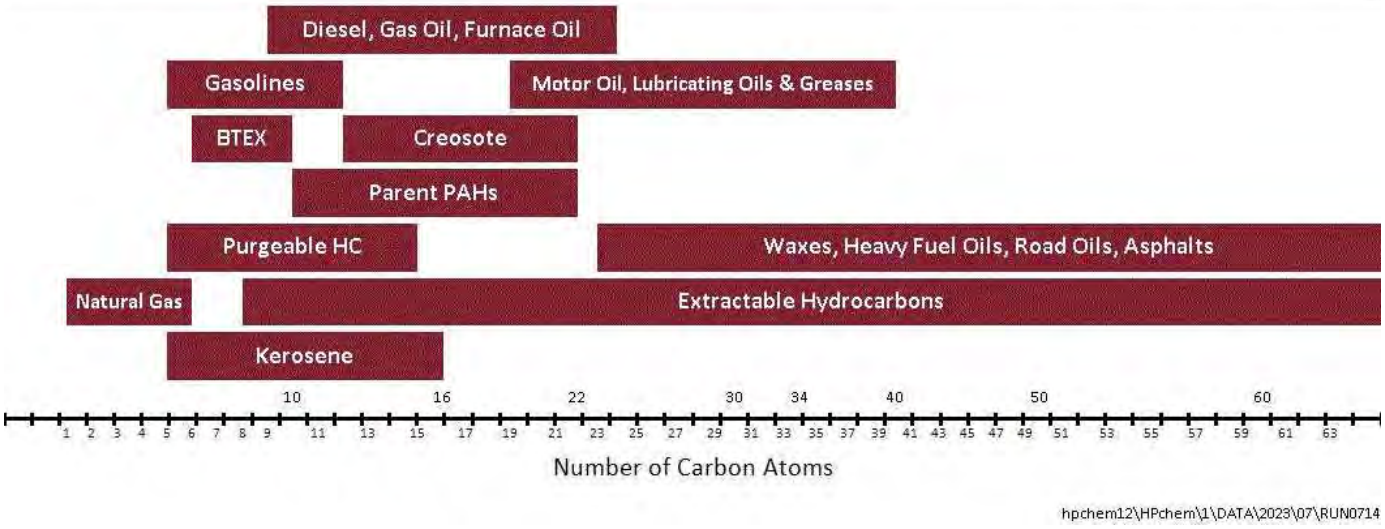
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C352024
Report Date: 2023/08/01
Bureau Veritas Sample: BUJ191

PARSONS INC.
Client Project #: 10-12832
Client ID: BH1963

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





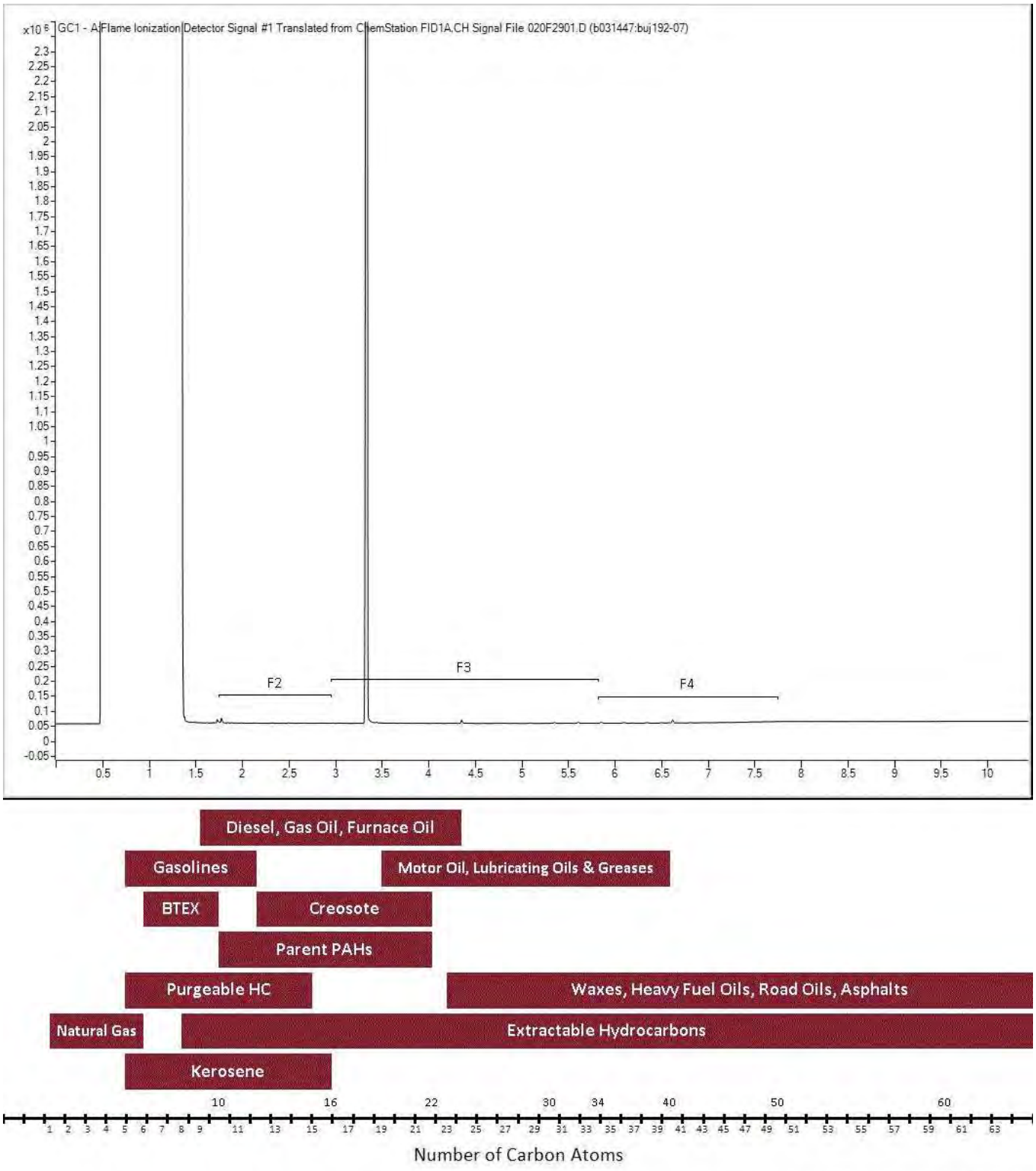
hpchem12\HPchem\1\DATA\2023\07\RUN0714

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C352024
Report Date: 2023/08/01
Bureau Veritas Sample: BUJ192

PARSONS INC.
Client Project #: 10-12832
Client ID: BH4008 A

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

DATA QUALITY REVIEW CHECKLIST

Consultant: *Parsons Inc.*

Sampling Date: *2023/7/13*

Location: *1620 14 AVE NW, CALGARY*

Laboratory : *Bureau Veritas, Calgary, AB*

Consultant Project Number: *10-12832*

Sample Submission Number: *C352931*

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

	Yes	No	NA	Comments
Surrogate Recovery	*X*			*The matrix spike recovery for trans-1,3-dichloropropene (145%) is above the control limit.*
Method Blank Concentration	*X*			
Matrix Duplicate RPD	*X*			*The matrix spike recovery for Nitrate plus Nitrite (30%) and Nitrite (71%) are below the control limit. All other lab QC met acceptance criteria.*
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
Field 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*
Has lab warranted all tests were in statistical control in CoA (Yes/No)?:	*Yes*
Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?:	*Yes*
Were all samples analyzed within hold times (Yes/No)?:	*Yes*
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): *Mackenzie Robart*

Reviewed by (Print): *Michelle Patterson*

Reviewed date: *2023/10/03*

Reviewed by (Signature):

Your P.O. #: 478621.17104
Your Project #: 10-12832
Site#: 9445
WBS 478621.17104
Outlet Number 9445
Your C.O.C. #: 699215-08-01

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/08/01
Report #: R3374090
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C352931
Received: 2023/07/13, 17:20

Sample Matrix: Water
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Alkalinity @25C (pp, total), CO3,HCO3,OH	3	N/A	2023/07/19	AB SOP-00005	SM 23 2320 B m
BTEX/F1 in Water by HS GC/MS/FID	3	N/A	2023/07/17	AB SOP-00039	CCME CWS/EPA 8260d m
F1-BTEX	3	N/A	2023/07/18		Auto Calc
Chloride/Sulphate by Auto Colourimetry	3	N/A	2023/07/18	AB SOP-00020	SM24-4500-Cl/SO4-E m
Carbon (DOC) (2)	2	N/A	2023/07/20	AB SOP-00087	MMCW 119 1996 m
Carbon (DOC) (2)	1	N/A	2023/07/26	AB SOP-00087	MMCW 119 1996 m
Conductivity @25C	3	N/A	2023/07/19	AB SOP-00005	SM 23 2510 B m
CCME Hydrocarbons in Water (F2; C10-C16) (3)	2	2023/07/15	2023/07/15	AB SOP-00037 AB SOP-00040	CCME PHC-CWS m
CCME Hydrocarbons in Water (F2; C10-C16) (3)	1	2023/07/15	2023/07/16	AB SOP-00037 AB SOP-00040	CCME PHC-CWS m
Ferrous Iron (Dissolved)	3	N/A	2023/07/14	AB SOP-00041	SM 23 3500-Fe A,B m
Sulphide (as H2S)	3	N/A	2023/07/17		Auto Calc
Hardness	3	N/A	2023/07/15		Auto Calc
Elements by ICP - Dissolved (4)	3	N/A	2023/07/14	AB SOP-00042	EPA 6010d R5 m
Ion Balance	3	N/A	2023/07/20		Auto Calc
Sum of cations, anions	3	N/A	2023/07/15		Auto Calc
Ammonia-N (Total)	1	N/A	2023/07/19	AB SOP-00007	SM 24 4500 NH3 A G m
Ammonia-N (Total)	1	N/A	2023/07/20	AB SOP-00007	SM 24 4500 NH3 A G m
Nitrate and Nitrite	1	N/A	2023/07/18		Auto Calc
Nitrate and Nitrite	2	N/A	2023/07/19		Auto Calc
NO2 (N); NO2 (N) + NO3 (N) in Water	1	N/A	2023/07/17	AB SOP-00091	SM 24 4500 NO3m
NO2 (N); NO2 (N) + NO3 (N) in Water	2	N/A	2023/07/18	AB SOP-00091	SM 24 4500 NO3m
Nitrate (as N)	1	2023/07/13	2023/07/18		Auto Calc
Nitrate (as N)	2	2023/07/13	2023/07/19		Auto Calc
pH @25°C (5)	3	N/A	2023/07/19	AB SOP-00005	SM 23 4500-H+B m
Total Sulphide	3	N/A	2023/07/17	AB SOP-00080	SM 23 4500 S2-A D Fm
Total Dissolved Solids (Calculated)	3	N/A	2023/07/20		Auto Calc
Total Trihalomethanes Calculation	3	N/A	2023/07/18		Auto Calc
Total Kjeldahl Nitrogen (Total)	3	N/A	2023/07/20	BBY WI-00033	Auto Calc
Nitrogen (Total)	2	2023/07/19	2023/07/19	AB SOP-00093	SM 24 4500-N C m
Nitrogen (Total)	1	2023/07/19	2023/07/20	AB SOP-00093	SM 24 4500-N C m

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Your P.O. #: 478621.17104
Your Project #: 10-12832
Site#: 9445
WBS 478621.17104
Outlet Number 9445
Your C.O.C. #: 699215-08-01

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/08/01
Report #: R3374090
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C352931
Received: 2023/07/13, 17:20

Sample Matrix: Water
Samples Received: 3

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Carbon (Total Organic) (6)	2	N/A	2023/07/20	AB SOP-00087	MMCW 119 1996 m
Carbon (Total Organic) (6)	1	N/A	2023/07/26	AB SOP-00087	MMCW 119 1996 m
VOCs in Water by HS GC/MS (Std List)	3	N/A	2023/07/17	AB SOP-00056	EPA 5021a/8260d m
Dissolved Gases in Water (1)	3	N/A	2023/07/20	CAM SOP-00219	RSKSOP-175 m
Dissolved Gases in Water in mg/L units (1)	3	N/A	2023/07/15	Calculation	Calculation

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) This test was performed by Bureau Veritas Campobello, 6740 Campobello Road , Mississauga, ON, L5N 2L8
(2) DOC present in the sample should be considered as non-purgeable DOC. Dissolved > Total Imbalance: When applicable, Dissolved and Total results were reviewed and data quality meets acceptable levels unless otherwise noted.
(3) Silica gel clean up employed.
(4) Dissolved > Total Imbalance: When applicable, Dissolved and Total results were reviewed and data quality meets acceptable levels unless otherwise noted.
(5) The CCME method requires pH to be analysed within 15 minutes of sampling and therefore field analysis is required for compliance. All Laboratory pH analyses in this report are reported past the CCME holding time. Bureau Veritas endeavours to analyze samples as soon as possible after receipt.
(6) TOC present in the sample should be considered as non-purgeable TOC.

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Your P.O. #: 478621.17104
Your Project #: 10-12832
Site#: 9445
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Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
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Report Date: 2023/08/01
Report #: R3374090
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C352931
Received: 2023/07/13, 17:20

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Parminder Virk, Key Account Specialist
Email: Parminder.Virk@bureauveritas.com
Phone# (403)735-2235
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Scott Cantwell, General Manager responsible for Alberta Environmental laboratory operations.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C352931
Report Date: 2023/08/01

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

AT1 BTEX AND F1-F2 IN WATER (WATER)

Bureau Veritas ID		BUN743	BUN744	BUN745		
Sampling Date		2023/07/13 13:00	2023/07/13 15:05	2023/07/13 09:00		
COC Number		699215-08-01	699215-08-01	699215-08-01		
	UNITS	**BH 1924**	**BH 1982**	**BH 1102**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon						
F2 (C10-C16 Hydrocarbons)	mg/L	0.10	<0.10	<0.10	0.10	B034558
Volatiles						
Benzene	mg/L	0.96	0.098	<0.00040	0.00040	B034641
Toluene	mg/L	0.00099	0.0012	<0.00040	0.00040	B034641
Ethylbenzene	mg/L	<0.00040	0.0037	<0.00040	0.00040	B034641
m & p-Xylene	mg/L	<0.00080	<0.00080	<0.00080	0.00080	B034641
o-Xylene	mg/L	0.070	<0.00040	<0.00040	0.00040	B034641
Xylenes (Total)	mg/L	0.070	<0.00089	<0.00089	0.00089	B033548
F1 (C6-C10) - BTEX	mg/L	0.10	<0.10	<0.10	0.10	B033548
F1 (C6-C10)	mg/L	1.1	0.18	<0.10	0.10	B034641
Surrogate Recovery (%)						
1,4-Difluorobenzene (sur.)	%	99	100	100		B034641
4-Bromofluorobenzene (sur.)	%	99	100	97		B034641
D4-1,2-Dichloroethane (sur.)	%	106	101	97		B034641
O-TERPHENYL (sur.)	%	101	101	105		B034558
RDL = Reportable Detection Limit						

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Bureau Veritas Job #: C352931
Report Date: 2023/08/01

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

ROUTINE WATER (WATER)

Bureau Veritas ID		BUN743		BUN744			BUN745		
Sampling Date		2023/07/13 13:00		2023/07/13 15:05			2023/07/13 09:00		
COC Number		699215-08-01		699215-08-01			699215-08-01		
	UNITS	BH 1924	RDL	BH 1982	RDL	QC Batch	BH 1102	RDL	QC Batch
Calculated Parameters									
Anion Sum	meq/L	50	N/A	15	N/A	B033556	33	N/A	B033556
Cation Sum	meq/L	49	N/A	15	N/A	B033556	32	N/A	B033556
Hardness (CaCO3)	mg/L	1900	0.50	700	0.50	B033553	1100	0.50	B033553
Ion Balance (% Difference)	%	1.5	N/A	0.67	N/A	B033554	1.9	N/A	B033554
Nitrate (N)	mg/L	32	0.50	7.0	0.10	B033645	8.7	0.10	B033645
Nitrate (NO3)	mg/L	140	2.2	31	0.44	B033644	38	0.44	B033644
Nitrite (NO2)	mg/L	23	0.82	0.19	0.033	B033644	<0.033	0.033	B033644
Calculated Total Dissolved Solids	mg/L	2600	25	770	10	B033562	1700	25	B033562
Misc. Inorganics									
Conductivity	uS/cm	4700	2.0	1300	2.0	B038896	3300	2.0	B038891
pH	pH	7.89	N/A	7.79	N/A	B038895	7.94	N/A	B038890
Anions									
Alkalinity (PP as CaCO3)	mg/L	<1.0	1.0	<1.0	1.0	B038893	<1.0	1.0	B038888
Alkalinity (Total as CaCO3)	mg/L	590	1.0	570	1.0	B038893	430	1.0	B038888
Bicarbonate (HCO3)	mg/L	720	1.0	690	1.0	B038893	520	1.0	B038888
Carbonate (CO3)	mg/L	<1.0	1.0	<1.0	1.0	B038893	<1.0	1.0	B038888
Hydroxide (OH)	mg/L	<1.0	1.0	<1.0	1.0	B038893	<1.0	1.0	B038888
Chloride (Cl)	mg/L	1200	25	83	1.0	B038268	830	25	B037682
Sulphate (SO4)	mg/L	45	1.0	63	1.0	B038268	31	1.0	B037682
Nutrients									
Nitrite (N)	mg/L	6.9	0.25	0.059	0.010	B037384	<0.010	0.010	B036577
Nitrate plus Nitrite (N)	mg/L	39	0.50	7.0	0.10	B037384	8.7	0.10	B036577
Elements									
Dissolved Calcium (Ca)	mg/L	260	0.30	120	0.30	B034821	230	0.30	B034821
Dissolved Iron (Fe)	mg/L	<0.060	0.060	2.3	0.060	B034821	<0.060	0.060	B034821
Dissolved Magnesium (Mg)	mg/L	300	0.20	95	0.20	B034821	130	0.20	B034821
Dissolved Manganese (Mn)	mg/L	1.6	0.0040	0.47	0.0040	B034821	0.032	0.0040	B034821
Dissolved Potassium (K)	mg/L	7.1	0.30	2.4	0.30	B034821	6.0	0.30	B034821
Dissolved Sodium (Na)	mg/L	250	0.50	26	0.50	B034821	220	0.50	B034821

RDL = Reportable Detection Limit
N/A = Not Applicable

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C352931
Report Date: 2023/08/01

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

TOTAL KJELDAHL NITROGEN (TOTAL)

Bureau Veritas ID		BUN743		BUN744	BUN745		
Sampling Date		2023/07/13 13:00		2023/07/13 15:05	2023/07/13 09:00		
COC Number		699215-08-01		699215-08-01	699215-08-01		
	UNITS	**BH 1924**	**RDL**	**BH 1982**	**BH 1102**	**RDL**	**QC Batch**
Calculated Parameters							
Total Total Kjeldahl Nitrogen (Calc)	mg/L	<1.0	1.0	<0.20	0.75	0.20	B032825
Nutrients							
Total Nitrogen (N)	mg/L	37 (1)	1.0	7.0 (1)	9.4 (2)	0.20	B038910

RDL = Reportable Detection Limit

(1) Nitrogen < Nitrate: Both values fall within the method uncertainty for duplicates and are likely equivalent.

(2) Due to the sample matrix, sample required dilution. Detection limit was adjusted accordingly.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C352931
Report Date: 2023/08/01

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

RESULTS OF CHEMICAL ANALYSES OF WATER

Bureau Veritas ID		BUN743			BUN744			BUN745		
Sampling Date		2023/07/13 13:00			2023/07/13 15:05			2023/07/13 09:00		
COC Number		699215-08-01			699215-08-01			699215-08-01		
	UNITS	**BH 1924**	**RDL**	**QC Batch**	**BH 1982**	**RDL**	**QC Batch**	**BH 1102**	**RDL**	**QC Batch**
Calculated Parameters										
Sulphide (as H2S)	mg/L	0.073	0.019	B033537	0.0058	0.0020	B033537	0.0038	0.0020	B033537
Misc. Inorganics										
HCl Preserved Iron (Fe+2 Ferrous)	mg/L	<0.050	0.050	B034393	1.8	0.050	B034393	<0.050	0.050	B034393
Dissolved Organic Carbon (C)	mg/L	5.9 (1)	2.0	B039936	3.4	0.50	B046713	2.1 (1)	2.0	B039936
Total Organic Carbon (C)	mg/L	5.8 (1)	2.0	B039914	2.6	0.50	B048015	2.4 (1)	2.0	B039914
Anions										
Total Sulphide	mg/L	0.069 (1)	0.018	B036221	0.0055	0.0018	B036221	0.0036	0.0018	B036221
Nutrients										
Total Ammonia (N)	mg/L	1.6	0.015	B039339	<0.015	0.015	B040487			

RDL = Reportable Detection Limit
(1) Detection limits raised due to sample matrix.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C352931
Report Date: 2023/08/01

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

PERMANENT GASES (WATER)

Bureau Veritas ID		BUN743	BUN744	BUN745		
Sampling Date		2023/07/13 13:00	2023/07/13 15:05	2023/07/13 09:00		
COC Number		699215-08-01	699215-08-01	699215-08-01		
	UNITS	**BH 1924**	**BH 1982**	**BH 1102**	**RDL**	**QC Batch**
Fixed Gases						
Methane	L/m3	<0.005	<0.005	<0.005	0.005	B045503
Calculated Methane	mg/L	<0.003	<0.003	<0.003	0.003	B041047
RDL = Reportable Detection Limit						

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Bureau Veritas Job #: C352931
Report Date: 2023/08/01

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		BUN743	BUN744	BUN745		
Sampling Date		2023/07/13 13:00	2023/07/13 15:05	2023/07/13 09:00		
COC Number		699215-08-01	699215-08-01	699215-08-01		
	UNITS	**BH 1924**	**BH 1982**	**BH 1102**	**RDL**	**QC Batch**
Volatiles						
Total Trihalomethanes	mg/L	<0.0013	<0.0013	<0.0013	0.0013	B033498
Bromodichloromethane	mg/L	<0.00050	<0.00050	<0.00050	0.00050	B034634
Bromoform	mg/L	<0.00050	<0.00050	<0.00050	0.00050	B034634
Bromomethane	mg/L	<0.0020	<0.0020	<0.0020	0.0020	B034634
Carbon tetrachloride	mg/L	<0.00050	<0.00050	<0.00050	0.00050	B034634
Chlorobenzene	mg/L	<0.00050	<0.00050	<0.00050	0.00050	B034634
Dibromochloromethane	mg/L	<0.0010	<0.0010	<0.0010	0.0010	B034634
Chloroethane	mg/L	<0.0010	<0.0010	<0.0010	0.0010	B034634
Chloroform	mg/L	<0.00050	<0.00050	<0.00050	0.00050	B034634
Chloromethane	mg/L	<0.0020	<0.0020	<0.0020	0.0020	B034634
1,2-dibromoethane	mg/L	<0.00020	<0.00020	<0.00020	0.00020	B034634
1,2-dichlorobenzene	mg/L	<0.00050	<0.00050	<0.00050	0.00050	B034634
1,3-dichlorobenzene	mg/L	<0.00050	<0.00050	<0.00050	0.00050	B034634
1,4-dichlorobenzene	mg/L	<0.00050	<0.00050	<0.00050	0.00050	B034634
1,1-dichloroethane	mg/L	<0.00050	<0.00050	<0.00050	0.00050	B034634
1,2-dichloroethane	mg/L	0.088	0.037	<0.00050	0.00050	B034634
1,1-dichloroethene	mg/L	<0.00050	<0.00050	<0.00050	0.00050	B034634
cis-1,2-dichloroethene	mg/L	<0.00050	<0.00050	<0.00050	0.00050	B034634
trans-1,2-dichloroethene	mg/L	<0.00050	<0.00050	<0.00050	0.00050	B034634
Dichloromethane	mg/L	<0.0020	<0.0020	<0.0020	0.0020	B034634
1,2-dichloropropane	mg/L	<0.00050	<0.00050	<0.00050	0.00050	B034634
cis-1,3-dichloropropene	mg/L	<0.00050	<0.00050	<0.00050	0.00050	B034634
trans-1,3-dichloropropene	mg/L	<0.00050	<0.00050	<0.00050	0.00050	B034634
Methyl methacrylate	mg/L	<0.00050	<0.00050	<0.00050	0.00050	B034634
Methyl-tert-butylether (MTBE)	mg/L	<0.00050	<0.00050	<0.00050	0.00050	B034634
Styrene	mg/L	<0.00050	<0.00050	<0.00050	0.00050	B034634
1,1,1,2-tetrachloroethane	mg/L	<0.0010	<0.0010	<0.0010	0.0010	B034634
1,1,2,2-tetrachloroethane	mg/L	<0.0020	<0.0020	<0.0020	0.0020	B034634
Tetrachloroethene	mg/L	<0.00050	<0.00050	<0.00050	0.00050	B034634
1,2,3-trichlorobenzene	mg/L	<0.0010	<0.0010	<0.0010	0.0010	B034634
1,2,4-trichlorobenzene	mg/L	<0.0010	<0.0010	<0.0010	0.0010	B034634
1,3,5-trichlorobenzene	mg/L	<0.00050	<0.00050	<0.00050	0.00050	B034634
RDL = Reportable Detection Limit						

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Bureau Veritas Job #: C352931
Report Date: 2023/08/01

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		BUN743	BUN744	BUN745		
Sampling Date		2023/07/13 13:00	2023/07/13 15:05	2023/07/13 09:00		
COC Number		699215-08-01	699215-08-01	699215-08-01		
	UNITS	**BH 1924**	**BH 1982**	**BH 1102**	**RDL**	**QC Batch**
1,1,1-trichloroethane	mg/L	<0.00050	<0.00050	<0.00050	0.00050	B034634
1,1,2-trichloroethane	mg/L	0.0012	<0.00050	<0.00050	0.00050	B034634
Trichloroethene	mg/L	<0.00020	<0.00020	<0.00020	0.00020	B034634
Trichlorofluoromethane	mg/L	<0.00050	<0.00050	<0.00050	0.00050	B034634
1,2,4-trimethylbenzene	mg/L	<0.00050	<0.00050	<0.00050	0.00050	B034634
1,3,5-trimethylbenzene	mg/L	<0.00050	<0.00050	<0.00050	0.00050	B034634
Vinyl chloride	mg/L	<0.00050	<0.00050	<0.00050	0.00050	B034634
Surrogate Recovery (%)						
1,4-Difluorobenzene (sur.)	%	103	101	99		B034634
4-Bromofluorobenzene (sur.)	%	88	91	92		B034634
D4-1,2-Dichloroethane (sur.)	%	128	131	112		B034634
RDL = Reportable Detection Limit						

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Bureau Veritas Job #: C352931
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PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	10.7°C

Report re-issued with updated site and outlet numbers as per client request on 2023.08.01.

Sample BUN743 [BH 1924] : NO2 (N); NO2 (N) + NO3 (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes.

Sample BUN744 [BH 1982] : NO2 (N); NO2 (N) + NO3 (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes.

Sample BUN745 [BH 1102] : NO2 (N); NO2 (N) + NO3 (N) in Water completed within five days of sampling. Data is satisfactory for compliance purposes.

Results relate only to the items tested.

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Bureau Veritas Job #: C352931
Report Date: 2023/08/01

QUALITY ASSURANCE REPORT

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
B034558	O-TERPHENYL (sur.)	2023/07/15			103	60 - 140	102	%				
B034634	1,4-Difluorobenzene (sur.)	2023/07/17	103	50 - 140	103	50 - 140	98	%				
B034634	4-Bromofluorobenzene (sur.)	2023/07/17	98	50 - 140	99	50 - 140	91	%				
B034634	D4-1,2-Dichloroethane (sur.)	2023/07/17	101	50 - 140	93	50 - 140	113	%				
B034641	1,4-Difluorobenzene (sur.)	2023/07/17	99	50 - 140	101	50 - 140	103	%				
B034641	4-Bromofluorobenzene (sur.)	2023/07/17	100	50 - 140	97	50 - 140	99	%				
B034641	D4-1,2-Dichloroethane (sur.)	2023/07/17	99	50 - 140	98	50 - 140	97	%				
B034393	HCl Preserved Iron (Fe+2 Ferrous)	2023/07/14	81	80 - 120	97	90 - 110	<0.050	mg/L	NC	20		
B034558	F2 (C10-C16 Hydrocarbons)	2023/07/15			101	60 - 140	<0.10	mg/L				
B034634	1,1,1,2-tetrachloroethane	2023/07/17	89	50 - 140	87	60 - 130	<0.0010	mg/L	NC	30		
B034634	1,1,1-trichloroethane	2023/07/17	86	50 - 140	87	60 - 130	<0.00050	mg/L	NC	30		
B034634	1,1,2,2-tetrachloroethane	2023/07/17	95	50 - 140	86	60 - 130	<0.0020	mg/L	NC	30		
B034634	1,1,2-trichloroethane	2023/07/17	96	50 - 140	88	60 - 130	<0.00050	mg/L	NC	30		
B034634	1,1-dichloroethane	2023/07/17	84	50 - 140	81	60 - 130	<0.00050	mg/L	NC	30		
B034634	1,1-dichloroethene	2023/07/17	82	50 - 140	82	60 - 130	<0.00050	mg/L	NC	30		
B034634	1,2,3-trichlorobenzene	2023/07/17	87	50 - 140	85	60 - 130	<0.0010	mg/L	NC	30		
B034634	1,2,4-trichlorobenzene	2023/07/17	85	50 - 140	84	60 - 130	<0.0010	mg/L	NC	30		
B034634	1,2,4-trimethylbenzene	2023/07/17	82	50 - 140	83	60 - 130	<0.00050	mg/L	NC	30		
B034634	1,2-dibromoethane	2023/07/17	95	50 - 140	85	60 - 130	<0.00020	mg/L	NC	30		
B034634	1,2-dichlorobenzene	2023/07/17	89	50 - 140	87	60 - 130	<0.00050	mg/L	NC	30		
B034634	1,2-dichloroethane	2023/07/17	97	50 - 140	89	60 - 130	<0.00050	mg/L	NC	30		
B034634	1,2-dichloropropane	2023/07/17	87	50 - 140	83	60 - 130	<0.00050	mg/L	NC	30		
B034634	1,3,5-trichlorobenzene	2023/07/17	88	50 - 140	88	60 - 130	<0.00050	mg/L	NC	30		
B034634	1,3,5-trimethylbenzene	2023/07/17	82	50 - 140	84	60 - 130	<0.00050	mg/L	NC	30		
B034634	1,3-dichlorobenzene	2023/07/17	85	50 - 140	84	60 - 130	<0.00050	mg/L	NC	30		
B034634	1,4-dichlorobenzene	2023/07/17	88	50 - 140	87	60 - 130	<0.00050	mg/L	NC	30		
B034634	Bromodichloromethane	2023/07/17	95	50 - 140	91	60 - 130	<0.00050	mg/L	NC	30		
B034634	Bromoform	2023/07/17	99	50 - 140	91	60 - 130	<0.00050	mg/L	NC	30		
B034634	Bromomethane	2023/07/17	103	50 - 140	91	60 - 130	<0.0020	mg/L	NC	30		
B034634	Carbon tetrachloride	2023/07/17	86	50 - 140	88	60 - 130	<0.00050	mg/L	NC	30		
B034634	Chlorobenzene	2023/07/17	88	50 - 140	86	60 - 130	<0.00050	mg/L	NC	30		

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Bureau Veritas Job #: C352931
Report Date: 2023/08/01

QUALITY ASSURANCE REPORT(CONT'D)

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
B034634	Chloroethane	2023/07/17	82	50 - 140	80	60 - 130	<0.0010	mg/L	NC	30		
B034634	Chloroform	2023/07/17	86	50 - 140	84	60 - 130	<0.00050	mg/L	NC	30		
B034634	Chloromethane	2023/07/17	85	50 - 140	79	60 - 130	<0.0020	mg/L	NC	30		
B034634	cis-1,2-dichloroethene	2023/07/17	86	50 - 140	83	60 - 130	<0.00050	mg/L	NC	30		
B034634	cis-1,3-dichloropropene	2023/07/17	137	50 - 140	115	60 - 130	<0.00050	mg/L	NC	30		
B034634	Dibromochloromethane	2023/07/17	98	50 - 140	93	60 - 130	<0.0010	mg/L	NC	30		
B034634	Dichloromethane	2023/07/17	89	50 - 140	83	60 - 130	<0.0020	mg/L	NC	30		
B034634	Methyl methacrylate	2023/07/17	95	50 - 140	84	60 - 130	<0.00050	mg/L	NC	30		
B034634	Methyl-tert-butylether (MTBE)	2023/07/17	87	50 - 140	82	60 - 130	<0.00050	mg/L	NC	30		
B034634	Styrene	2023/07/17	89	50 - 140	88	60 - 130	<0.00050	mg/L	NC	30		
B034634	Tetrachloroethene	2023/07/17	80	50 - 140	82	60 - 130	<0.00050	mg/L	NC	30		
B034634	trans-1,2-dichloroethene	2023/07/17	79	50 - 140	78	60 - 130	<0.00050	mg/L	NC	30		
B034634	trans-1,3-dichloropropene	2023/07/17	145 (1)	50 - 140	115	60 - 130	<0.00050	mg/L	NC	30		
B034634	Trichloroethene	2023/07/17	89	50 - 140	90	60 - 130	<0.00020	mg/L	NC	30		
B034634	Trichlorofluoromethane	2023/07/17	83	50 - 140	84	60 - 130	<0.00050	mg/L	NC	30		
B034634	Vinyl chloride	2023/07/17	78	50 - 140	77	60 - 130	<0.00050	mg/L	NC	30		
B034641	Benzene	2023/07/17	94	50 - 140	97	60 - 130	<0.00040	mg/L	NC	30		
B034641	Ethylbenzene	2023/07/17	89	50 - 140	91	60 - 130	<0.00040	mg/L	NC	30		
B034641	F1 (C6-C10)	2023/07/17	78	60 - 140	100	60 - 140	<0.10	mg/L	NC	30		
B034641	m & p-Xylene	2023/07/17	89	50 - 140	90	60 - 130	<0.00080	mg/L	NC	30		
B034641	o-Xylene	2023/07/17	89	50 - 140	91	60 - 130	<0.00040	mg/L	NC	30		
B034641	Toluene	2023/07/17	90	50 - 140	93	60 - 130	<0.00040	mg/L	NC	30		
B034821	Dissolved Calcium (Ca)	2023/07/14	NC	80 - 120	102	80 - 120	<0.30	mg/L	0.35	20		
B034821	Dissolved Iron (Fe)	2023/07/14	NC	80 - 120	109	80 - 120	<0.060	mg/L	0.53	20		
B034821	Dissolved Magnesium (Mg)	2023/07/14	101	80 - 120	105	80 - 120	<0.20	mg/L	0.33	20		
B034821	Dissolved Manganese (Mn)	2023/07/14	99	80 - 120	109	80 - 120	<0.0040	mg/L	0.74	20		
B034821	Dissolved Potassium (K)	2023/07/14	100	80 - 120	103	80 - 120	<0.30	mg/L	0.086	20		
B034821	Dissolved Sodium (Na)	2023/07/14	98	80 - 120	100	80 - 120	<0.50	mg/L	0.67	20		
B036221	Total Sulphide	2023/07/17	86	80 - 120	83	80 - 120	<0.0018	mg/L	NC	20		
B036577	Nitrate plus Nitrite (N)	2023/07/18	86	80 - 120	105	80 - 120	<0.010	mg/L	NC	20		
B036577	Nitrite (N)	2023/07/18	95	80 - 120	102	80 - 120	<0.010	mg/L	NC	20		

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Bureau Veritas Job #: C352931
Report Date: 2023/08/01

QUALITY ASSURANCE REPORT(CONT'D)

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
B037384	Nitrate plus Nitrite (N)	2023/07/18	30 (1)	80 - 120	106	80 - 120	<0.010	mg/L	NC	20		
B037384	Nitrite (N)	2023/07/18	71 (1)	80 - 120	102	80 - 120	<0.010	mg/L	NC	20		
B037682	Chloride (Cl)	2023/07/18	98	80 - 120	100	80 - 120	<1.0	mg/L	2.0	20		
B037682	Sulphate (SO4)	2023/07/18	94	80 - 120	103	80 - 120	<1.0	mg/L	1.4	20		
B038268	Chloride (Cl)	2023/07/18	100	80 - 120	101	80 - 120	<1.0	mg/L	11	20		
B038268	Sulphate (SO4)	2023/07/18	112	80 - 120	103	80 - 120	<1.0	mg/L	NC	20		
B038888	Alkalinity (PP as CaCO3)	2023/07/19					<1.0	mg/L	NC	20		
B038888	Alkalinity (Total as CaCO3)	2023/07/19			108	80 - 120	<1.0	mg/L	2.8	20		
B038888	Bicarbonate (HCO3)	2023/07/19					<1.0	mg/L	2.8	20		
B038888	Carbonate (CO3)	2023/07/19					<1.0	mg/L	NC	20		
B038888	Hydroxide (OH)	2023/07/19					<1.0	mg/L	NC	20		
B038890	pH	2023/07/19			101	97 - 103			0.28	N/A		
B038891	Conductivity	2023/07/19			101	90 - 110	<2.0	uS/cm	0.47	10		
B038893	Alkalinity (PP as CaCO3)	2023/07/19					<1.0	mg/L	NC	20		
B038893	Alkalinity (Total as CaCO3)	2023/07/19			108	80 - 120	<1.0	mg/L	1.1	20		
B038893	Bicarbonate (HCO3)	2023/07/19					<1.0	mg/L	1.1	20		
B038893	Carbonate (CO3)	2023/07/19					<1.0	mg/L	NC	20		
B038893	Hydroxide (OH)	2023/07/19					<1.0	mg/L	NC	20		
B038895	pH	2023/07/19			100	97 - 103			0.076	N/A		
B038896	Conductivity	2023/07/19			103	90 - 110	<2.0	uS/cm	0.70	10		
B038910	Total Nitrogen (N)	2023/07/19	108	80 - 120	107	80 - 120	<0.020	mg/L	4.4	20	110	80 - 120
B039339	Total Ammonia (N)	2023/07/19	99	80 - 120	103	80 - 120	<0.015	mg/L	2.5	20		
B039914	Total Organic Carbon (C)	2023/07/20	99	80 - 120	101	80 - 120	<0.50	mg/L	NC	20		
B039936	Dissolved Organic Carbon (C)	2023/07/20	91	80 - 120	106	80 - 120	<0.50	mg/L	18	20		
B040487	Total Ammonia (N)	2023/07/20	99	80 - 120	102	80 - 120	<0.015	mg/L	NC	20		
B045503	Methane	2023/07/20					<0.005	L/m3				
B046713	Dissolved Organic Carbon (C)	2023/07/26	89	80 - 120	99	80 - 120	<0.50	mg/L	0.82	20		

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Bureau Veritas Job #: C352931
Report Date: 2023/08/01

QUALITY ASSURANCE REPORT(CONT'D)

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

			Matrix Spike		Spiked Blank		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
B048015	Total Organic Carbon (C)	2023/07/26	94	80 - 120	102	80 - 120	<0.50	mg/L	NC	20		

N/A = Not Applicable

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

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

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

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

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

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

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C352931
Report Date: 2023/08/01

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17104
Sampler Initials: RN

VALIDATION SIGNATURE PAGE

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

Tom Mitchell, B.Sc, Supervisor, Compressed Gases

Elizabeth Chacko, Senior Analyst, Organics

Janet Gao, B.Sc., QP, Supervisor, Organics

Sandy Yuan, M.Sc., QP, Scientific Specialist

Suwan (Sze Yeung) Fock, B.Sc., Scientific Specialist

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

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4000 19st N.E. Calgary, Alberta Canada T2E 6P8 Tel (403) 291-3077 Toll-free 800-563-6266 Fax (403) 291-9468 www.bvna.com

Page 1 of 1

CHAIN OF CUSTODY RECORD

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#11243 PARSONS INC.	Company Name:	#31652 PARSONS INC.	Quotation #:	C30805	Bureau Veritas Job #: C352931	Bottle Order #: 699215
Attention:	ACCOUNTS PAYABLE	Attention:	Rebecca Neufeld	P.O. #:	478621-17104		
Address:	2751 JOHN STREET	Address:	Unit 510, 214 - 11th Avenue SW	Project:	10-12832		
	MARKHAM ON L3R 2Y8		Calgary AB T2R 0K1	Project Name:		COC #: C#699215-08-01	Project Manager: Parminder Virk
Tel:	(905) 944-8877 Fax:	Tel:	Fax:	Site #:			
Email:	ParsonsIncAP.Parsons@parsons.com	Email:	rebecca.neufeld@parsons.com,Michelle.Patterson@par	Sampled By:	Rebecca Neufeld		

Regulatory Criteria:
- [x] ATI
- [ ] CCME
- [ ] Other

Special Instructions: If any questions please call 403-629-3746

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	AT1 BTEX and F1-F2 in Water	VOCs in Water by HS GC/MS (Std List)	Routine Water	Ferrous Iron (Dissolved)	Methane	Ammonia-N (Total)	Total Sulphide	Carbon (Total Organic)	Carbon (DOC)	Total Kjeldahl Nitrogen (Total)	# of Bottles	Comments
1		BH 1924	July 13/23	1300	Water	Y	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	12	
2		BH 1982	July 13/23	1505	Water	Y	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	12	
3		BH 1102	July 13/23	900	Water	Y	✓	✓	✓	✓	✓	✓ (RN)	✓	✓	✓	✓	11	No ammonia bottle broke on site, no spares
4																		
5																		
6																		
7																		
8																		
9																		
10																		

mcal-07-179

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT: [X]
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details

Job Specific Rush TAT (if applies to entire submission) [ ]
Date Required:
Rush Confirmation Number: (call lab for #)

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Laboratory Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
Rebecca Neufeld	23/07/13	5:12	Nirkamal Soni	23/07/13	17:20	0	[ ]	8, 11, 13	[x] Yes [ ] No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.
** ALL SAMPLES ARE HELD FOR 60 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

White: Bureau Veritas Yellow: Client

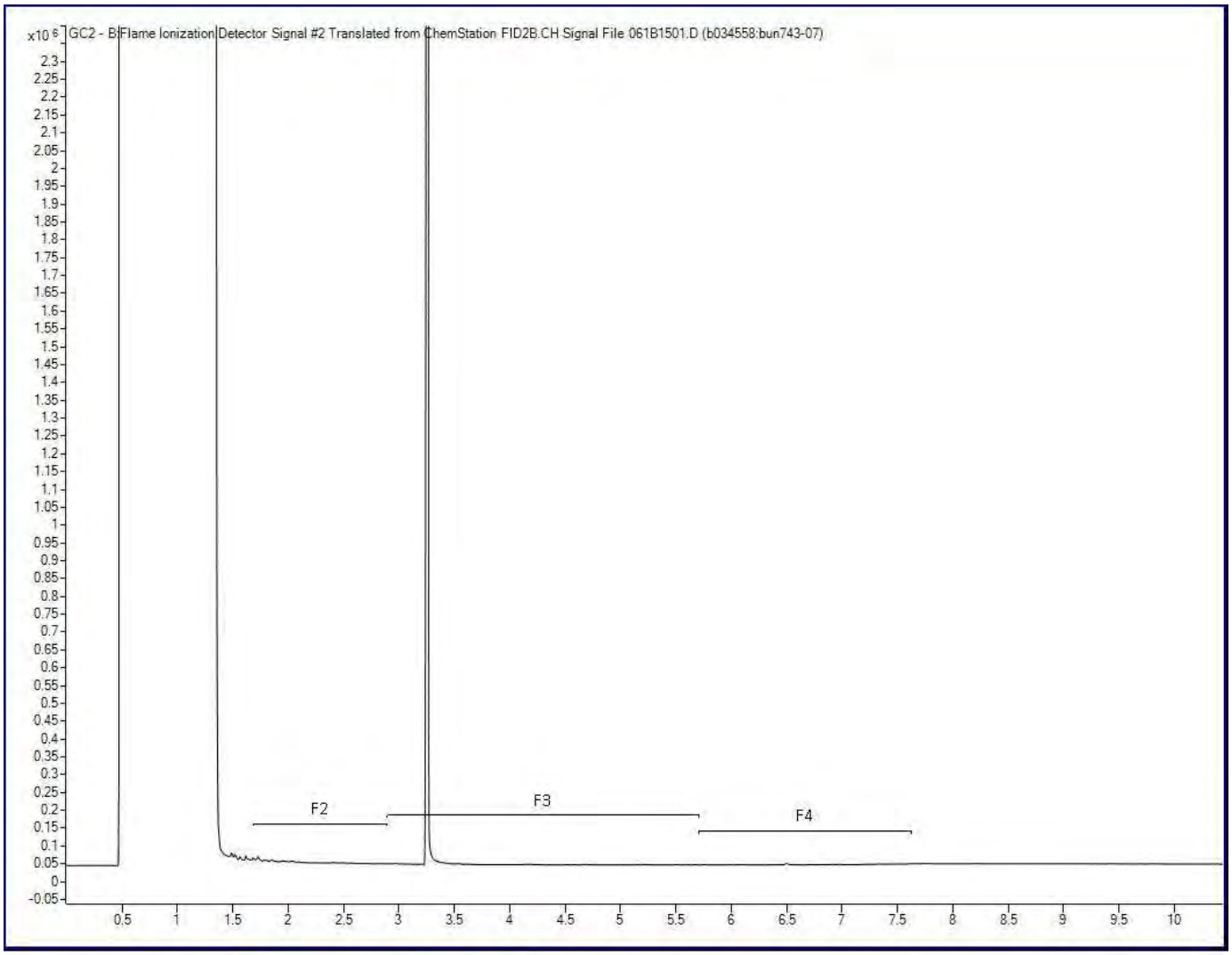
Ice - Y

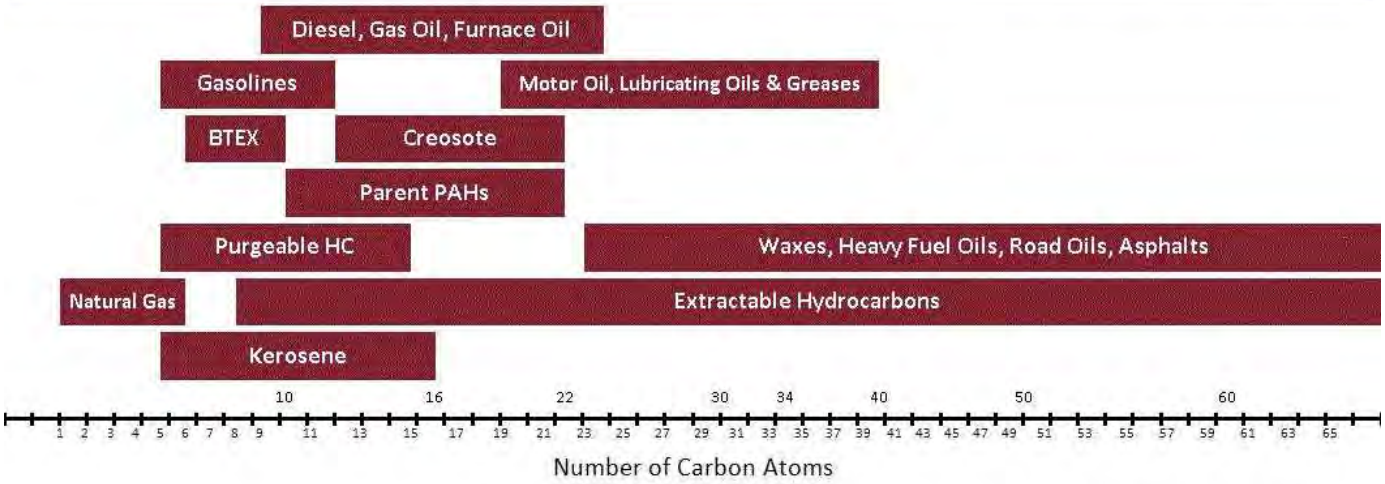
Bureau Veritas Canada (2019) Inc.

Bureau Veritas Job #: C352931
Report Date: 2023/08/01
Bureau Veritas Sample: BUN743

PARSONS INC.
Client Project #: 10-12832
Client ID: BH 1924

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





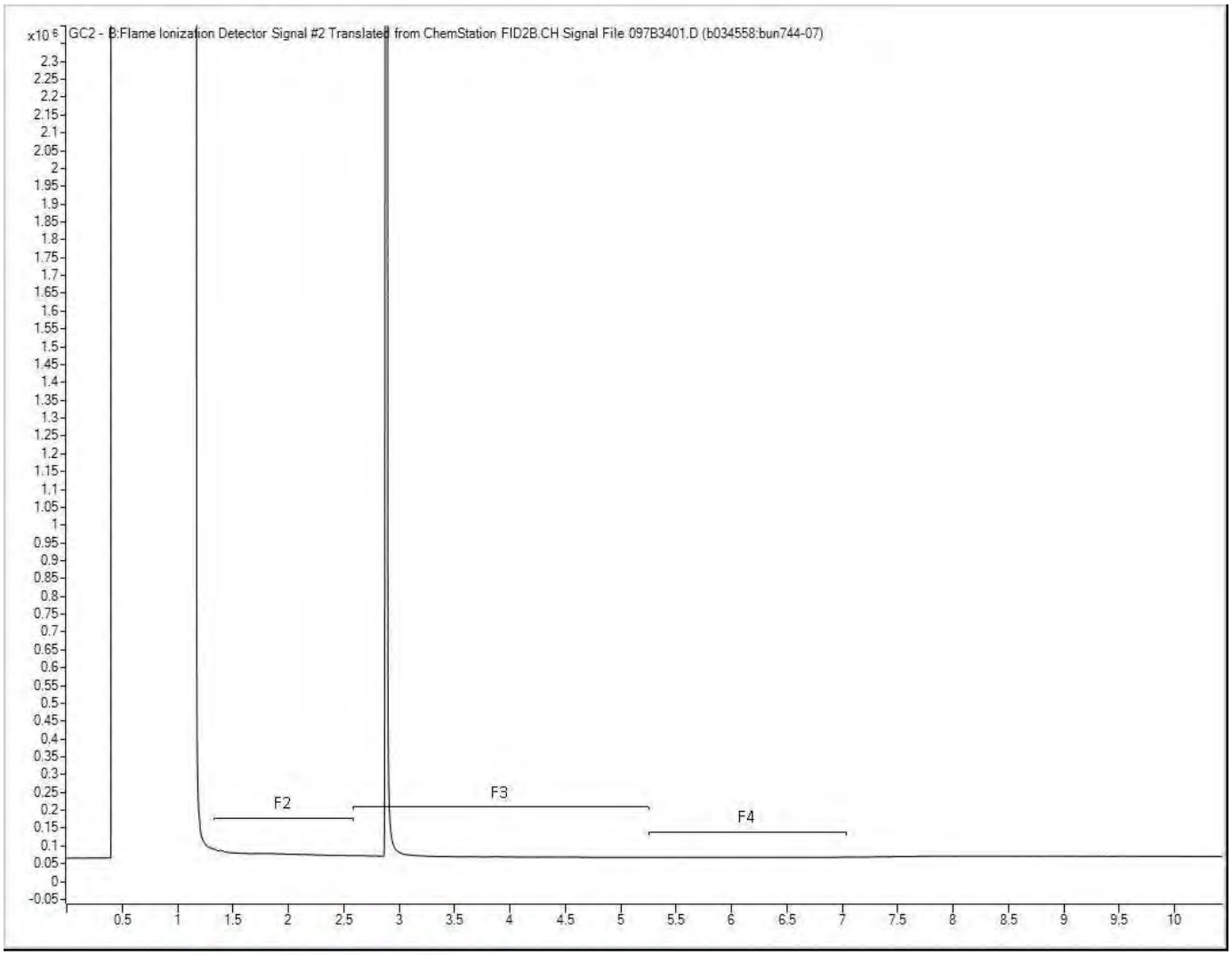
hpchem6\HPchem\1\DATA\2023\07\RUN0716

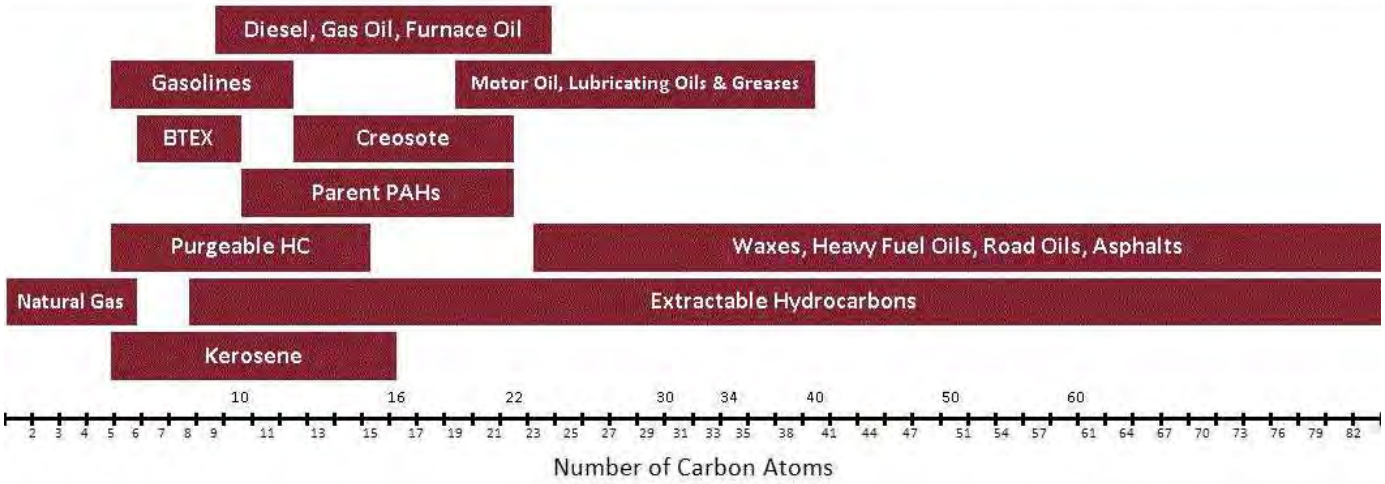
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C352931
Report Date: 2023/08/01
Bureau Veritas Sample: BUN744

PARSONS INC.
Client Project #: 10-12832
Client ID: BH 1982

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





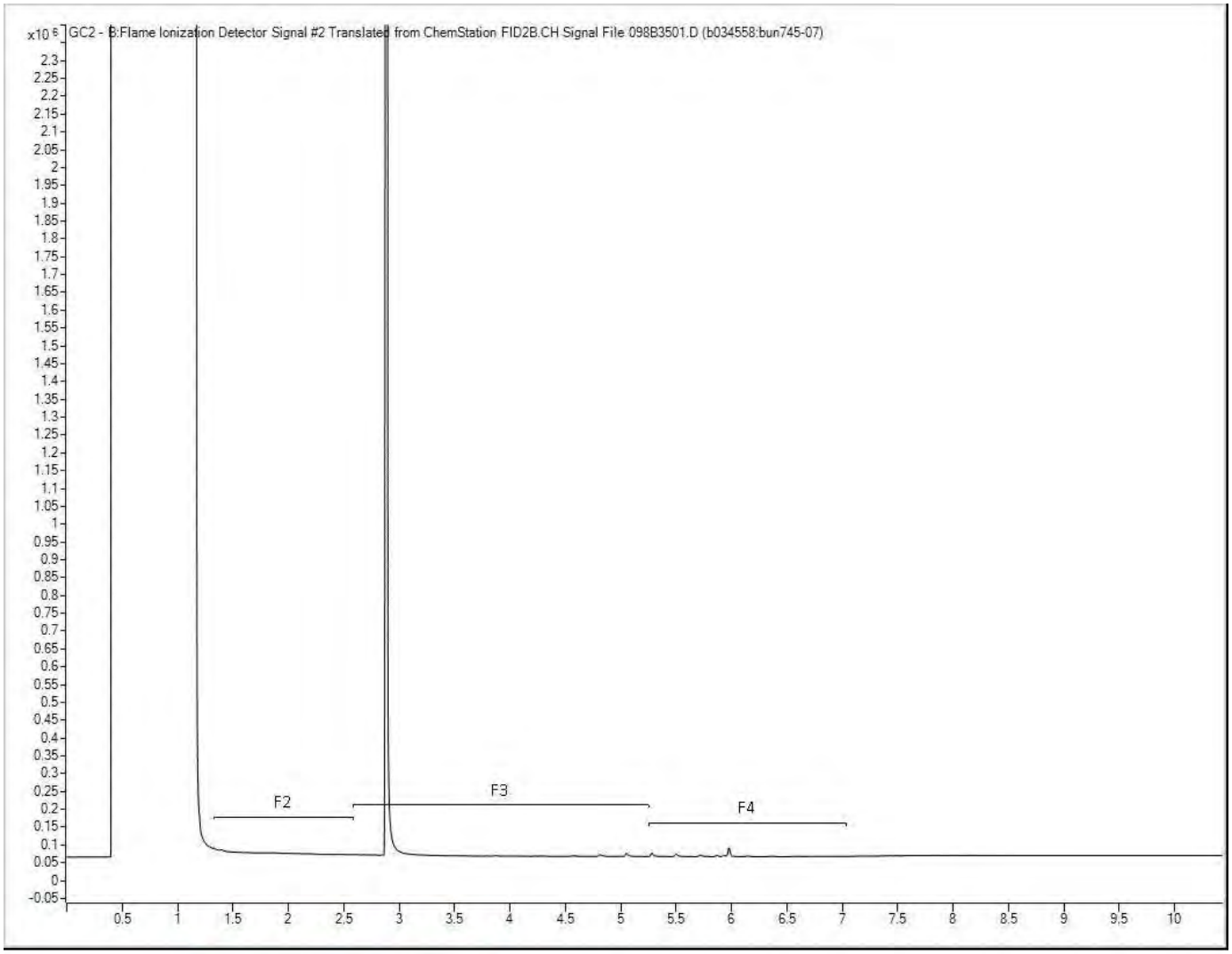
hpchem7\HPchem\1\DATA\2023\07\RUN0715

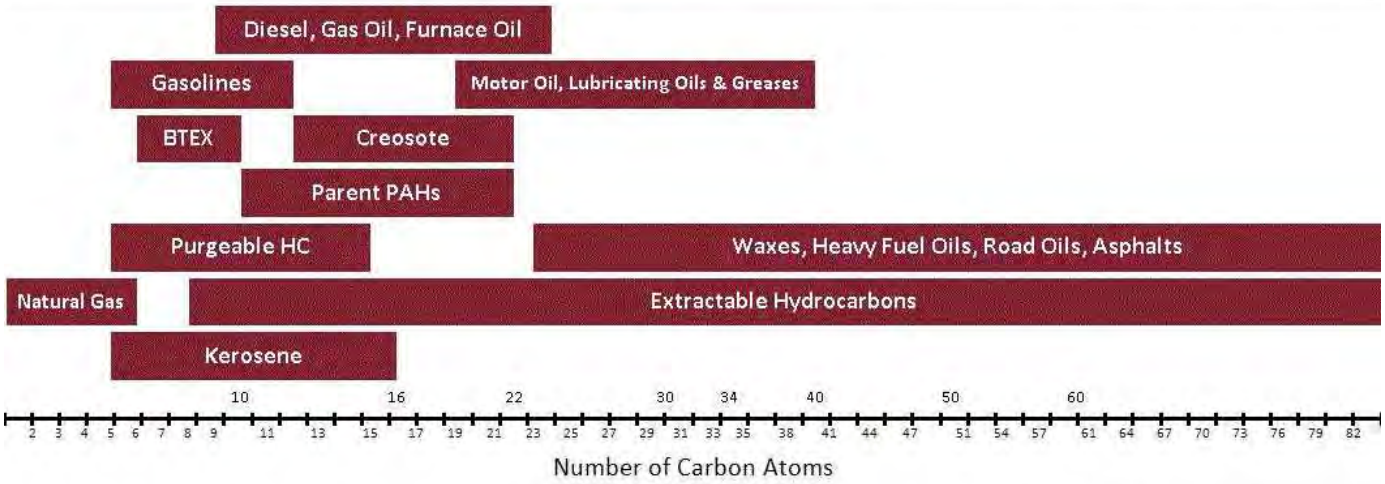
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C352931
Report Date: 2023/08/01
Bureau Veritas Sample: BUN745

PARSONS INC.
Client Project #: 10-12832
Client ID: BH 1102

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





hpchem7\HPchem\1\DATA\2023\07\RUN0715

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

DATA QUALITY REVIEW CHECKLIST

Consultant: *Parsons Inc.*

Sampling Date: *2023/7/19*

Location: *1620 14 AVE NW, CALGARY*

Laboratory : *Bureau Veritas, Calgary, AB*

Consultant Project Number: *10-12832*

Sample Submission Number: *C354737*

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
Field Blank Concentration	*X*			*All field QC samples have met the acceptable RPD limits.*
Trip Blank Concentration	*X*			
Field Duplicate RPD	*X*			

Has CoA been signed off (Yes/No)?:	*Yes*
Has lab warranted all tests were in statistical control in CoA (Yes/No)?:	*Yes*
Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?:	*Yes*
Were all samples analyzed within hold times (Yes/No)?:	*Yes*
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): *Mackenzie Robart*

Reviewed by (Print): *Michelle Patterson*

Reviewed date: *2023/10/03*

Reviewed by (Signature):

Your P.O. #: 478621.17102
Your Project #: 10-12832
Outlet Number 84374
Your C.O.C. #: 699821-27-01, 699821-29-01

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/09/29
Report #: R3403450
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C354737
Received: 2023/07/19, 14:45

Sample Matrix: Water
Samples Received: 7

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/F1 in Water by HS GC/MS/FID	7	N/A	2023/07/21	AB SOP-00039	CCME CWS/EPA 8260d m
F1-BTEX	7	N/A	2023/07/22		Auto Calc
CCME Hydrocarbons in Water (F2; C10-C16) (1)	7	2023/07/20	2023/07/21	AB SOP-00037 AB SOP-00040	CCME PHC-CWS m
Total Trihalomethanes Calculation	7	N/A	2023/07/21		Auto Calc
VOCs in Water by HS GC/MS (Std List)	7	N/A	2023/07/21	AB SOP-00056	EPA 5021a/8260d m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Silica gel clean up employed.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Your P.O. #: 478621.17102
Your Project #: 10-12832
Outlet Number 84374
Your C.O.C. #: 699821-27-01, 699821-29-01

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/09/29
Report #: R3403450
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C354737
Received: 2023/07/19, 14:45

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Parminder Virk, Key Account Specialist
Email: Parminder.Virk@bureauveritas.com
Phone# (403)735-2235
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Scott Cantwell, General Manager responsible for Alberta Environmental laboratory operations.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C354737
Report Date: 2023/09/29

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17102
Sampler Initials: RN

AT1 BTEX AND F1-F2 IN WATER (WATER)

Bureau Veritas ID		BUX867	BUX870	BUX873	BUX874	BUX875	BUX876		
Sampling Date		2023/07/19 10:30	2023/07/19 10:45	2023/07/19 11:15	2023/07/19 11:00	2023/07/19 11:00	2023/07/19 11:30		
COC Number		699821-29-01	699821-29-01	699821-29-01	699821-29-01	699821-29-01	699821-29-01		
	UNITS	**BH 1912**	**BH 1913**	**BH 1914**	**BH 1915**	**DUP-01**	**BH 1916**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	<0.10	<0.10	0.30	0.29	<0.10	0.10	B039878
Volatiles									
Benzene	mg/L	0.0070	<0.00040	<0.00040	0.20	0.20	<0.00040	0.00040	B040572
Toluene	mg/L	<0.00040	<0.00040	<0.00040	0.0011	0.0011	<0.00040	0.00040	B040572
Ethylbenzene	mg/L	<0.00040	<0.00040	<0.00040	0.0024	0.0024	<0.00040	0.00040	B040572
m & p-Xylene	mg/L	<0.00080	<0.00080	<0.00080	0.0060	0.0061	<0.00080	0.00080	B040572
o-Xylene	mg/L	<0.00040	<0.00040	<0.00040	0.011	0.011	<0.00040	0.00040	B040572
Xylenes (Total)	mg/L	<0.00089	<0.00089	<0.00089	0.017	0.017	<0.00089	0.00089	B040139
F1 (C6-C10) - BTEX	mg/L	<0.10	<0.10	<0.10	0.90	0.90	<0.10	0.10	B040139
F1 (C6-C10)	mg/L	<0.10	<0.10	<0.10	1.1	1.1	<0.10	0.10	B040572
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	104	103	104	103	104	104		B040572
4-Bromofluorobenzene (sur.)	%	92	92	93	93	94	94		B040572
D4-1,2-Dichloroethane (sur.)	%	93	88	88	93	94	89		B040572
O-TERPHENYL (sur.)	%	95	96	99	97	96	96		B039878
RDL = Reportable Detection Limit									

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C354737
Report Date: 2023/09/29

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17102
Sampler Initials: RN

AT1 BTEX AND F1-F2 IN WATER (WATER)

Bureau Veritas ID		BUX877		
Sampling Date		2023/07/19 10:30		
COC Number		699821-29-01		
	UNITS	**TRIP BLANK-01**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon				
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	0.10	B039878
Volatiles				
Benzene	mg/L	<0.00040	0.00040	B040572
Toluene	mg/L	<0.00040	0.00040	B040572
Ethylbenzene	mg/L	<0.00040	0.00040	B040572
m & p-Xylene	mg/L	<0.00080	0.00080	B040572
o-Xylene	mg/L	<0.00040	0.00040	B040572
Xylenes (Total)	mg/L	<0.00089	0.00089	B040139
F1 (C6-C10) - BTEX	mg/L	<0.10	0.10	B040139
F1 (C6-C10)	mg/L	<0.10	0.10	B040572
Surrogate Recovery (%)				
1,4-Difluorobenzene (sur.)	%	104		B040572
4-Bromofluorobenzene (sur.)	%	94		B040572
D4-1,2-Dichloroethane (sur.)	%	90		B040572
O-TERPHENYL (sur.)	%	96		B039878
RDL = Reportable Detection Limit				

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C354737
Report Date: 2023/09/29

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17102
Sampler Initials: RN

VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		BUX867	BUX870	BUX873	BUX874	BUX875	BUX876		
Sampling Date		2023/07/19 10:30	2023/07/19 10:45	2023/07/19 11:15	2023/07/19 11:00	2023/07/19 11:00	2023/07/19 11:30		
COC Number		699821-29-01	699821-29-01	699821-29-01	699821-29-01	699821-29-01	699821-29-01		
	UNITS	**BH 1912**	**BH 1913**	**BH 1914**	**BH 1915**	**DUP-01**	**BH 1916**	**RDL**	**QC Batch**
Volatiles									
Total Trihalomethanes	mg/L	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	0.0013	B040141
1,2-dichloroethane	mg/L	0.014	<0.00050	<0.00050	0.037	0.039	<0.00050	0.00050	B040583
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	100	98	99	102	103	99		B040583
4-Bromofluorobenzene (sur.)	%	92	91	93	94	95	93		B040583
D4-1,2-Dichloroethane (sur.)	%	119	115	110	117	122	111		B040583
RDL = Reportable Detection Limit									

Bureau Veritas ID		BUX877		
Sampling Date		2023/07/19 10:30		
COC Number		699821-29-01		
	UNITS	**TRIP BLANK-01**	**RDL**	**QC Batch**
Volatiles				
Total Trihalomethanes	mg/L	<0.0013	0.0013	B040141
1,2-dichloroethane	mg/L	<0.00050	0.00050	B040583
Surrogate Recovery (%)				
1,4-Difluorobenzene (sur.)	%	98		B040583
4-Bromofluorobenzene (sur.)	%	93		B040583
D4-1,2-Dichloroethane (sur.)	%	118		B040583
RDL = Reportable Detection Limit				

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C354737
Report Date: 2023/09/29

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17102
Sampler Initials: RN

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	15.7°C

V2: Toggle request. Toggle off all except 1,2-Dichloroethane.SRM 23/09/29.

Results relate only to the items tested.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C354737
Report Date: 2023/09/29

QUALITY ASSURANCE REPORT

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17102
Sampler Initials: RN

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
B039878	O-TERPHENYL (sur.)	2023/07/21	101	60 - 140	101	60 - 140	100	%		
B040572	1,4-Difluorobenzene (sur.)	2023/07/21	104	50 - 140	103	50 - 140	105	%		
B040572	4-Bromofluorobenzene (sur.)	2023/07/21	92	50 - 140	94	50 - 140	94	%		
B040572	D4-1,2-Dichloroethane (sur.)	2023/07/21	102	50 - 140	87	50 - 140	95	%		
B040583	1,4-Difluorobenzene (sur.)	2023/07/21	103	50 - 140	103	50 - 140	98	%		
B040583	4-Bromofluorobenzene (sur.)	2023/07/21	99	50 - 140	99	50 - 140	92	%		
B040583	D4-1,2-Dichloroethane (sur.)	2023/07/21	98	50 - 140	97	50 - 140	115	%		
B039878	F2 (C10-C16 Hydrocarbons)	2023/07/21	106	60 - 140	104	60 - 140	<0.10	mg/L	NC	30
B040572	Benzene	2023/07/21	NC	50 - 140	99	60 - 130	<0.00040	mg/L	2.6	30
B040572	Ethylbenzene	2023/07/21	97	50 - 140	98	60 - 130	<0.00040	mg/L	2.7	30
B040572	F1 (C6-C10)	2023/07/21	81	60 - 140	99	60 - 140	<0.10	mg/L	26	30
B040572	m & p-Xylene	2023/07/21	100	50 - 140	100	60 - 130	<0.00080	mg/L	2.0	30
B040572	o-Xylene	2023/07/21	98	50 - 140	98	60 - 130	<0.00040	mg/L	NC	30
B040572	Toluene	2023/07/21	97	50 - 140	98	60 - 130	<0.00040	mg/L	4.7	30
B040583	1,2-dichloroethane	2023/07/21	92	50 - 140	96	60 - 130	<0.00050	mg/L		

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

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

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

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

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

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

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C354737
Report Date: 2023/09/29

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17102
Sampler Initials: RN

VALIDATION SIGNATURE PAGE

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

Jared Wiseman, B.Sc., P.Chem., QP, Senior Analyst, Organics

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

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Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas
4000 19st N.E, Calgary, Alberta Canada T2E 6P8 Tel:(403) 291-3077 Toll-free:800-563-6266 Fax:(403) 291-9468 www.bvna.com

Page 1 of 1

CHAIN OF CUSTODY RECORD

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#11243 PARSONS INC.	Company Name:	#31652 PARSONS INC.	Quotation #:	C30805	Bureau Veritas Job #:	Bottle Order #: 699821
Attention:	ACCOUNTS PAYABLE	Attention:	Rebecca Neufeld	P.O. #:	478621.17102		
Address:	2751 JOHN STREET MARKHAM ON L3R 2Y8	Address:	Unit 510, 214 - 11th Avenue SW Calgary AB T2R 0K1	Project:	10-12832	COC #:	Project Manager:
Tel:	(905) 944-8877 Fax:	Tel:	Fax:	Project Name:		C#699821-29-01	Parminder Virk
Email:	ParsonsIncAP.Parsons@parsons.com	Email:	rebecca.neufeld@parsons.com,Michelle.Patterson@par	Site #:	~~10-12832~~ RN		
				Sampled By:	Rebecca Neufeld		

Regulatory Criteria:
- [x] ATI
- [ ] CCME
- [ ] Other

Special Instructions: If there are any concerns please call 403-629-3746

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

19-Jul-23 14:45
Parminder Virk
C354737
mcal-07-662
JJO INS-0003

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects
ndard) TAT: [x]
d if Rush TAT is not specified):
= 5-7 Working days for most tests..
tandard TAT for certain tests are > 5 days - contact your Project Manager for
Rush TAT (if applies to entire submission) [ ]
t:
on Number: (call lab for #)

SAMPLES MUST BE KEPT COOL (< 10ºC) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	AT1 BTEX and F1-F2 in Water	1,2 Dichloroethane	Routine Water	# of Bottles	Comments
1		BH1912	July 19/23	10:30am	GW	N	✓	✓		3	Sediment Present
2		BH 1913	↓	10:45	GW	N	✓	✓		3	Sediment Present
3		BH 1914	↓	11:15	GW	N	✓	✓		3	Sediment Present
4		BH 1915	↓	11:00	GW	N	✓	✓		3	
5		DUP-01	↓	11:00	GW	N	✓	✓		3	
6		BH 1916	July 19/23	11:30	GW	N	✓	✓		3	Sediment Present
7		Trip Blank-01	July 19/23	10:30	GW	N	✓	✓		3	
8											
9											
10											

RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Laboratory Use Only: Time Sensitive	Temperature (ºC) on Receipt	Custody Seal Intact on Cooler?
R Neufeld Rebecca Neufeld	23/07/19	2:21pm	SMEETA MATHEWS	2023/07/19	14:45	0	[ ]	16/18/13	[x] Yes [ ] No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.
** ALL SAMPLES ARE HELD FOR 60 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

ICE - YES

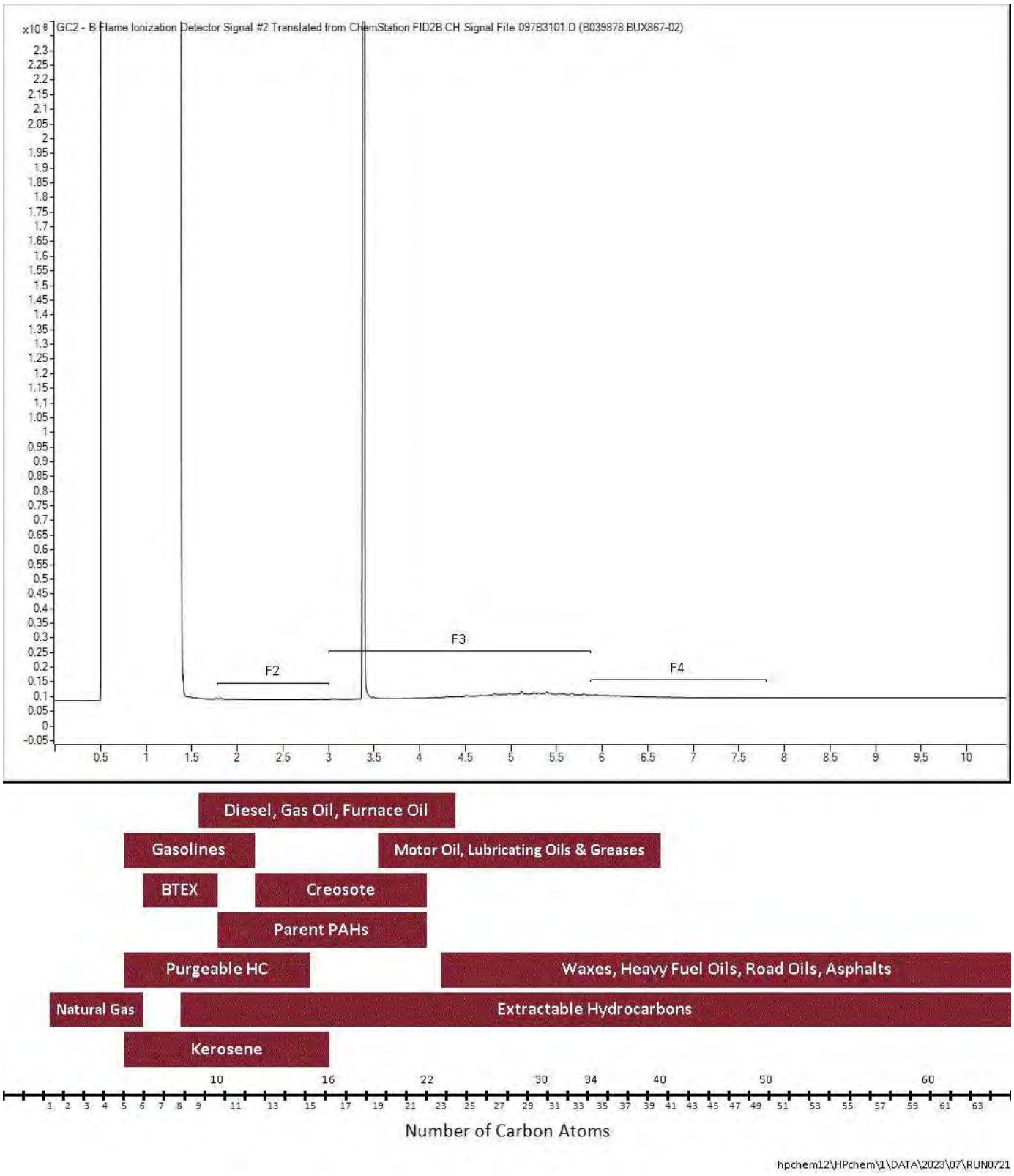
White: Bureau Veritas Yellow: Client

Bureau Veritas Canada (2019) Inc.

Bureau Veritas Job #: C354737
Report Date: 2023/09/29
Bureau Veritas Sample: BUX867

PARSONS INC.
Client Project #: 10-12832
Client ID: BH 1912

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram

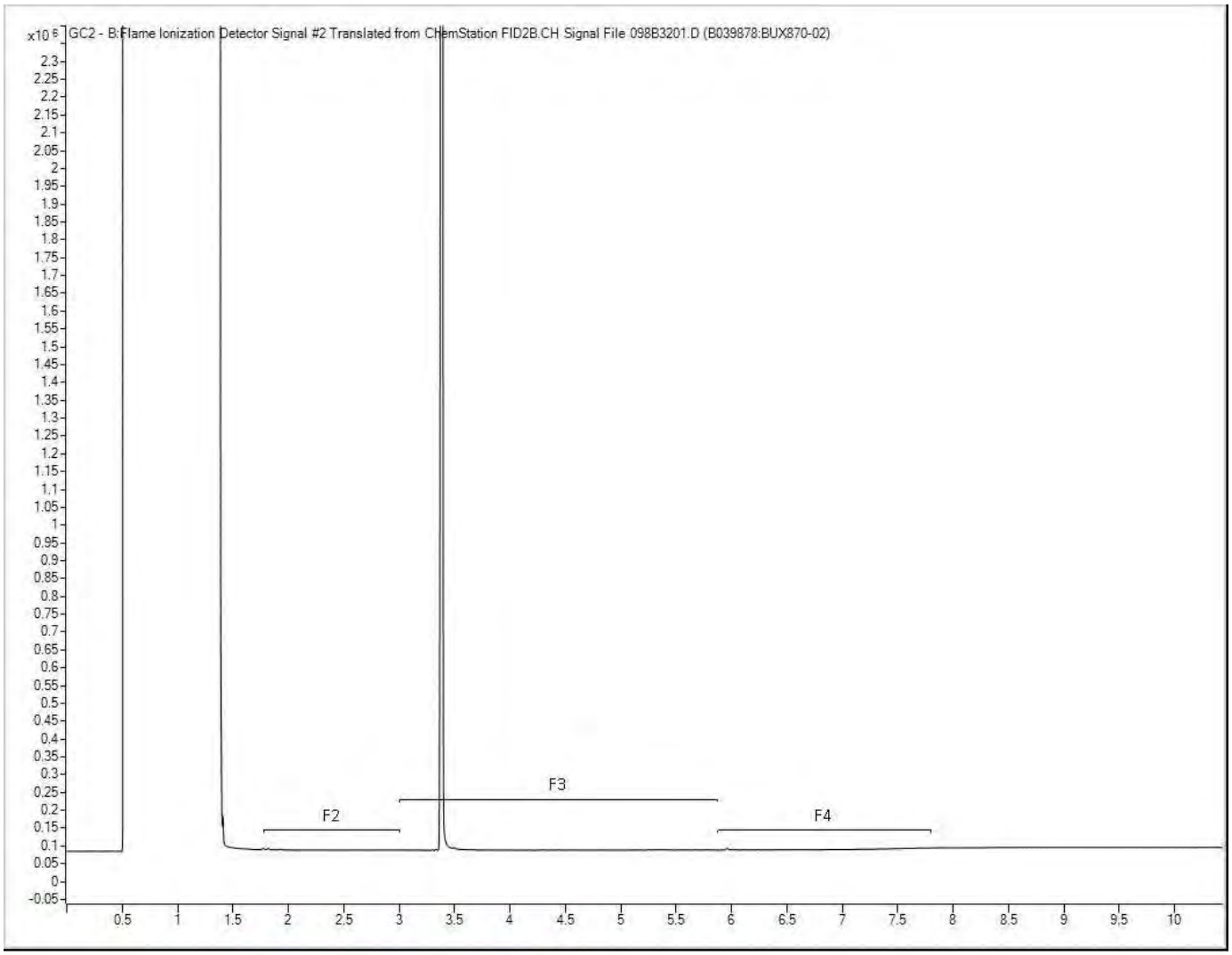


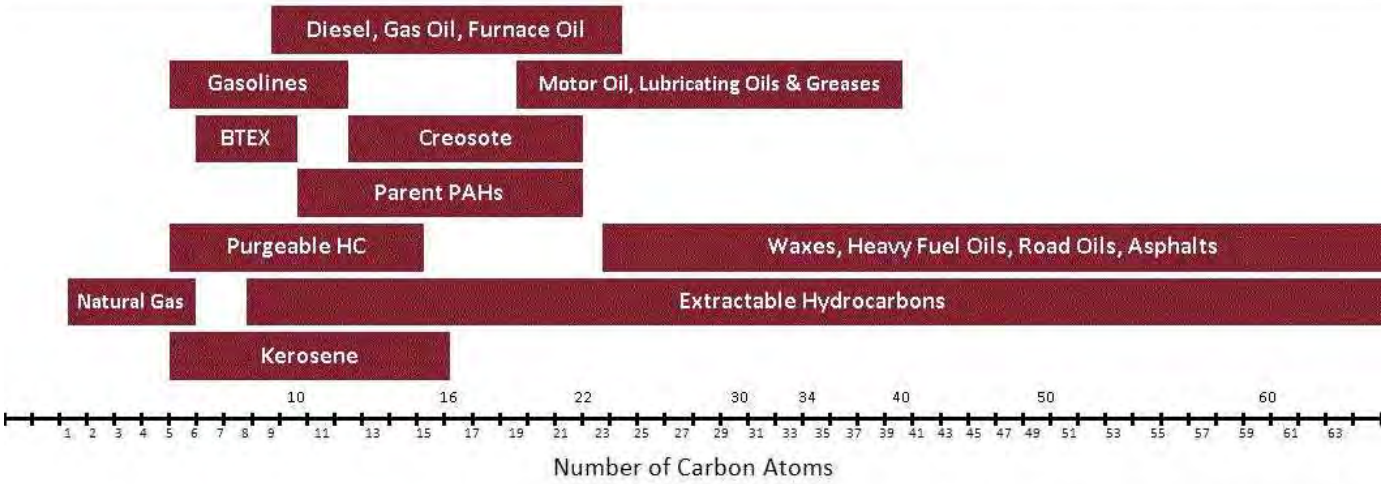
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C354737
Report Date: 2023/09/29
Bureau Veritas Sample: BUX870

PARSONS INC.
Client Project #: 10-12832
Client ID: BH 1913

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





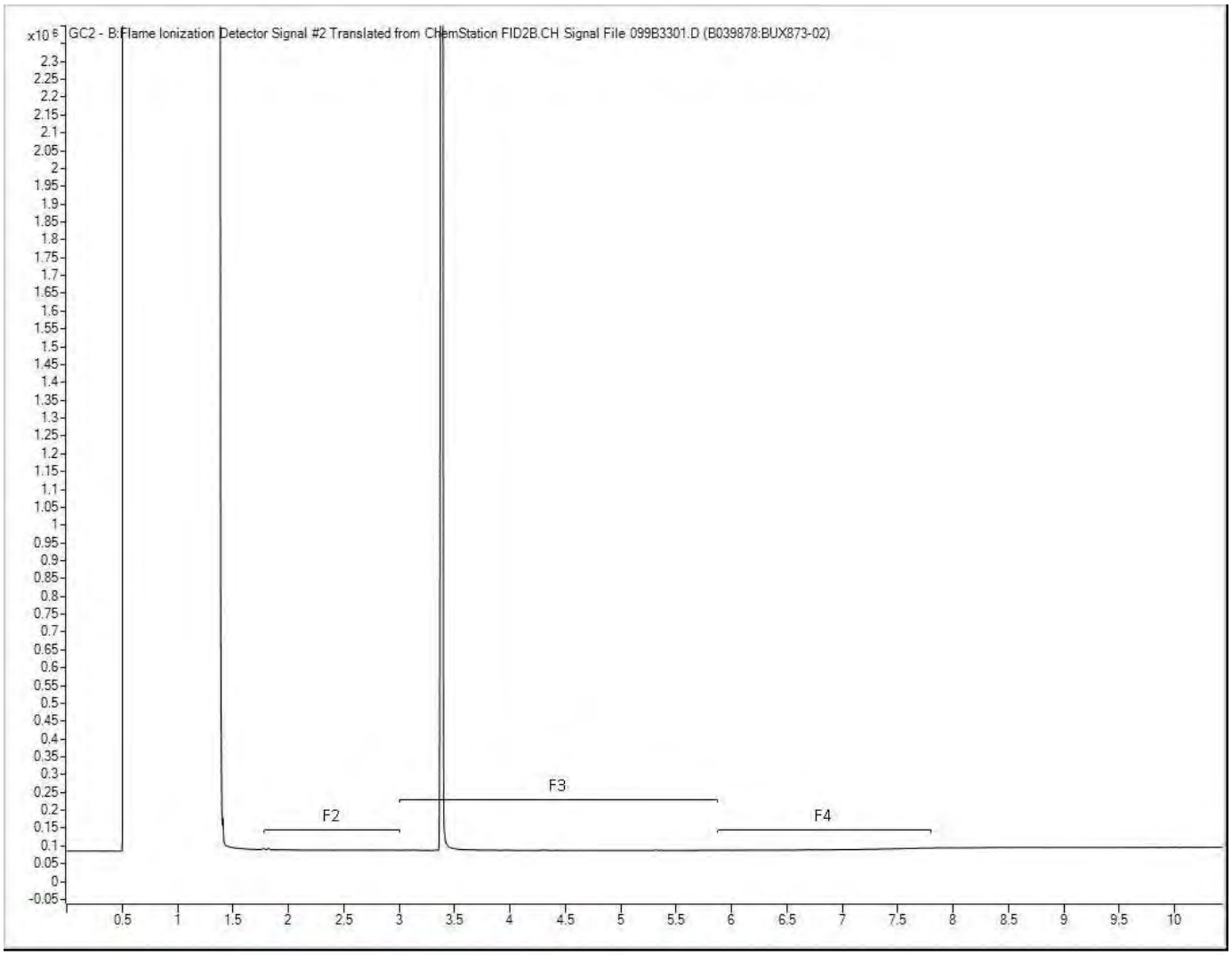
hpchem12\HPchem\1\DATA\2023\07\RUN0721

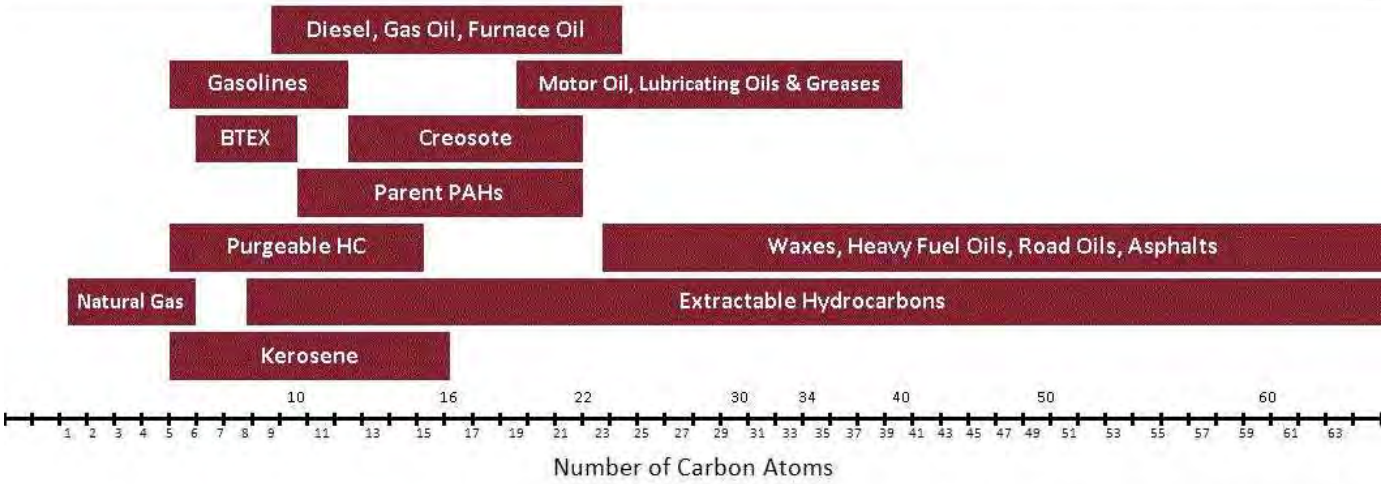
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C354737
Report Date: 2023/09/29
Bureau Veritas Sample: BUX873

PARSONS INC.
Client Project #: 10-12832
Client ID: BH 1914

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





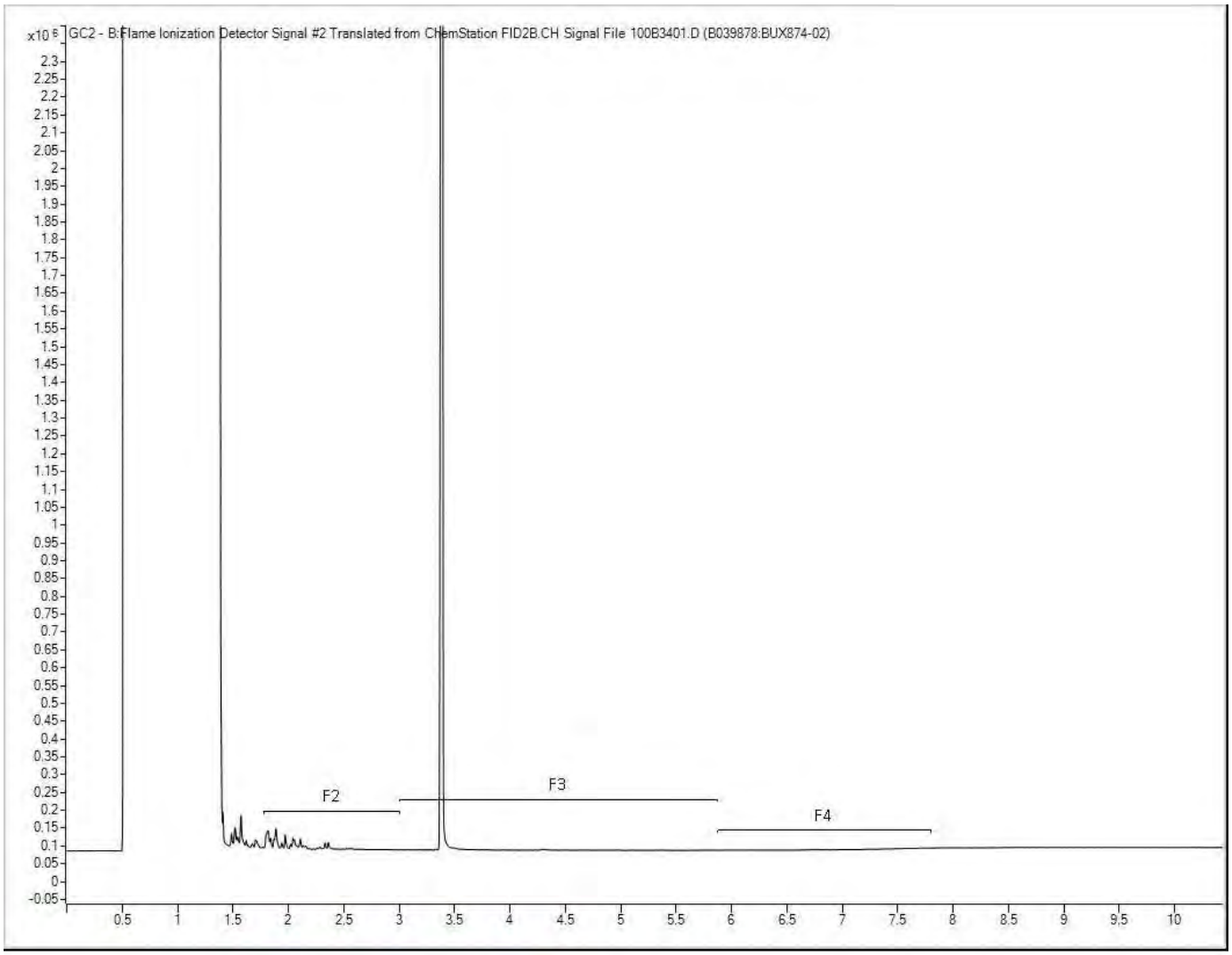
hpchem12\HPchem\1\DATA\2023\07\RUN0721

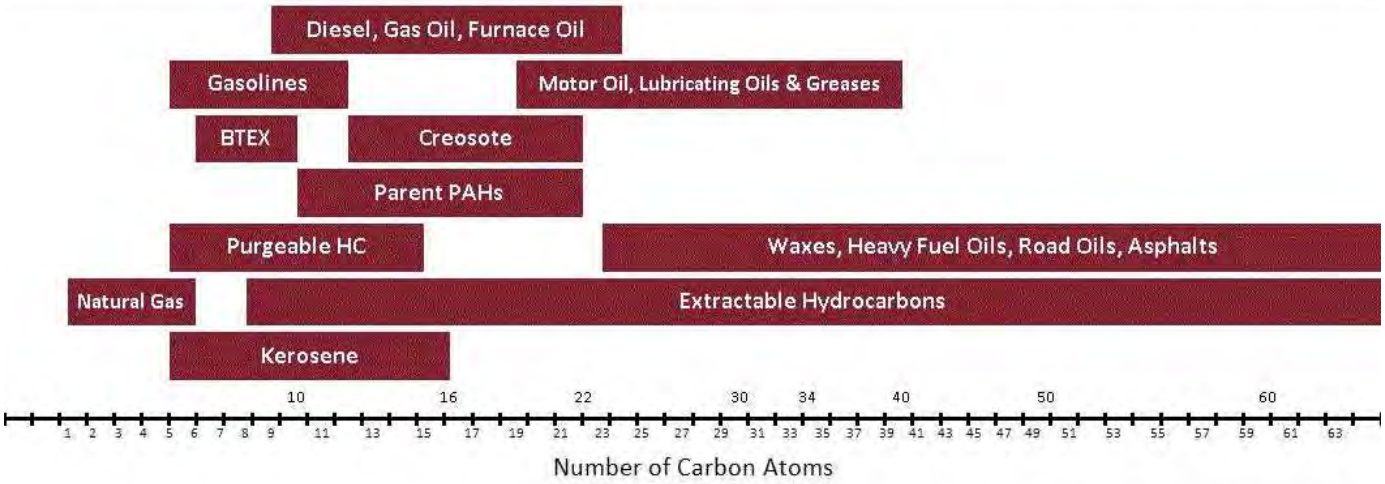
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C354737
Report Date: 2023/09/29
Bureau Veritas Sample: BUX874

PARSONS INC.
Client Project #: 10-12832
Client ID: BH 1915

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





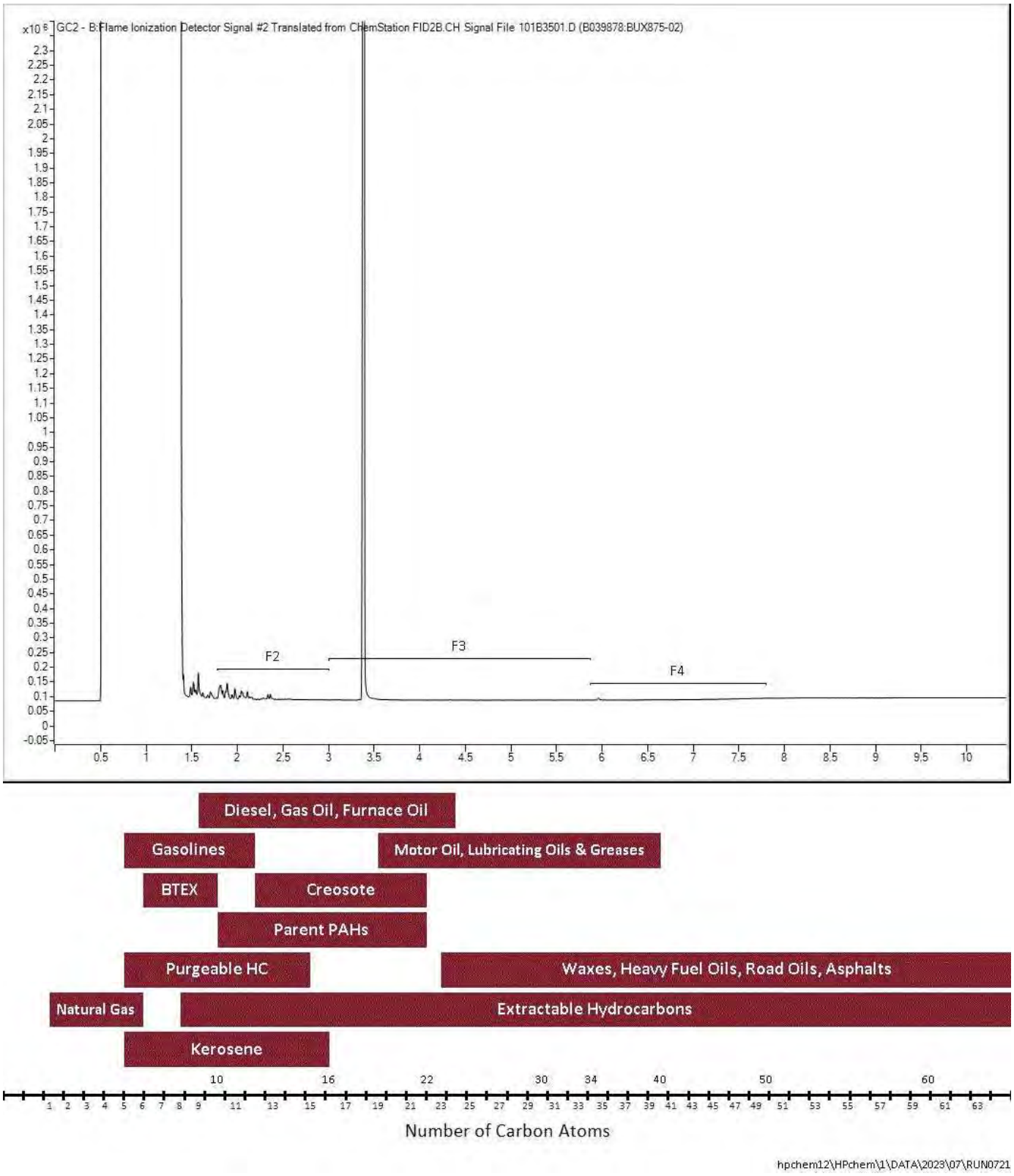
hpchem12\HPchem\1\DATA\2023\07\RUN0721

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C354737
Report Date: 2023/09/29
Bureau Veritas Sample: BUX875

PARSONS INC.
Client Project #: 10-12832
Client ID: DUP-01

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram

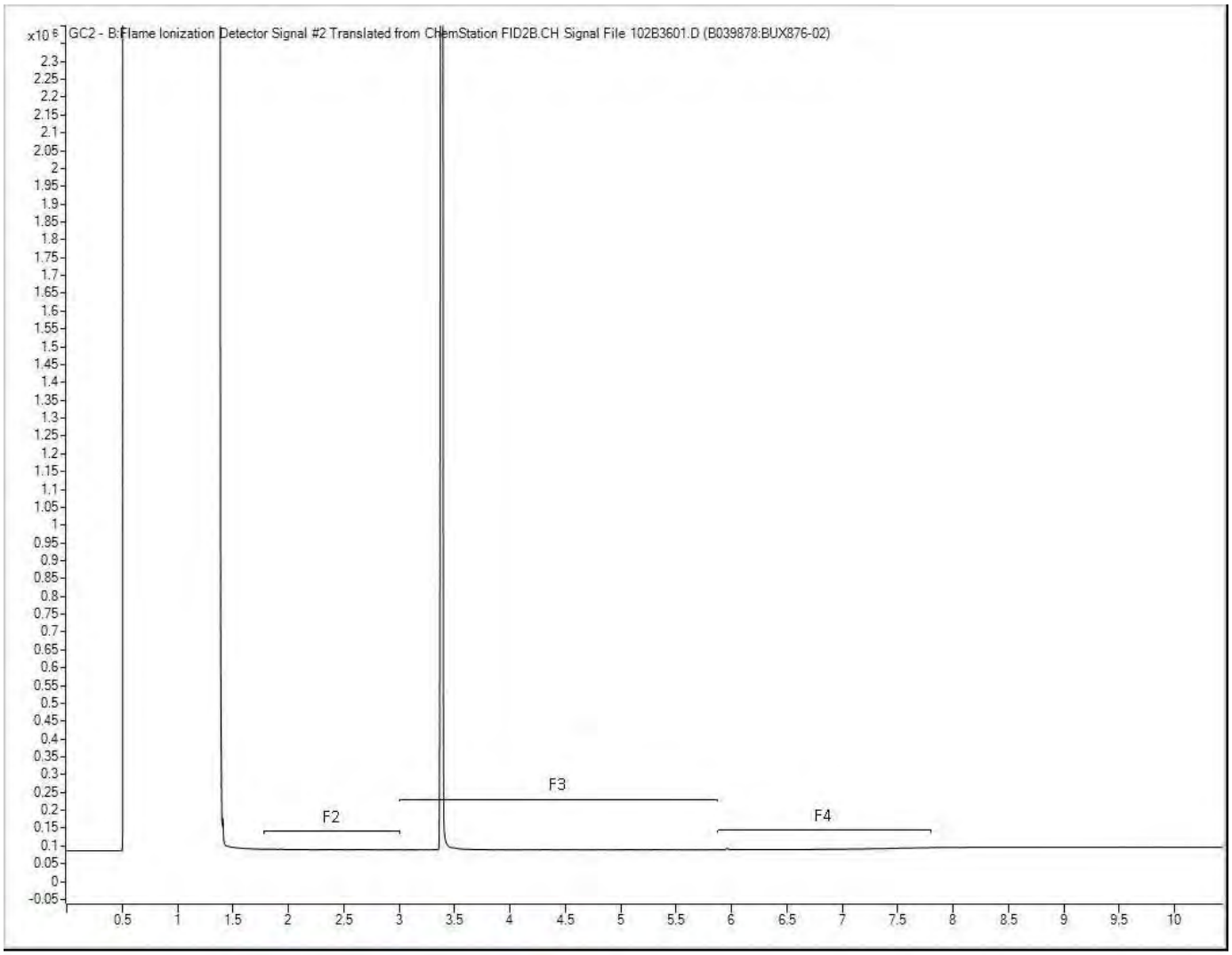


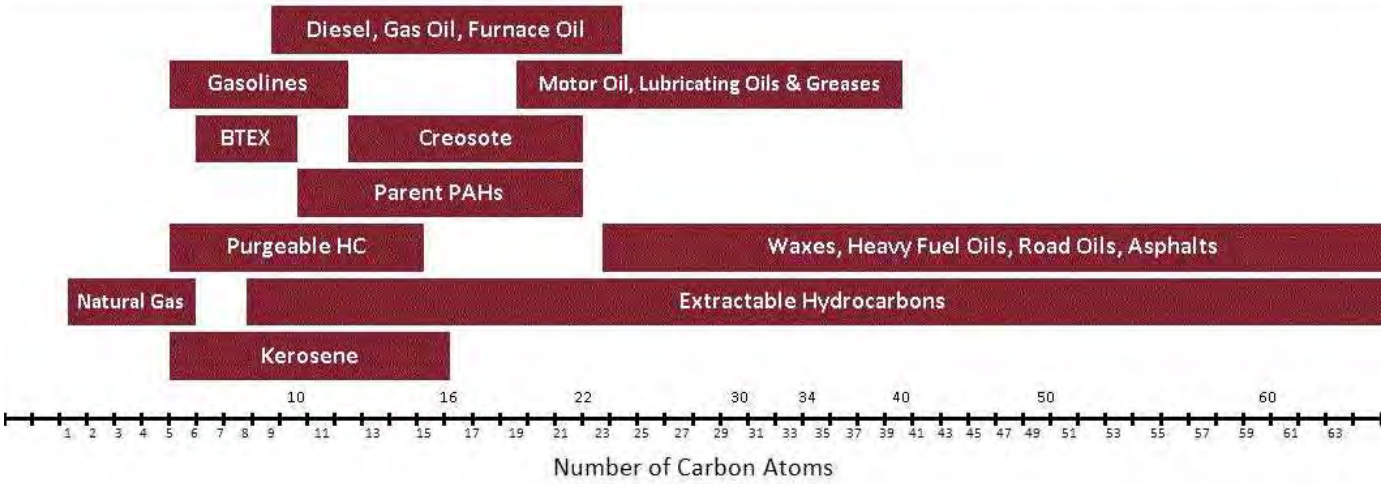
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C354737
Report Date: 2023/09/29
Bureau Veritas Sample: BUX876

PARSONS INC.
Client Project #: 10-12832
Client ID: BH 1916

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





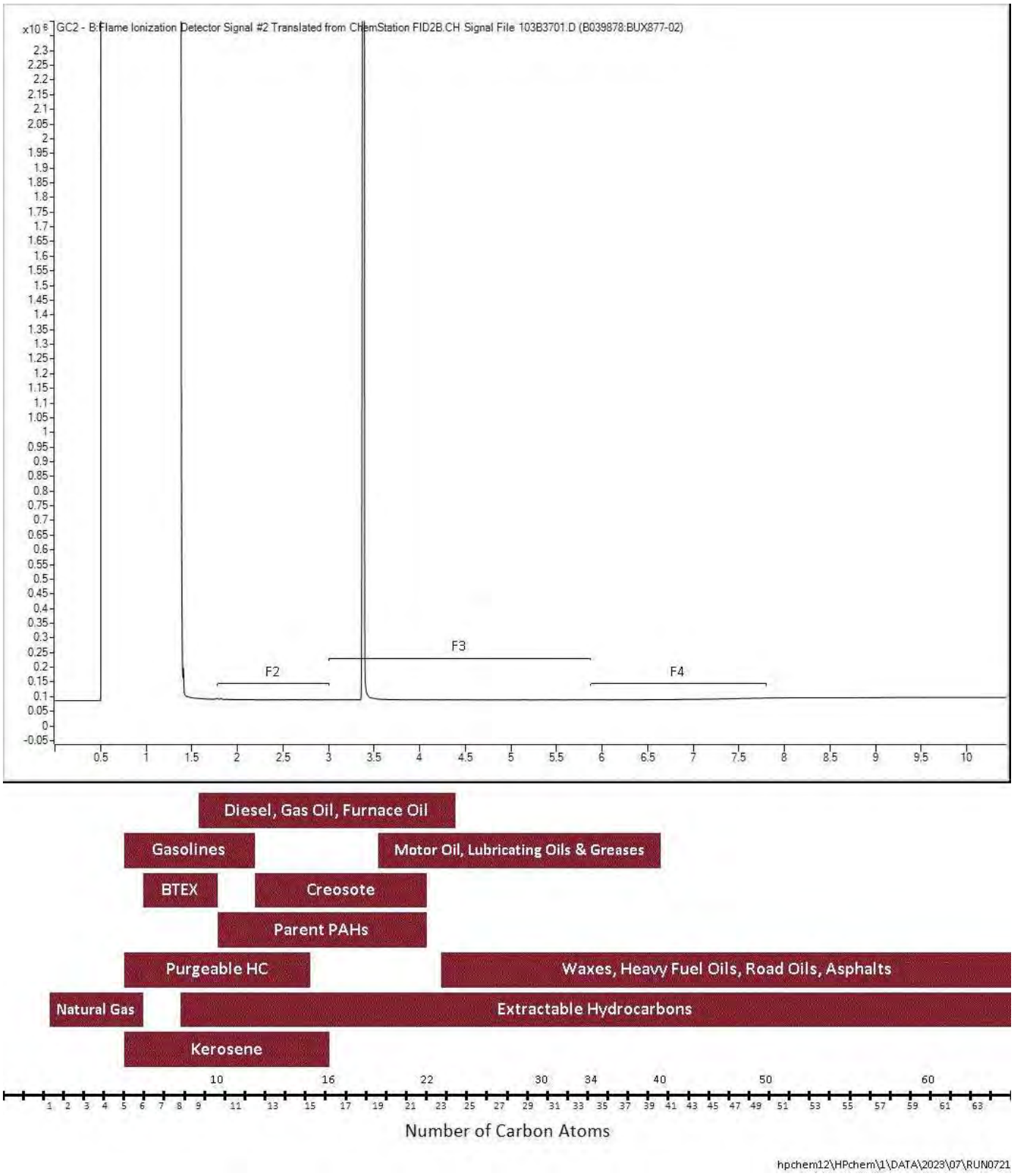
hpchem12\HPchem\1\DATA\2023\07\RUN0721

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C354737
Report Date: 2023/09/29
Bureau Veritas Sample: BUX877

PARSONS INC.
Client Project #: 10-12832
Client ID: TRIP BLANK-01

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

DATA QUALITY REVIEW CHECKLIST

Consultant: *Parsons Inc.*

Sampling Date: *2023/7/24*

Location: *1620 14 AVE NW, CALGARY*

Laboratory : *Bureau Veritas, Calgary, AB*

Consultant Project Number: *10-12832*

Sample Submission Number: *C356730*

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
Field Blank Concentration	*X*			*The trip blank for Total Xylenes (0.003 mg/L) is beyond the alert limits. All other field QC met acceptance criteria.*
Trip Blank Concentration		*X*		
Field Duplicate RPD	*X*			

Has CoA been signed off (Yes/No)?:	*Yes*
Has lab warranted all tests were in statistical control in CoA (Yes/No)?:	*Yes*
Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?:	*Yes*
Were all samples analyzed within hold times (Yes/No)?:	*Yes*
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): *Mackenzie Robart*

Reviewed by (Print): *Michelle Patterson*

Reviewed date: *2023/10/03*

Reviewed by (Signature):

Your P.O. #: 478621.17102
Your Project #: 10-12832
Site#: 9445
Site Location: 1620 14TH AVE NW, CALGARY
Outlet Number 9445
Your C.O.C. #: 699821-26-01, 699821-25-01

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/08/02
Report #: R3374889
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C356730
Received: 2023/07/25, 15:46

Sample Matrix: Water
Samples Received: 20

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/F1 in Water by HS GC/MS/FID	6	N/A	2023/07/29	AB SOP-00039	CCME CWS/EPA 8260d m
BTEX/F1 in Water by HS GC/MS/FID	14	N/A	2023/07/30	AB SOP-00039	CCME CWS/EPA 8260d m
F1-BTEX	20	N/A	2023/07/30		Auto Calc
CCME Hydrocarbons in Water (F2; C10-C16) (1)	20	2023/08/01	2023/08/01	AB SOP-00037 AB SOP-00040	CCME PHC-CWS m
VOCs in Water by HS GC/MS (Std List)	7	N/A	2023/07/28	AB SOP-00056	EPA 5021a/8260d m
VOCs in Water by HS GC/MS (Std List)	13	N/A	2023/07/29	AB SOP-00056	EPA 5021a/8260d m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Silica gel clean up employed.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Your P.O. #: 478621.17102
Your Project #: 10-12832
Site#: 9445
Site Location: 1620 14TH AVE NW, CALGARY
Outlet Number 9445
Your C.O.C. #: 699821-26-01, 699821-25-01

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/08/02
Report #: R3374889
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C356730
Received: 2023/07/25, 15:46

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Parminder Virk, Key Account Specialist
Email: Parminder.Virk@bureauveritas.com
Phone# (403)735-2235
==========
This report has been generated and distributed using a secure automated process.
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Scott Cantwell, General Manager responsible for Alberta Environmental laboratory operations.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C356730
Report Date: 2023/08/02

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14TH AVE NW, CALGARY
Your P.O. #: 478621.17102
Sampler Initials: CW

AT1 BTEX AND F1-F2 IN WATER (WATER)

Bureau Veritas ID		BVK730	BVK731	BVK732	BVK733	BVK734	BVK735		
Sampling Date		2023/07/24 08:30	2023/07/24 08:40	2023/07/24 08:50	2023/07/24 09:00	2023/07/24 09:10	2023/07/24 09:25		
COC Number		699821-26-01	699821-26-01	699821-26-01	699821-26-01	699821-26-01	699821-26-01		
	UNITS	**BH 2011**	**BH 1908**	**BH 1971**	**BH 1952**	**BH 1927**	**BH 1949**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	<0.10	0.23	<0.10	<0.10	<0.10	0.10	B050907
Volatiles									
Benzene	mg/L	<0.00040	<0.00040	0.0017	<0.00040	<0.00040	<0.00040	0.00040	B049667
Toluene	mg/L	<0.00040	<0.00040	0.00059	<0.00040	<0.00040	<0.00040	0.00040	B049667
Ethylbenzene	mg/L	<0.00040	<0.00040	0.0089	<0.00040	<0.00040	<0.00040	0.00040	B049667
m & p-Xylene	mg/L	<0.00080	<0.00080	<0.00080	<0.00080	<0.00080	<0.00080	0.00080	B049667
o-Xylene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	B049667
Xylenes (Total)	mg/L	<0.00089	<0.00089	<0.00089	<0.00089	<0.00089	<0.00089	0.00089	B048800
F1 (C6-C10) - BTEX	mg/L	<0.10	<0.10	0.70	<0.10	<0.10	<0.10	0.10	B048800
F1 (C6-C10)	mg/L	<0.10	<0.10	0.71	<0.10	<0.10	<0.10	0.10	B049667
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	100	99	100	100	100	100		B049667
4-Bromofluorobenzene (sur.)	%	97	98	97	100	97	97		B049667
D4-1,2-Dichloroethane (sur.)	%	83	83	83	83	81	82		B049667
O-TERPHENYL (sur.)	%	105	100	106	103	102	97		B050907
RDL = Reportable Detection Limit									

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C356730
Report Date: 2023/08/02

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14TH AVE NW, CALGARY
Your P.O. #: 478621.17102
Sampler Initials: CW

AT1 BTEX AND F1-F2 IN WATER (WATER)

Bureau Veritas ID		BVK736	BVK737	BVK738		BVK739		
Sampling Date		2023/07/24 09:35	2023/07/24 12:00	2023/07/24 13:45		2023/07/24 09:50		
COC Number		699821-26-01	699821-26-01	699821-26-01		699821-26-01		
	UNITS	**BH 2008**	**DUP-03**	**DUP-02**	**RDL**	**BH 1911**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon								
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	0.29	0.52	0.10	<0.10	0.10	B050907
Volatiles								
Benzene	mg/L	<0.00040	0.078	0.020	0.00040	<0.00040	0.00040	B049667
Toluene	mg/L	<0.00040	0.011	0.095	0.00040	<0.00040	0.00040	B049667
Ethylbenzene	mg/L	<0.00040	0.022	0.14	0.00040	<0.00040	0.00040	B049667
m & p-Xylene	mg/L	<0.00080	0.0022	1.0	0.00080	<0.0010 (1)	0.0010	B049667
o-Xylene	mg/L	<0.00040	0.00054	0.16	0.00040	<0.00040	0.00040	B049667
Xylenes (Total)	mg/L	<0.00089	0.0028	1.2	0.00089	<0.0011	0.0011	B048800
F1 (C6-C10) - BTEX	mg/L	<0.10	3.2	1.8	0.10	<0.10	0.10	B048800
F1 (C6-C10)	mg/L	<0.10	3.3	3.2	0.10	<0.10	0.10	B049667
Surrogate Recovery (%)								
1,4-Difluorobenzene (sur.)	%	102	97	96		96		B049667
4-Bromofluorobenzene (sur.)	%	99	96	98		102		B049667
D4-1,2-Dichloroethane (sur.)	%	83	70	75		82		B049667
O-TERPHENYL (sur.)	%	101	102	102		104		B050907

RDL = Reportable Detection Limit
(1) Detection limit raised due to interferent.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C356730
Report Date: 2023/08/02

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14TH AVE NW, CALGARY
Your P.O. #: 478621.17102
Sampler Initials: CW

AT1 BTEX AND F1-F2 IN WATER (WATER)

Bureau Veritas ID		BVK740	BVK749	BVK750	BVK751	BVK752	BVK753		
Sampling Date		2023/07/24 10:15	2023/07/24 10:30	2023/07/24 11:00	2023/07/24 11:15	2023/07/24 12:00	2023/07/24 12:30		
COC Number		699821-25-01	699821-25-01	699821-25-01	699821-25-01	699821-25-01	699821-25-01		
	UNITS	**BH 1976**	**BH 6004**	**BH 2007**	**BH 1910**	**BH 1967**	**BH 1974**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	<0.10	<0.10	<0.10	0.30	<0.10	0.10	B050907
Volatiles									
Benzene	mg/L	<0.00040	<0.00040	<0.00040	0.10	0.074	0.0014	0.00040	B049667
Toluene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	0.011	<0.00040	0.00040	B049667
Ethylbenzene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	0.022	<0.00040	0.00040	B049667
m & p-Xylene	mg/L	<0.00080	<0.00080	<0.00080	<0.00080	0.0023	0.0013	0.00080	B049667
o-Xylene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	0.00057	<0.00040	0.00040	B049667
Xylenes (Total)	mg/L	<0.00089	<0.00089	<0.00089	<0.00089	0.0029	0.0013	0.00089	B048800
F1 (C6-C10) - BTEX	mg/L	<0.10	<0.10	<0.10	<0.10	3.3	0.21	0.10	B048800
F1 (C6-C10)	mg/L	<0.10	<0.10	<0.10	0.11	3.4	0.21	0.10	B049667
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	94	98	99	95	95	97		B049667
4-Bromofluorobenzene (sur.)	%	100	97	99	99	94	97		B049667
D4-1,2-Dichloroethane (sur.)	%	79	81	81	84	87	85		B049667
O-TERPHENYL (sur.)	%	100	102	100	101	98	105		B050907
RDL = Reportable Detection Limit									

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C356730
Report Date: 2023/08/02

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14TH AVE NW, CALGARY
Your P.O. #: 478621.17102
Sampler Initials: CW

AT1 BTEX AND F1-F2 IN WATER (WATER)

Bureau Veritas ID		BVK754	BVK755	BVK756	BVK757		
Sampling Date		2023/07/24 13:00	2023/07/24 08:50	2023/07/24 13:45	2023/07/24 14:00		
COC Number		699821-25-01	699821-25-01	699821-25-01	699821-25-01		
	UNITS	**BH 1966**	**DUP-04**	**BH 1907**	**TRIP BLANK-02**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	0.23	0.47	<0.10	0.10	B050907
Volatiles							
Benzene	mg/L	<0.00040	0.0019	0.020	<0.00040	0.00040	B049667
Toluene	mg/L	<0.00040	0.00055	0.095	<0.00040	0.00040	B049667
Ethylbenzene	mg/L	<0.00040	0.0094	0.14	<0.00040	0.00040	B049667
m & p-Xylene	mg/L	<0.00080	<0.00080	0.96	0.0025	0.00080	B049667
o-Xylene	mg/L	<0.00040	<0.00040	0.16	0.00047	0.00040	B049667
Xylenes (Total)	mg/L	<0.00089	<0.00089	1.1	0.0030	0.00089	B048800
F1 (C6-C10) - BTEX	mg/L	<0.10	0.93	1.7	<0.10	0.10	B048800
F1 (C6-C10)	mg/L	<0.10	0.94	3.0	<0.10	0.10	B049667
Surrogate Recovery (%)							
1,4-Difluorobenzene (sur.)	%	99	98	95	96		B049667
4-Bromofluorobenzene (sur.)	%	98	94	99	100		B049667
D4-1,2-Dichloroethane (sur.)	%	81	81	74	78		B049667
O-TERPHENYL (sur.)	%	100	105	103	101		B050907
RDL = Reportable Detection Limit							

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C356730
Report Date: 2023/08/02

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14TH AVE NW, CALGARY
Your P.O. #: 478621.17102
Sampler Initials: CW

VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		BVK730	BVK731	BVK732	BVK733	BVK734	BVK735		
Sampling Date		2023/07/24 08:30	2023/07/24 08:40	2023/07/24 08:50	2023/07/24 09:00	2023/07/24 09:10	2023/07/24 09:25		
COC Number		699821-26-01	699821-26-01	699821-26-01	699821-26-01	699821-26-01	699821-26-01		
	UNITS	**BH 2011**	**BH 1908**	**BH 1971**	**BH 1952**	**BH 1927**	**BH 1949**	**RDL**	**QC Batch**
Volatiles									
1,2-dichloroethane	mg/L	<0.00050	<0.00050	0.026	<0.00050	<0.00050	<0.00050	0.00050	B049669
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	98	96	99	97	98	98		B049669
4-Bromofluorobenzene (sur.)	%	92	92	93	92	92	93		B049669
D4-1,2-Dichloroethane (sur.)	%	104	107	104	113	106	109		B049669
RDL = Reportable Detection Limit									

Bureau Veritas ID		BVK736	BVK737	BVK738	BVK739	BVK740	BVK749		
Sampling Date		2023/07/24 09:35	2023/07/24 12:00	2023/07/24 13:45	2023/07/24 09:50	2023/07/24 10:15	2023/07/24 10:30		
COC Number		699821-26-01	699821-26-01	699821-26-01	699821-26-01	699821-25-01	699821-25-01		
	UNITS	**BH 2008**	**DUP-03**	**DUP-02**	**BH 1911**	**BH 1976**	**BH 6004**	**RDL**	**QC Batch**
Volatiles									
1,2-dichloroethane	mg/L	<0.00050	0.021	0.0025	0.0012	<0.00050	0.0050	0.00050	B049669
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	98	101	99	98	97	98		B049669
4-Bromofluorobenzene (sur.)	%	92	92	94	92	93	92		B049669
D4-1,2-Dichloroethane (sur.)	%	110	118	105	107	108	104		B049669
RDL = Reportable Detection Limit									

Bureau Veritas ID		BVK750	BVK751	BVK752	BVK753	BVK754	BVK755		
Sampling Date		2023/07/24 11:00	2023/07/24 11:15	2023/07/24 12:00	2023/07/24 12:30	2023/07/24 13:00	2023/07/24 08:50		
COC Number		699821-25-01	699821-25-01	699821-25-01	699821-25-01	699821-25-01	699821-25-01		
	UNITS	**BH 2007**	**BH 1910**	**BH 1967**	**BH 1974**	**BH 1966**	**DUP-04**	**RDL**	**QC Batch**
Volatiles									
1,2-dichloroethane	mg/L	<0.00050	0.025	0.021	0.030	<0.00050	0.024	0.00050	B049669
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	97	100	101	98	98	99		B049669
4-Bromofluorobenzene (sur.)	%	93	92	92	93	93	93		B049669
D4-1,2-Dichloroethane (sur.)	%	112	114	104	103	107	99		B049669
RDL = Reportable Detection Limit									

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C356730
Report Date: 2023/08/02

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14TH AVE NW, CALGARY
Your P.O. #: 478621.17102
Sampler Initials: CW

VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		BVK756	BVK757		
Sampling Date		2023/07/24 13:45	2023/07/24 14:00		
COC Number		699821-25-01	699821-25-01		
	UNITS	**BH 1907**	**TRIP BLANK-02**	**RDL**	**QC Batch**
Volatiles					
1,2-dichloroethane	mg/L	0.0023	<0.00050	0.00050	B049669
Surrogate Recovery (%)					
1,4-Difluorobenzene (sur.)	%	100	98		B049669
4-Bromofluorobenzene (sur.)	%	93	92		B049669
D4-1,2-Dichloroethane (sur.)	%	97	102		B049669
RDL = Reportable Detection Limit					

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C356730
Report Date: 2023/08/02

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14TH AVE NW, CALGARY
Your P.O. #: 478621.17102
Sampler Initials: CW

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	6.7°C

Results relate only to the items tested.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C356730
Report Date: 2023/08/02

QUALITY ASSURANCE REPORT

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14TH AVE NW, CALGARY
Your P.O. #: 478621.17102
Sampler Initials: CW

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
B049667	1,4-Difluorobenzene (sur.)	2023/07/29	98	50 - 140	95	50 - 140	98	%		
B049667	4-Bromofluorobenzene (sur.)	2023/07/29	97	50 - 140	98	50 - 140	97	%		
B049667	D4-1,2-Dichloroethane (sur.)	2023/07/29	80	50 - 140	80	50 - 140	83	%		
B049669	1,4-Difluorobenzene (sur.)	2023/07/28	103	50 - 140	102	50 - 140	97	%		
B049669	4-Bromofluorobenzene (sur.)	2023/07/28	98	50 - 140	98	50 - 140	91	%		
B049669	D4-1,2-Dichloroethane (sur.)	2023/07/28	94	50 - 140	95	50 - 140	111	%		
B050907	O-TERPHENYL (sur.)	2023/08/01			108	60 - 140	106	%		
B049667	Benzene	2023/07/29	84	50 - 140	85	60 - 130	<0.00040	mg/L	NC	30
B049667	Ethylbenzene	2023/07/29	88	50 - 140	90	60 - 130	<0.00040	mg/L	NC	30
B049667	F1 (C6-C10)	2023/07/29	92	60 - 140	95	60 - 140	<0.10	mg/L	NC	30
B049667	m & p-Xylene	2023/07/29	88	50 - 140	90	60 - 130	<0.00080	mg/L	NC	30
B049667	o-Xylene	2023/07/29	90	50 - 140	92	60 - 130	<0.00040	mg/L	NC	30
B049667	Toluene	2023/07/29	85	50 - 140	86	60 - 130	<0.00040	mg/L	NC	30
B049669	1,2-dichloroethane	2023/07/28	88	50 - 140	91	60 - 130	<0.00050	mg/L	1.9	30
B050907	F2 (C10-C16 Hydrocarbons)	2023/08/01			113	60 - 140	<0.10	mg/L		

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

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

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

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

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

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

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C356730
Report Date: 2023/08/02

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14TH AVE NW, CALGARY
Your P.O. #: 478621.17102
Sampler Initials: CW

VALIDATION SIGNATURE PAGE

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

Gita Pokhrel, Laboratory Supervisor

Qiliang (Alex) Wu, Senior Analyst

Rahul Suryawanshi, Senior Analyst

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Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas
4000 19st N.E. Calgary, Alberta Canada T2E 6P8 Tel (403) 291-3077 Toll-free 800-563-6266 Fax (403) 291-9468 www.bvna.com

CHAIN OF CUSTODY RECORD

Page 1 of 3 (GW 1 of 2)

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#11243 PARSONS INC.	Company Name:	#31652 PARSONS INC.	Quotation #:	C30805	Bureau Veritas Job #: C356730	Bottle Order #: 699821
Attention:	ACCOUNTS PAYABLE	Attention:	Rebecca Neufeld	P.O. #:	478621.17102	COC #: C#699821-26-01	Project Manager: Parminder Virk
Address:	2751 JOHN STREET MARKHAM ON L3R 2Y8	Address:	Unit 510, 214 - 11th Avenue SW Calgary AB T2R 0K1	Project:	10-12832		
Tel:	(905) 944-8877 Fax:	Tel:	Fax:	Project Name:	1620-14th Ave NW, Calgary		
Email:	ParsonsIncAP.Parsons@parsons.com	Email:	rebecca.neufeld@parsons.com,Michelle.Patterson@par	~~Site #~~: Outlet 9445			
				Sampled By:	Cody Whittaker		

Regulatory Criteria:
- [x] ATI
- [ ] CCME
- [ ] Other

Special Instructions:

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	ATI BTEX and F1-F2 in Water	1,2 Dichloroethane	Routine Water						# of Bottles	Comments
1	~~BH2011~~ GW	BH2011	23/07/24	0830	GW		X	X							3	
2		BH1908		0840	GW		X	X							3	
3		BH1971		0850	GW		X	X							3	
4		BH1952		0900	GW		X	X							3	
5		BH1927		0910	GW		X	X							3	
6		BH1949		0925	GW		X	X							3	
7		BH2008		0935	GW		X	X							3	
8		~~DUP-03~~ DUP-03		1200	GW		X	X							3	
9		DUP-02		1345	GW		X	X							3	
10		BH1911	23/07/24	0950	GW		X	X							3	

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT: [x]
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details

Job Specific Rush TAT (if applies to entire submission) [ ]
Date Required:
Rush Confirmation Number: (call lab for #)

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Laboratory Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
Cody Whittaker / Cody Whittaker	23/07/25	1530	Shaira Cura	2023/07/25	15:46	0	[ ]	8, 6, 6	[x] Yes [ ] No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.
** ALL SAMPLES ARE HELD FOR 60 DAYS AFTER SAMPLE RECEIPT. FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

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mcal-07-1194

Bureau Veritas Canada (2019) Inc.

Bureau Veritas
4000 19st N.E, Calgary, Alberta Canada T2E 6P8 Tel:(403) 291-3077 Toll-free:800-563-6266 Fax:(403) 291-9468 www.bvna.com

CHAIN OF CUSTODY RECORD

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#11243 PARSONS INC.	Company Name:	#31652 PARSONS INC.	Quotation #:	C30805	Bureau Veritas Job #:	Bottle Order #:
Attention:	ACCOUNTS PAYABLE	Attention:	Rebecca Neufeld	P.O. #:	478621.17102	C356730	699821
Address:	2751 JOHN STREET	Address:	Unit 510, 214 - 11th Avenue SW	Project:	10-12832	COC #:	Project Manager:
	MARKHAM ON L3R 2Y8		Calgary AB T2R 0K1	Project Name:	1620-1HTH AVE NW, Calgary	C#699821-25-01	Parminder Virk
Tel:	(905) 944-8877 Fax:	Tel:	Fax:	~~Site #~~ outlet	9445		
Email:	ParsonsIncAP.Parsons@parsons.com	Email:	rebecca.neufeld@parsons.com,Michelle.Patterson@par	Sampled By:	Cody Whittaker		

Regulatory Criteria:
- [x] ATI
- [ ] CCME
- [ ] Other

Special Instructions

SAMPLES MUST BE KEPT COOL (< 10ºC) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	AT1 BTEX and F1-F2 in Water	1,2 Dichloroethane	Routine Water								# of Bottles	Comments
1		BH1976	23/07/24	1015	GW		X	X									3	
2		BH6004	23/07/24	1030	GW		X	X									3	
3		BH2007		1100	GW		X	X									3	
4		BH 1910		1115	GW		X	X									3	
5		BH 1967		1200	GW		X	X									3	
6		BH 1974		1230	GW		X	X									3	
7		BH 1966		1300	GW		X	X									3	
8		DUP-04		0850	GW		X	X									3	
9		BH 1907	23/07/24	1345	GW		X	X									3	
10		Trip Blank-02	23/07/24	1400	GW		X	X									3	

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT: [x]
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests..
Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details

Job Specific Rush TAT (if applies to entire submission) [ ]
Date Required: _____
Rush Confirmation Number: _____ *(call lab for #)*

RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Time Sensitive	Temperature (ºC) on Receipt	Custody Seal Intact on Cooler?
Cody Whittaker	23/07/25	1530	Shaira Cura	2023/07/25	15:46	0	[ ]	8, 6, 6	[x] Yes [ ] No

Laboratory Use Only

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.
** ALL SAMPLES ARE HELD FOR 60 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

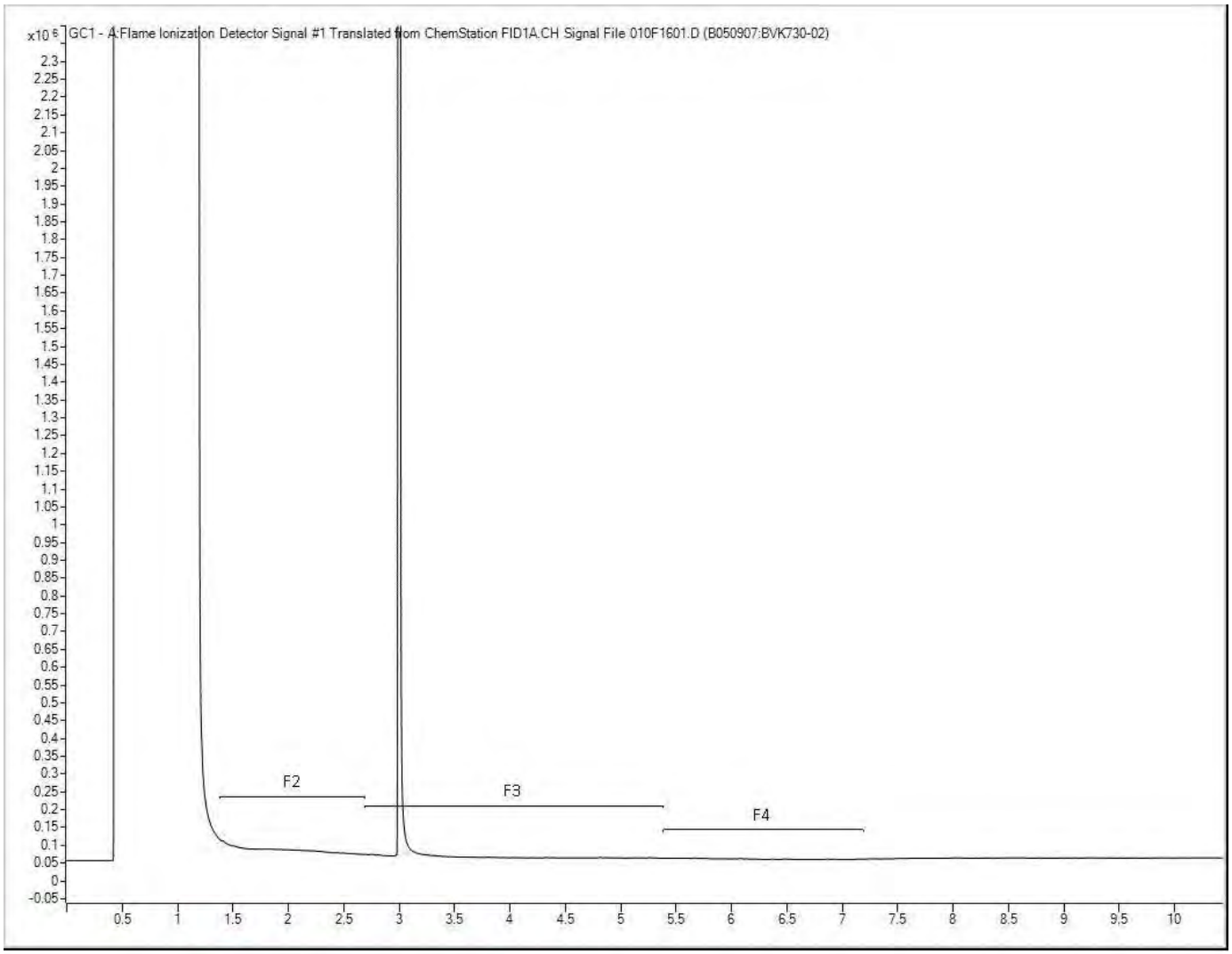
White: Bureau Veritas Yellow: Client

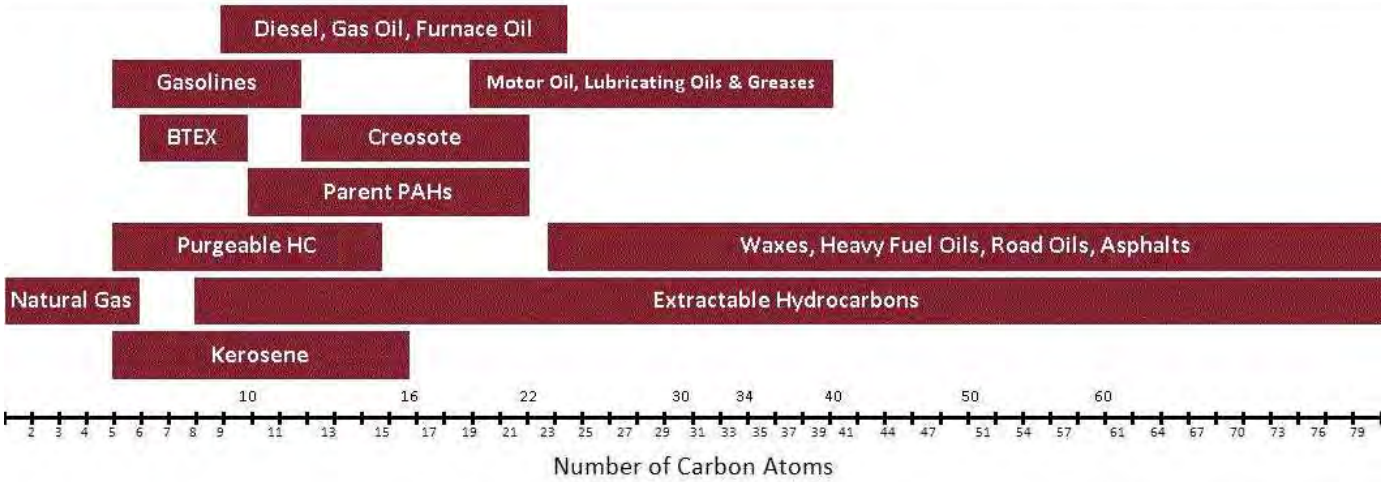
Bureau Veritas Canada (2019) Inc.

Bureau Veritas Job #: C356730
Report Date: 2023/08/02
Bureau Veritas Sample: BVK730

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14TH AVE NW, CALGARY
Client ID: BH 2011

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





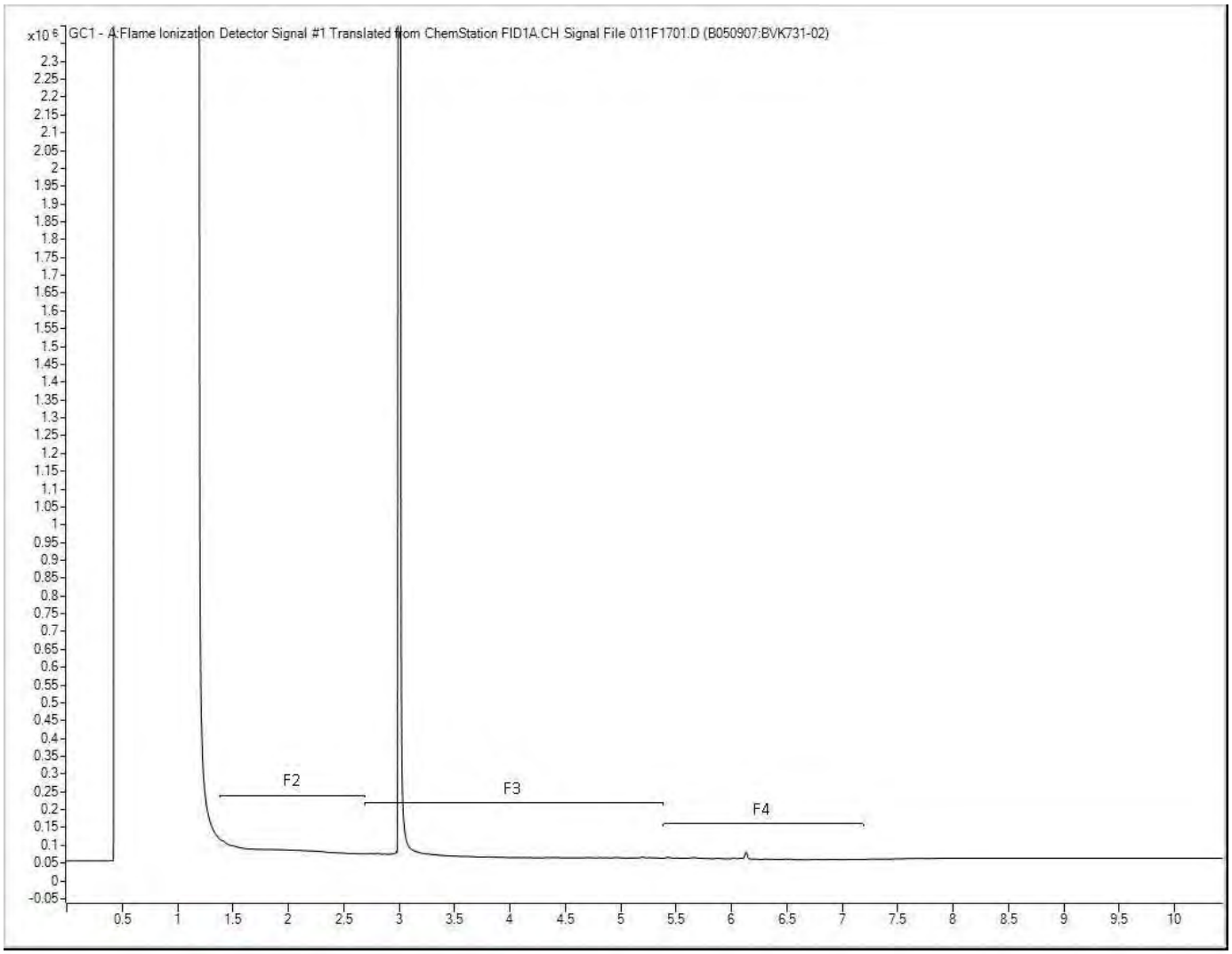
hpchem7\HPchem\1\DATA\2023\08\RUN0801

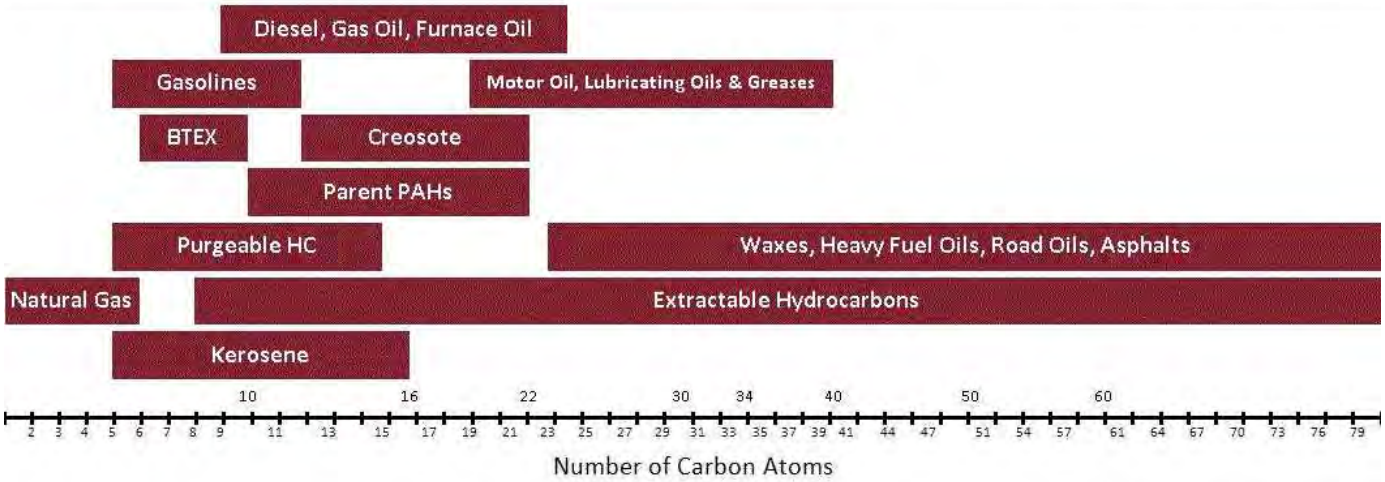
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356730
Report Date: 2023/08/02
Bureau Veritas Sample: BVK731

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14TH AVE NW, CALGARY
Client ID: BH 1908

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





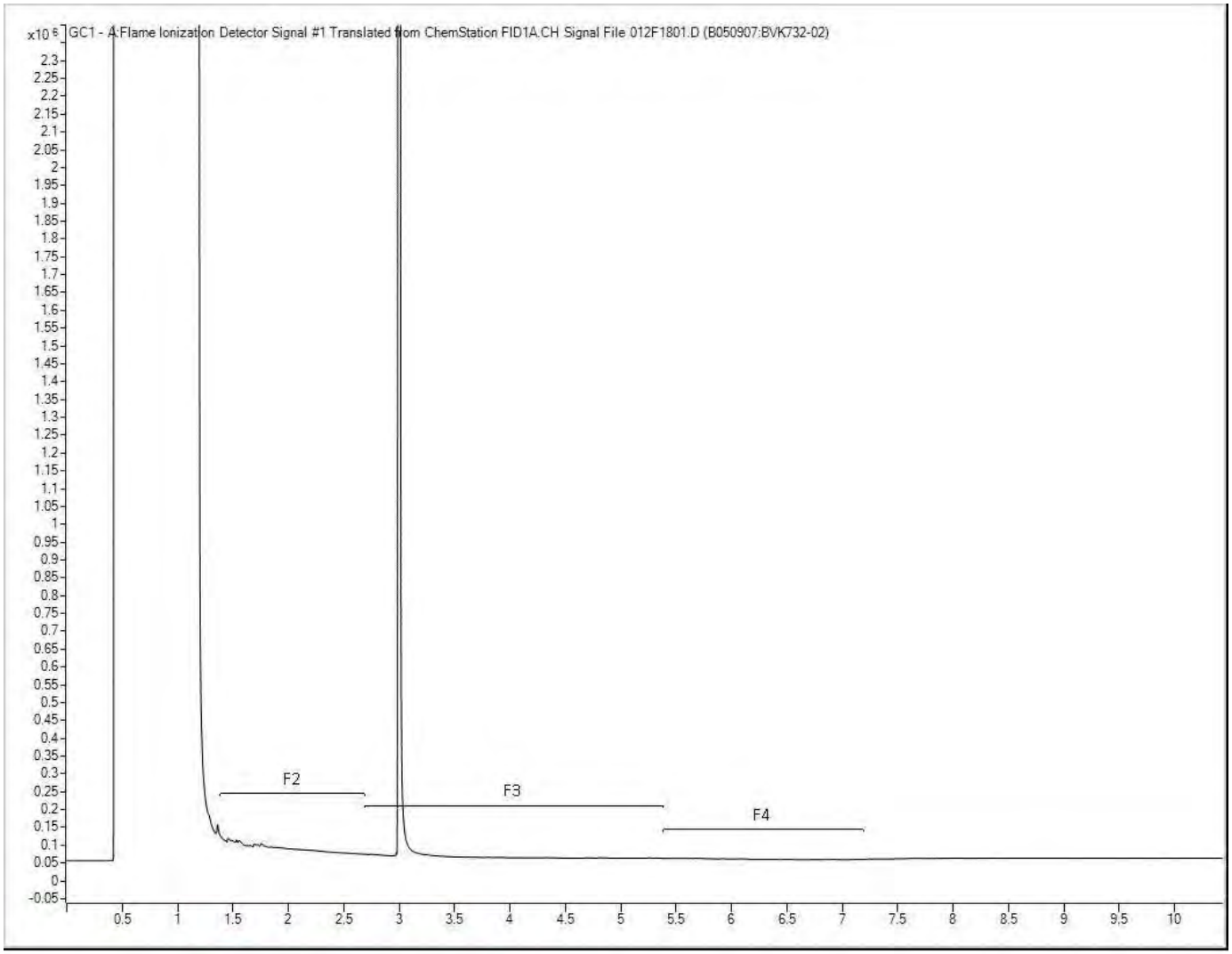
hpchem7\HPchem\1\DATA\2023\08\RUN0801

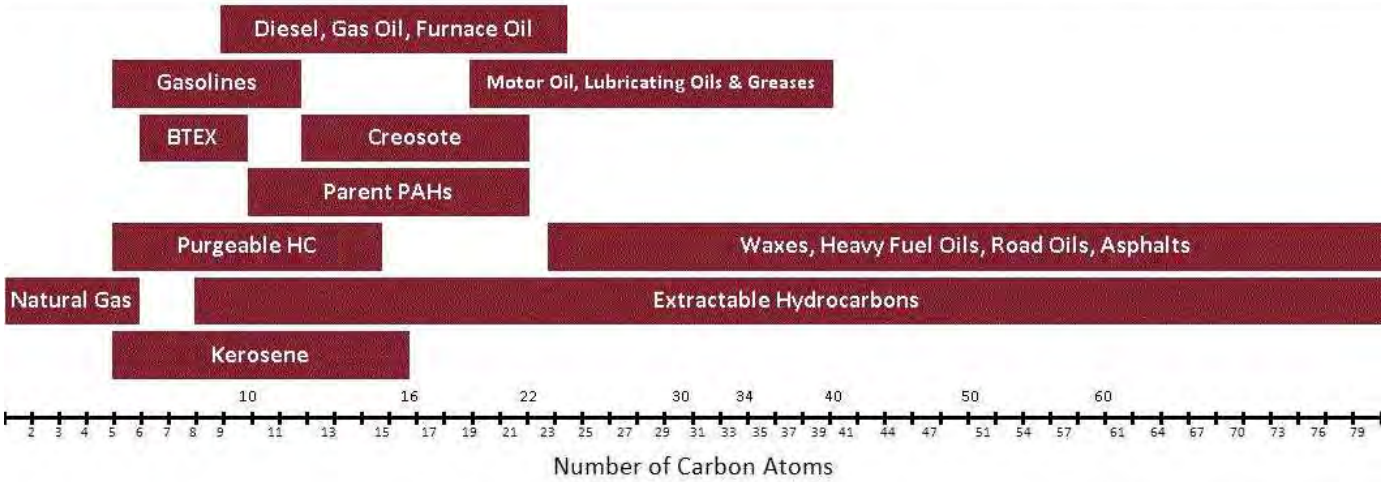
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356730
Report Date: 2023/08/02
Bureau Veritas Sample: BVK732

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14TH AVE NW, CALGARY
Client ID: BH 1971

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





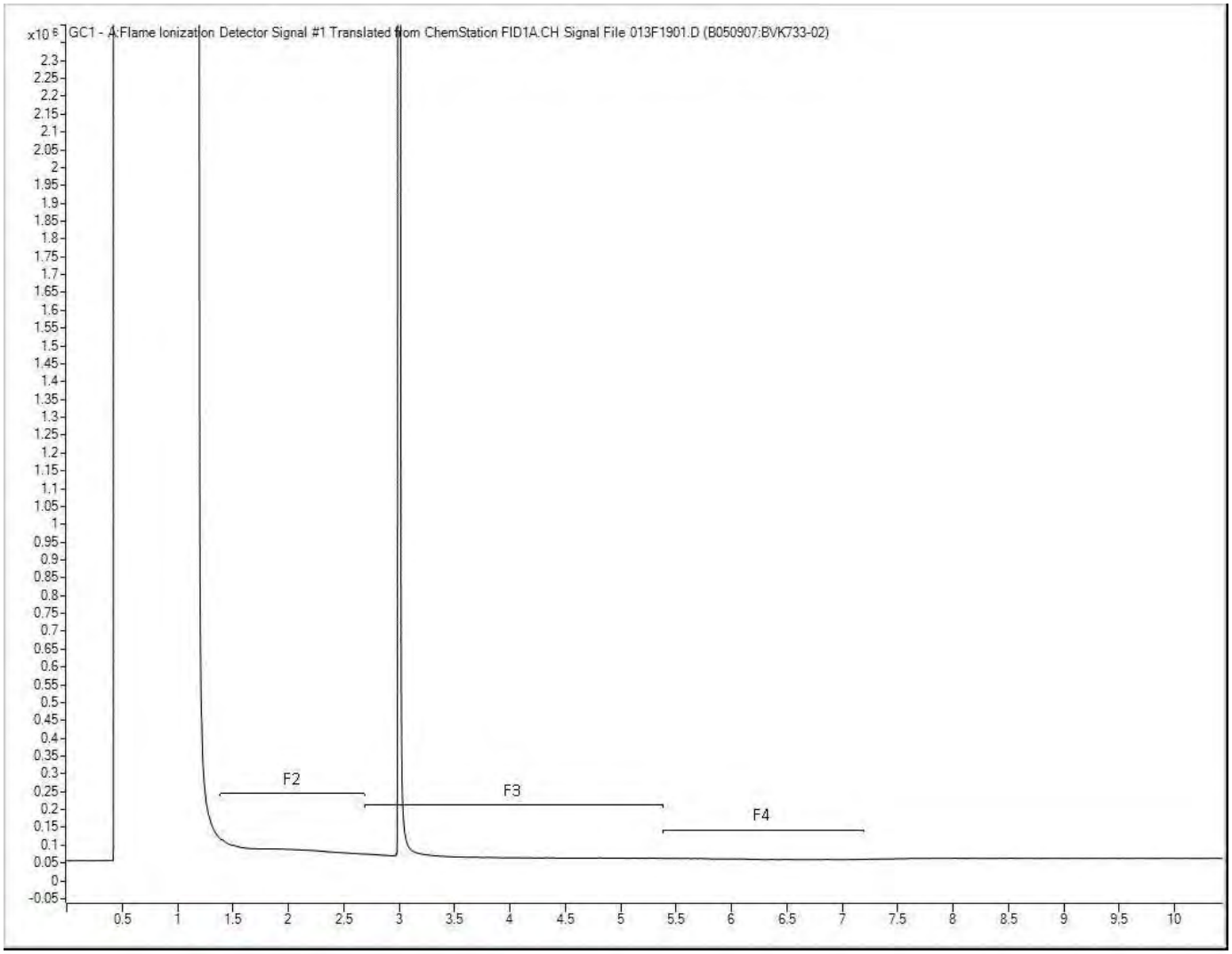
hpchem7\HPchem\1\DATA\2023\08\RUN0801

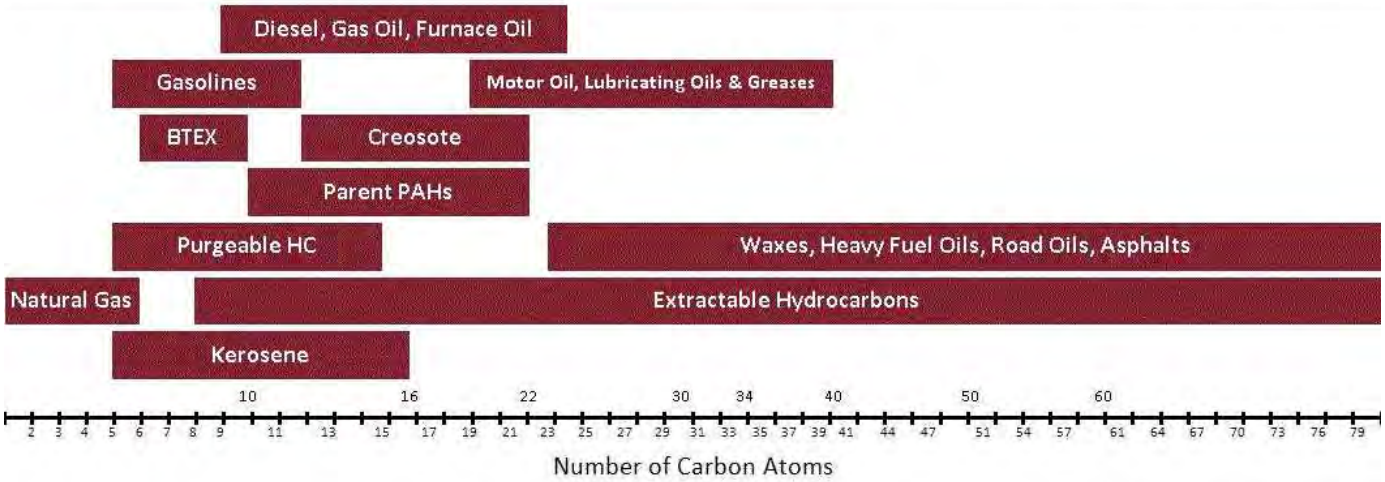
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356730
Report Date: 2023/08/02
Bureau Veritas Sample: BVK733

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14TH AVE NW, CALGARY
Client ID: BH 1952

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





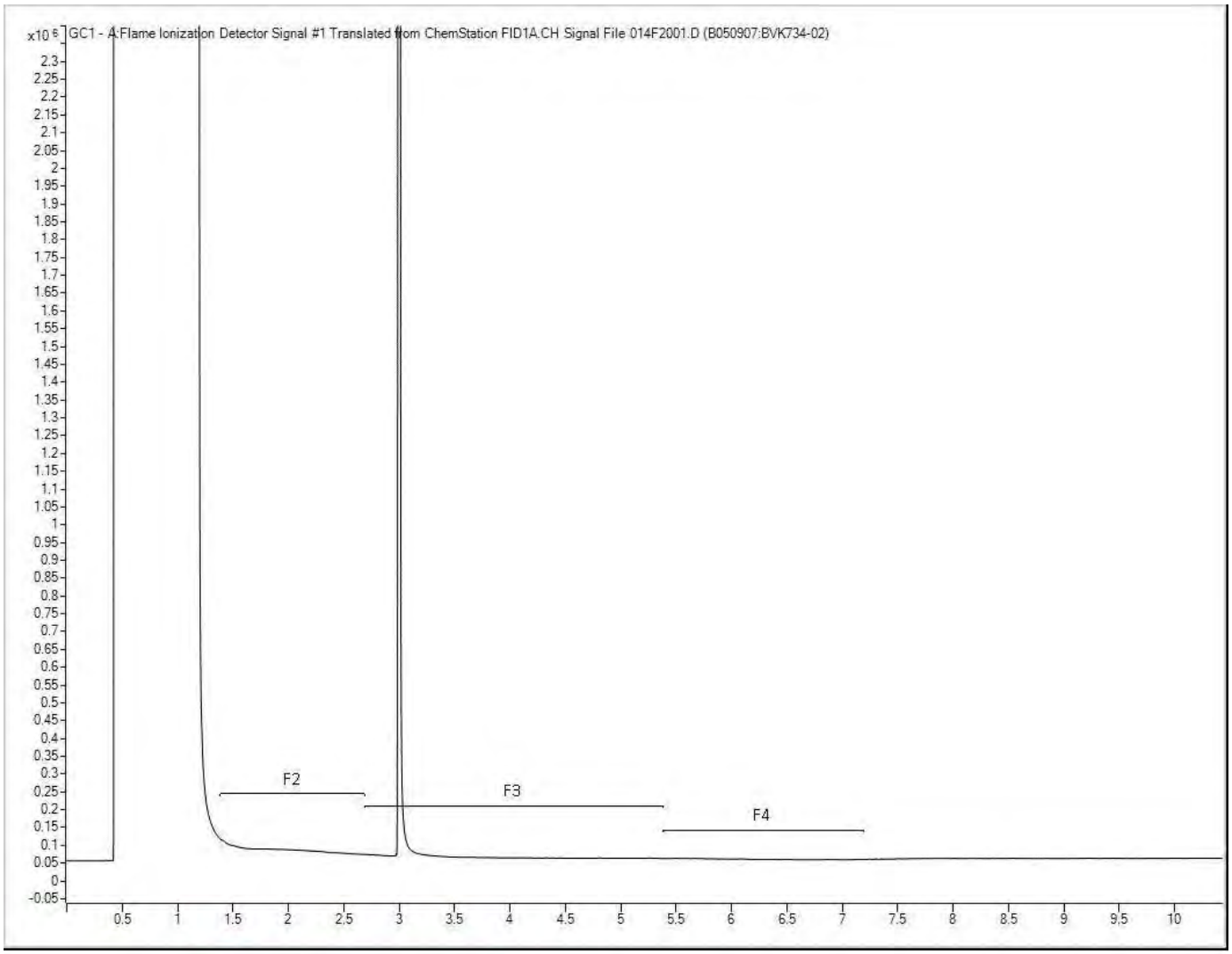
hpchem7\HPchem\1\DATA\2023\08\RUN0801

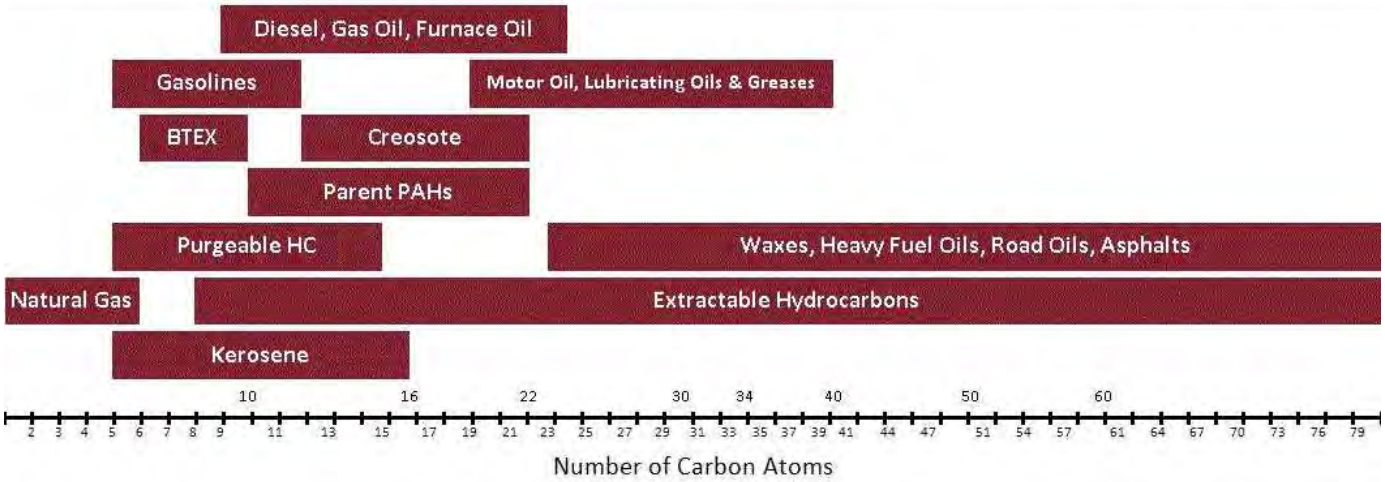
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356730
Report Date: 2023/08/02
Bureau Veritas Sample: BVK734

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14TH AVE NW, CALGARY
Client ID: BH 1927

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





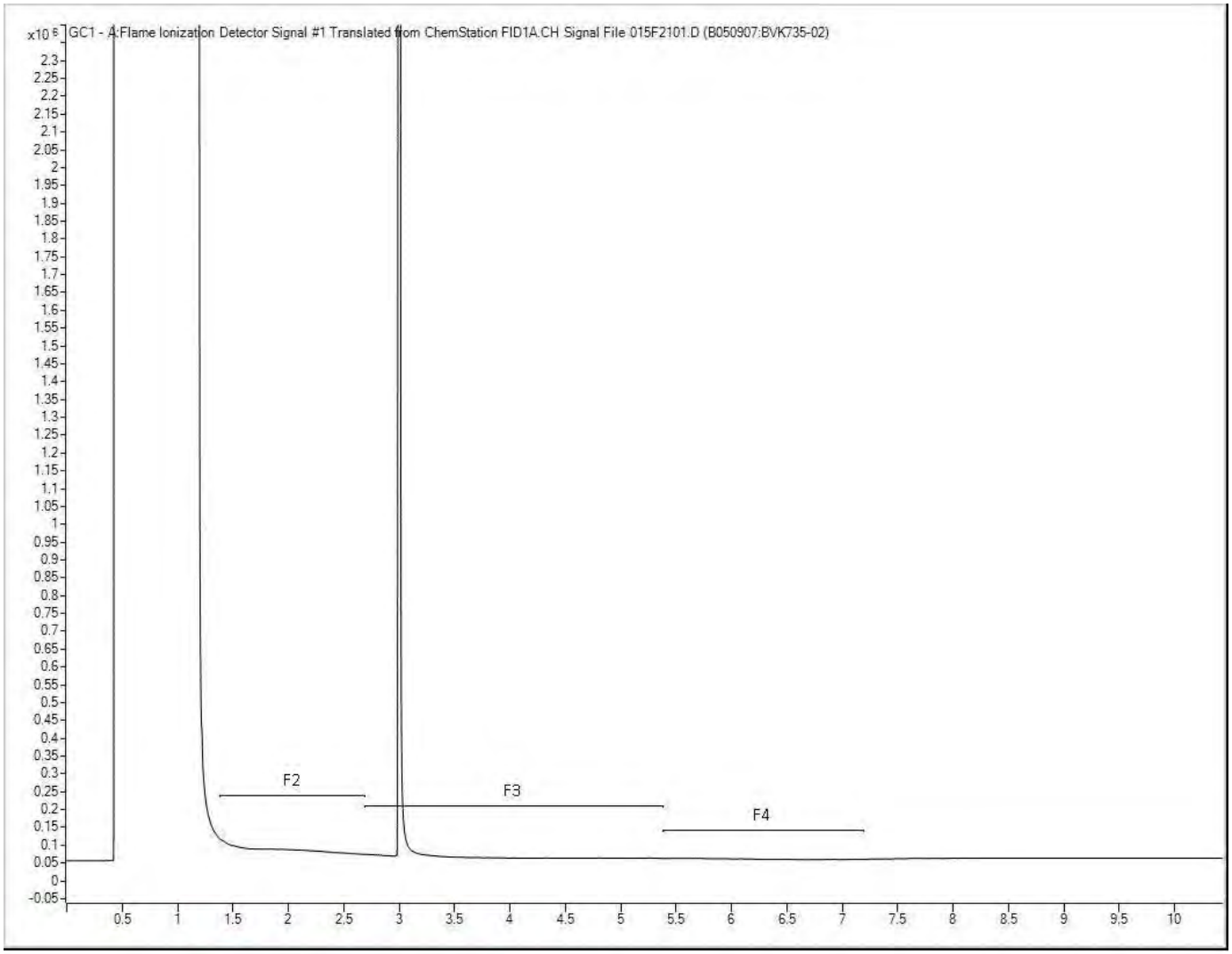
hpchem7\HPchem\1\DATA\2023\08\RUN0801

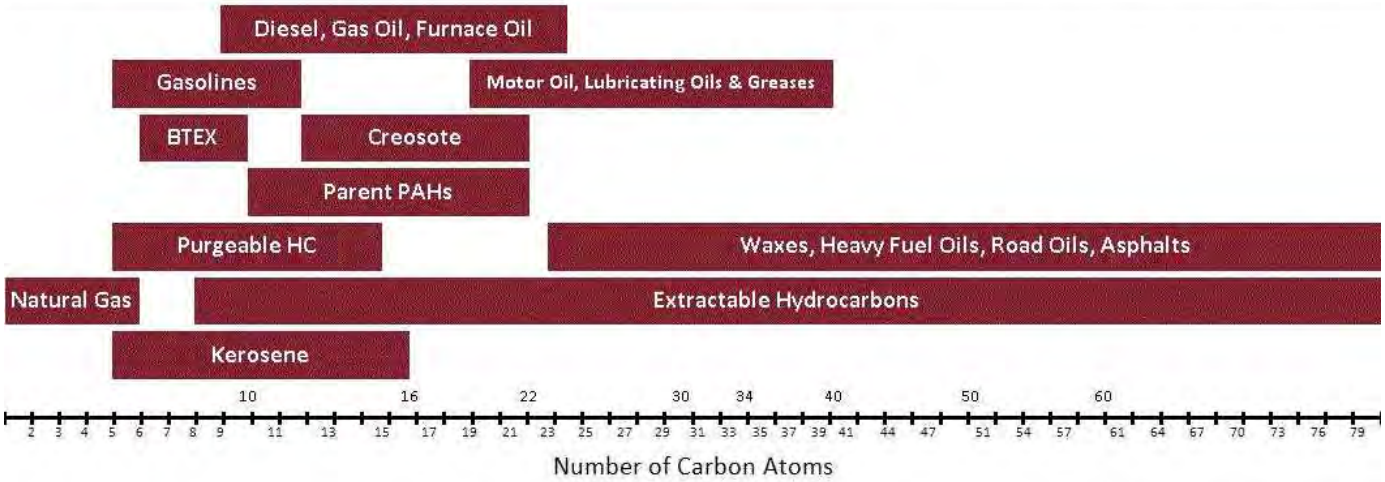
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356730
Report Date: 2023/08/02
Bureau Veritas Sample: BVK735

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14TH AVE NW, CALGARY
Client ID: BH 1949

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





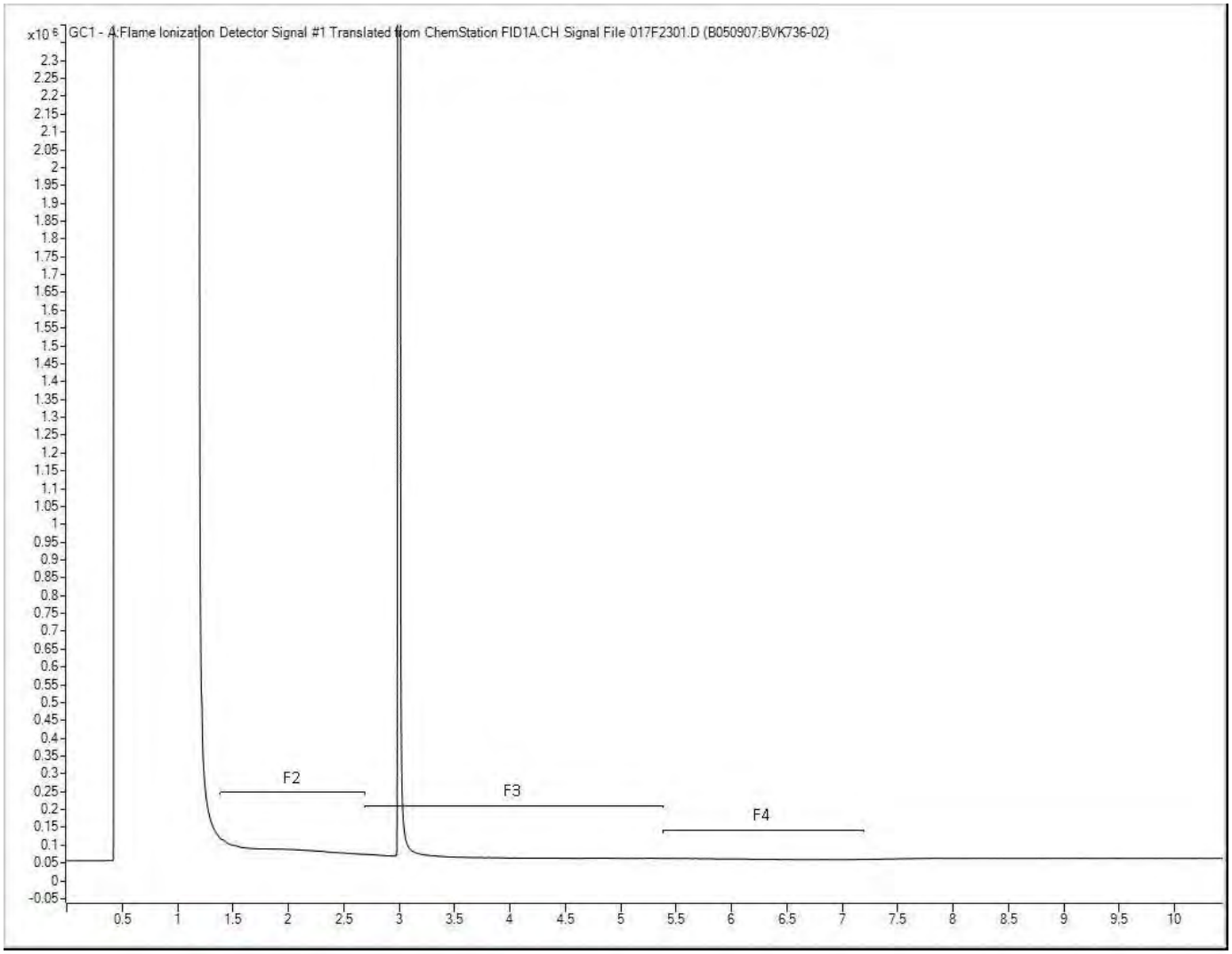
hpchem7\HPchem\1\DATA\2023\08\RUN0801

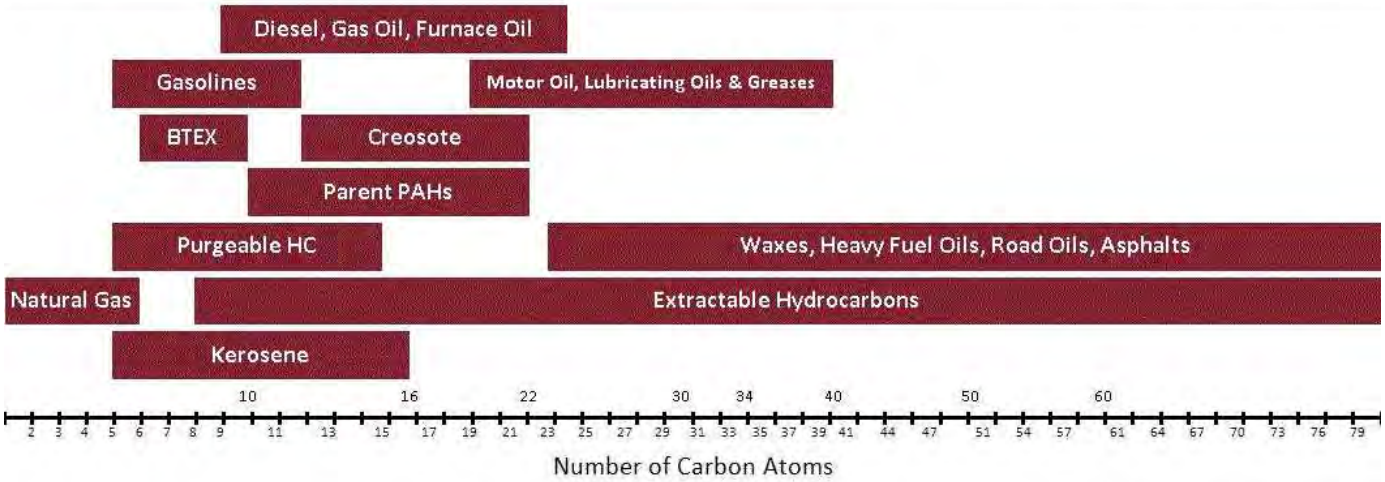
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356730
Report Date: 2023/08/02
Bureau Veritas Sample: BVK736

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14TH AVE NW, CALGARY
Client ID: BH 2008

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





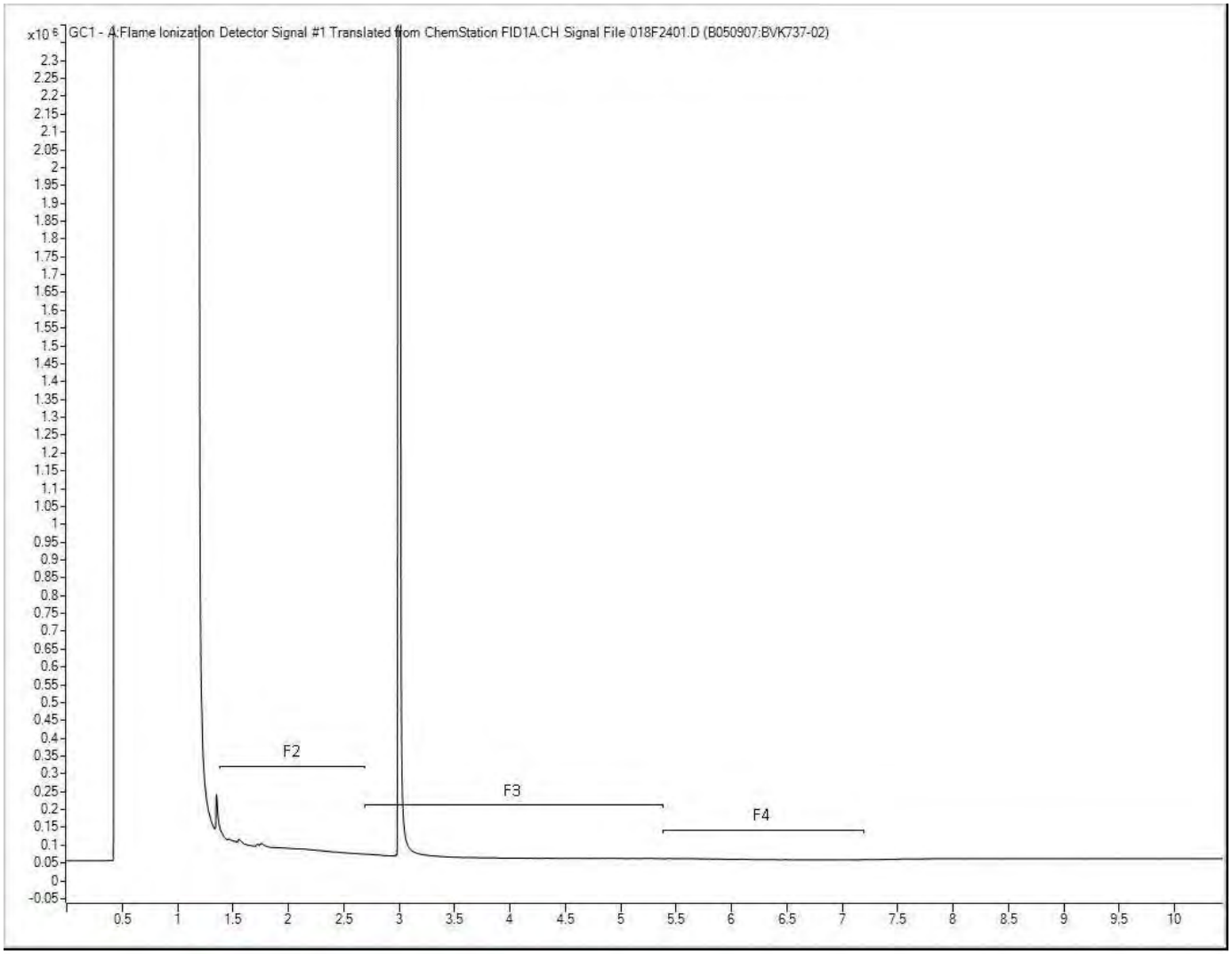
hpchem7\HPchem\1\DATA\2023\08\RUN0801

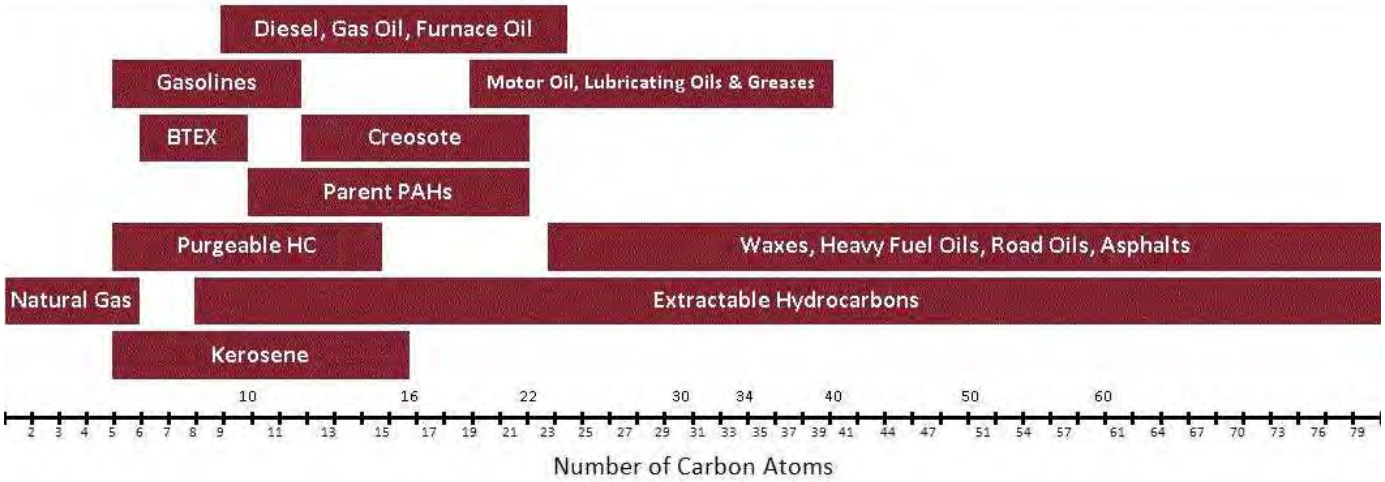
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356730
Report Date: 2023/08/02
Bureau Veritas Sample: BVK737

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14TH AVE NW, CALGARY
Client ID: DUP-03

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





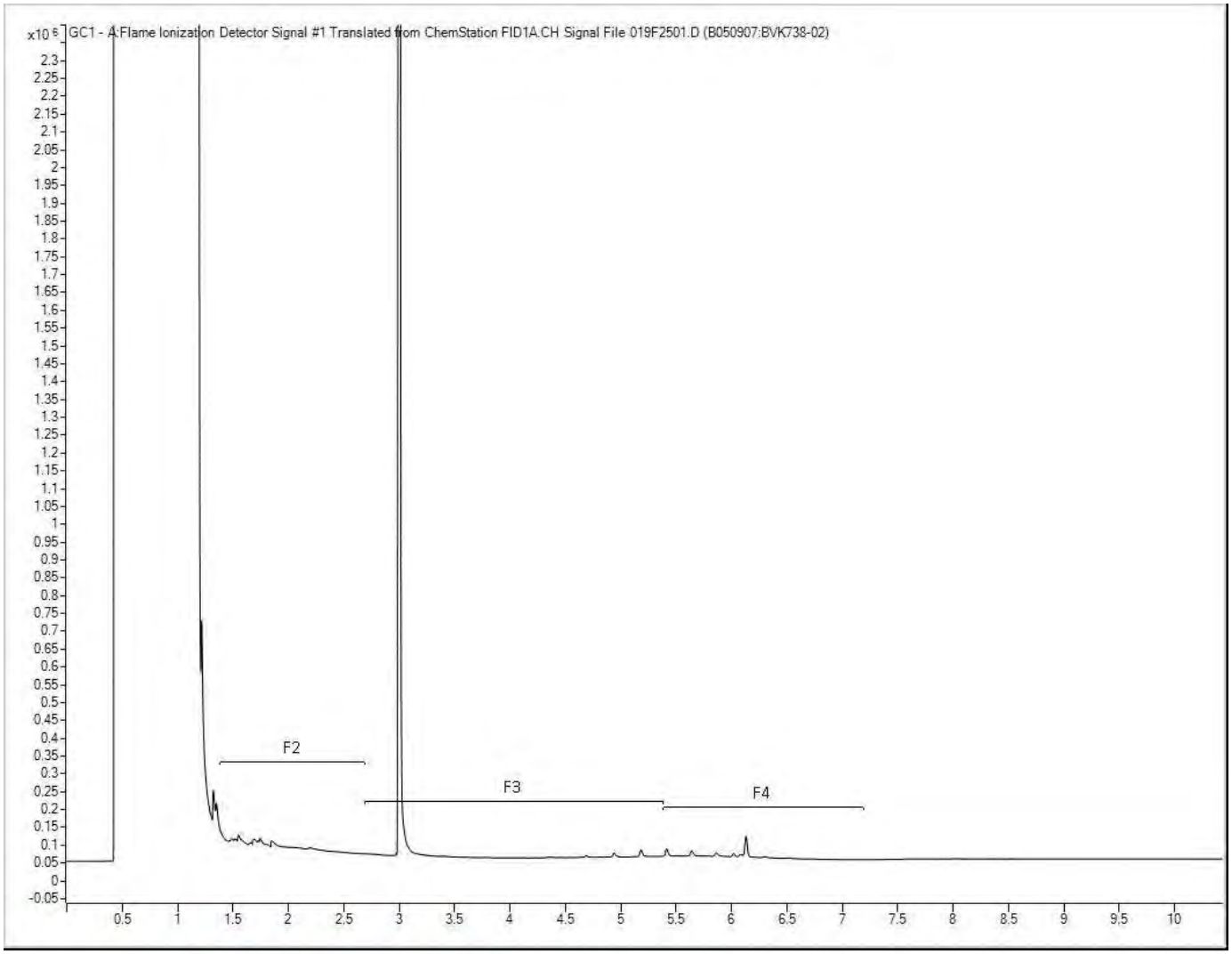
hpchem7\HPchem\1\DATA\2023\08\RUN0801

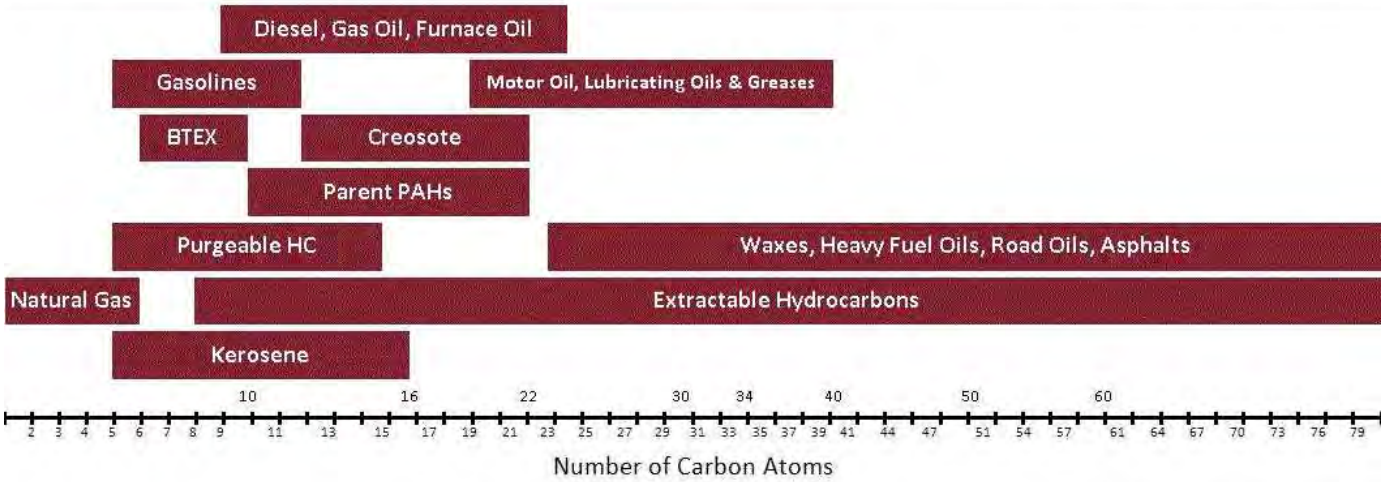
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356730
Report Date: 2023/08/02
Bureau Veritas Sample: BVK738

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14TH AVE NW, CALGARY
Client ID: DUP-02

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





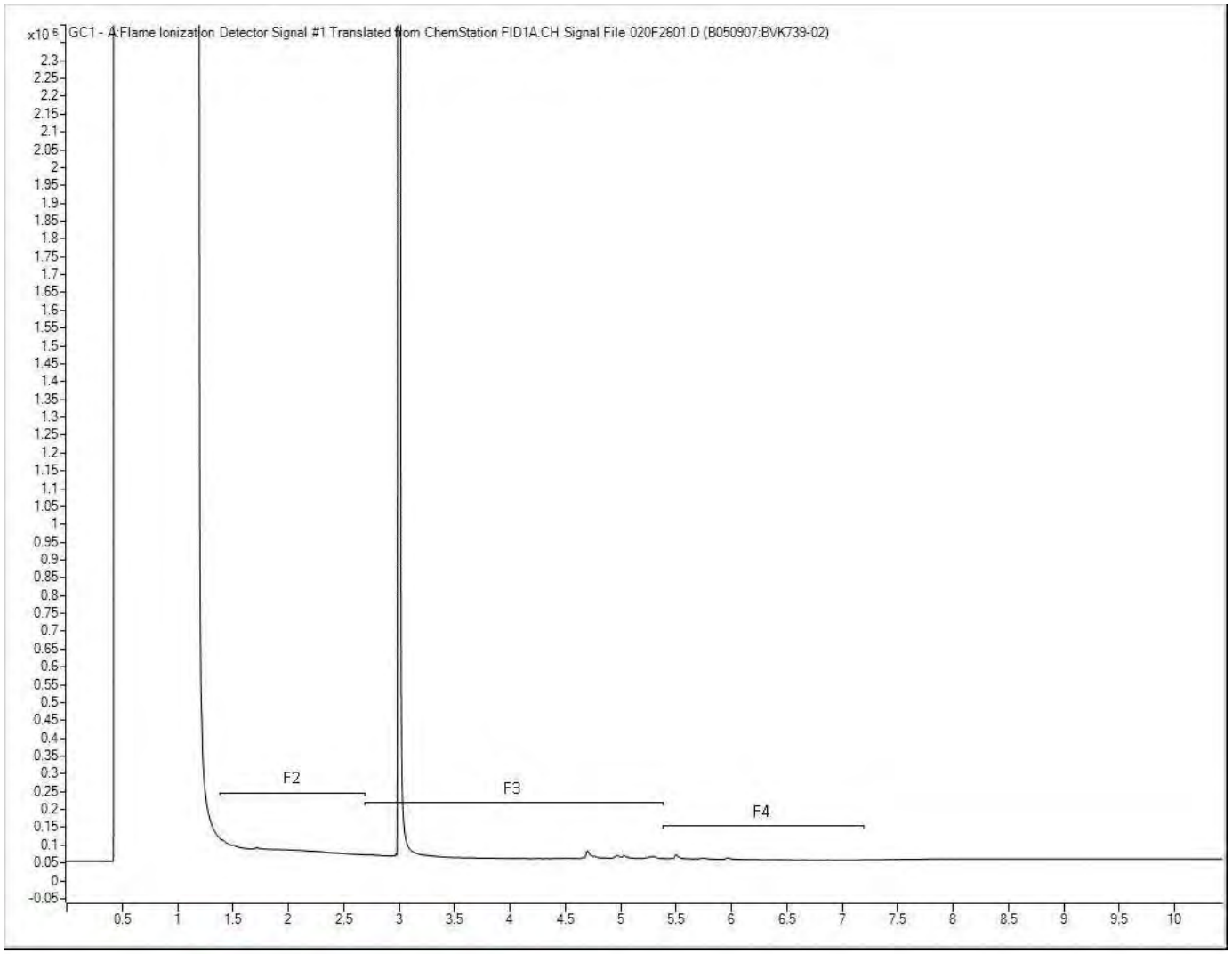
hpchem7\HPchem\1\DATA\2023\08\RUN0801

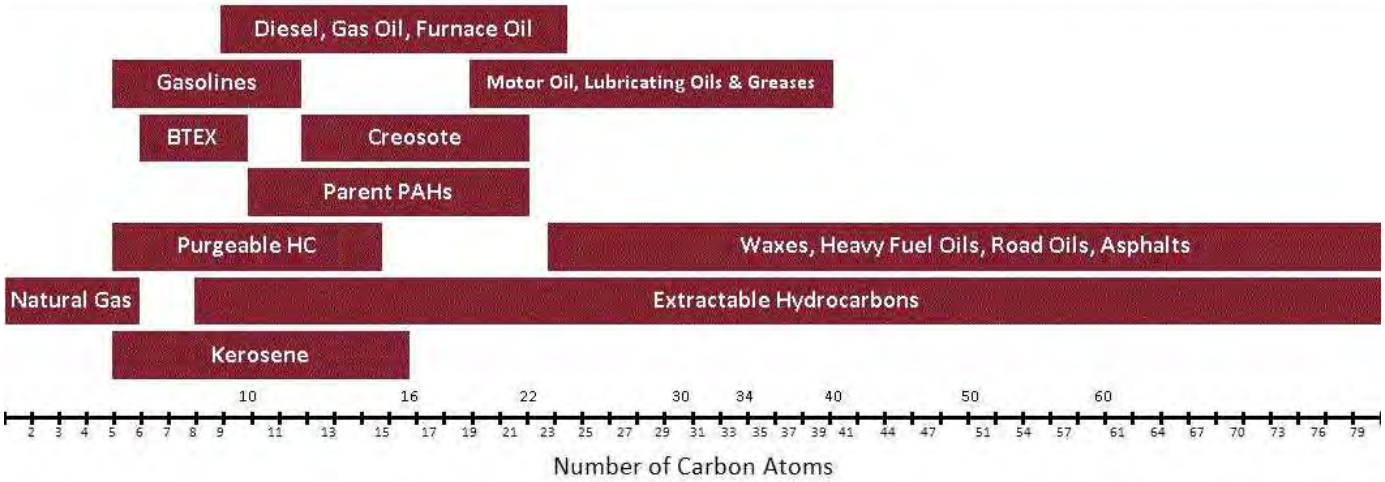
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356730
Report Date: 2023/08/02
Bureau Veritas Sample: BVK739

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14TH AVE NW, CALGARY
Client ID: BH 1911

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





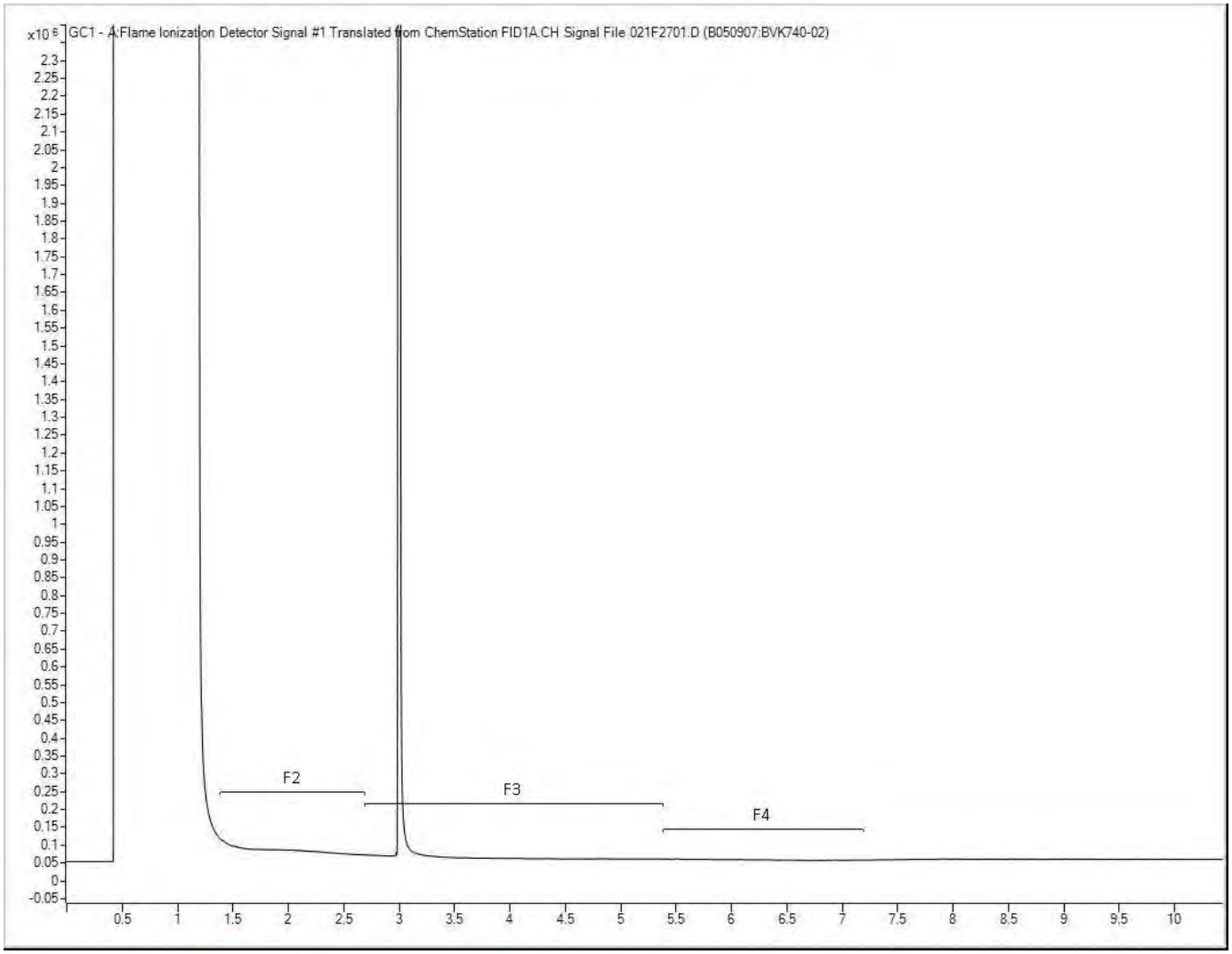
hpchem7\HPchem\1\DATA\2023\08\RUN0801

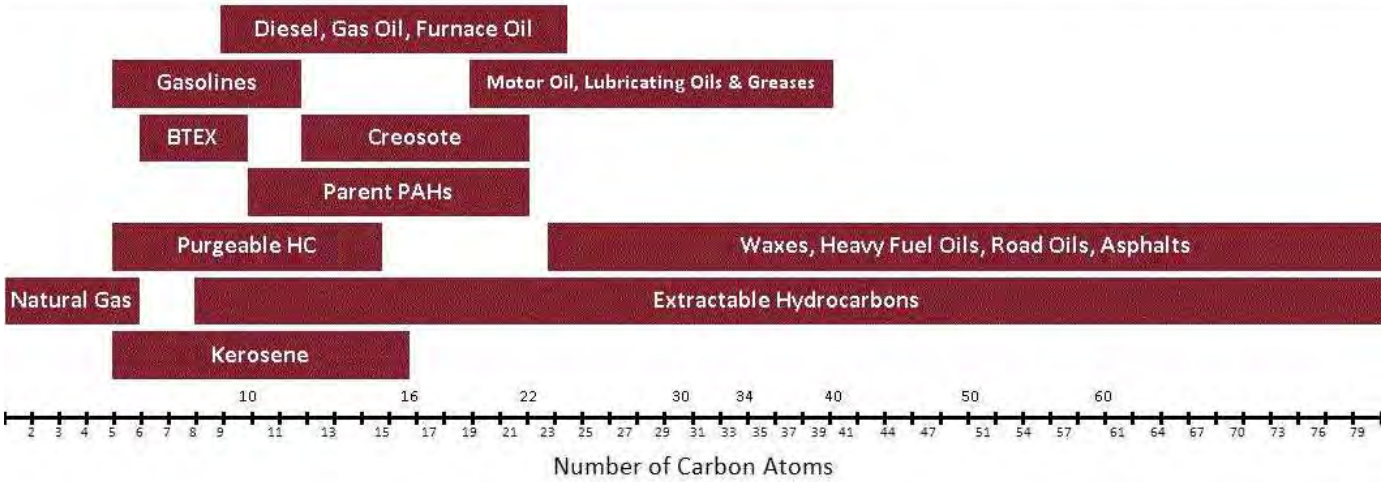
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356730
Report Date: 2023/08/02
Bureau Veritas Sample: BVK740

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14TH AVE NW, CALGARY
Client ID: BH 1976

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





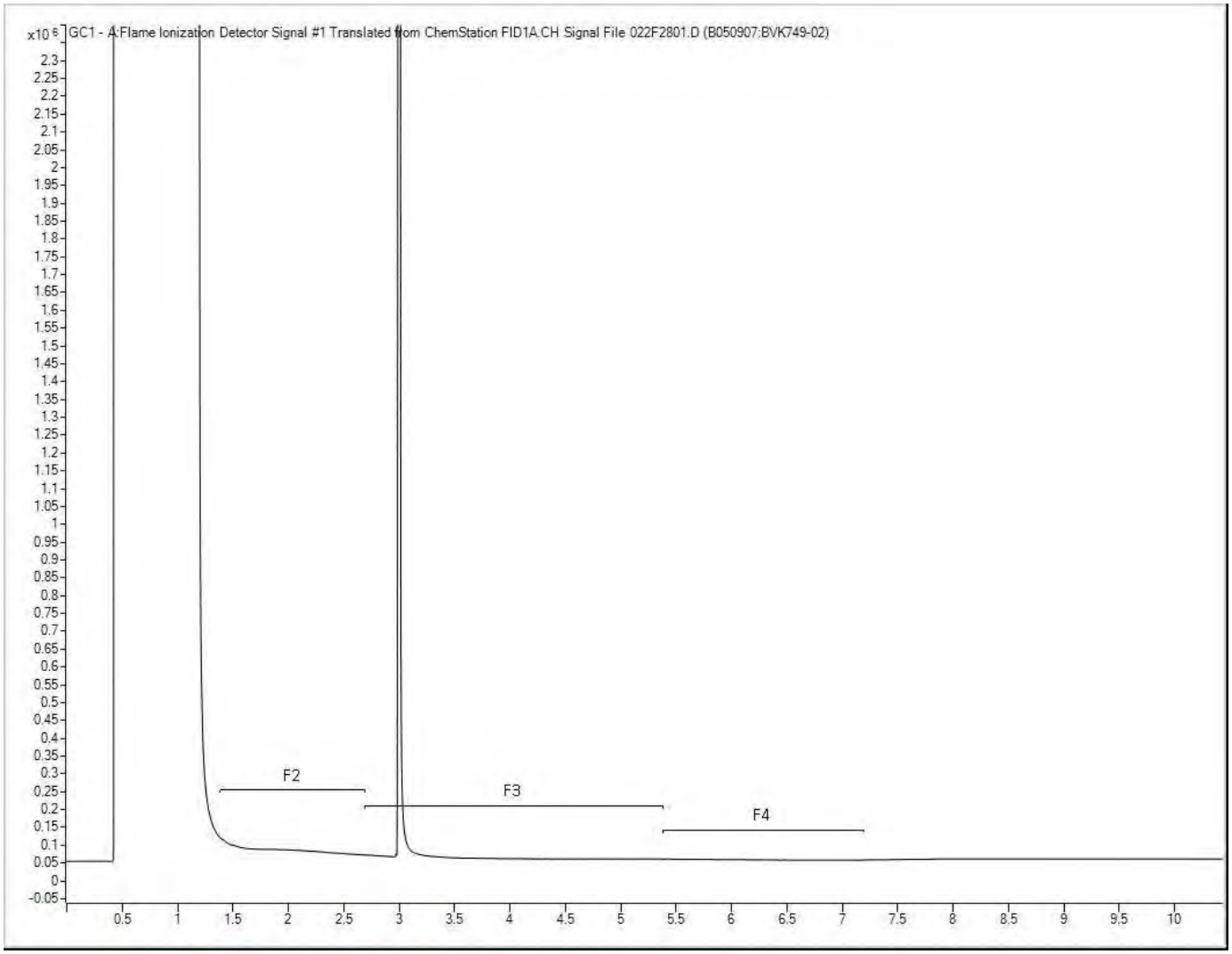
hpchem7\HPchem\1\DATA\2023\08\RUN0801

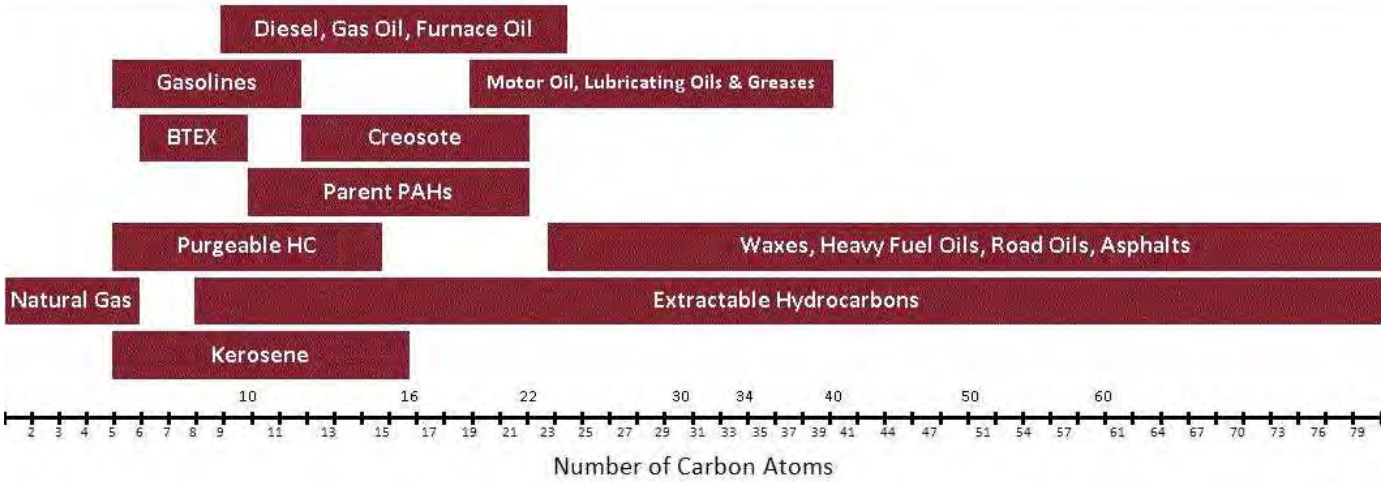
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356730
Report Date: 2023/08/02
Bureau Veritas Sample: BVK749

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14TH AVE NW, CALGARY
Client ID: BH 6004

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





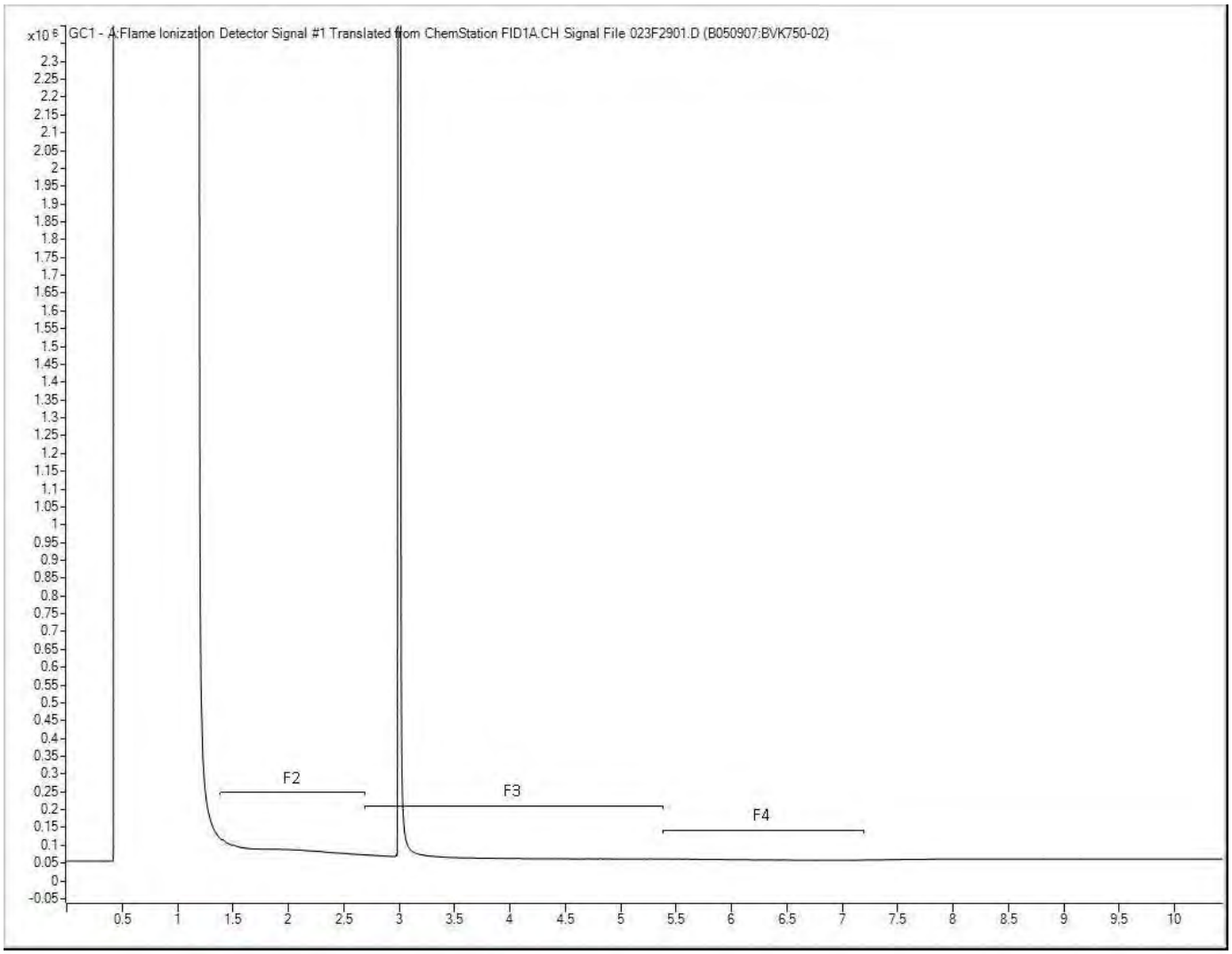
hpchem7\HPchem\1\DATA\2023\08\RUN0801

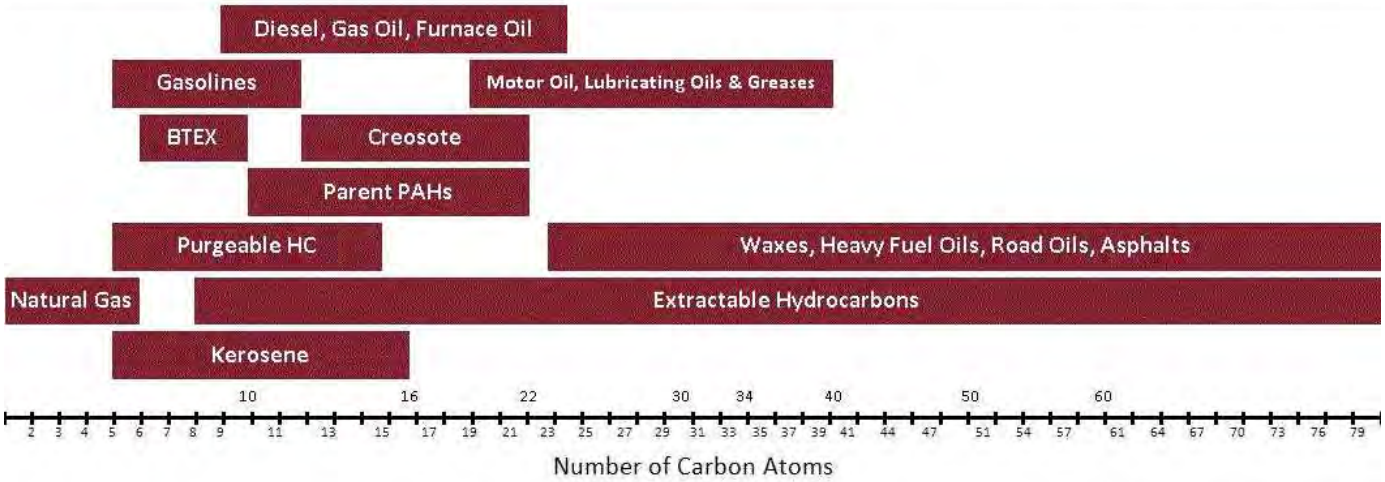
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356730
Report Date: 2023/08/02
Bureau Veritas Sample: BVK750

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14TH AVE NW, CALGARY
Client ID: BH 2007

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





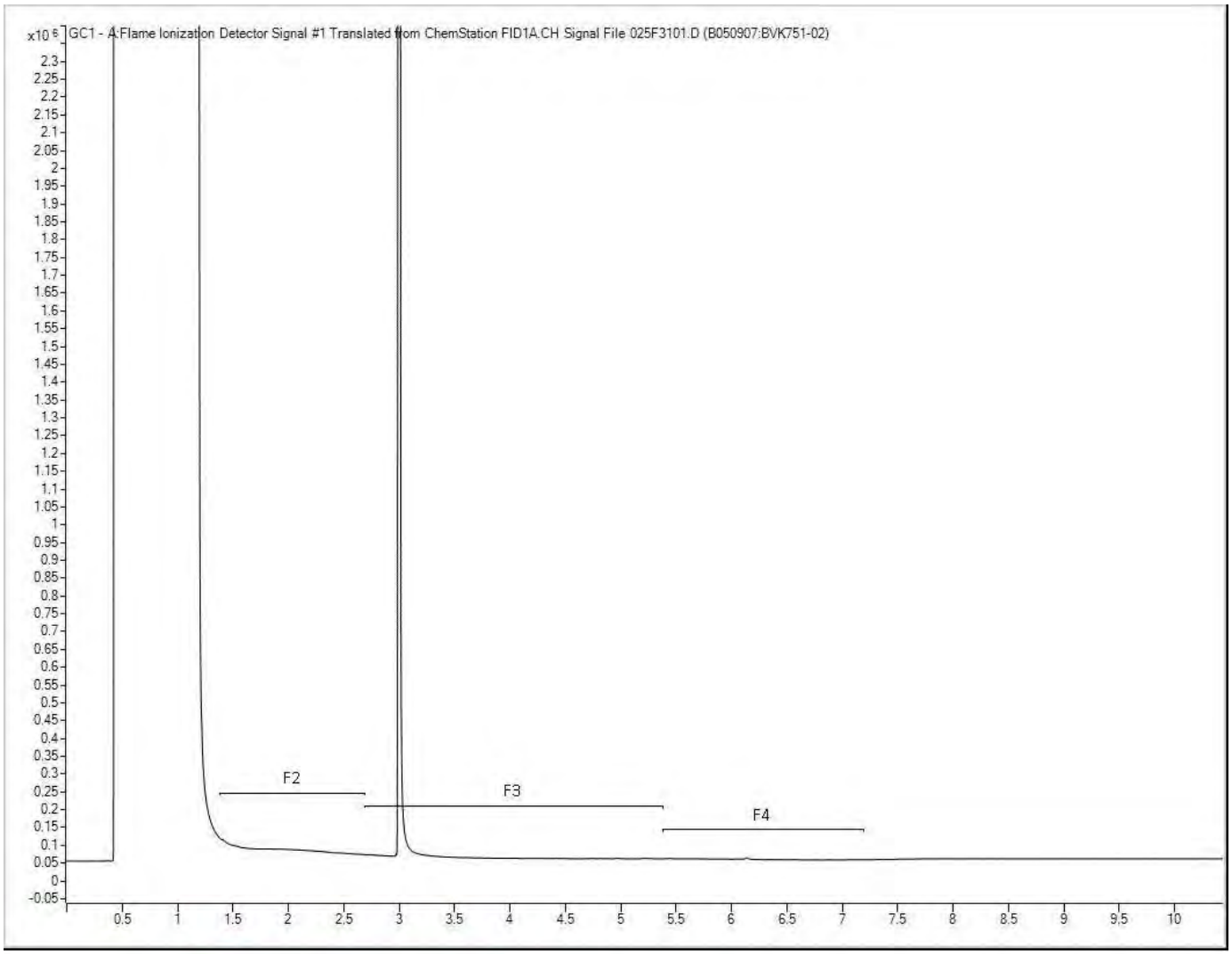
hpchem7\HPchem\1\DATA\2023\08\RUN0801

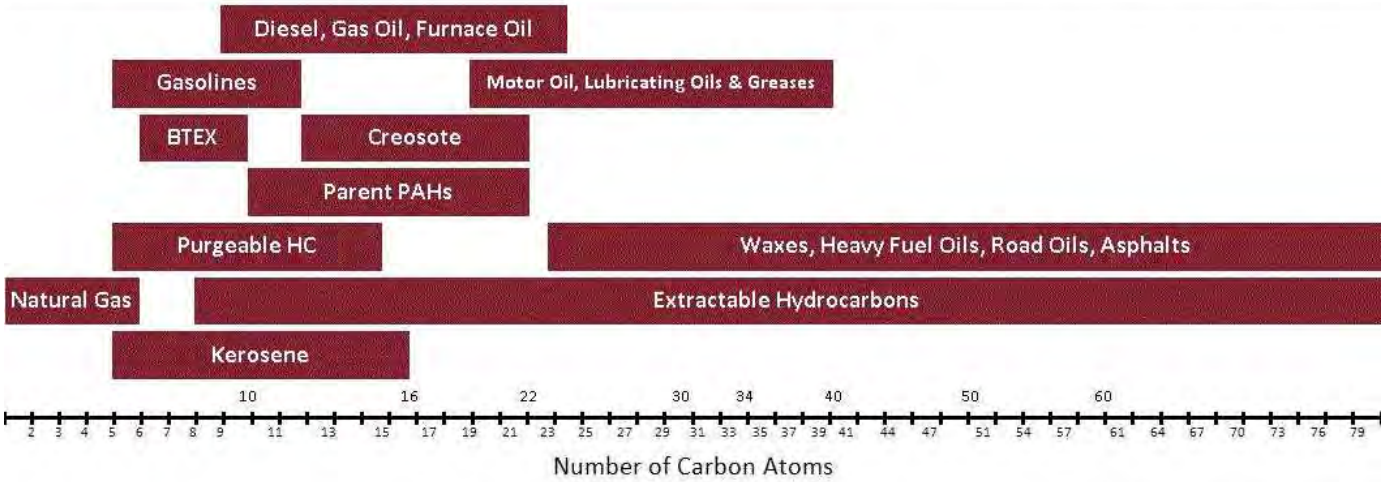
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356730
Report Date: 2023/08/02
Bureau Veritas Sample: BVK751

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14TH AVE NW, CALGARY
Client ID: BH 1910

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





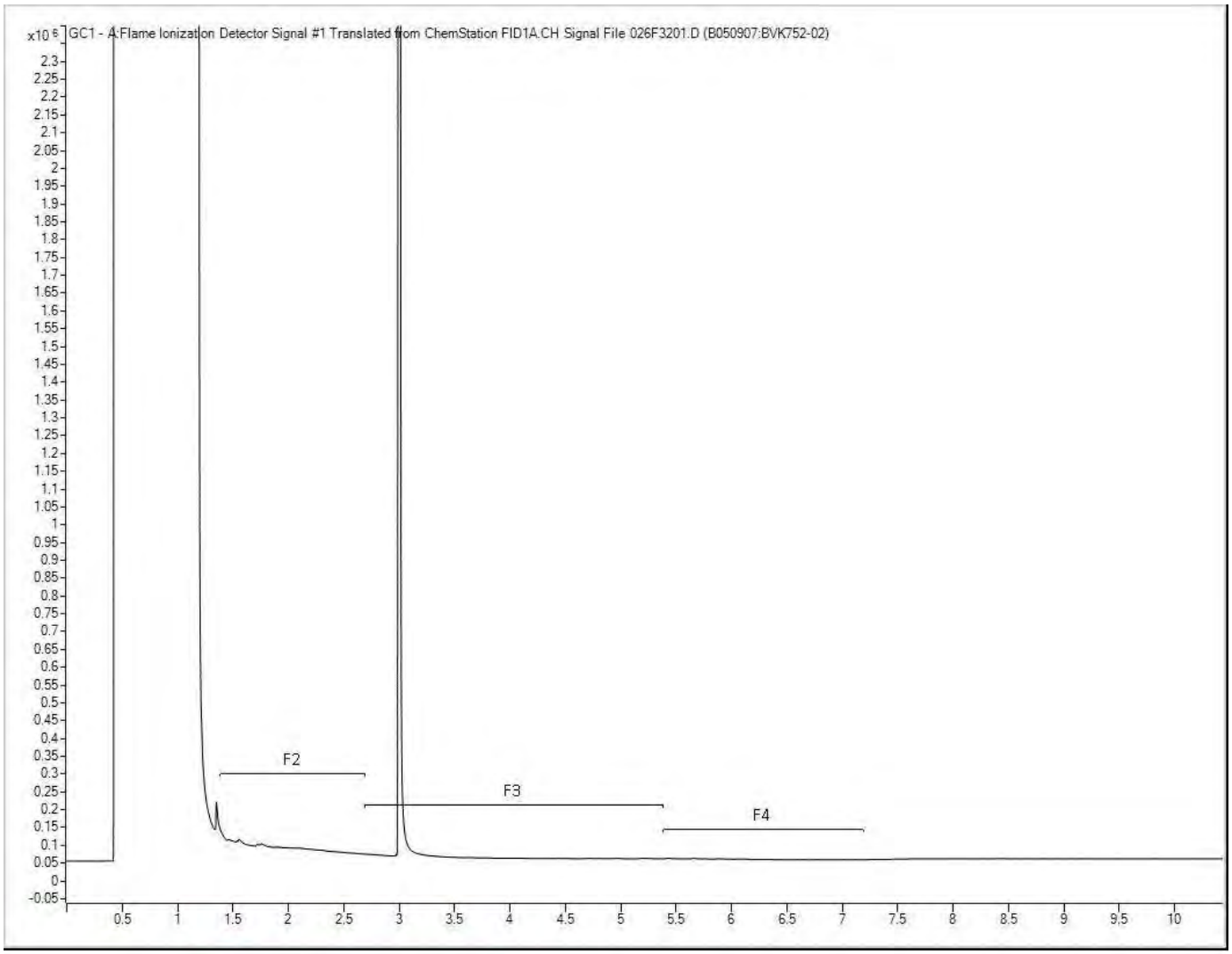
hpchem7\HPchem\1\DATA\2023\08\RUN0801

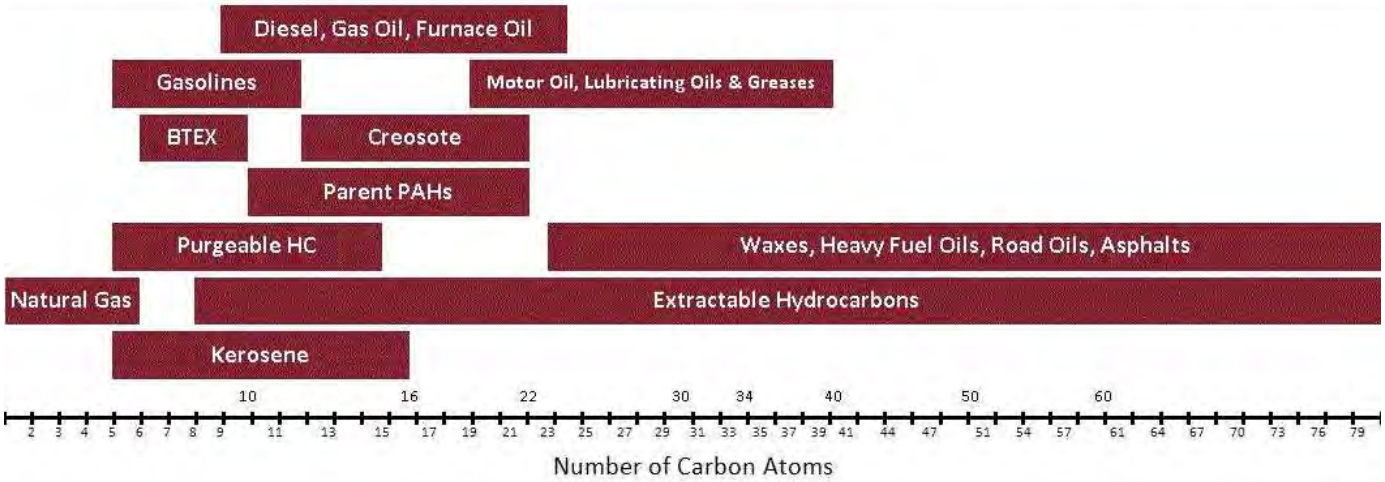
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356730
Report Date: 2023/08/02
Bureau Veritas Sample: BVK752

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14TH AVE NW, CALGARY
Client ID: BH 1967

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





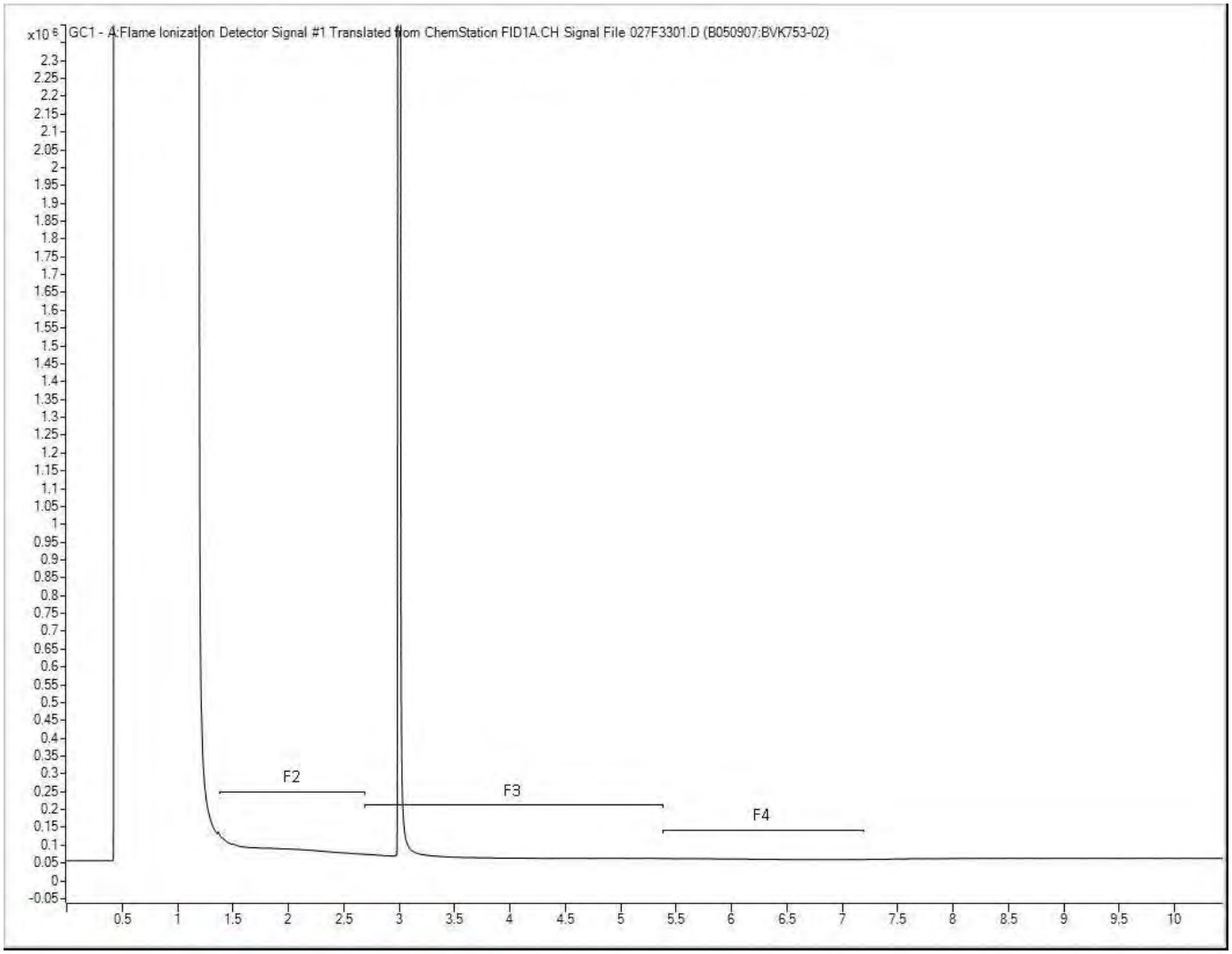
hpchem7\HPchem\1\DATA\2023\08\RUN0801

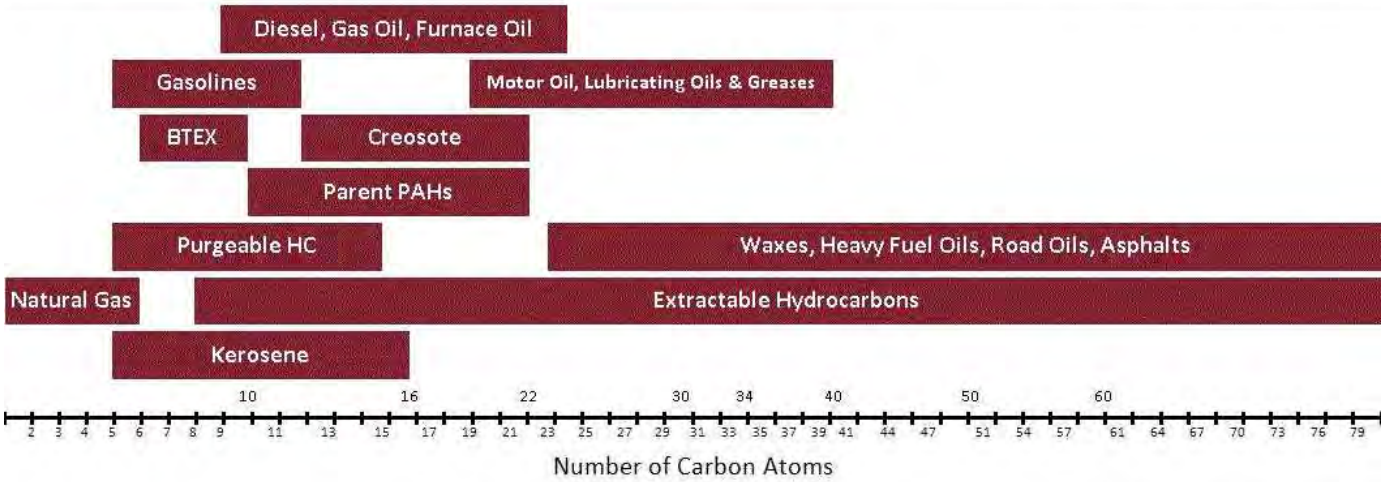
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356730
Report Date: 2023/08/02
Bureau Veritas Sample: BVK753

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14TH AVE NW, CALGARY
Client ID: BH 1974

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





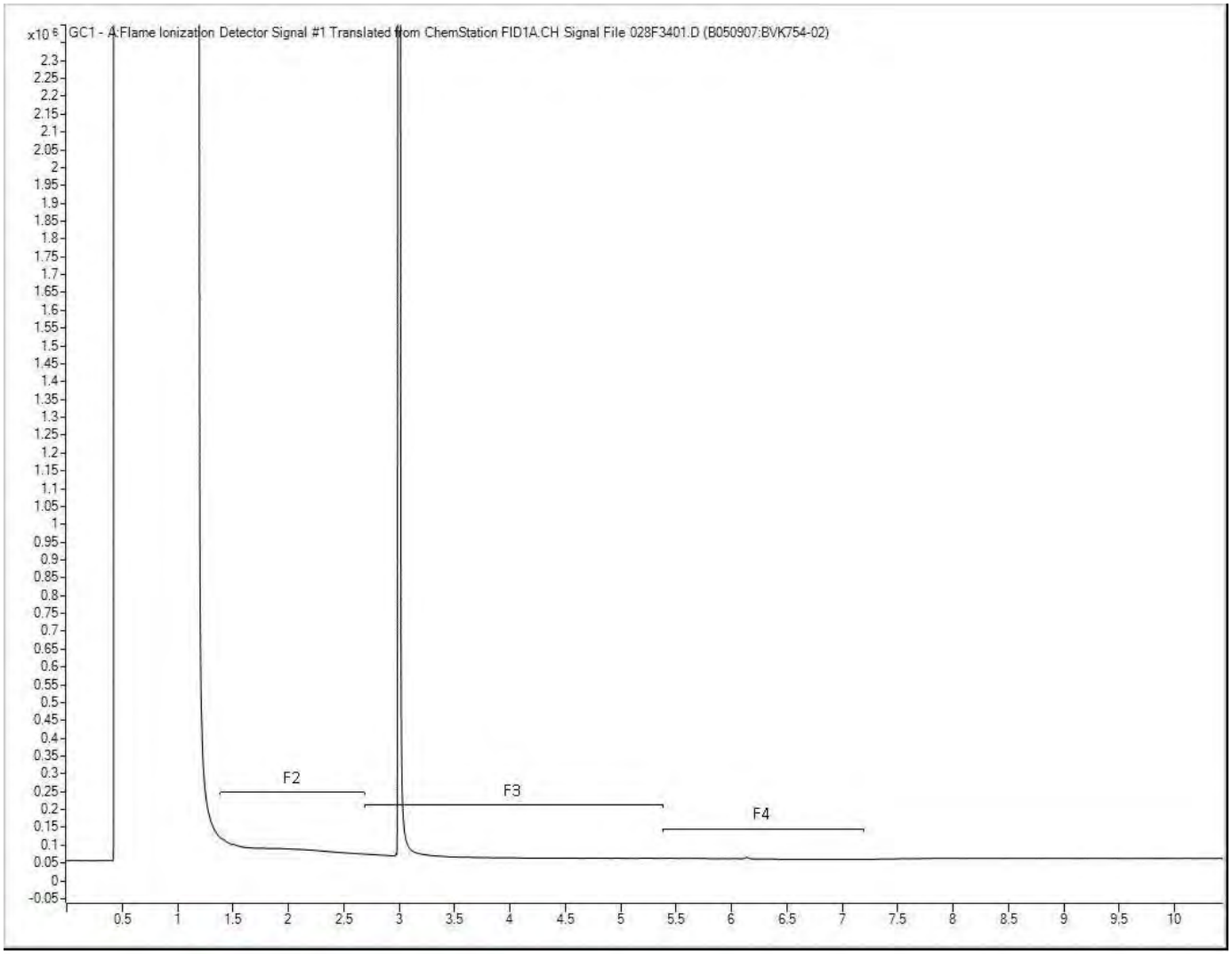
hpchem7\HPchem\1\DATA\2023\08\RUN0801

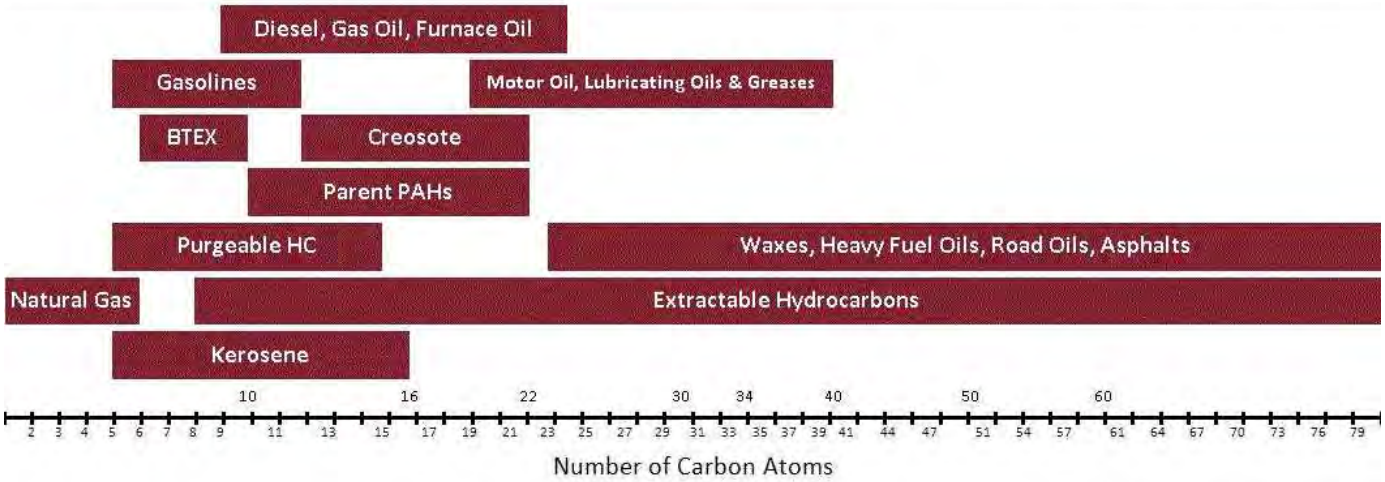
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356730
Report Date: 2023/08/02
Bureau Veritas Sample: BVK754

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14TH AVE NW, CALGARY
Client ID: BH 1966

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





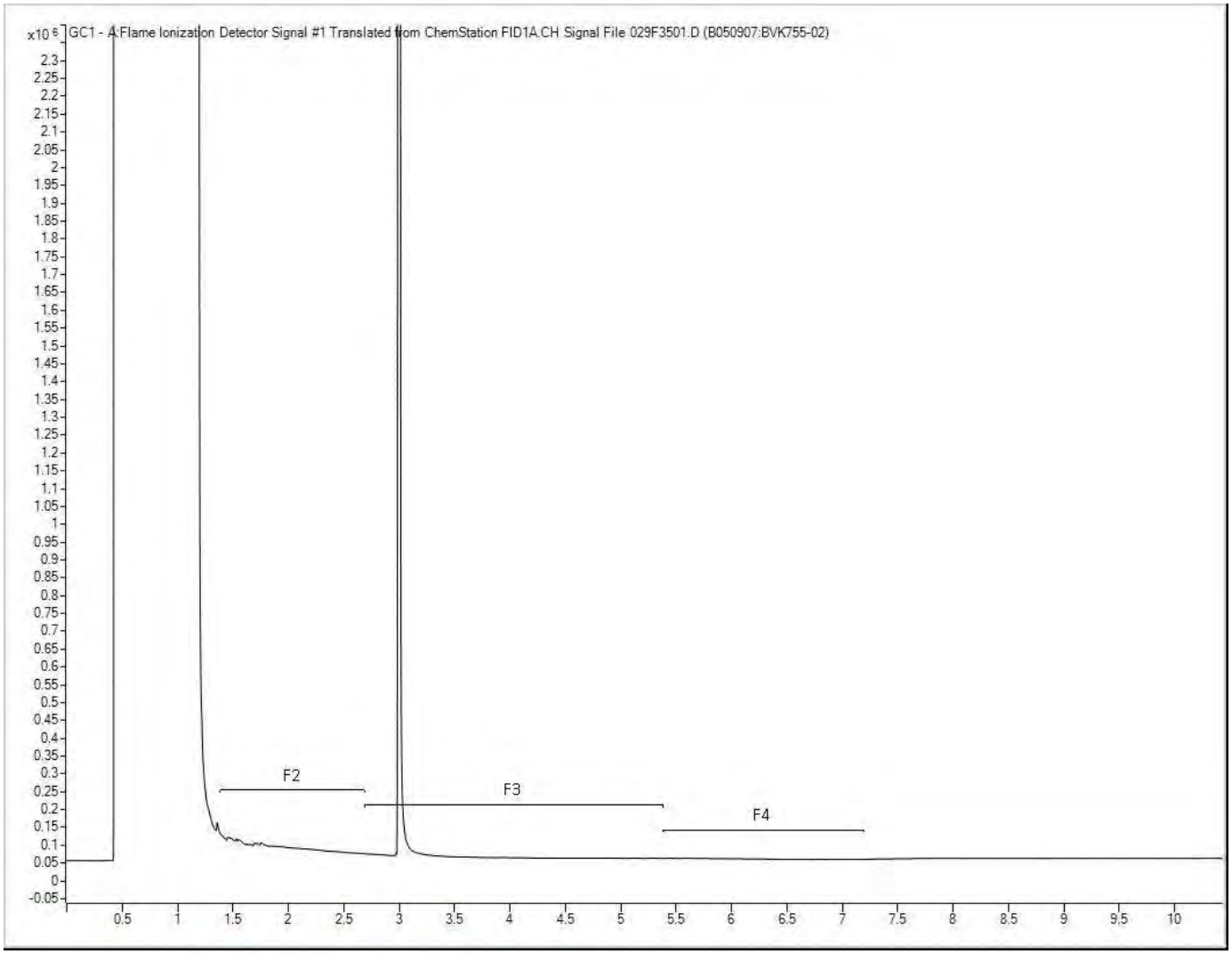
hpchem7\HPchem\1\DATA\2023\08\RUN0801

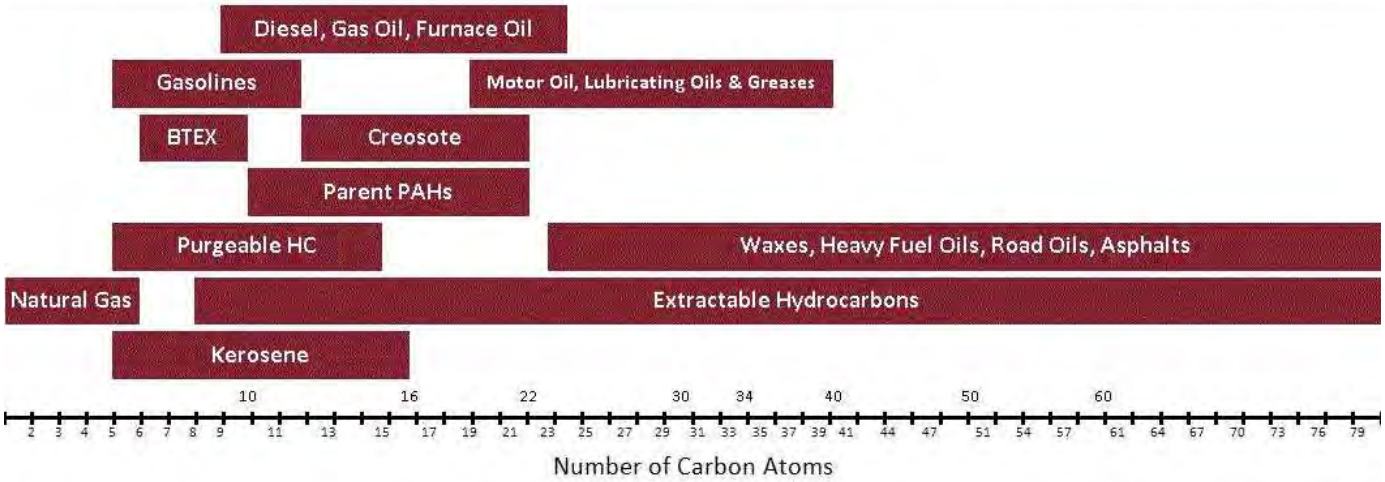
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356730
Report Date: 2023/08/02
Bureau Veritas Sample: BVK755

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14TH AVE NW, CALGARY
Client ID: DUP-04

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





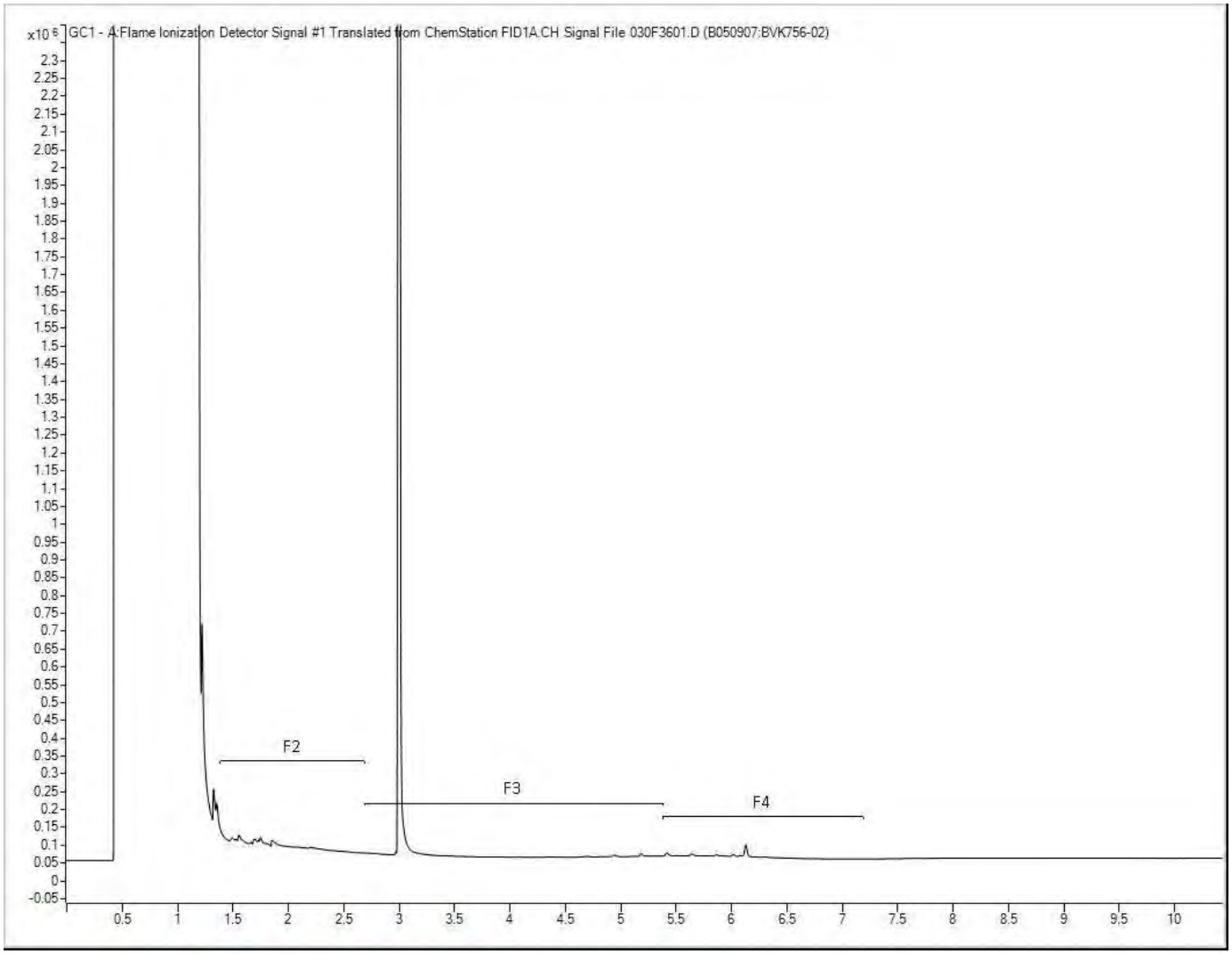
hpchem7\HPchem\1\DATA\2023\08\RUN0801

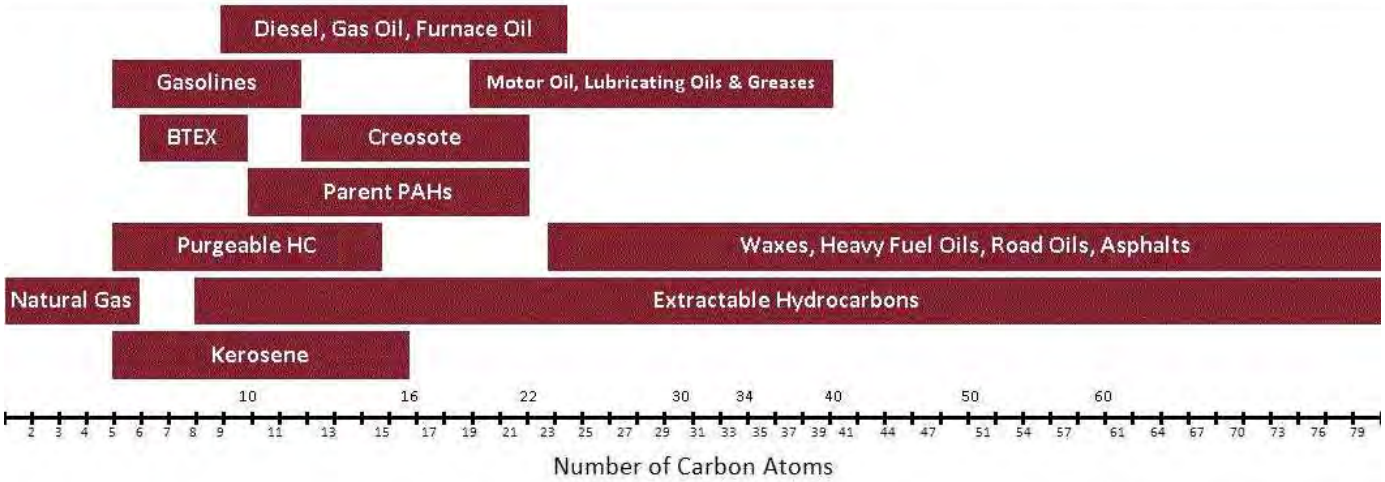
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356730
Report Date: 2023/08/02
Bureau Veritas Sample: BVK756

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14TH AVE NW, CALGARY
Client ID: BH 1907

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





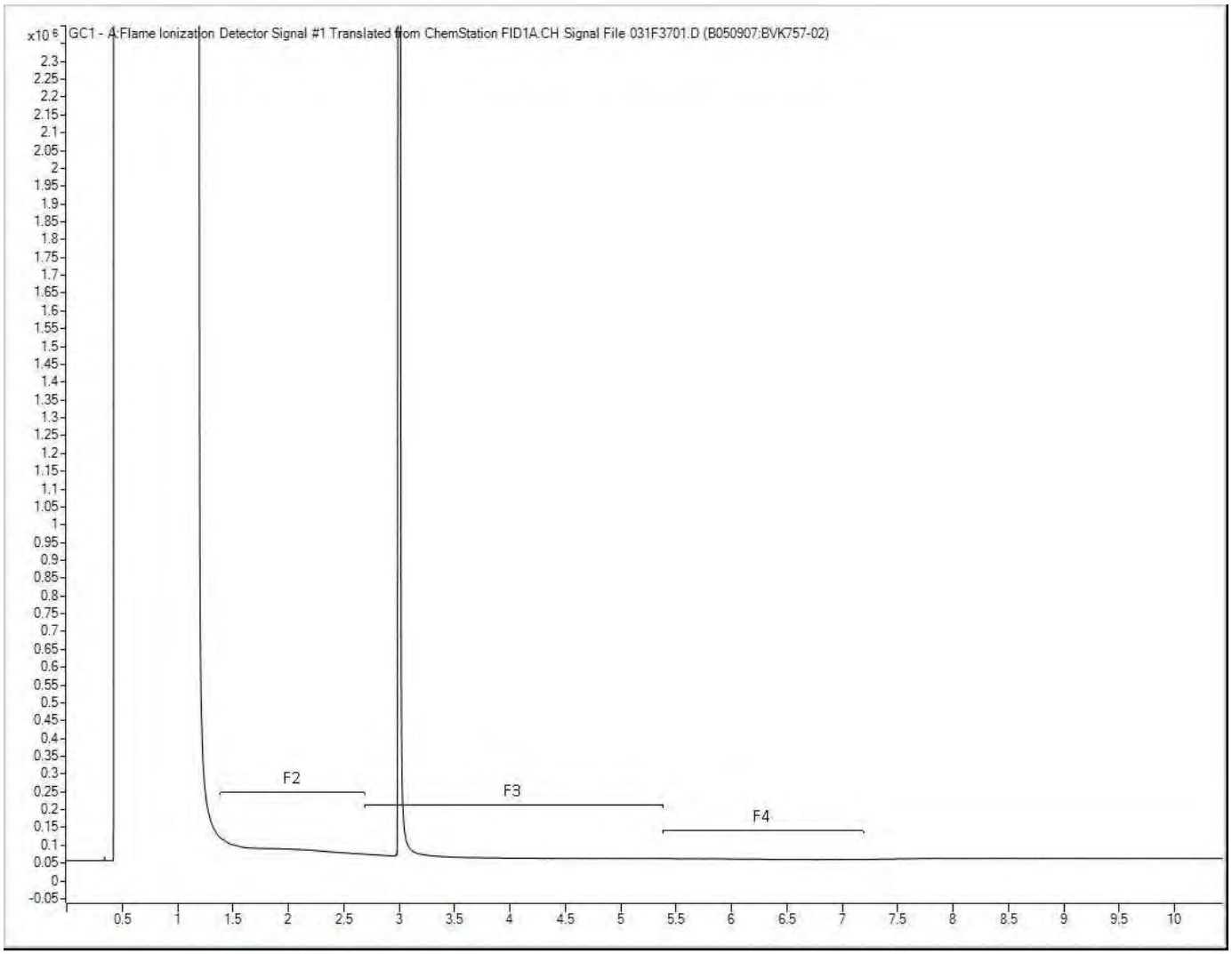
hpchem7\HPchem\1\DATA\2023\08\RUN0801

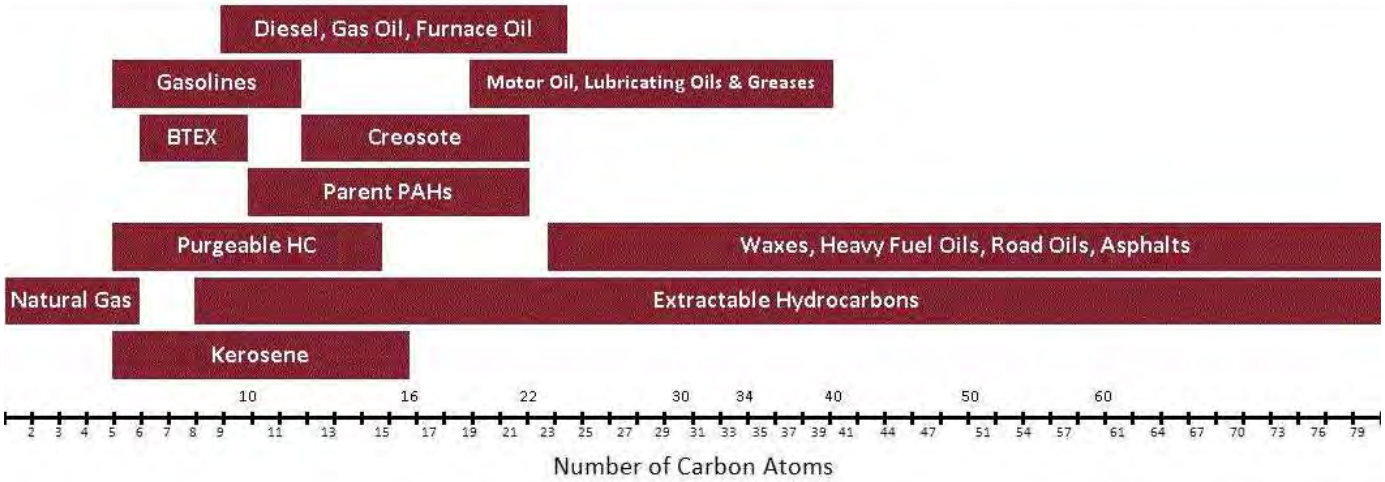
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356730
Report Date: 2023/08/02
Bureau Veritas Sample: BVK757

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14TH AVE NW, CALGARY
Client ID: TRIP BLANK-02

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





hpchem7\HPchem\1\DATA\2023\08\RUN0801

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

DATA QUALITY REVIEW CHECKLIST

Consultant: *Parsons Inc.*

Sampling Date: *2023/7/24 to 2023/7/25*

Location: *1620 14 AVE NW, CALGARY*

Laboratory : *Bureau Veritas, Calgary, AB*

Consultant Project Number: *10-12832*

Sample Submission Number: *C356837*

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

	Yes	No	NA	Comments
Surrogate Recovery	*X*			*The method blank concentration for m & p-Xylene (<0.0010) is outside the standard control limits. 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
Field Blank Concentration	*X*			*The field duplicate RPD for Benzene (89%) and Ethylbenzene (88%) are beyond the acceptable limits. All other field QC met acceptable RPD limits.*
Trip Blank Concentration	*X*			
Field Duplicate RPD		*X*		

Has CoA been signed off (Yes/No)?:	*Yes*
Has lab warranted all tests were in statistical control in CoA (Yes/No)?:	*Yes*
Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?:	*Yes*
Were all samples analyzed within hold times (Yes/No)?:	*Yes*
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): *Mackenzie Robart*

Reviewed by (Print): *Michelle Patterson*

Reviewed date: *2023/10/03*

Reviewed by (Signature):

Your P.O. #: 478621.17102
Your Project #: 10-12832
Site#: 9445
Site Location: 1620-14TH AVE NW, CALGARY
Outlet Number 9445
Your C.O.C. #: 699821-24-01

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/09/29
Report #: R3403455
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C356837
Received: 2023/07/25, 15:46

Sample Matrix: Water
Samples Received: 34

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/F1 in Water by HS GC/MS/FID	16	N/A	2023/07/28	AB SOP-00039	CCME CWS/EPA 8260d m
BTEX/F1 in Water by HS GC/MS/FID	17	N/A	2023/07/29	AB SOP-00039	CCME CWS/EPA 8260d m
BTEX/F1 in Water by HS GC/MS/FID	1	N/A	2023/07/30	AB SOP-00039	CCME CWS/EPA 8260d m
F1-BTEX	14	N/A	2023/07/30		Auto Calc
F1-BTEX	20	N/A	2023/07/31		Auto Calc
CCME Hydrocarbons in Water (F2; C10-C16) (1)	14	2023/07/30	2023/07/30	AB SOP-00037 AB SOP-00040	CCME PHC-CWS m
CCME Hydrocarbons in Water (F2; C10-C16) (1)	2	2023/08/01	2023/08/01	AB SOP-00037 AB SOP-00040	CCME PHC-CWS m
CCME Hydrocarbons in Water (F2; C10-C16) (1)	18	2023/08/01	2023/08/02	AB SOP-00037 AB SOP-00040	CCME PHC-CWS m
Total Trihalomethanes Calculation	20	N/A	2023/07/28		Auto Calc
Total Trihalomethanes Calculation	14	N/A	2023/07/29		Auto Calc
VOCs in Water by HS GC/MS (Std List)	4	N/A	2023/07/27	AB SOP-00056	EPA 5021a/8260d m
VOCs in Water by HS GC/MS (Std List)	21	N/A	2023/07/28	AB SOP-00056	EPA 5021a/8260d m
VOCs in Water by HS GC/MS (Std List)	9	N/A	2023/07/29	AB SOP-00056	EPA 5021a/8260d m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Your P.O. #: 478621.17102
Your Project #: 10-12832
Site#: 9445
Site Location: 1620-14TH AVE NW, CALGARY
Outlet Number 9445
Your C.O.C. #: 699821-24-01

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/09/29
Report #: R3403455
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C356837
Received: 2023/07/25, 15:46

dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Silica gel clean up employed.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Parminder Virk, Key Account Specialist
Email: Parminder.Virk@bureauveritas.com
Phone# (403)735-2235
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Scott Cantwell, General Manager responsible for Alberta Environmental laboratory operations.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C356837
Report Date: 2023/09/29

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620-14TH AVE NW, CALGARY
Your P.O. #: 478621.17102
Sampler Initials: GC

AT1 BTEX AND F1-F2 IN WATER (WATER)

Bureau Veritas ID		BVL590		BVL591		BVL592		BVL593		
Sampling Date		2023/07/25 07:30		2023/07/25 08:00		2023/07/25 08:30		2023/07/25 09:00		
COC Number		699821-24-01		699821-24-01		699821-24-01		699821-24-01		
	UNITS	**BH5001**	**RDL**	**BH6003**	**RDL**	**BH1922**	**RDL**	**BH1947**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon										
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	0.10	2.6	0.10	<0.10	0.10	<0.10	0.10	B050921
Volatiles										
Benzene	mg/L	<0.00040	0.00040	0.020	0.00040	<0.00040	0.00040	<0.00040	0.00040	B049670
Toluene	mg/L	<0.00040	0.00040	0.93	0.00040	<0.00040	0.00040	<0.00040	0.00040	B049670
Ethylbenzene	mg/L	<0.00040	0.00040	0.24	0.00040	<0.00040	0.00040	<0.00040	0.00040	B049670
m & p-Xylene	mg/L	<0.00080	0.00080	6.1	0.0040	<0.00080	0.00080	<0.0010 (1)	0.0010	B049670
o-Xylene	mg/L	<0.00040	0.00040	0.99	0.00040	<0.00040	0.00040	<0.00040	0.00040	B049670
Xylenes (Total)	mg/L	<0.00089	0.00089	7.1	0.0040	<0.00089	0.00089	<0.0011	0.0011	B049217
F1 (C6-C10) - BTEX	mg/L	<0.10	0.10	4.1	0.10	<0.10	0.10	<0.10	0.10	B049217
F1 (C6-C10)	mg/L	<0.10	0.10	12	0.10	<0.10	0.10	<0.10	0.10	B049670
Surrogate Recovery (%)										
1,4-Difluorobenzene (sur.)	%	106		105		106		104		B049670
4-Bromofluorobenzene (sur.)	%	108		106		97		106		B049670
D4-1,2-Dichloroethane (sur.)	%	119		105		99		120		B049670
O-TERPHENYL (sur.)	%	102		103		101		102		B050921

RDL = Reportable Detection Limit
(1) Detection limit raised due to interferent.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C356837
Report Date: 2023/09/29

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620-14TH AVE NW, CALGARY
Your P.O. #: 478621.17102
Sampler Initials: GC

AT1 BTEX AND F1-F2 IN WATER (WATER)

Bureau Veritas ID		BVL594	BVL595	BVL596		BVL597		
Sampling Date		2023/07/25 09:30	2023/07/25 09:30	2023/07/25 10:00		2023/07/25 10:30		
COC Number		699821-24-01	699821-24-01	699821-24-01		699821-24-01		
	UNITS	**BH1921**	**DUP-11**	**BH1946**	**RDL**	**BH6001**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon								
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	<0.10	<0.10	0.10	<0.10	0.10	B050921
Volatiles								
Benzene	mg/L	0.027	0.027	<0.00040	0.00040	<0.00040	0.00040	B049670
Toluene	mg/L	0.0092	0.0088	<0.00040	0.00040	<0.00040	0.00040	B049670
Ethylbenzene	mg/L	0.070	0.067	<0.00040	0.00040	<0.00040	0.00040	B049670
m & p-Xylene	mg/L	0.0032	0.0029	<0.00080	0.00080	<0.0010 (1)	0.0010	B049670
o-Xylene	mg/L	0.0018	0.0019	<0.00040	0.00040	<0.00040	0.00040	B049670
Xylenes (Total)	mg/L	0.0050	0.0048	<0.00089	0.00089	<0.0011	0.0011	B049217
F1 (C6-C10) - BTEX	mg/L	0.74	0.83	<0.10	0.10	<0.10	0.10	B049217
F1 (C6-C10)	mg/L	0.86	0.94	<0.10	0.10	<0.10	0.10	B049670
Surrogate Recovery (%)								
1,4-Difluorobenzene (sur.)	%	106	105	105		105		B049670
4-Bromofluorobenzene (sur.)	%	108	108	109		108		B049670
D4-1,2-Dichloroethane (sur.)	%	111	114	121		124		B049670
O-TERPHENYL (sur.)	%	101	100	101		102		B050921

RDL = Reportable Detection Limit
(1) Detection limit raised due to interferent.

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Bureau Veritas Job #: C356837
Report Date: 2023/09/29

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620-14TH AVE NW, CALGARY
Your P.O. #: 478621.17102
Sampler Initials: GC

AT1 BTEX AND F1-F2 IN WATER (WATER)

Bureau Veritas ID		BVL598		BVL599		BVL600	BVL601		
Sampling Date		2023/07/25 11:00		2023/07/25 11:30		2023/07/25 12:00	2023/07/25 12:30		
COC Number		699821-24-01		699821-24-01		699821-24-01	699821-24-01		
	UNITS	**BH1918**	**RDL**	**BH1704**	**RDL**	**BH6002**	**BH1953**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	0.10	2.4	0.10	0.43	<0.10	0.10	B050921
Volatiles									
Benzene	mg/L	<0.00040	0.00040	1.2	0.0040	0.033	<0.00040	0.00040	B049670
Toluene	mg/L	<0.00040	0.00040	5.4	0.0040	0.050	<0.00040	0.00040	B049670
Ethylbenzene	mg/L	<0.00040	0.00040	0.89	0.00040	0.28	<0.00040	0.00040	B049670
m & p-Xylene	mg/L	<0.00080	0.00080	4.8	0.0080	0.95	<0.00080	0.00080	B049670
o-Xylene	mg/L	<0.00040	0.00040	1.7	0.0040	0.32	<0.00040	0.00040	B049670
Xylenes (Total)	mg/L	<0.00089	0.00089	6.5	0.0089	1.3	<0.00089	0.00089	B049217
F1 (C6-C10) - BTEX	mg/L	<0.10	0.10	7.9	1.0	2.0	<0.10	0.10	B049217
F1 (C6-C10)	mg/L	<0.10	0.10	22	1.0	3.6	<0.10	0.10	B049670
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	106		106		104	106		B049670
4-Bromofluorobenzene (sur.)	%	109		106		108	97		B049670
D4-1,2-Dichloroethane (sur.)	%	119		95		111	99		B049670
O-TERPHENYL (sur.)	%	105		103		101	101		B050921
RDL = Reportable Detection Limit									

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Bureau Veritas Job #: C356837
Report Date: 2023/09/29

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620-14TH AVE NW, CALGARY
Your P.O. #: 478621.17102
Sampler Initials: GC

AT1 BTEX AND F1-F2 IN WATER (WATER)

Bureau Veritas ID		BVL602	BVL603		BVL604	BVL605		
Sampling Date		2023/07/25 12:45	2023/07/25 12:50		2023/07/25 13:00	2023/07/25 13:30		
COC Number		699821-24-01	699821-24-01		699821-24-01	699821-24-01		
	UNITS	**BH5002**	**EX4**	**RDL**	**EX5**	**DUP-09**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon								
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	0.79	0.10	1.2	1.3	0.10	B050921
Volatiles								
Benzene	mg/L	<0.00040	0.15	0.00040	4.1	3.7	0.0040	B049670
Toluene	mg/L	<0.00040	0.0082	0.00040	6.3	5.3	0.0040	B049670
Ethylbenzene	mg/L	<0.00040	0.27	0.00040	1.5	1.5	0.0040	B049670
m & p-Xylene	mg/L	<0.00080	0.53	0.00080	5.6	5.3	0.0080	B049670
o-Xylene	mg/L	<0.00040	0.0086	0.00040	0.75	0.71	0.00040	B049670
Xylenes (Total)	mg/L	<0.00089	0.54	0.00089	6.4	6.1	0.0080	B049217
F1 (C6-C10) - BTEX	mg/L	<0.10	1.8	0.10	5.3	12	1.0	B049217
F1 (C6-C10)	mg/L	<0.10	2.8	0.10	24	28	1.0	B049670
Surrogate Recovery (%)								
1,4-Difluorobenzene (sur.)	%	106	103		105	106		B049670
4-Bromofluorobenzene (sur.)	%	97	109		108	110		B049670
D4-1,2-Dichloroethane (sur.)	%	99	120		104	102		B049670
O-TERPHENYL (sur.)	%	102	102		100	102		B050921
RDL = Reportable Detection Limit								

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Bureau Veritas Job #: C356837
Report Date: 2023/09/29

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620-14TH AVE NW, CALGARY
Your P.O. #: 478621.17102
Sampler Initials: GC

AT1 BTEX AND F1-F2 IN WATER (WATER)

Bureau Veritas ID		BVL606		BVL607	BVL608	BVL609		
Sampling Date		2023/07/25 14:00		2023/07/25 14:30	2023/07/25 15:00	2023/07/24 07:30		
COC Number		699821-24-01		699821-24-01	699821-24-01	699821-24-01		
	UNITS	**EX6**	**RDL**	**EX7**	**TRIP BLANK-05**	**BH510A**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon								
F2 (C10-C16 Hydrocarbons)	mg/L	0.95	0.10	1.9	<0.10	0.14	0.10	B050921
Volatiles								
Benzene	mg/L	0.26	0.00040	0.33	<0.00040	0.21	0.00040	B049670
Toluene	mg/L	0.29	0.00040	0.32	<0.00040	0.0097	0.00040	B049670
Ethylbenzene	mg/L	0.85	0.00080	0.77	<0.00040	0.36	0.00040	B049670
m & p-Xylene	mg/L	1.9	0.0016	1.2	<0.00080	0.0074	0.00080	B049670
o-Xylene	mg/L	0.43	0.00040	0.30	<0.00040	0.0020	0.00040	B049670
Xylenes (Total)	mg/L	2.3	0.0016	1.5	<0.00089	0.0094	0.00089	B049217
F1 (C6-C10) - BTEX	mg/L	3.7	0.10	4.6	<0.10	1.1	0.10	B049217
F1 (C6-C10)	mg/L	7.4	0.10	7.5	<0.10	1.7	0.10	B049670
Surrogate Recovery (%)								
1,4-Difluorobenzene (sur.)	%	105		103	106	103		B049670
4-Bromofluorobenzene (sur.)	%	109		107	97	110		B049670
D4-1,2-Dichloroethane (sur.)	%	111		107	99	106		B049670
O-TERPHENYL (sur.)	%	108		102	103	103		B050921
RDL = Reportable Detection Limit								

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Bureau Veritas Job #: C356837
Report Date: 2023/09/29

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620-14TH AVE NW, CALGARY
Your P.O. #: 478621.17102
Sampler Initials: GC

AT1 BTEX AND F1-F2 IN WATER (WATER)

Bureau Veritas ID		BVL610	BVL611	BVL612	BVL613	BVL614	BVL615		
Sampling Date		2023/07/24 07:30	2023/07/24 08:00	2023/07/24 08:30	2023/07/24 09:00	2023/07/24 09:30	2023/07/24 10:00		
COC Number		699821-24-01	699821-24-01	699821-24-01	699821-24-01	699821-24-01	699821-24-01		
	UNITS	**DUP-05**	**BH1943**	**BH1923**	**BH6006**	**BH1925**	**BH1950A**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/L	0.13	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	B050922
Volatiles									
Benzene	mg/L	0.081	0.053	<0.00040	<0.00040	0.0020	<0.00040	0.00040	B049961
Toluene	mg/L	0.0050	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	B049961
Ethylbenzene	mg/L	0.14	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	B049961
m & p-Xylene	mg/L	0.0038	<0.00080	<0.00080	<0.00080	<0.00080	<0.00080	0.00080	B049961
o-Xylene	mg/L	0.0013	<0.00040	<0.00040	<0.00040	0.00042 (1)	<0.00040	0.00040	B049961
Xylenes (Total)	mg/L	0.0051	<0.00089	<0.00089	<0.00089	<0.00089	<0.00089	0.00089	B049217
F1 (C6-C10) - BTEX	mg/L	0.85	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	B049217
F1 (C6-C10)	mg/L	1.1	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	B049961
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	102	105	104	102	103	98		B049961
4-Bromofluorobenzene (sur.)	%	97	96	97	93	98	97		B049961
D4-1,2-Dichloroethane (sur.)	%	94	94	95	91	92	105		B049961
O-TERPHENYL (sur.)	%	99	99	94	90	101	100		B050922

RDL = Reportable Detection Limit
(1) Qualifying ion outside of acceptance criteria. Results are tentatively identified and potentially biased high.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C356837
Report Date: 2023/09/29

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620-14TH AVE NW, CALGARY
Your P.O. #: 478621.17102
Sampler Initials: GC

AT1 BTEX AND F1-F2 IN WATER (WATER)

Bureau Veritas ID		BVL616	BVL617		BVL618		BVL619		
Sampling Date		2023/07/24 10:30	2023/07/24 11:00		2023/07/24 11:00		2023/07/24 13:00		
COC Number		699821-24-01	699821-24-01		699821-24-01		699821-24-01		
	UNITS	**BH2004**	**EX1**	**QC Batch**	**DUP-07**	**QC Batch**	**EX2**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	0.16	B050922	0.20	B050922	<0.10	0.10	B050922
Volatiles									
Benzene	mg/L	<0.00040	0.68	B049961	0.99	B049961	0.010	0.00040	B049961
Toluene	mg/L	<0.00040	0.0048	B049961	0.0062	B049961	0.00091	0.00040	B049961
Ethylbenzene	mg/L	<0.00040	0.10	B049961	0.14	B049961	0.022	0.00040	B049961
m & p-Xylene	mg/L	<0.00080	0.0081	B049961	0.0094 (1)	B049961	0.00093	0.00080	B049961
o-Xylene	mg/L	<0.00040	0.0016	B049961	0.0020 (1)	B049961	0.00047 (1)	0.00040	B049961
Xylenes (Total)	mg/L	<0.00089	0.0097	B049217	0.011	B049232	0.0014	0.00089	B049233
F1 (C6-C10) - BTEX	mg/L	<0.10	0.74	B049217	0.61	B049232	<0.10	0.10	B049233
F1 (C6-C10)	mg/L	<0.10	1.5	B049961	1.8	B049961	<0.10	0.10	B049961
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	102	104	B049961	103	B049961	102		B049961
4-Bromofluorobenzene (sur.)	%	95	96	B049961	109	B049961	94		B049961
D4-1,2-Dichloroethane (sur.)	%	94	101	B049961	103	B049961	93		B049961
O-TERPHENYL (sur.)	%	96	93	B050922	100	B050922	110		B050922

RDL = Reportable Detection Limit
(1) Qualifying ion outside of acceptance criteria. Results are tentatively identified and potentially biased high.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C356837
Report Date: 2023/09/29

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620-14TH AVE NW, CALGARY
Your P.O. #: 478621.17102
Sampler Initials: GC

AT1 BTEX AND F1-F2 IN WATER (WATER)

Bureau Veritas ID		BVL620	BVL621	BVL622	BVL623		
Sampling Date		2023/07/24 13:30	2023/07/24 14:45	2023/07/24 14:50	2023/07/24 15:00		
COC Number		699821-24-01	699821-24-01	699821-24-01	699821-24-01		
	UNITS	**EX3**	**EB-BAILER-01**	**EB-HYDRA-01**	**TRIP BLANK-03**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/L	0.11	<0.10	<0.10	<0.10	0.10	B050922
Volatiles							
Benzene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	B049961
Toluene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	B049961
Ethylbenzene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	B049961
m & p-Xylene	mg/L	<0.00080	<0.00080	<0.00080	<0.00080	0.00080	B049961
o-Xylene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	B049961
Xylenes (Total)	mg/L	<0.00089	<0.00089	<0.00089	<0.00089	0.00089	B049233
F1 (C6-C10) - BTEX	mg/L	<0.10	<0.10	<0.10	<0.10	0.10	B049233
F1 (C6-C10)	mg/L	<0.10	<0.10	<0.10	<0.10	0.10	B049961
Surrogate Recovery (%)							
1,4-Difluorobenzene (sur.)	%	103	103	104	105		B049961
4-Bromofluorobenzene (sur.)	%	95	95	95	99		B049961
D4-1,2-Dichloroethane (sur.)	%	95	95	94	96		B049961
O-TERPHENYL (sur.)	%	95	97	102	98		B050922
RDL = Reportable Detection Limit							

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Bureau Veritas Job #: C356837
Report Date: 2023/09/29

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620-14TH AVE NW, CALGARY
Your P.O. #: 478621.17102
Sampler Initials: GC

VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		BVL590	BVL591	BVL592	BVL593	BVL594		
Sampling Date		2023/07/25 07:30	2023/07/25 08:00	2023/07/25 08:30	2023/07/25 09:00	2023/07/25 09:30		
COC Number		699821-24-01	699821-24-01	699821-24-01	699821-24-01	699821-24-01		
	UNITS	**BH5001**	**BH6003**	**BH1922**	**BH1947**	**BH1921**	**RDL**	**QC Batch**
Volatiles								
Total Trihalomethanes	mg/L	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	0.0013	B048910
1,2-dichloroethane	mg/L	<0.00050	0.012	<0.00050	0.00071	0.040	0.00050	B049672
Surrogate Recovery (%)								
1,4-Difluorobenzene (sur.)	%	94	99	94	94	99		B049672
4-Bromofluorobenzene (sur.)	%	91	93	92	92	89		B049672
D4-1,2-Dichloroethane (sur.)	%	111	112	105	110	118		B049672
RDL = Reportable Detection Limit								

Bureau Veritas ID		BVL595	BVL596	BVL597	BVL598	BVL599	BVL600		
Sampling Date		2023/07/25 09:30	2023/07/25 10:00	2023/07/25 10:30	2023/07/25 11:00	2023/07/25 11:30	2023/07/25 12:00		
COC Number		699821-24-01	699821-24-01	699821-24-01	699821-24-01	699821-24-01	699821-24-01		
	UNITS	**DUP-11**	**BH1946**	**BH6001**	**BH1918**	**BH1704**	**BH6002**	**RDL**	**QC Batch**
Volatiles									
Total Trihalomethanes	mg/L	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	0.0013	B049239
1,2-dichloroethane	mg/L	0.040	<0.00050	0.022	<0.00050	0.062	0.025	0.00050	B049672
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	99	94	94	96	105	100		B049672
4-Bromofluorobenzene (sur.)	%	90	92	92	92	93	90		B049672
D4-1,2-Dichloroethane (sur.)	%	119	110	111	106	118	108		B049672
RDL = Reportable Detection Limit									

Bureau Veritas ID		BVL601	BVL602	BVL603	BVL604	BVL605	BVL606		
Sampling Date		2023/07/25 12:30	2023/07/25 12:45	2023/07/25 12:50	2023/07/25 13:00	2023/07/25 13:30	2023/07/25 14:00		
COC Number		699821-24-01	699821-24-01	699821-24-01	699821-24-01	699821-24-01	699821-24-01		
	UNITS	**BH1953**	**BH5002**	**EX4**	**EX5**	**DUP-09**	**EX6**	**RDL**	**QC Batch**
Volatiles									
Total Trihalomethanes	mg/L	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	0.0013	B049239
1,2-dichloroethane	mg/L	<0.00050	<0.00050	0.0081	0.11	0.11	0.038	0.00050	B049672
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	95	95	102	105	105	103		B049672
4-Bromofluorobenzene (sur.)	%	93	92	92	92	91	89		B049672
D4-1,2-Dichloroethane (sur.)	%	106	108	118	115	112	115		B049672
RDL = Reportable Detection Limit									

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C356837
Report Date: 2023/09/29

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620-14TH AVE NW, CALGARY
Your P.O. #: 478621.17102
Sampler Initials: GC

VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		BVL607	BVL608	BVL609		BVL610	BVL611		
Sampling Date		2023/07/25 14:30	2023/07/25 15:00	2023/07/24 07:30		2023/07/24 07:30	2023/07/24 08:00		
COC Number		699821-24-01	699821-24-01	699821-24-01		699821-24-01	699821-24-01		
	UNITS	**EX7**	**TRIP BLANK-05**	**BH510A**	**QC Batch**	**DUP-05**	**BH1943**	**RDL**	**QC Batch**
Volatiles									
Total Trihalomethanes	mg/L	<0.0013	<0.0013	<0.0013	B049239	<0.0013	<0.0013	0.0013	B049239
1,2-dichloroethane	mg/L	0.060	<0.00050	0.026	B049672	0.020	0.014	0.00050	B049968
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	102	93	102	B049672	102	99		B049968
4-Bromofluorobenzene (sur.)	%	92	92	86	B049672	86	90		B049968
D4-1,2-Dichloroethane (sur.)	%	128	108	134	B049672	120	128		B049968
RDL = Reportable Detection Limit									

Bureau Veritas ID		BVL612	BVL613	BVL614	BVL615	BVL616	BVL617		
Sampling Date		2023/07/24 08:30	2023/07/24 09:00	2023/07/24 09:30	2023/07/24 10:00	2023/07/24 10:30	2023/07/24 11:00		
COC Number		699821-24-01	699821-24-01	699821-24-01	699821-24-01	699821-24-01	699821-24-01		
	UNITS	**BH1923**	**BH6006**	**BH1925**	**BH1950A**	**BH2004**	**EX1**	**RDL**	**QC Batch**
Volatiles									
Total Trihalomethanes	mg/L	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	0.0013	B049239
1,2-dichloroethane	mg/L	<0.00050	<0.00050	0.0041	<0.00050	<0.00050	0.083	0.00050	B049968
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	97	95	96	95	97	105		B049968
4-Bromofluorobenzene (sur.)	%	91	92	90	92	91	86		B049968
D4-1,2-Dichloroethane (sur.)	%	108	108	107	107	105	134		B049968
RDL = Reportable Detection Limit									

Bureau Veritas ID		BVL618	BVL619	BVL620	BVL621	BVL622	BVL623		
Sampling Date		2023/07/24 11:00	2023/07/24 13:00	2023/07/24 13:30	2023/07/24 14:45	2023/07/24 14:50	2023/07/24 15:00		
COC Number		699821-24-01	699821-24-01	699821-24-01	699821-24-01	699821-24-01	699821-24-01		
	UNITS	**DUP-07**	**EX2**	**EX3**	**EB-BAILER-01**	**EB-HYDRA-01**	**TRIP BLANK-03**	**RDL**	**QC Batch**
Volatiles									
Total Trihalomethanes	mg/L	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	0.0013	B049239
1,2-dichloroethane	mg/L	0.084	0.0048	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	B049968
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	105	99	95	95	94	96		B049968
4-Bromofluorobenzene (sur.)	%	85	89	90	94	92	92		B049968
D4-1,2-Dichloroethane (sur.)	%	136	109	108	110	107	109		B049968
RDL = Reportable Detection Limit									

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C356837
Report Date: 2023/09/29

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620-14TH AVE NW, CALGARY
Your P.O. #: 478621.17102
Sampler Initials: GC

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	8.3°C
Package 2	7.3°C

Version #2: Report reissued to amend client sample ID on BVL601 from BH19553 to BH1953 as per the original Chain of Custody.

Version #3: Report re-issued to provide results for parameters requested on the orignal Chain of Custody.

Results relate only to the items tested.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C356837
Report Date: 2023/09/29

QUALITY ASSURANCE REPORT

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620-14TH AVE NW, CALGARY
Your P.O. #: 478621.17102
Sampler Initials: GC

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
B049670	1,4-Difluorobenzene (sur.)	2023/07/28	105	50 - 140	104	50 - 140	106	%		
B049670	4-Bromofluorobenzene (sur.)	2023/07/28	107	50 - 140	108	50 - 140	108	%		
B049670	D4-1,2-Dichloroethane (sur.)	2023/07/28	108	50 - 140	120	50 - 140	121	%		
B049672	1,4-Difluorobenzene (sur.)	2023/07/27	103	50 - 140	103	50 - 140	93	%		
B049672	4-Bromofluorobenzene (sur.)	2023/07/27	99	50 - 140	100	50 - 140	91	%		
B049672	D4-1,2-Dichloroethane (sur.)	2023/07/27	101	50 - 140	93	50 - 140	108	%		
B049961	1,4-Difluorobenzene (sur.)	2023/07/29	103	50 - 140	103	50 - 140	104	%		
B049961	4-Bromofluorobenzene (sur.)	2023/07/29	95	50 - 140	96	50 - 140	96	%		
B049961	D4-1,2-Dichloroethane (sur.)	2023/07/29	95	50 - 140	96	50 - 140	96	%		
B049968	1,4-Difluorobenzene (sur.)	2023/07/28	105	50 - 140	103	50 - 140	95	%		
B049968	4-Bromofluorobenzene (sur.)	2023/07/28	98	50 - 140	99	50 - 140	91	%		
B049968	D4-1,2-Dichloroethane (sur.)	2023/07/28	101	50 - 140	99	50 - 140	109	%		
B050921	O-TERPHENYL (sur.)	2023/08/01			104	60 - 140	102	%		
B050922	O-TERPHENYL (sur.)	2023/07/30			108	60 - 140	107	%		
B049670	Benzene	2023/07/29	110	50 - 140	113	60 - 130	<0.00040	mg/L	NC	30
B049670	Ethylbenzene	2023/07/29	104	50 - 140	110	60 - 130	<0.00040	mg/L	NC	30
B049670	F1 (C6-C10)	2023/07/29	NC	60 - 140	106	60 - 140	<0.10	mg/L	NC	30
B049670	m & p-Xylene	2023/07/29	NC	50 - 140	100	60 - 130	<0.0010 (1)	mg/L	NC	30
B049670	o-Xylene	2023/07/29	NC	50 - 140	100	60 - 130	<0.00040	mg/L	NC	30
B049670	Toluene	2023/07/29	NC	50 - 140	105	60 - 130	<0.00040	mg/L	NC	30
B049672	1,2-dichloroethane	2023/07/27	100	50 - 140	94	60 - 130	<0.00050	mg/L	NC	30
B049961	Benzene	2023/07/29	79	50 - 140	81	60 - 130	<0.00040	mg/L	NC	30
B049961	Ethylbenzene	2023/07/29	81	50 - 140	84	60 - 130	<0.00040	mg/L	NC	30
B049961	F1 (C6-C10)	2023/07/29	94	60 - 140	95	60 - 140	<0.10	mg/L	NC	30
B049961	m & p-Xylene	2023/07/29	82	50 - 140	86	60 - 130	<0.00080	mg/L	NC	30
B049961	o-Xylene	2023/07/29	82	50 - 140	85	60 - 130	<0.00040	mg/L	NC	30
B049961	Toluene	2023/07/29	80	50 - 140	82	60 - 130	<0.00040	mg/L	NC	30
B049968	1,2-dichloroethane	2023/07/28	97	50 - 140	98	60 - 130	<0.00050	mg/L	1.5	30
B050921	F2 (C10-C16 Hydrocarbons)	2023/08/01			106	60 - 140	<0.10	mg/L		

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Bureau Veritas Job #: C356837
Report Date: 2023/09/29

QUALITY ASSURANCE REPORT(CONT'D)

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620-14TH AVE NW, CALGARY
Your P.O. #: 478621.17102
Sampler Initials: GC

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
B050922	F2 (C10-C16 Hydrocarbons)	2023/07/30			108	60 - 140	<0.10	mg/L		

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

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

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

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

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

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

(1) Detection limit raised due to interferent.

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Bureau Veritas Job #: C356837
Report Date: 2023/09/29

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620-14TH AVE NW, CALGARY
Your P.O. #: 478621.17102
Sampler Initials: GC

VALIDATION SIGNATURE PAGE

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

Gita Pokhrel, Laboratory Supervisor

Jared Wiseman, B.Sc., P.Chem., QP, Senior Analyst, Organics

Qiliang (Alex) Wu, Senior Analyst

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

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

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas
4000 19st N.E, Calgary, Alberta Canada T2E 6P8 Tel:(403) 291-3077 Toll-free:800-563-6266 Fax:(403) 291-9468 www.bvna.com

CHAIN OF CUSTODY RECORD

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#11243 PARSONS INC.	Company Name:	#31652 PARSONS INC.	Quotation #:	C30805	Bureau Veritas Job #:	Bottle Order #:
Attention:	ACCOUNTS PAYABLE	Attention:	Rebecca Neufeld	P.O. #:	478621.17102		699821
Address:	2751 JOHN STREET	Address:	Unit 510, 214 - 11th Avenue SW	Project:	10-12832	COC #:	Project Manager:
	MARKHAM ON L3R 2Y8		Calgary AB T2R 0K1	Project Name:	1620-14th Ave NW, Calgary	C#699821-24-01	Parminder Virk
Tel:	(905) 944-8877 Fax:	Tel:	Fax:	Site #:	9445		
Email:	ParsonsIncAP.Parsons@parsons.com	Email:	rebecca.neufeld@parsons.com,Michelle.Patterson@par	Sampled By:	Gavin Clarke		

Regulatory Criteria:
- [x] ATI
- [ ] CCME
- [ ] Other

Special Instructions

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	AT1 BTEX and F1-F2 in Water	1,2 Dichloroethane	Routine Water							# of Bottles	Comments
1		BH5001	Jul 25/23	07:30	GW		✓	✓								3	
2		BH6003		08:00	GW		✓	✓								3	
3		BH1922		08:30	GW		✓	✓								3	
4		BH1947		09:00	GW		✓	✓								3	
5		BH1921		09:30	GW		✓	✓								3	
6		DUP-11		09:30	GW		✓	✓								3	
7		BH1946		10:00	GW		✓	✓								3	
8		BH6001		10:30	GW		✓	✓								3	
9		BH1918		11:00	GW		✓	✓								3	
10		BH1704	Jul 25/23	11:30	GW		✓	✓								3	

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT: [x]
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests..
Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details

Job Specific Rush TAT (if applies to entire submission) [ ]
Date Required: _____
Rush Confirmation Number: _____ *(call lab for #)*

25-Jul-23 15:46
Parminder Virk
C356837
JB0 INS-0127

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
Gavin Clarke / Gavin Clarke	23/07/25	15:30	Sinaira Cura	2023/07/25	15:46	Ø	[ ]	9, 8, 8 / 8, 7, 7	[x] Yes [ ] No

Laboratory Use Only

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.
** ALL SAMPLES ARE HELD FOR 60 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

White: Bureau Veritas Yellow: Client

mcal-07-1196

Bureau Veritas Canada (20

Bureau Veritas
4000 19st N.E, Calgary, Alberta Canada T2E 6P8 Tel:(403) 291-3077 Toll-free:800-563-6266 Fax:(403) 291-9468 www.bvna.com

CHAIN OF CUSTODY RECORD

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#11243 PARSONS INC.	Company Name:	#31652 PARSONS INC.	Quotation #:	C30805	Bureau Veritas Job #:	Bottle Order #: 699821
Attention:	ACCOUNTS PAYABLE	Attention:	Rebecca Neufeld	P.O. #:	478621.17102		
Address:	2751 JOHN STREET	Address:	Unit 510, 214 - 11th Avenue SW	Project:	10-12832		
	MARKHAM ON L3R 2Y8		Calgary AB T2R 0K1	Project Name:	1630 - 14th Ave NW, Calgary	COC #:	Project Manager:
Tel:	(905) 944-8877 Fax:	Tel:	Fax:	Site #:	9445	C#699821-23-01	Parminder Virk
Email:	ParsonsIncAP.Parsons@parsons.com	Email:	rebecca.neufeld@parsons.com,Michelle.Patterson@par	Sampled By:	Gavin Clarke		

Regulatory Criteria:
- [x] ATI
- [ ] CCME
- [ ] Other

Special Instructions:

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	AT1 BTEX and F1-F2 in Water	1,2 Dichloroethane	Routine Water	# of Bottles	Comments
1		BH 6002	July 25/23	12:00	GW		✓	✓		3	
2		BH 1953		12:30	GW		✓	✓		3	
3		BH 5002		12:45	GW		✓	✓		3	
4		EX4		12:50	GW		✓	✓		3	
5		EX5		13:00	GW		✓	✓		3	
6		DUP-09		13:30	GW		✓	✓		3	
7		EX6	↓	14:00	GW		✓	✓		3	
8		EX7	July 25/23	14:30	GW		✓	✓		3	
9		Trip Blank-05	July 25/23	15:00	GW		✓	✓		3	
10											

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT: [✓]
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests..
Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details

Job Specific Rush TAT (if applies to entire submission) [ ]
Date Required:
Rush Confirmation Number:
(call lab for #)

25-Jul-23 15:46
Parminder Virk
C356837
JB0 INS-0127

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
Gavin Clarke	23/07/25	15:30	Shaira Cura	2023/07/25	15:46	0	[ ]	9, 8, 8 / 8, 7, 7	[✓] Yes [ ] No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.
** ALL SAMPLES ARE HELD FOR 60 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

White: Bureau Veritas Yellow: Client

Bureau Veritas
4000 19st N.E, Calgary, Alberta Canada T2E 6P8 Tel:(403) 291-3077 Toll-free:800-563-6266 Fax:(403) 291-9468 www.bvna.com

CHAIN OF CUSTODY RECORD

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#11243 PARSONS INC.	Company Name:	#31652 PARSONS INC.	Quotation #:	C30805	Bureau Veritas Job #:	Bottle Order #:
Attention:	ACCOUNTS PAYABLE	Attention:	Rebecca Neufeld	P.O. #:	478621.17102		699821
Address:	2751 JOHN STREET	Address:	Unit 510, 214 - 11th Avenue SW	Project:	10-12832		
	MARKHAM ON L3R 2Y8		Calgary AB T2R 0K1	Project Name:	1620 14th Ave NW, Calgary	COC #:	Project Manager:
Tel:	(905) 944-8877 Fax:	Tel:	Fax:	Site #:	9445	C#699821-22-01	Parminder Virk
Email:	ParsonsIncAP.Parsons@parsons.com	Email:	rebecca.neufeld@parsons.com,Michelle.Patterson@par	Sampled By:	Gavin Clarke		

Regulatory Criteria:
- [x] ATI
- [ ] CCME
- [ ] Other

Special Instructions

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	AT1 BTEX and F1-F2 in Water	1,2 Dichloroethane	Routine Water							# of Bottles	Comments
1		BH510A	Jul 24/23	07:30	GW		✓	✓								3	
2		DUP-05		07:30	GW		✓	✓								3	
3		BH1943		08:00	GW		✓	✓								3	
4		BH1923		08:30	GW		✓	✓								3	
5		BH6006		09:00	GW		✓	✓								3	
6		BH1925		09:30	GW		✓	✓								3	
7		BH1950A		10:00	GW		✓	✓								3	
8		BH2004		10:30	GW		✓	✓								3	
9		EX1		11:00	GW		✓	✓								3	
10		DUP-07	Jul 24/23	11:00	GW		✓	✓								3	

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT: [x]
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests..
Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details

Job Specific Rush TAT (if applies to entire submission) [ ]
Date Required:
Rush Confirmation Number:
(call lab for #)

25-Jul-23 15:46
Parminder Virk
C356837
JB0 INS-0127

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Laboratory Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
Gavin Clarke	23/07/25	15:30	Shaira Cura	2023/07/25	15:46		[ ]	9.8, 8.8, 7.7	[x] Yes [ ] No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.
** ALL SAMPLES ARE HELD FOR 60 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

White: Bureau Veritas Yellow: Client

Bureau Veritas
4000 19st N.E, Calgary, Alberta Canada T2E 6P8 Tel:(403) 291-3077 Toll-free:800-563-6266 Fax:(403) 291-9468 www.bvna.com

CHAIN OF CUSTODY RECORD

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#11243 PARSONS INC.	Company Name:	#31652 PARSONS INC.	Quotation #:	C30805	Bureau Veritas Job #:	Bottle Order #:
Attention:	ACCOUNTS PAYABLE	Attention:	Rebecca Neufeld	P.O. #:	478621.17102		699821
Address:	2751 JOHN STREET	Address:	Unit 510, 214 - 11th Avenue SW	Project:	10-12832		
	MARKHAM ON L3R 2Y8		Calgary AB T2R 0K1	Project Name:	1620, 14th Ave NW, Calgary	COC #:	Project Manager:
Tel:	(905) 944-8877 Fax:	Tel:	Fax:	Site #:	9445	C#699821-21-01	Parminder Virk
Email:	ParsonsIncAP.Parsons@parsons.com	Email:	rebecca.neufeld@parsons.com,Michelle.Patterson@par	Sampled By:	Gavin Clarke		

Regulatory Criteria:
- [x] ATI
- [ ] CCME
- [ ] Other

Special Instructions

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT: [x]
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests..
Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details

Job Specific Rush TAT (if applies to entire submission) [ ]
Date Required:
Rush Confirmation Number:
(call lab for #)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	AT1 BTEX and F1-F2 in Water	1,2 Dichloroethane	Routine Water								# of Bottles	Comments
1		EX2	July 24/23	13:00	GW		✓	✓									3	
2		EX3	↓	13:30	GW		✓	✓									3	
3		EB-Boiler-01	↓	14:45	GW		✓	✓									3	
4		EB-Hydra-01	↓	14:50	GW		✓	✓									3	
5		Trip Blank-03	July 24/23	15:00	GW		✓	✓									3	
6																		
7																		
8																		
9																		
10																		

25-Jul-23 15:46
Parminder Virk
C356837
JB0 INS-0127

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Laboratory Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
Gavin Clarke / Gavin Clarke	23/07/25	15:30	Shaina Cura	2023/07/25	15:40		[ ]	9, 8, 8 / 8, 7, 7	[x] Yes [ ] No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.
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** ALL SAMPLES ARE HELD FOR 60 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

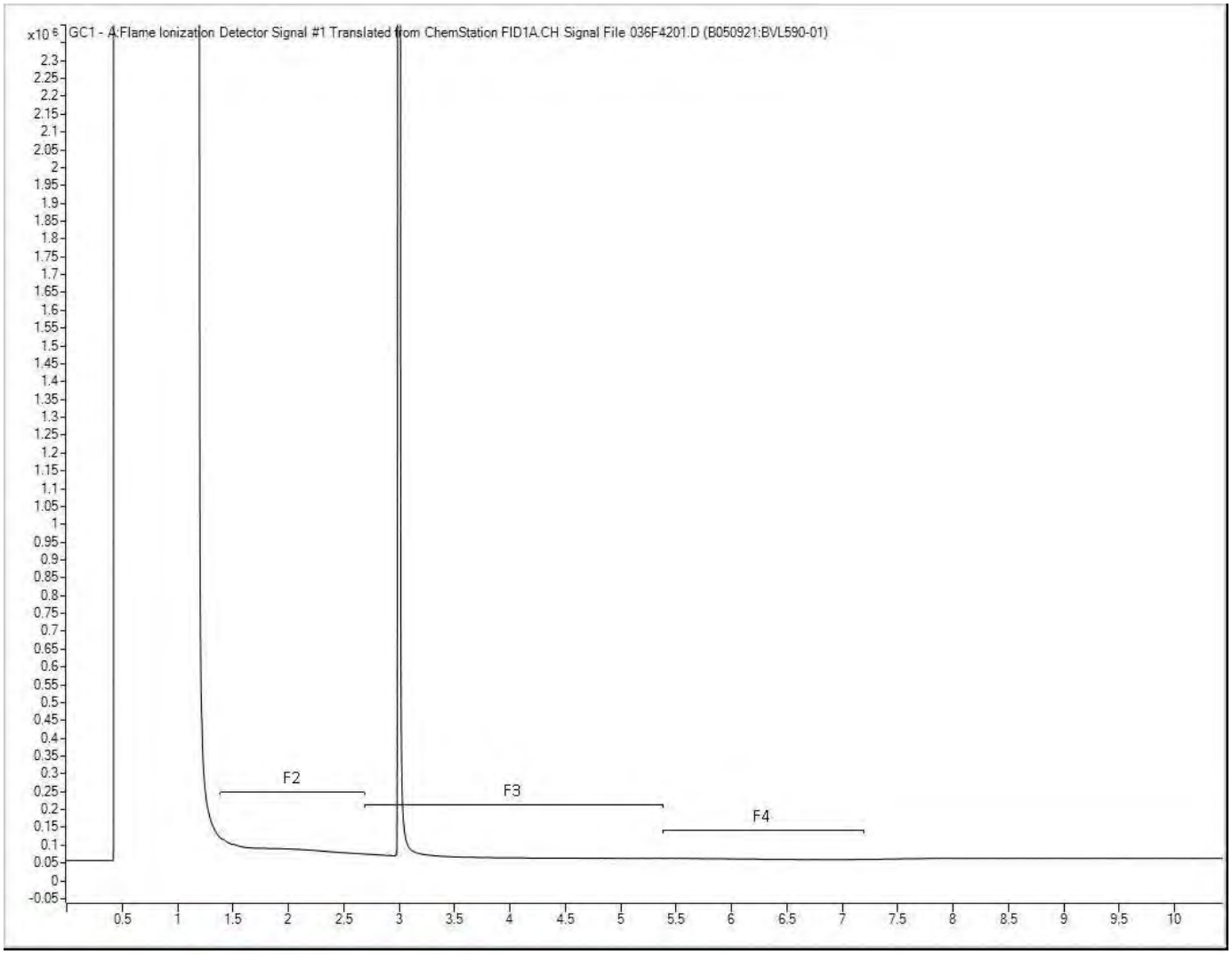
White: Bureau Veritas Yellow: Client

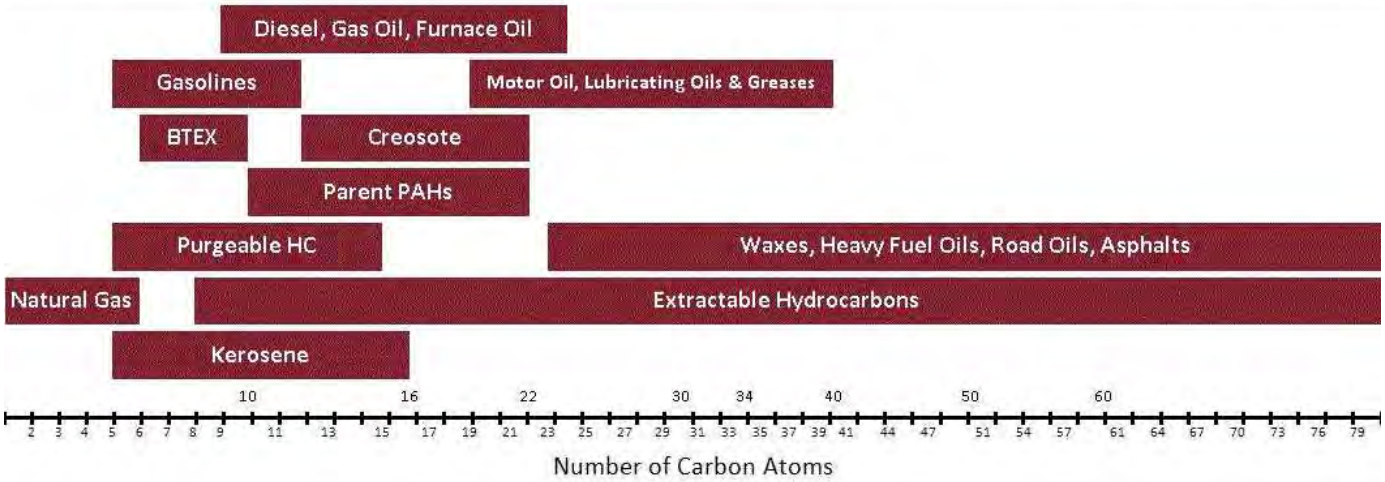
Bureau Veritas Canada (2019) Inc.

Bureau Veritas Job #: C356837
Report Date: 2023/09/29
Bureau Veritas Sample: BVL590

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: BH5001

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





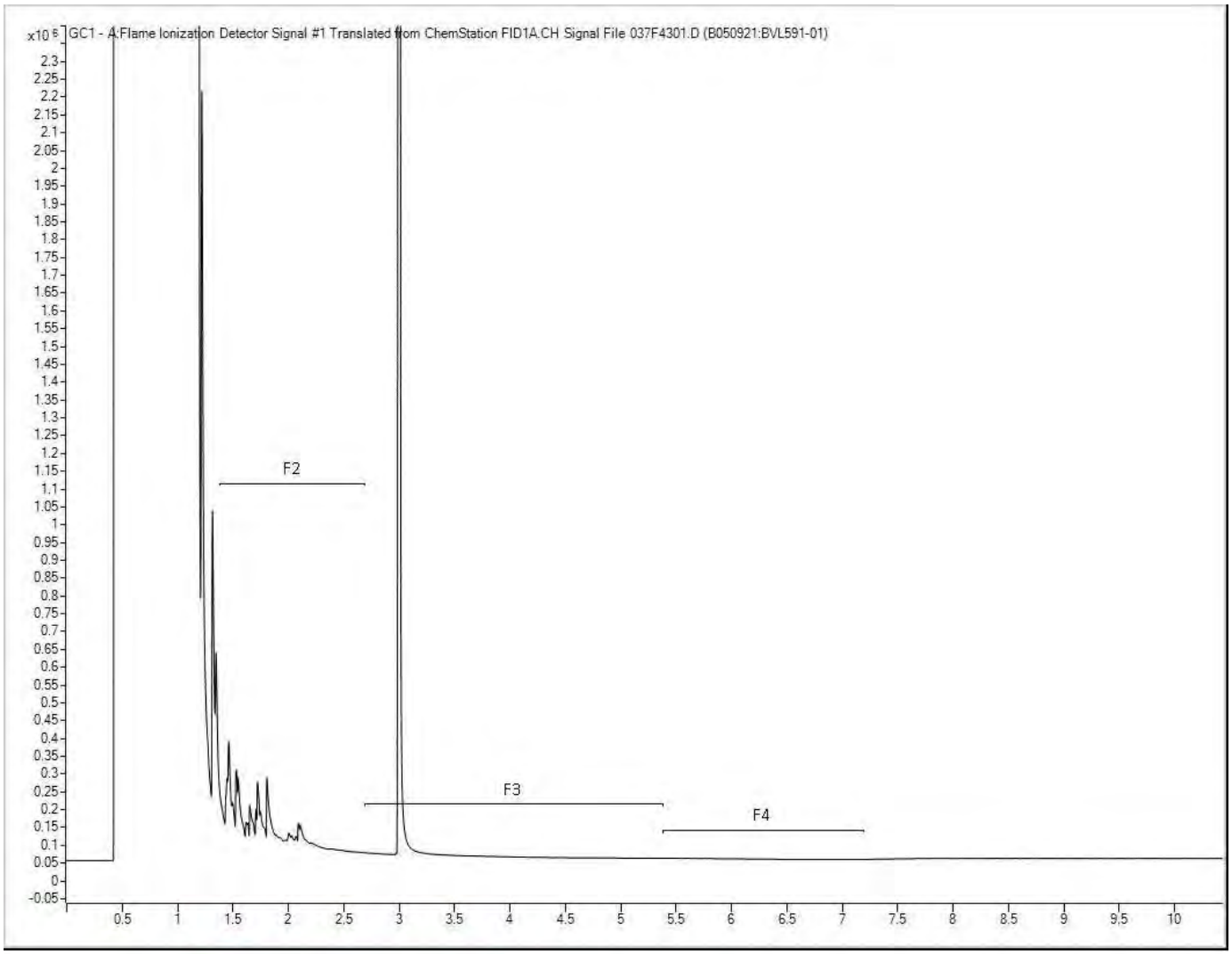
hpchem7\HPchem\1\DATA\2023\08\RUN0801

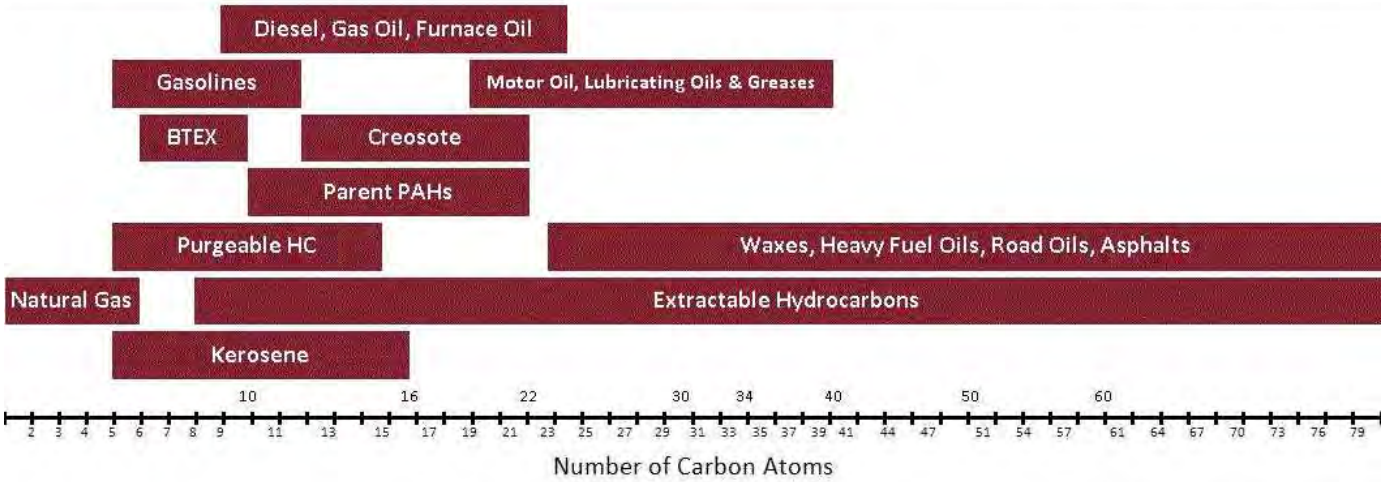
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356837
Report Date: 2023/09/29
Bureau Veritas Sample: BVL591

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: BH6003

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





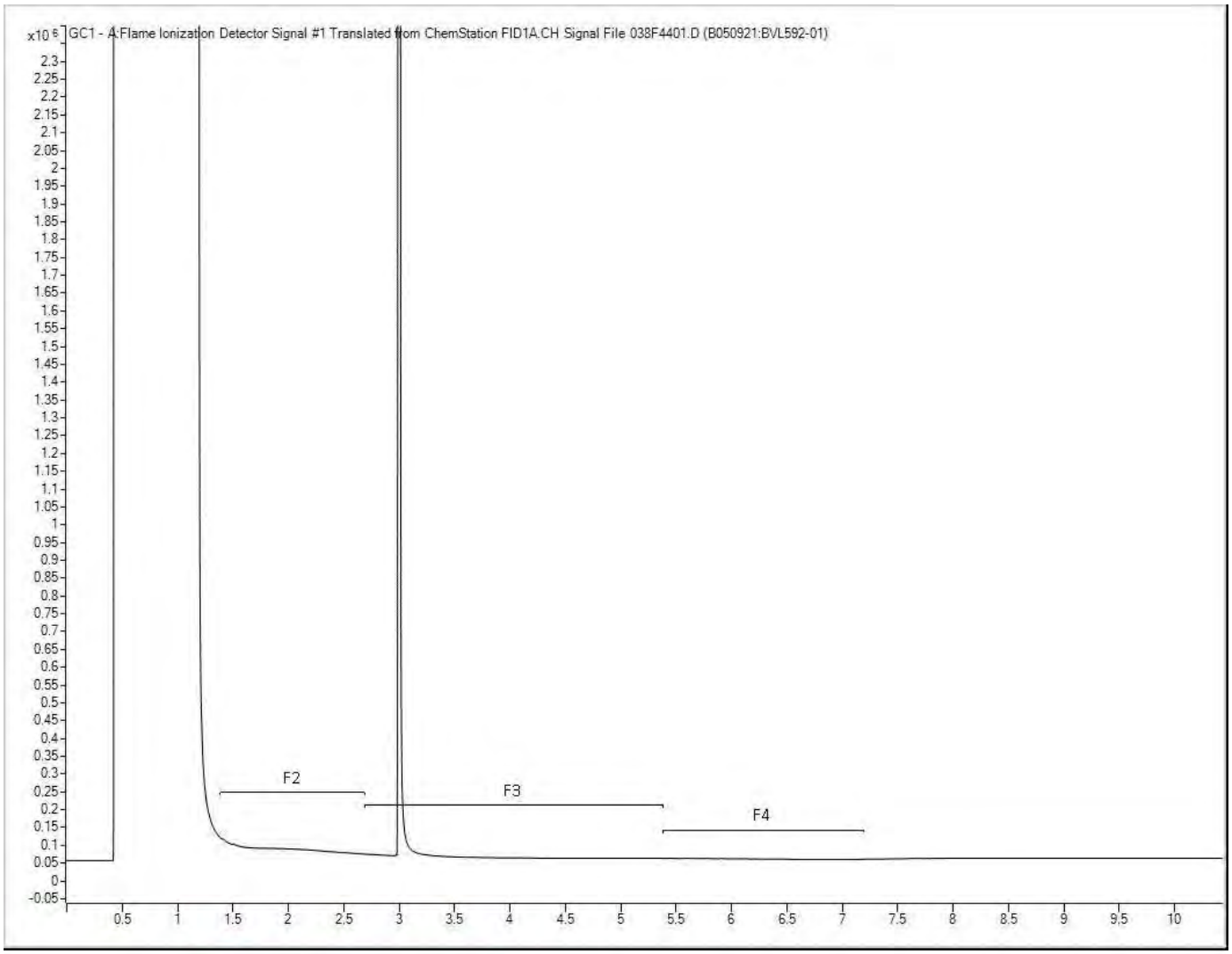
hpchem7\HPchem\1\DATA\2023\08\RUN0801

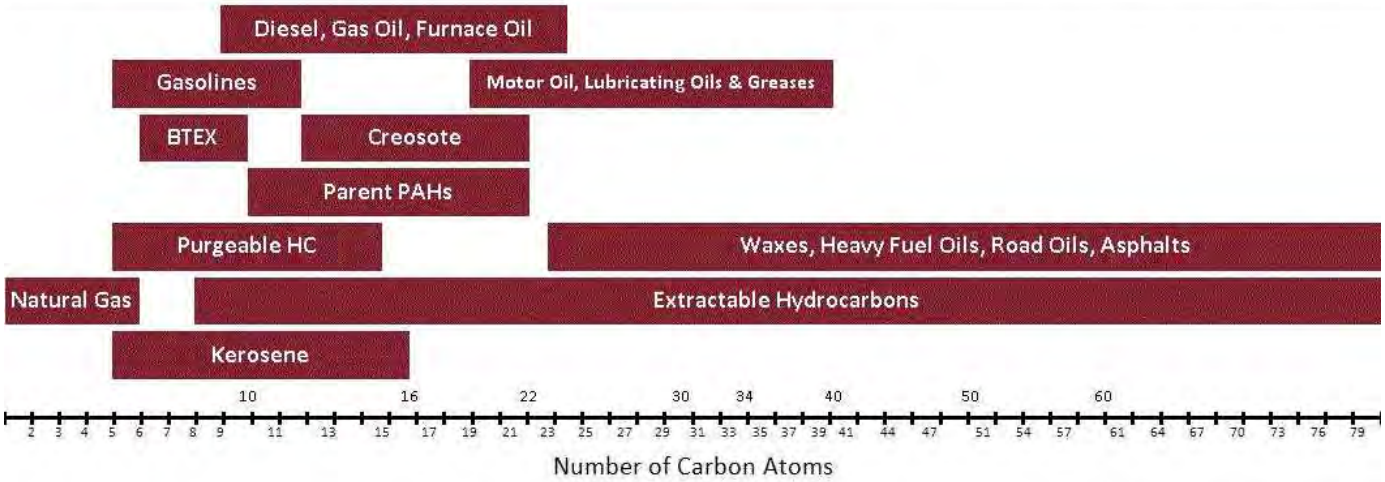
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356837
Report Date: 2023/09/29
Bureau Veritas Sample: BVL592

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: BH1922

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





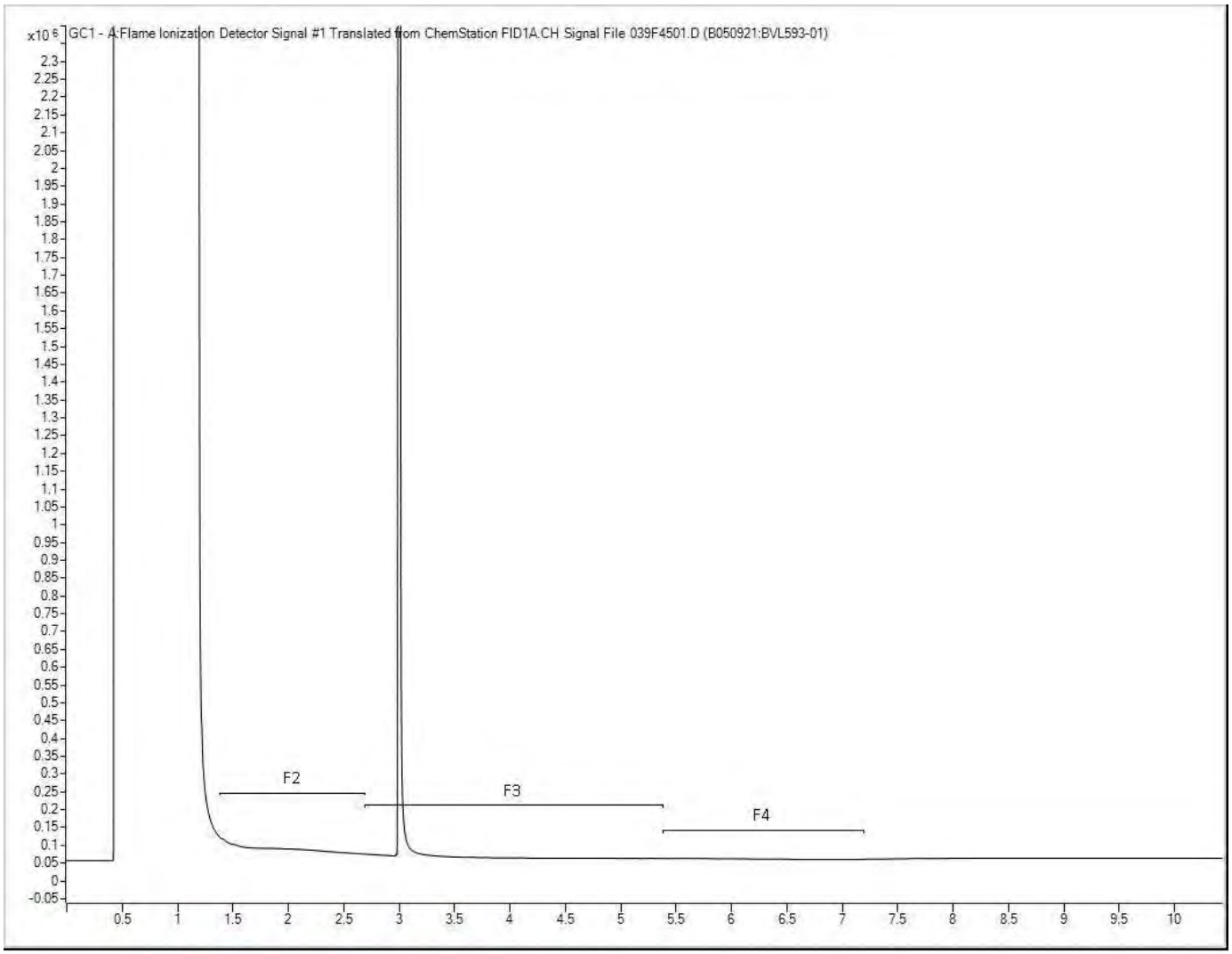
hpchem7\HPchem\1\DATA\2023\08\RUN0801

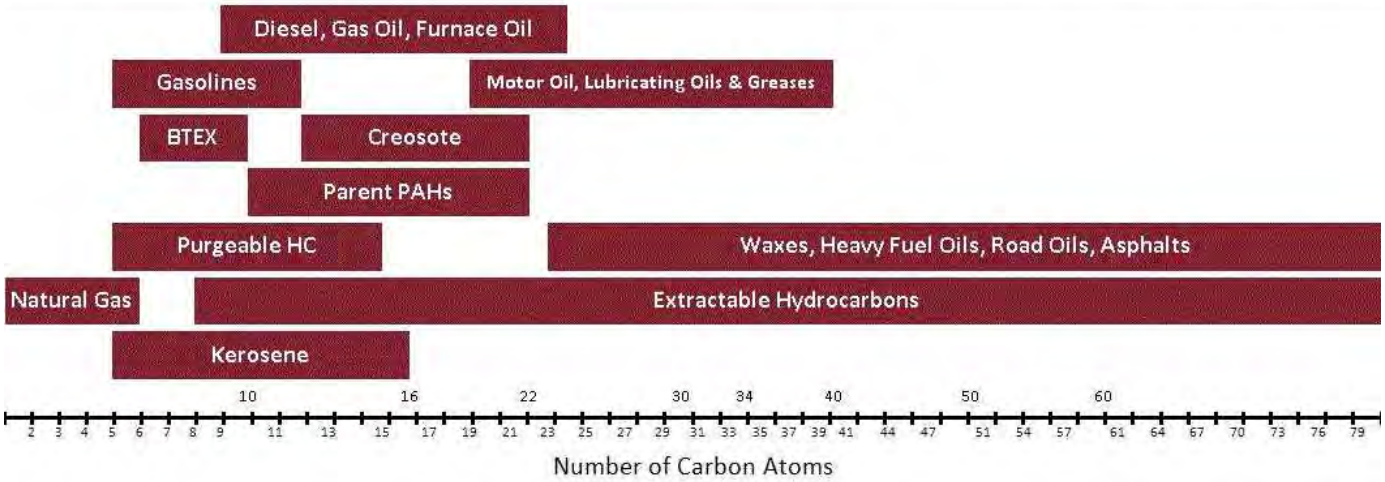
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356837
Report Date: 2023/09/29
Bureau Veritas Sample: BVL593

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: BH1947

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





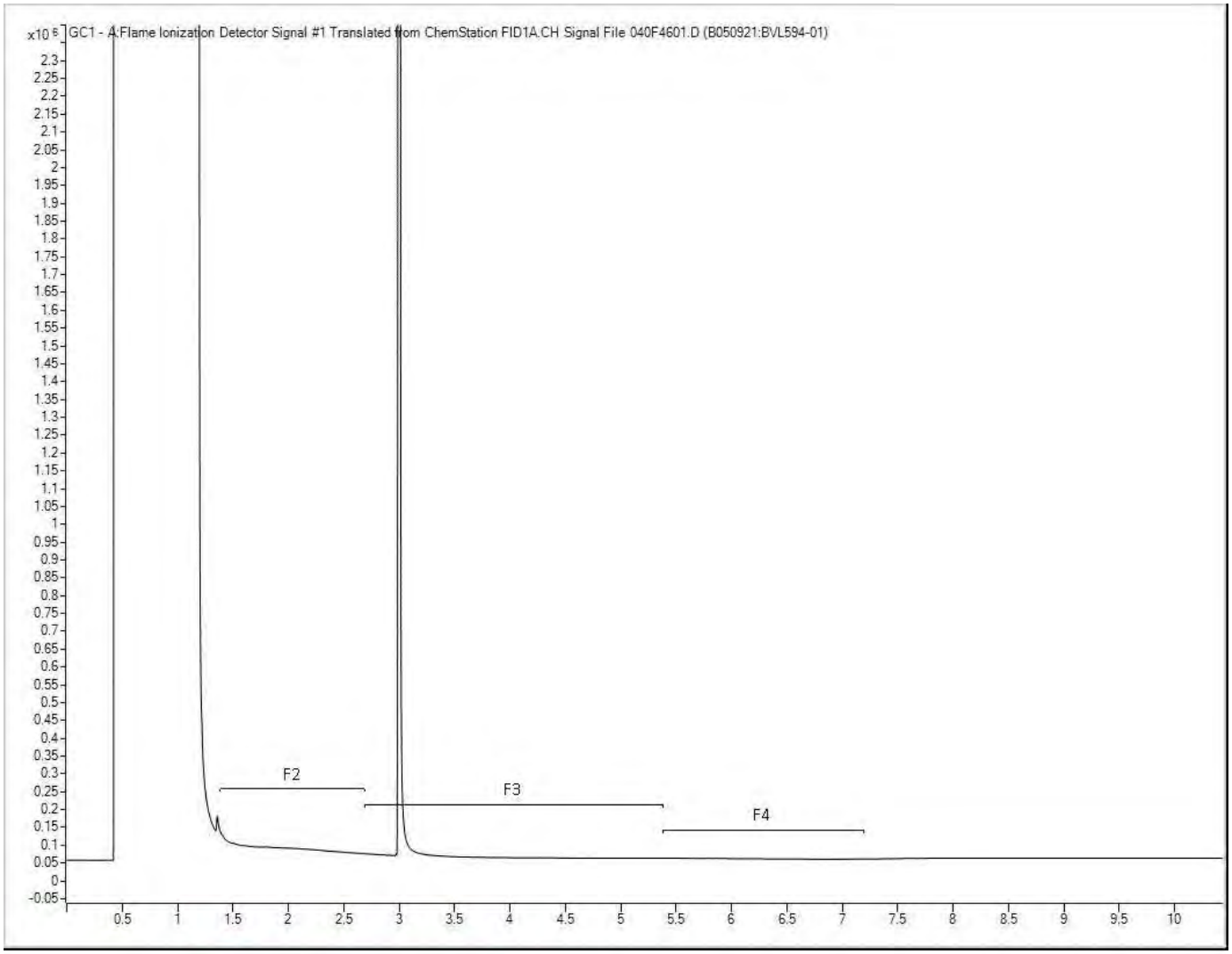
hpchem7\HPchem\1\DATA\2023\08\RUN0801

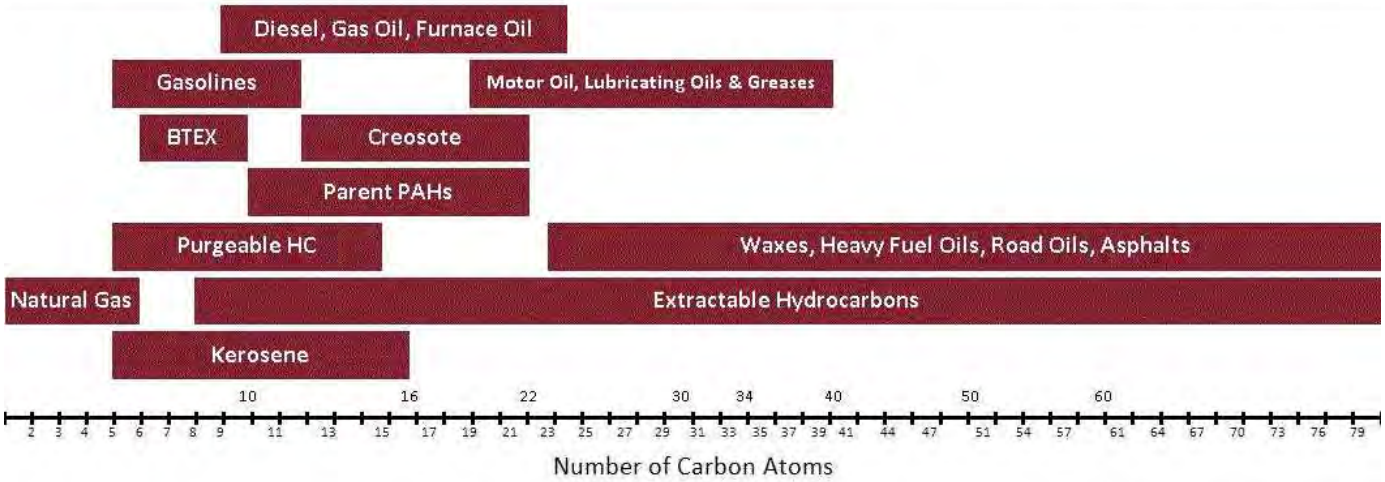
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356837
Report Date: 2023/09/29
Bureau Veritas Sample: BVL594

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: BH1921

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





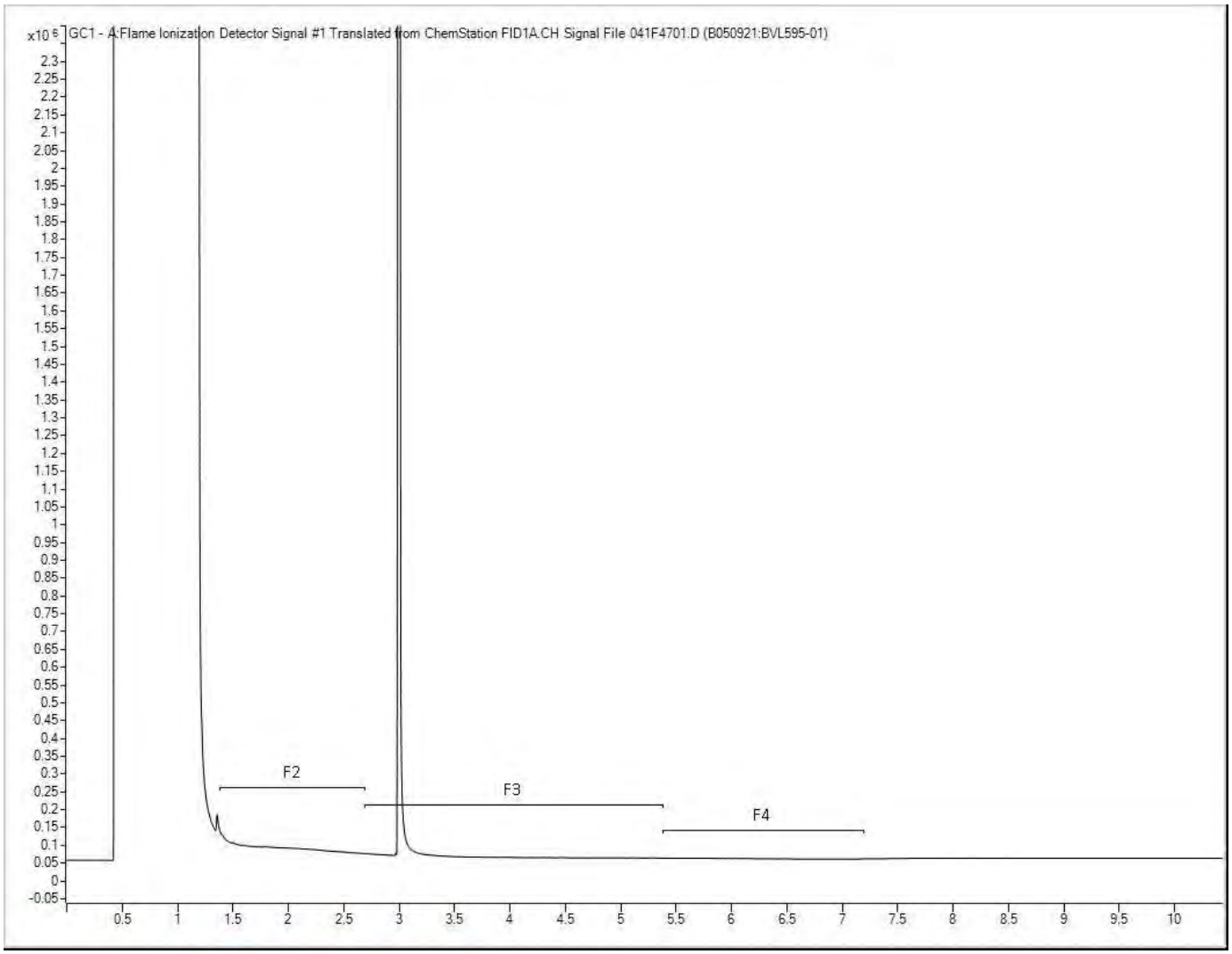
hpchem7\HPchem\1\DATA\2023\08\RUN0801

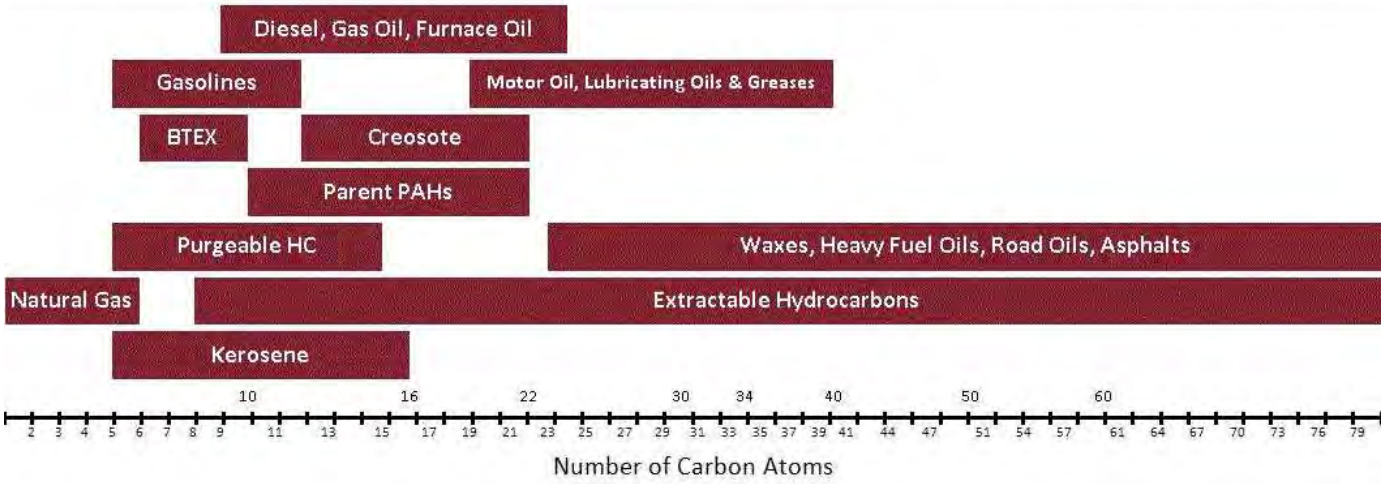
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356837
Report Date: 2023/09/29
Bureau Veritas Sample: BVL595

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: DUP-11

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





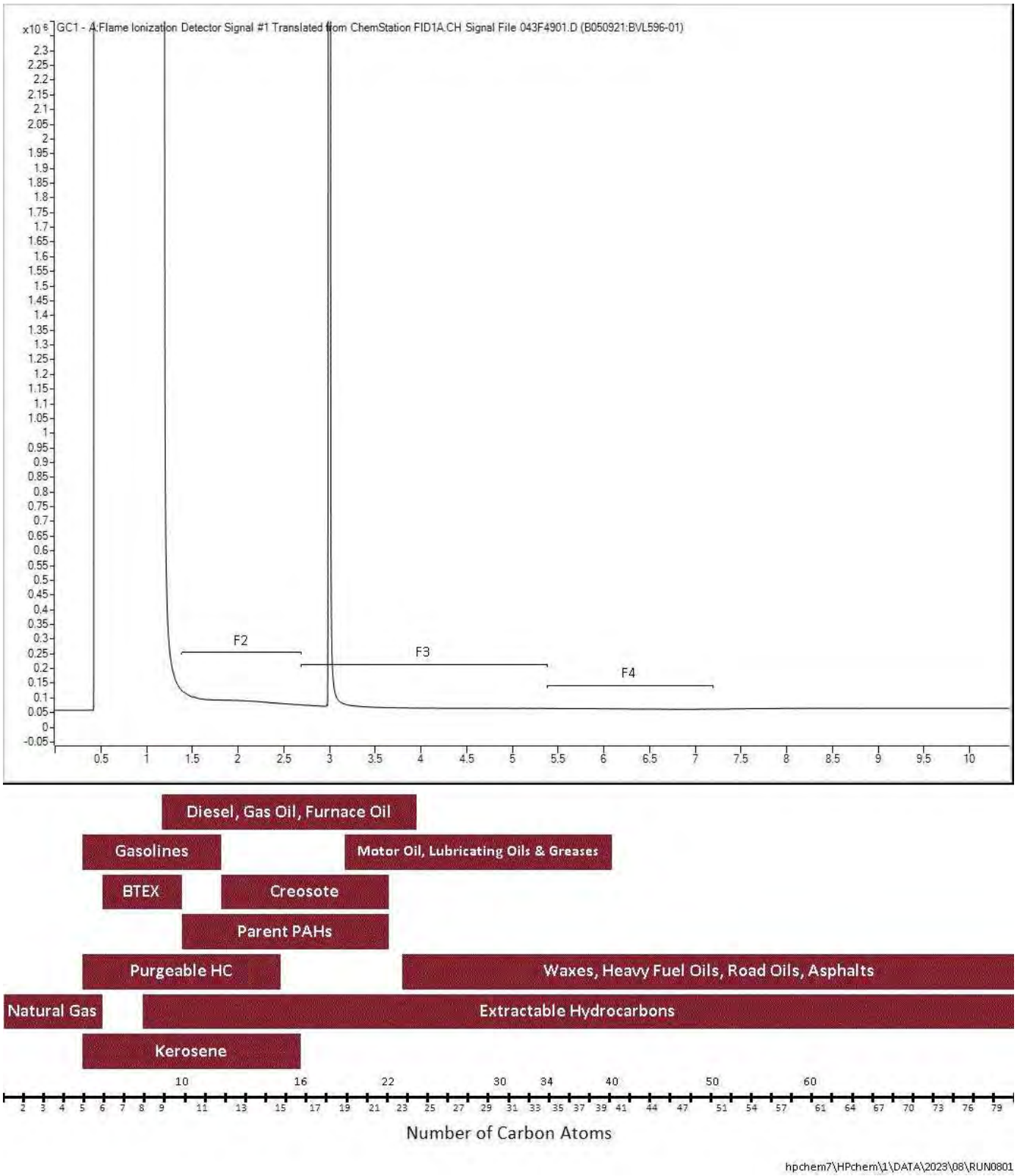
hpchem7\HPchem\1\DATA\2023\08\RUN0801

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356837
Report Date: 2023/09/29
Bureau Veritas Sample: BVL596

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: BH1946

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram



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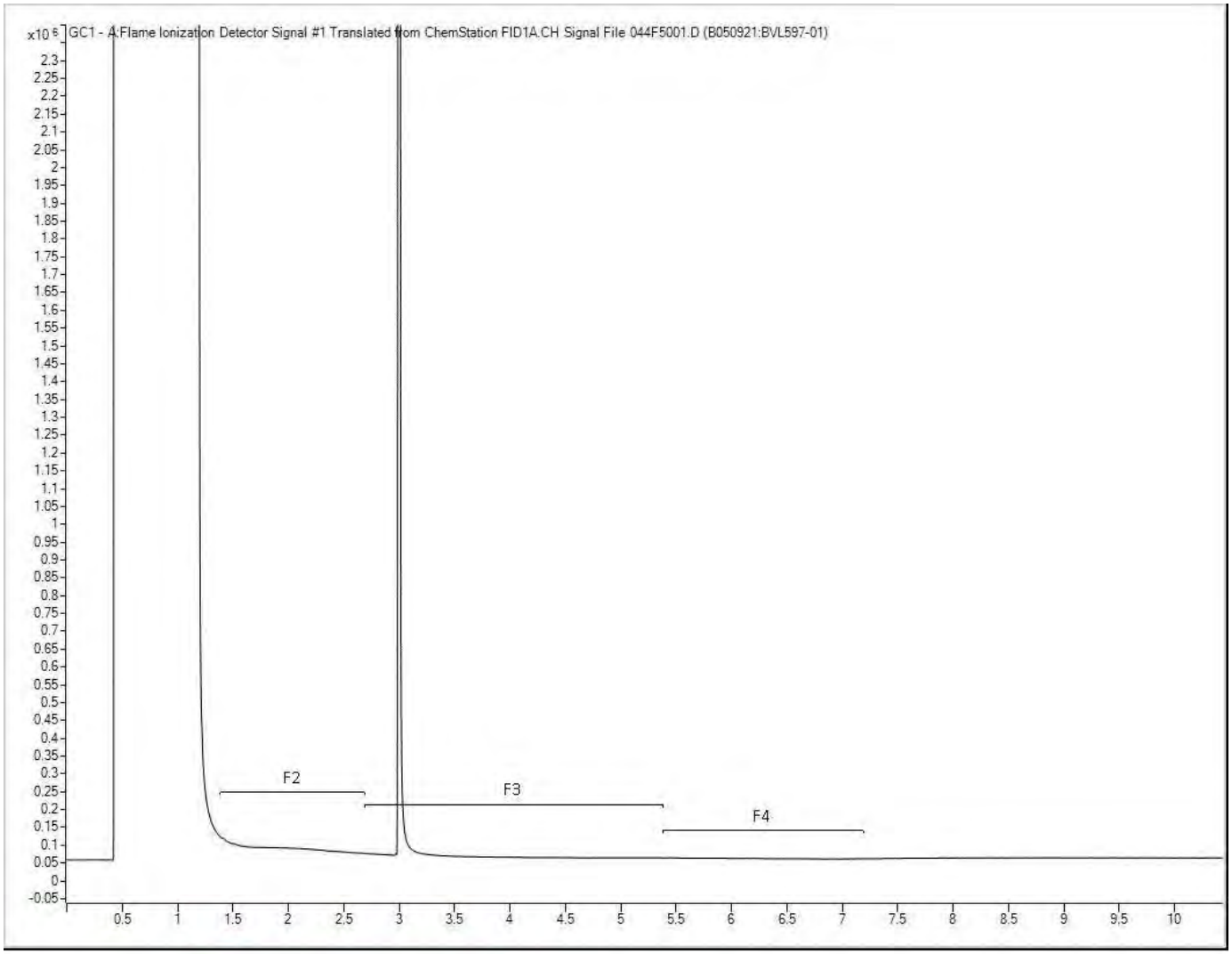
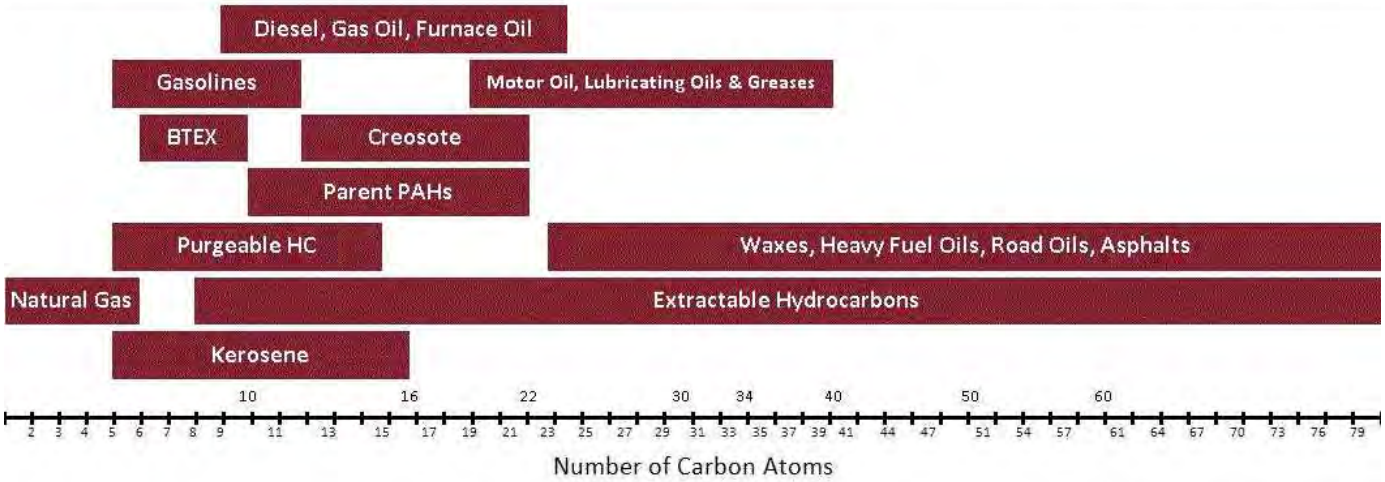
Bureau Veritas Job #: C356837
Report Date: 2023/09/29
Bureau Veritas Sample: BVL597

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: BH6001

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





hpchem7\HPchem\1\DATA\2023\08\RUN0801

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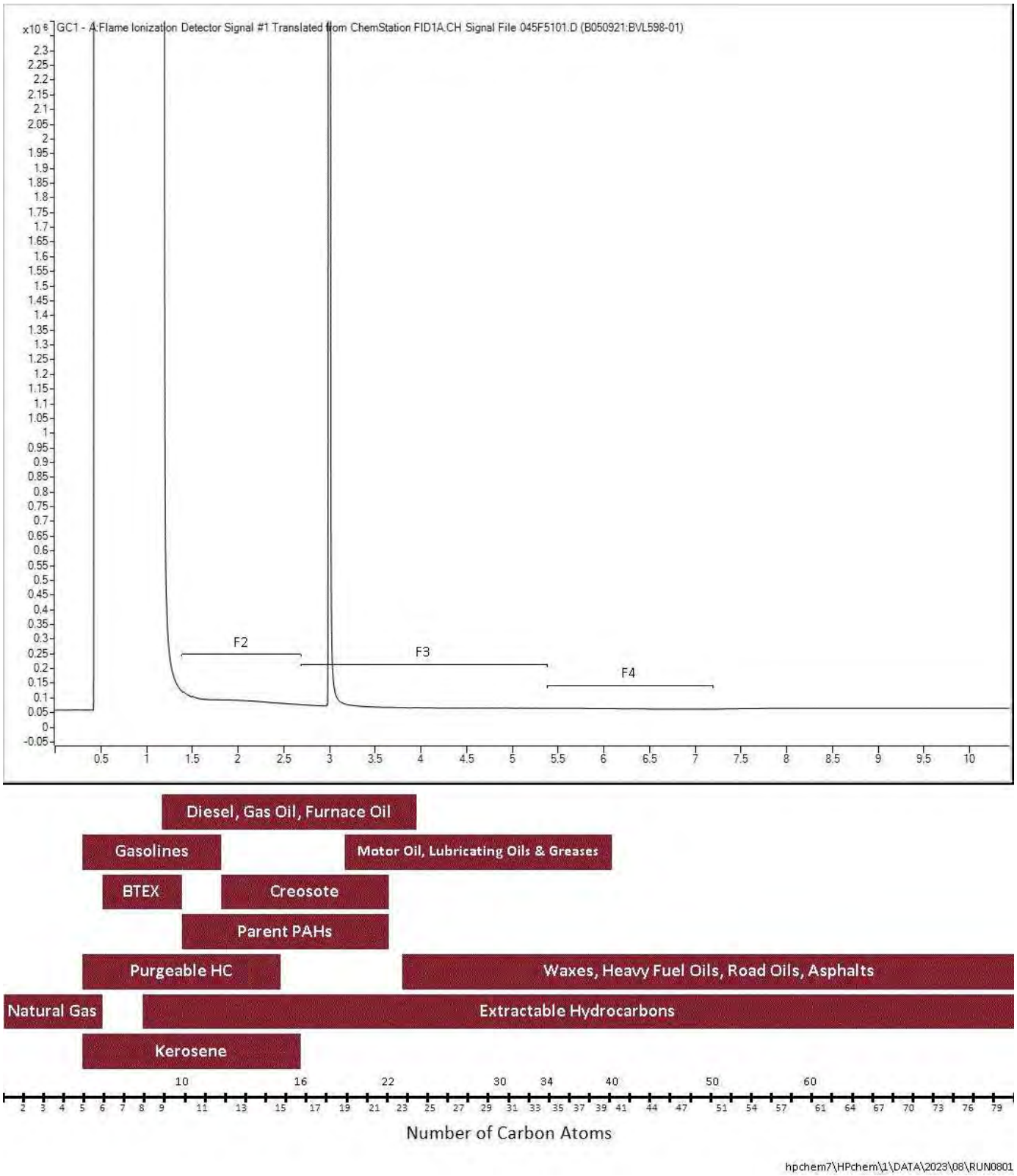
Bureau Veritas Job #: C356837
Report Date: 2023/09/29
Bureau Veritas Sample: BVL598

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: BH1918

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram

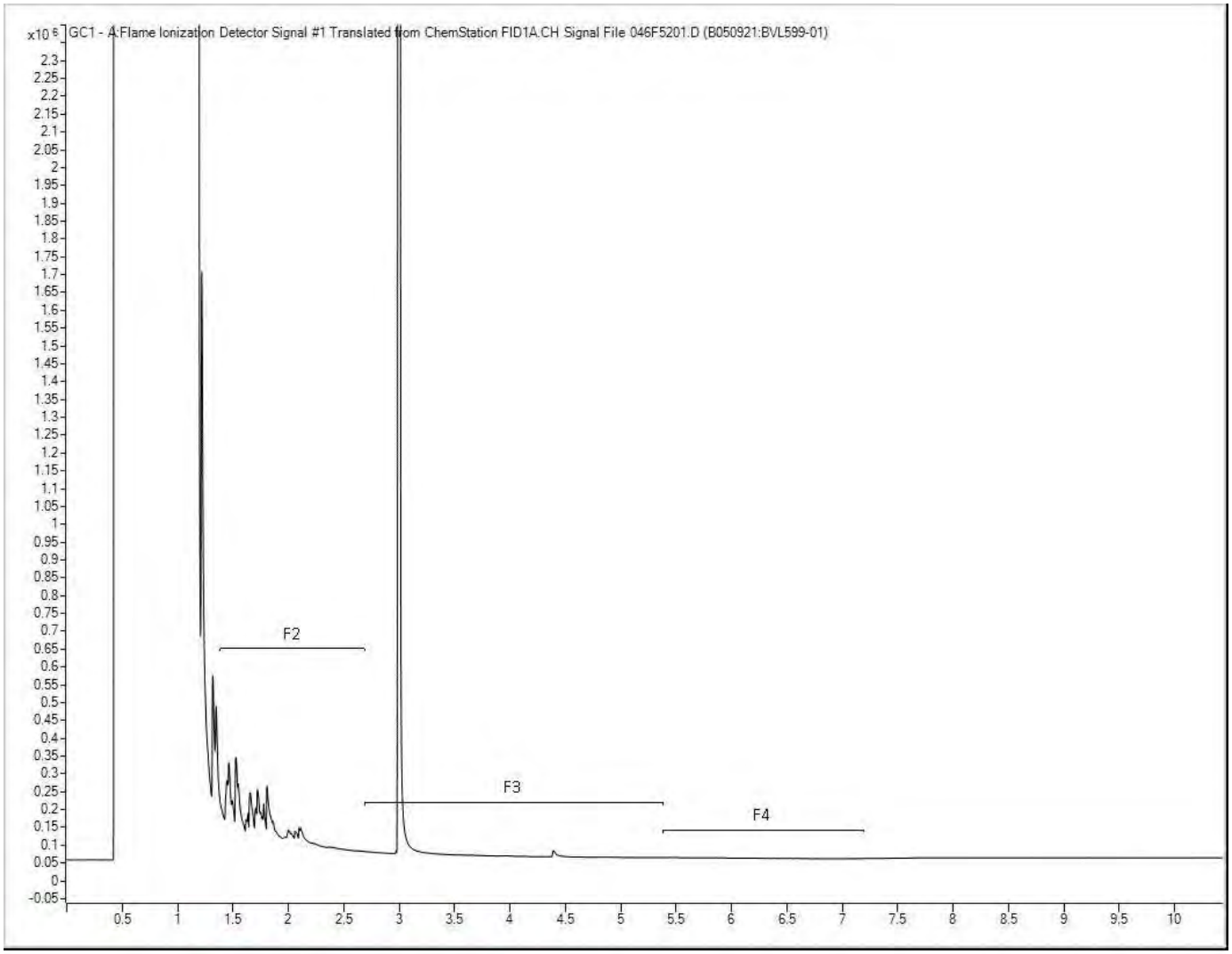


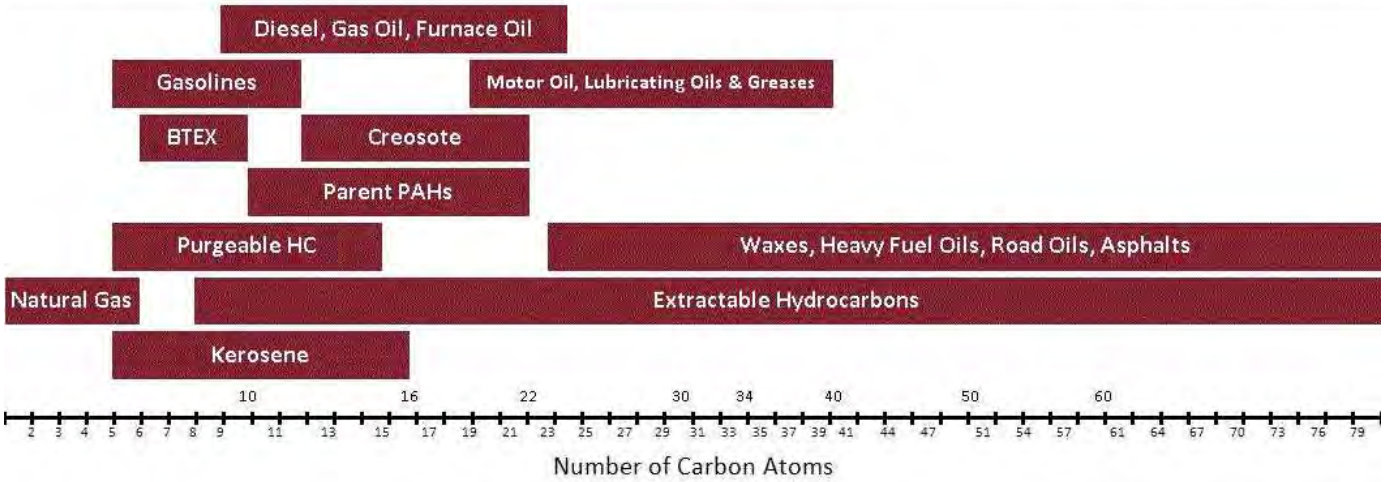
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356837
Report Date: 2023/09/29
Bureau Veritas Sample: BVL599

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: BH1704

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





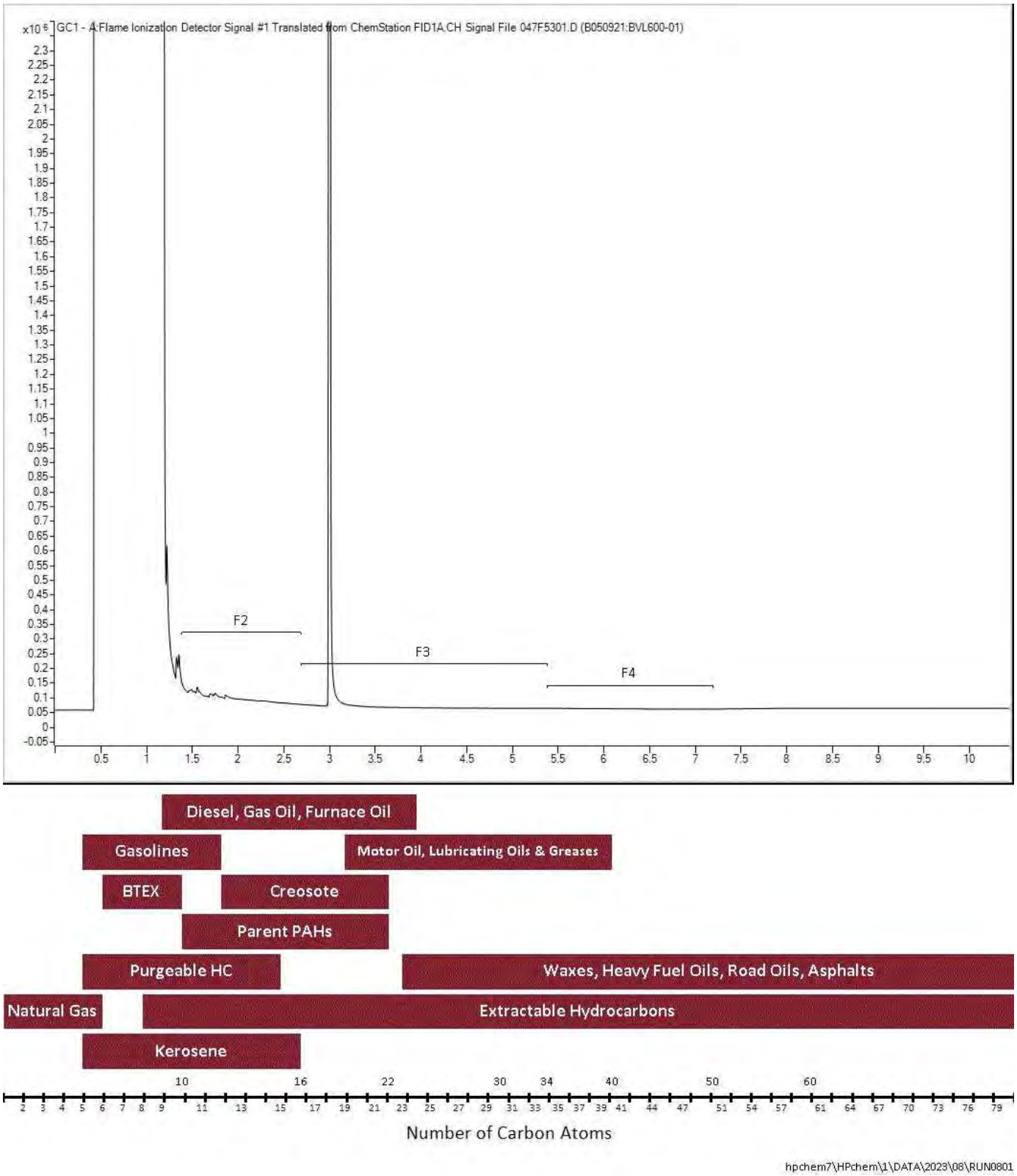
hpchem7\HPchem\1\DATA\2023\08\RUN0801

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356837
Report Date: 2023/09/29
Bureau Veritas Sample: BVL600

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: BH6002

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram

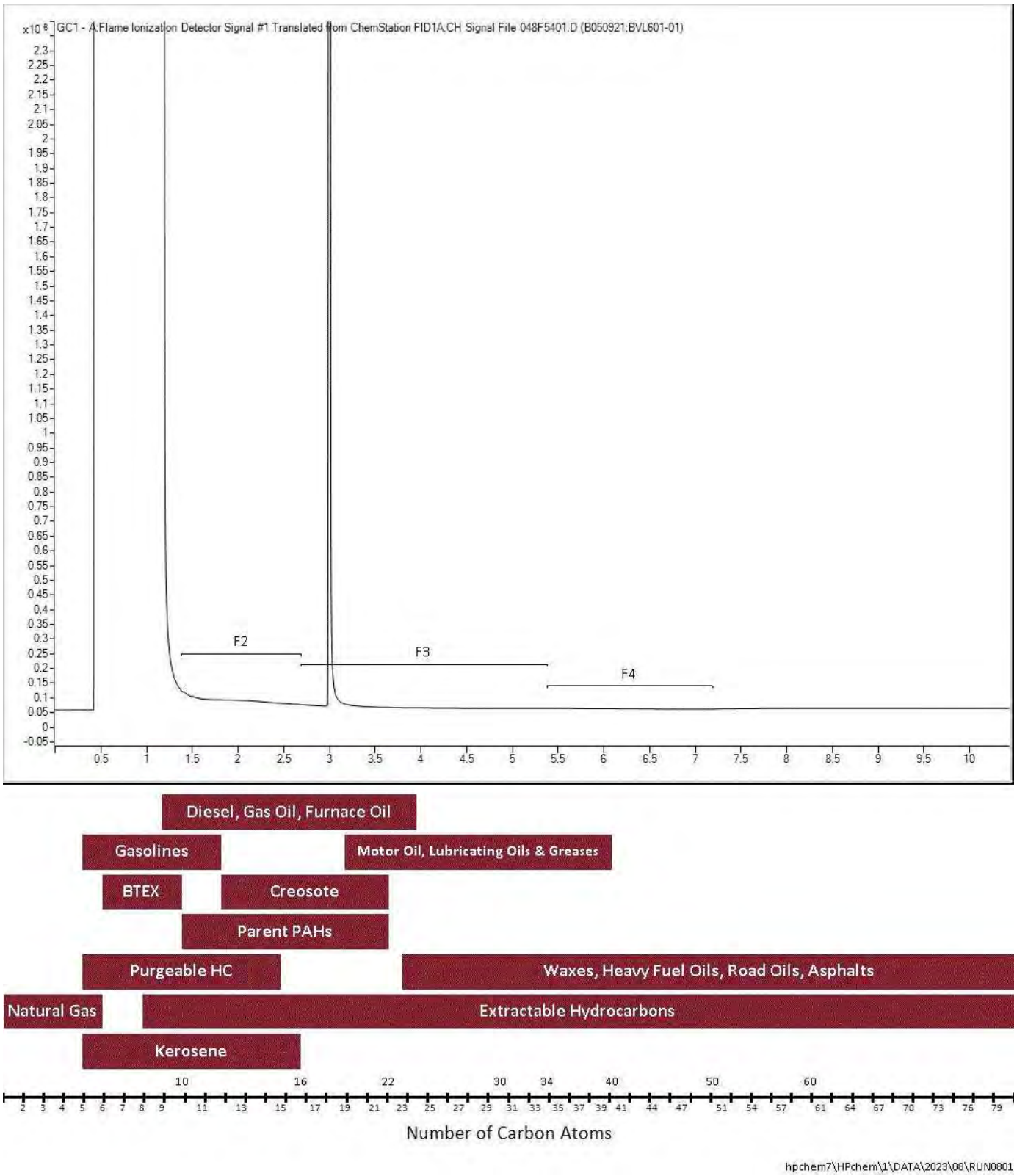


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356837
Report Date: 2023/09/29
Bureau Veritas Sample: BVL601

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: BH1953

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram

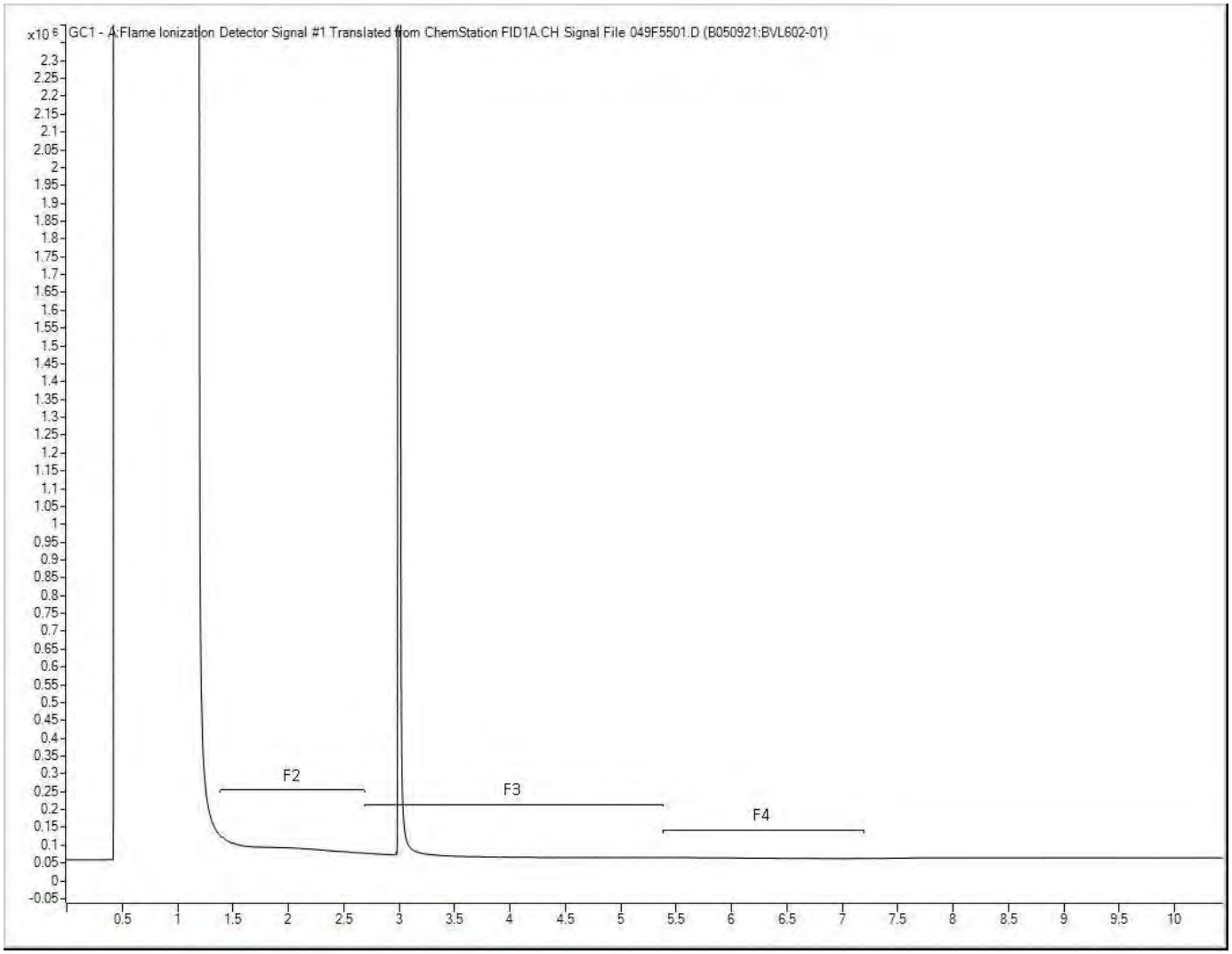


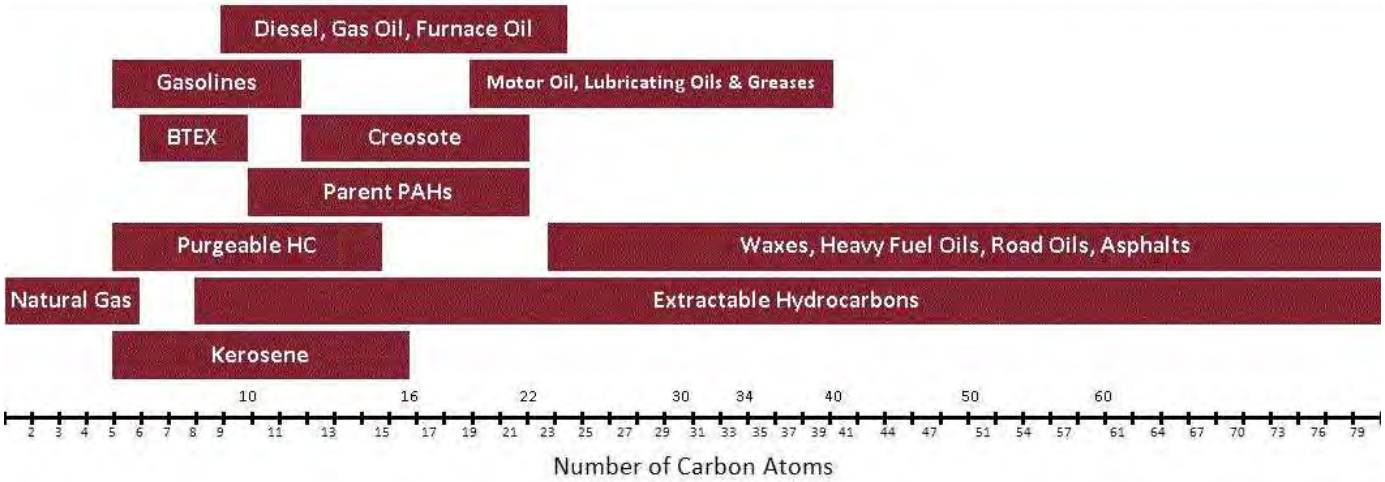
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356837
Report Date: 2023/09/29
Bureau Veritas Sample: BVL602

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: BH5002

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





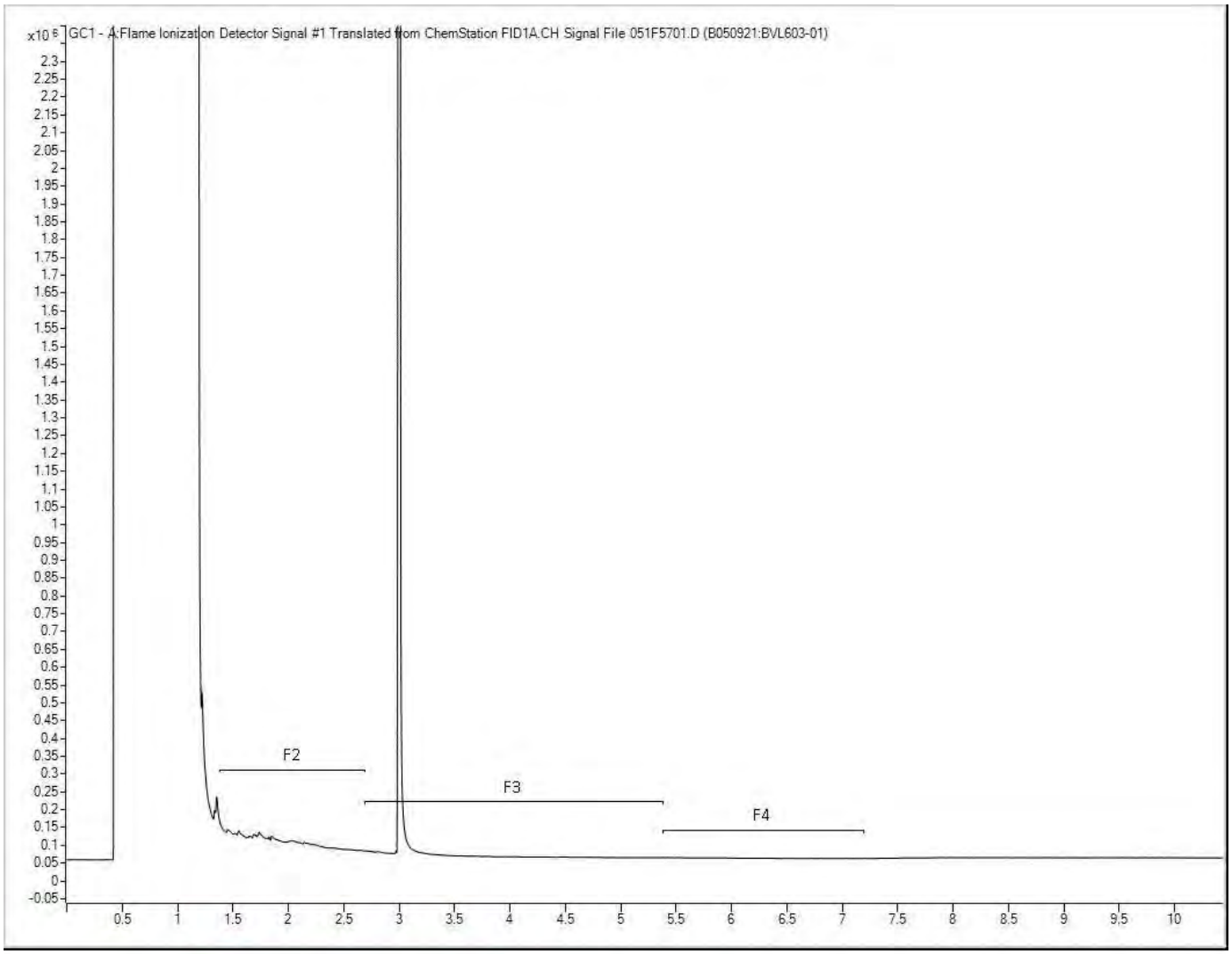
hpchem7\HPchem\1\DATA\2023\08\RUN0801

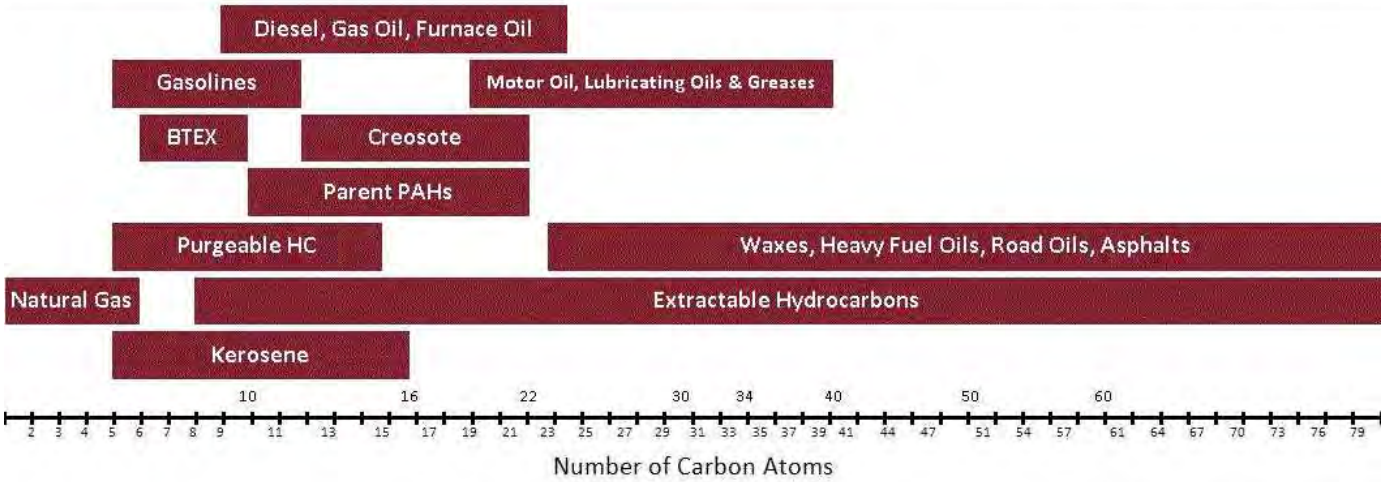
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356837
Report Date: 2023/09/29
Bureau Veritas Sample: BVL603

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: EX4

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





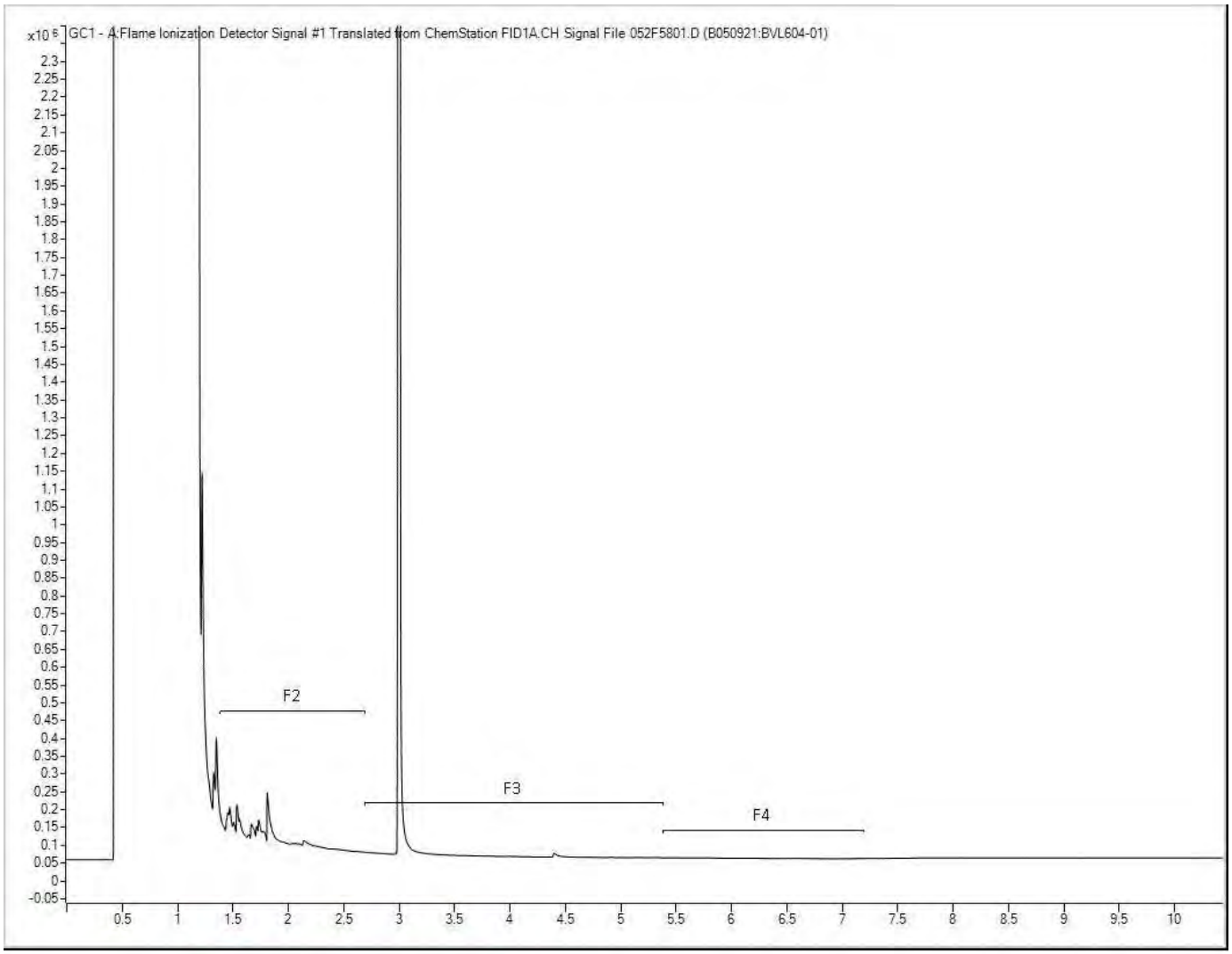
hpchem7\HPchem\1\DATA\2023\08\RUN0801

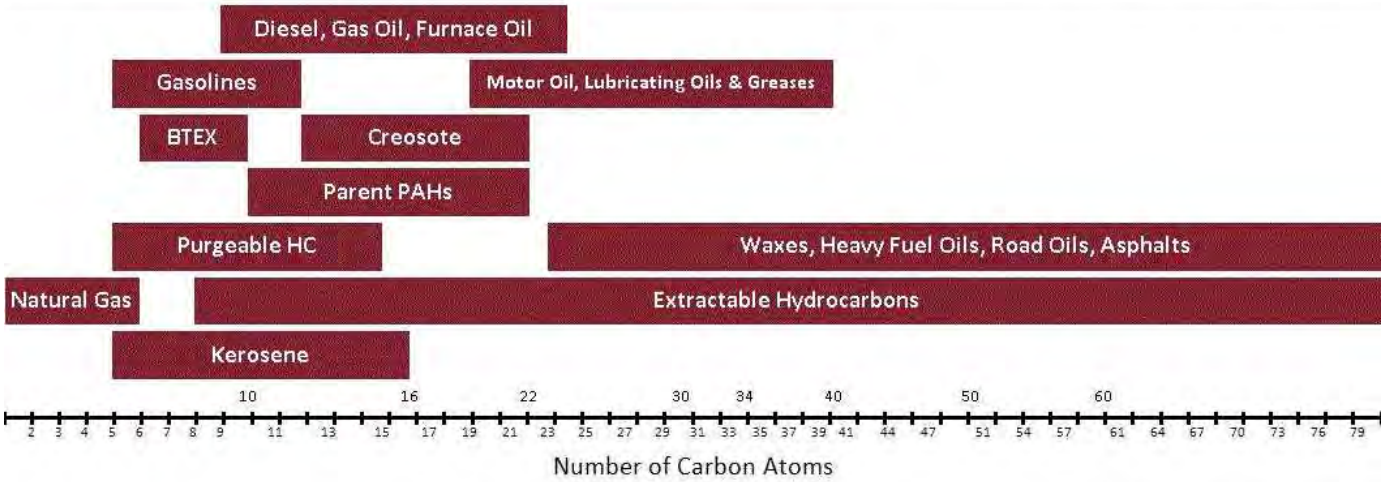
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356837
Report Date: 2023/09/29
Bureau Veritas Sample: BVL604

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: EX5

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





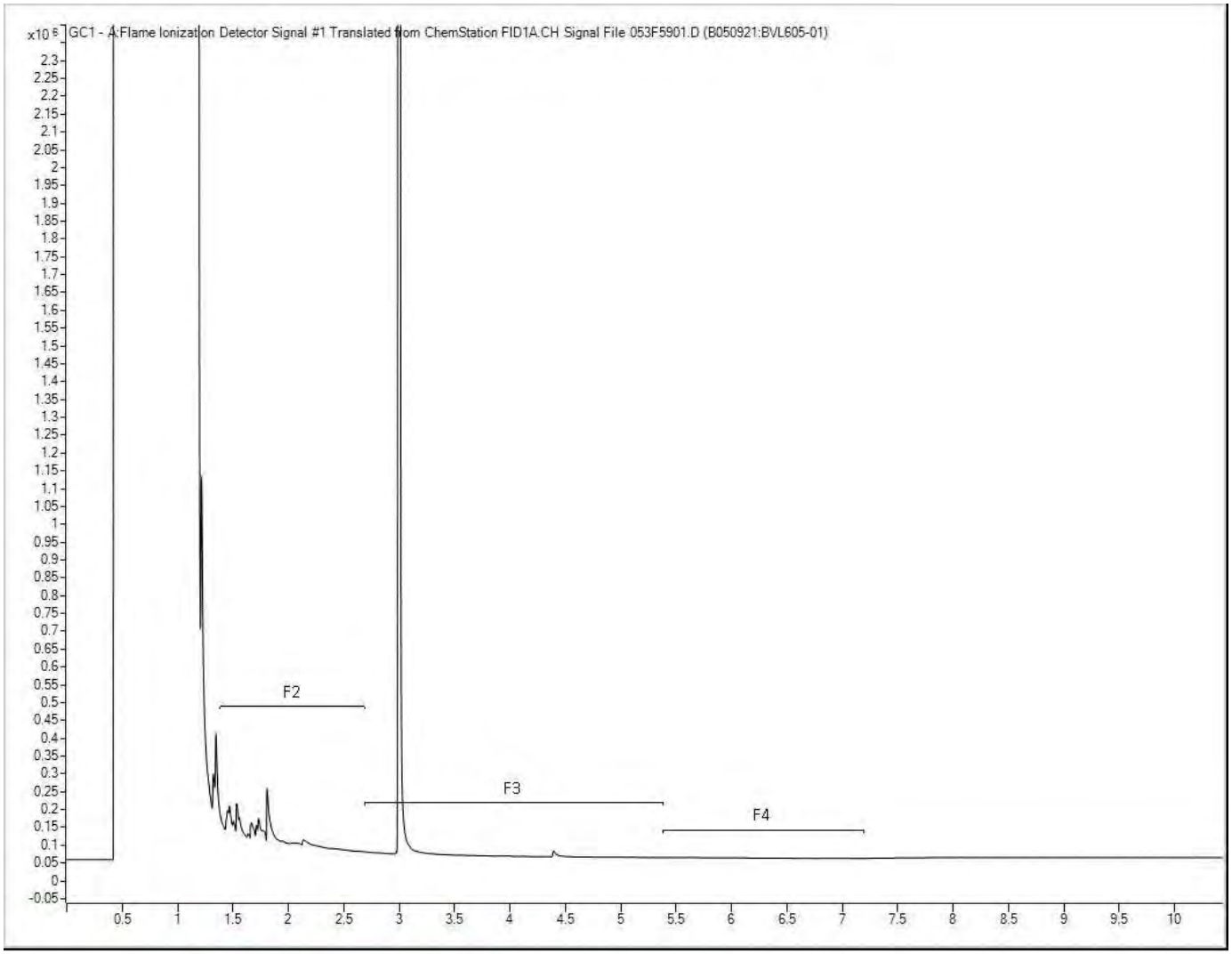
hpchem7\HPchem\1\DATA\2023\08\RUN0801

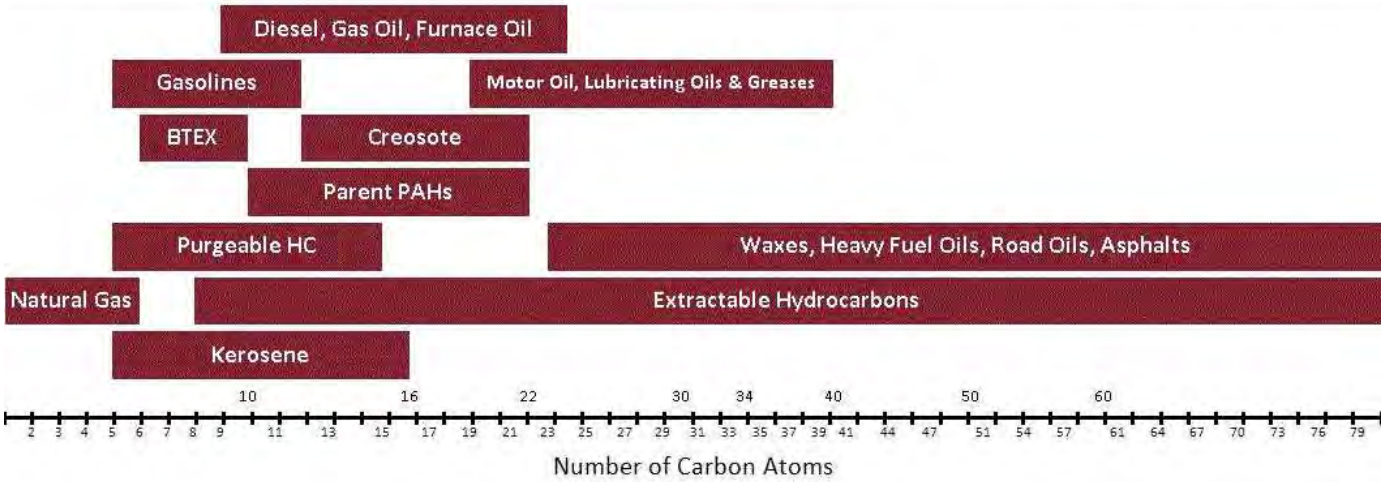
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356837
Report Date: 2023/09/29
Bureau Veritas Sample: BVL605

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: DUP-09

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





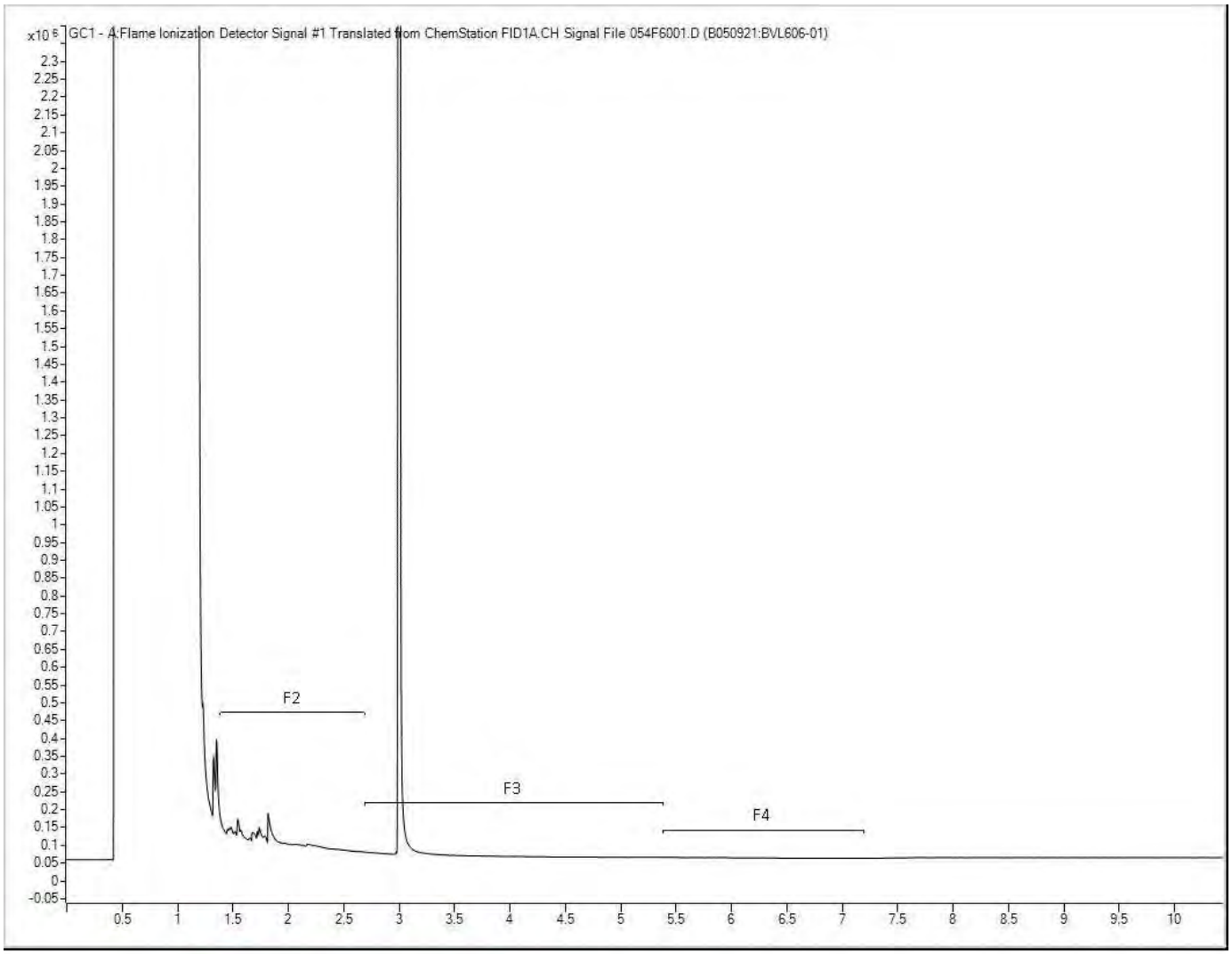
hpchem7\HPchem\1\DATA\2023\08\RUN0801

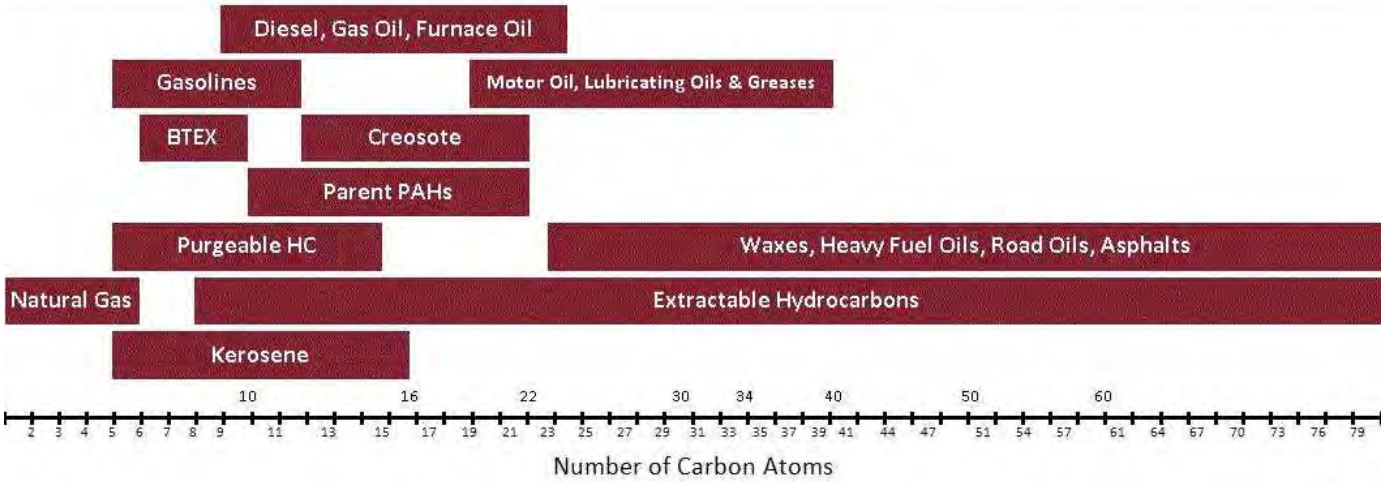
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356837
Report Date: 2023/09/29
Bureau Veritas Sample: BVL606

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: EX6

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





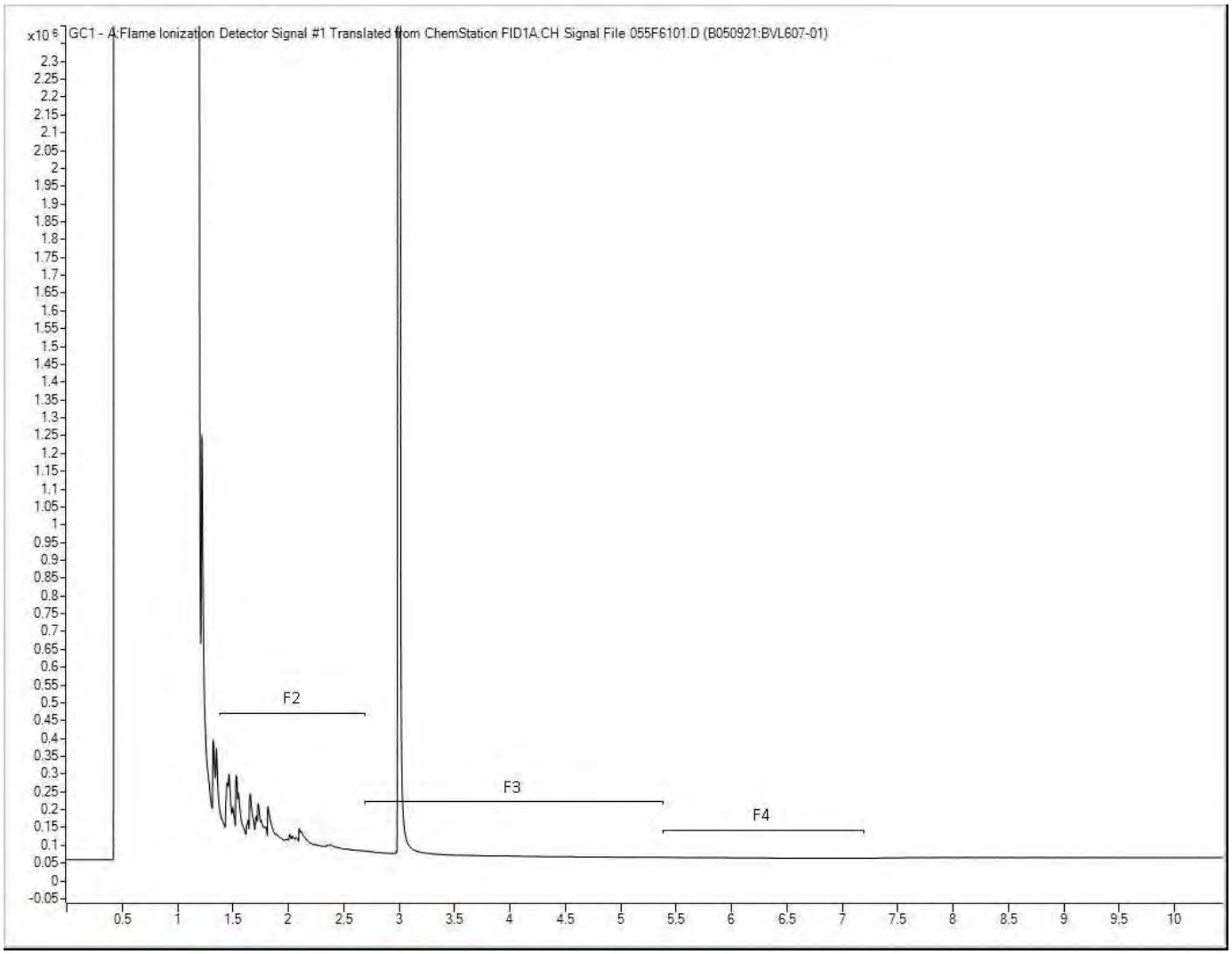
hpchem7\HPchem\1\DATA\2023\08\RUN0801

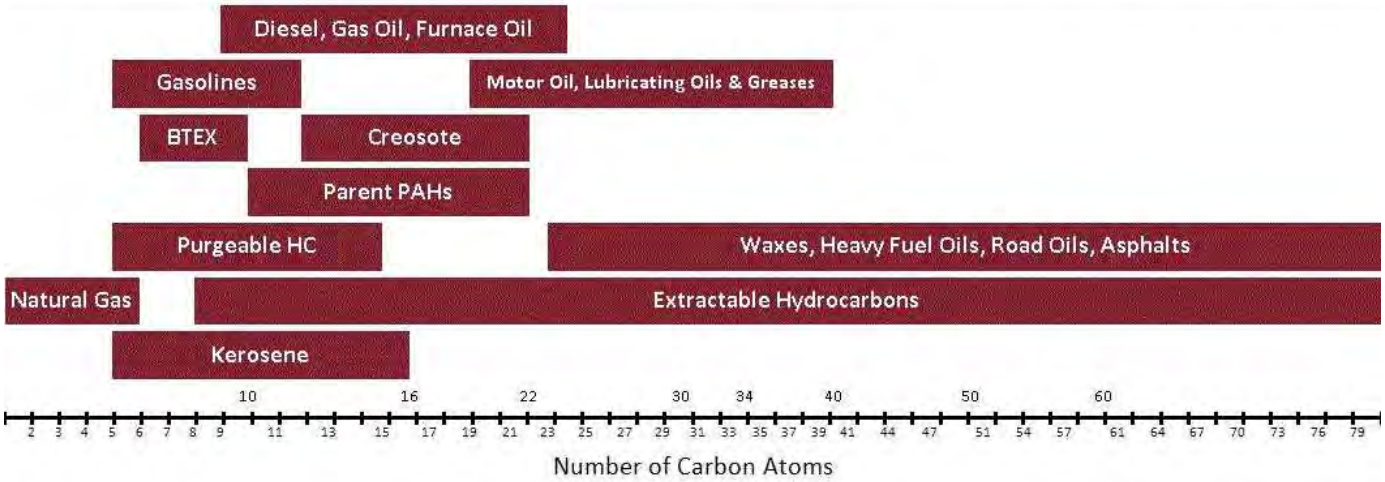
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356837
Report Date: 2023/09/29
Bureau Veritas Sample: BVL607

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: EX7

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





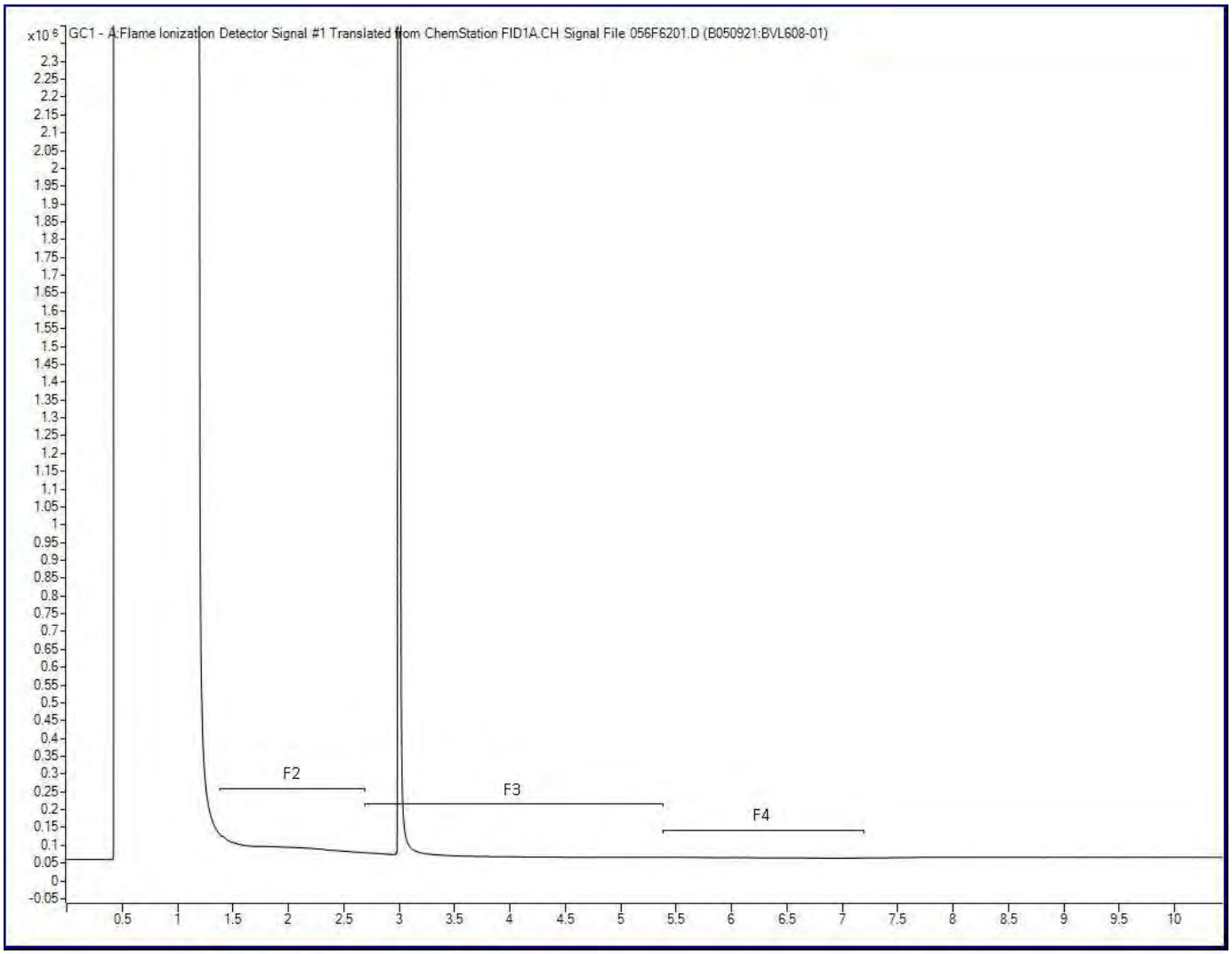
hpchem7\HPchem\1\DATA\2023\08\RUN0801

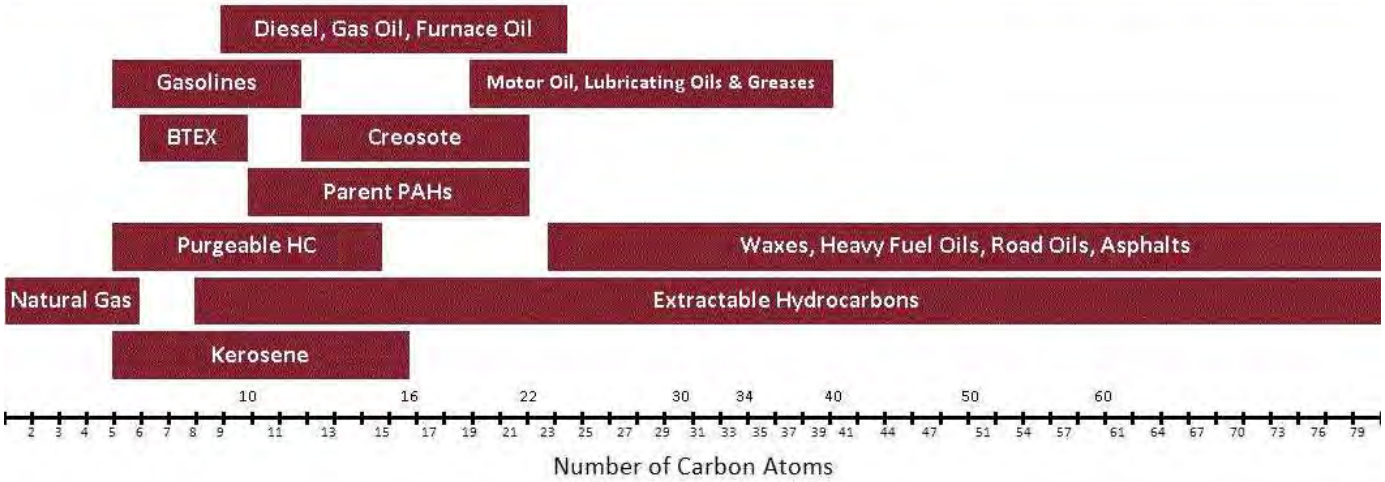
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356837
Report Date: 2023/09/29
Bureau Veritas Sample: BVL608

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: TRIP BLANK-05

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





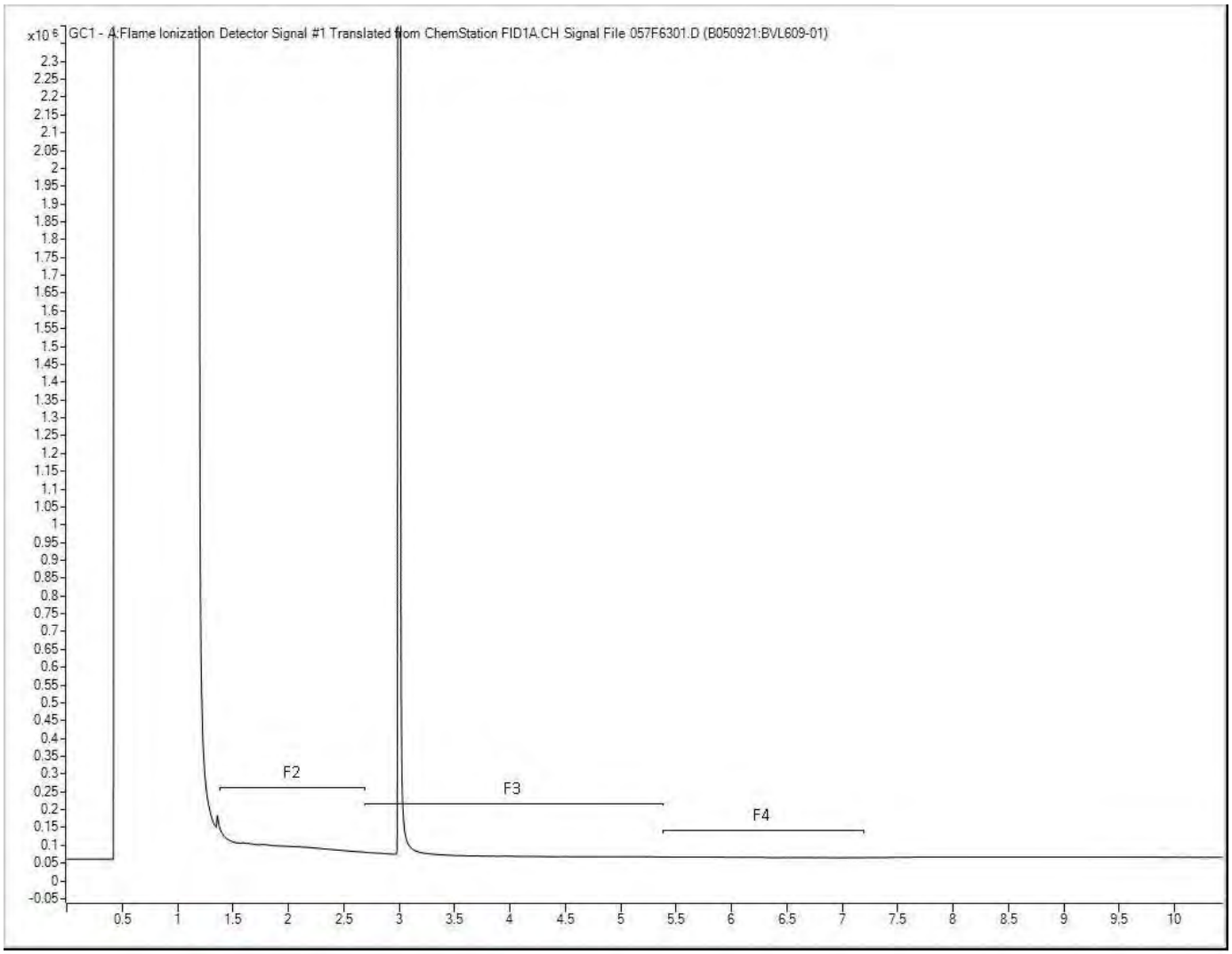
hpchem7\HPchem\1\DATA\2023\08\RUN0801

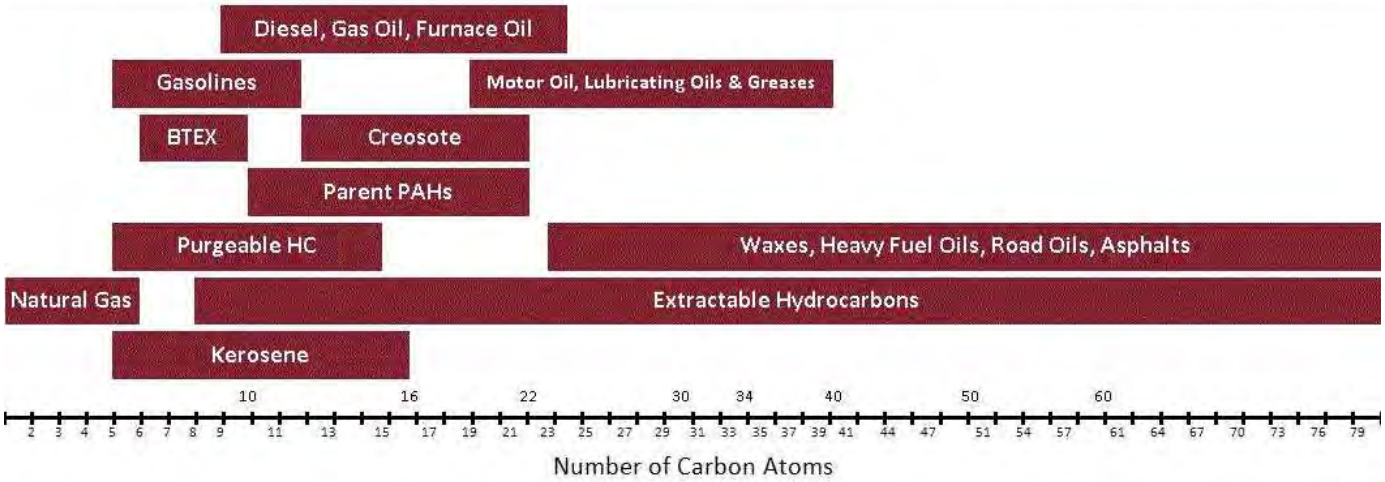
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356837
Report Date: 2023/09/29
Bureau Veritas Sample: BVL609

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: BH510A

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





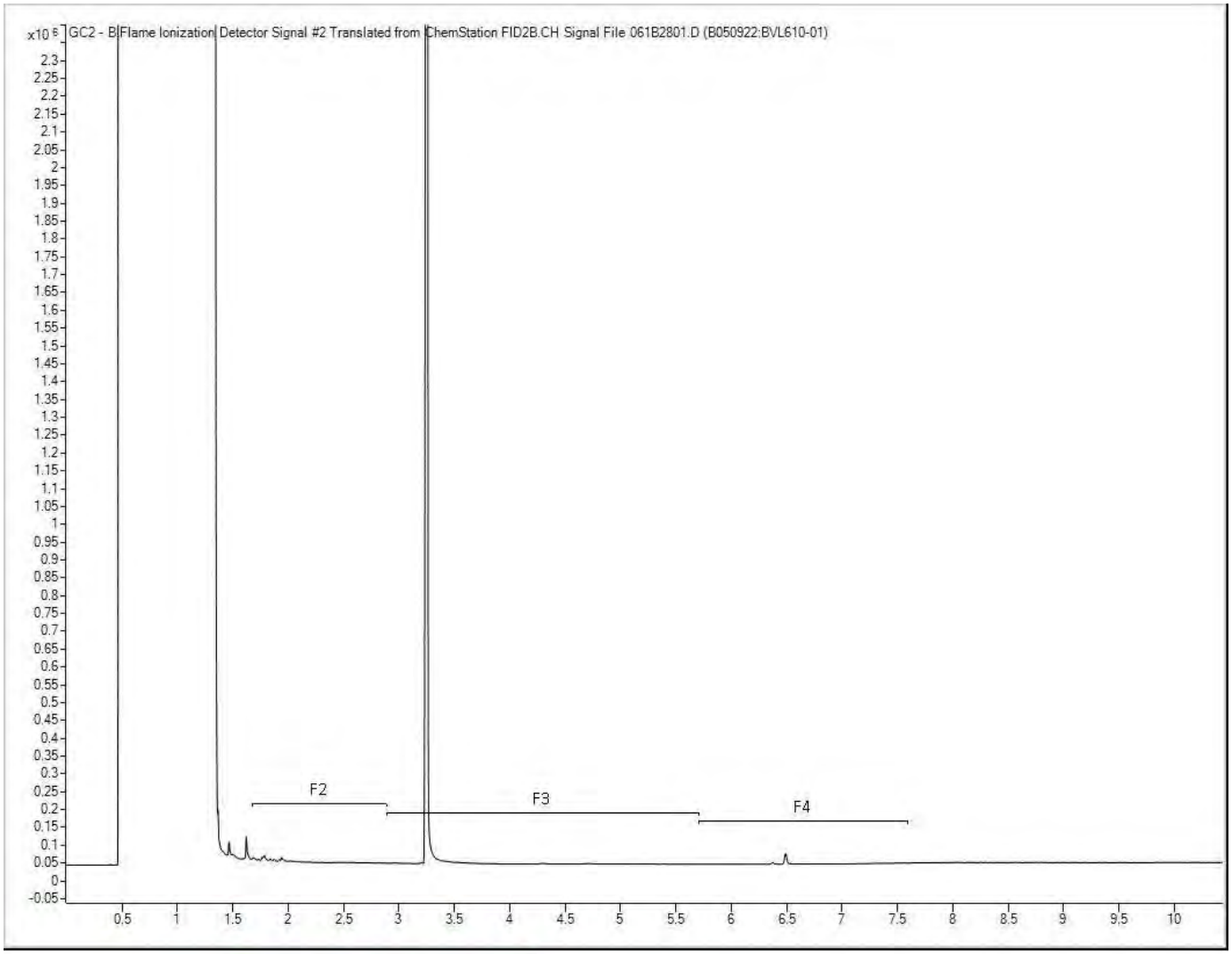
hpchem7\HPchem\1\DATA\2023\08\RUN0801

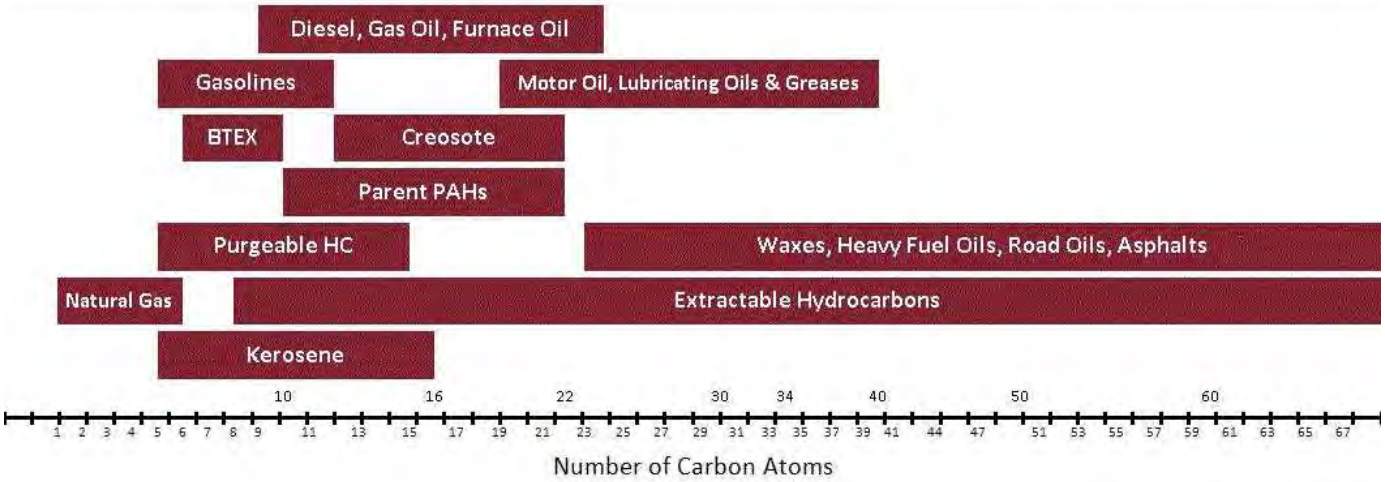
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356837
Report Date: 2023/09/29
Bureau Veritas Sample: BVL610

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: DUP-05

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





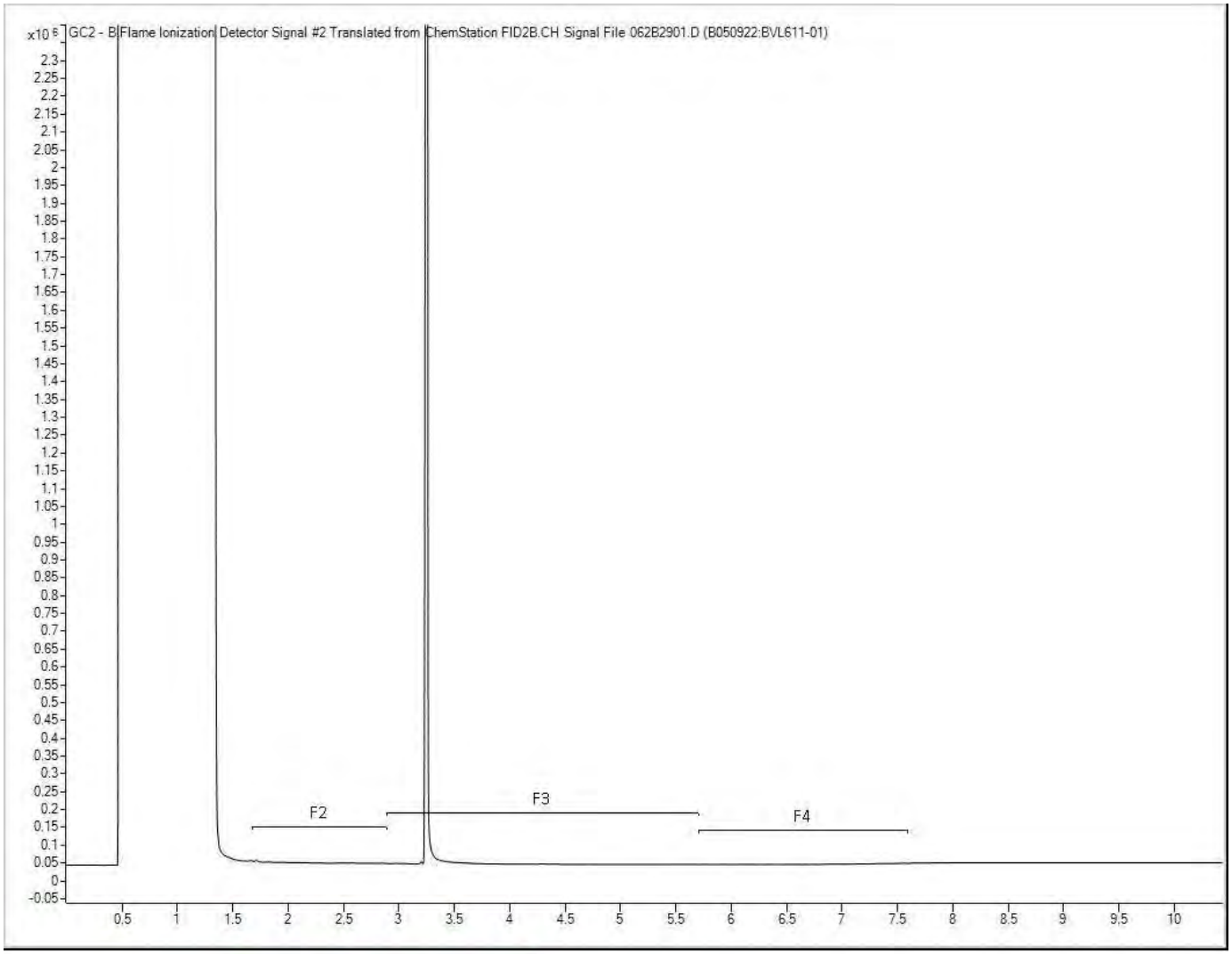
hpchem6\HPchem\1\DATA\2023\07\RUN0730

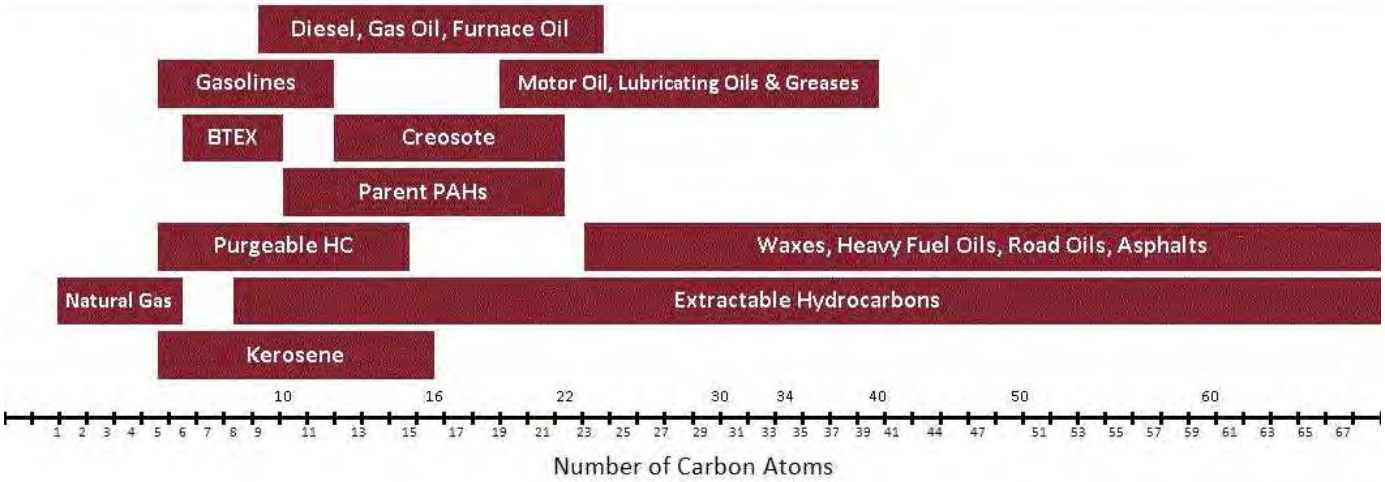
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356837
Report Date: 2023/09/29
Bureau Veritas Sample: BVL611

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: BH1943

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





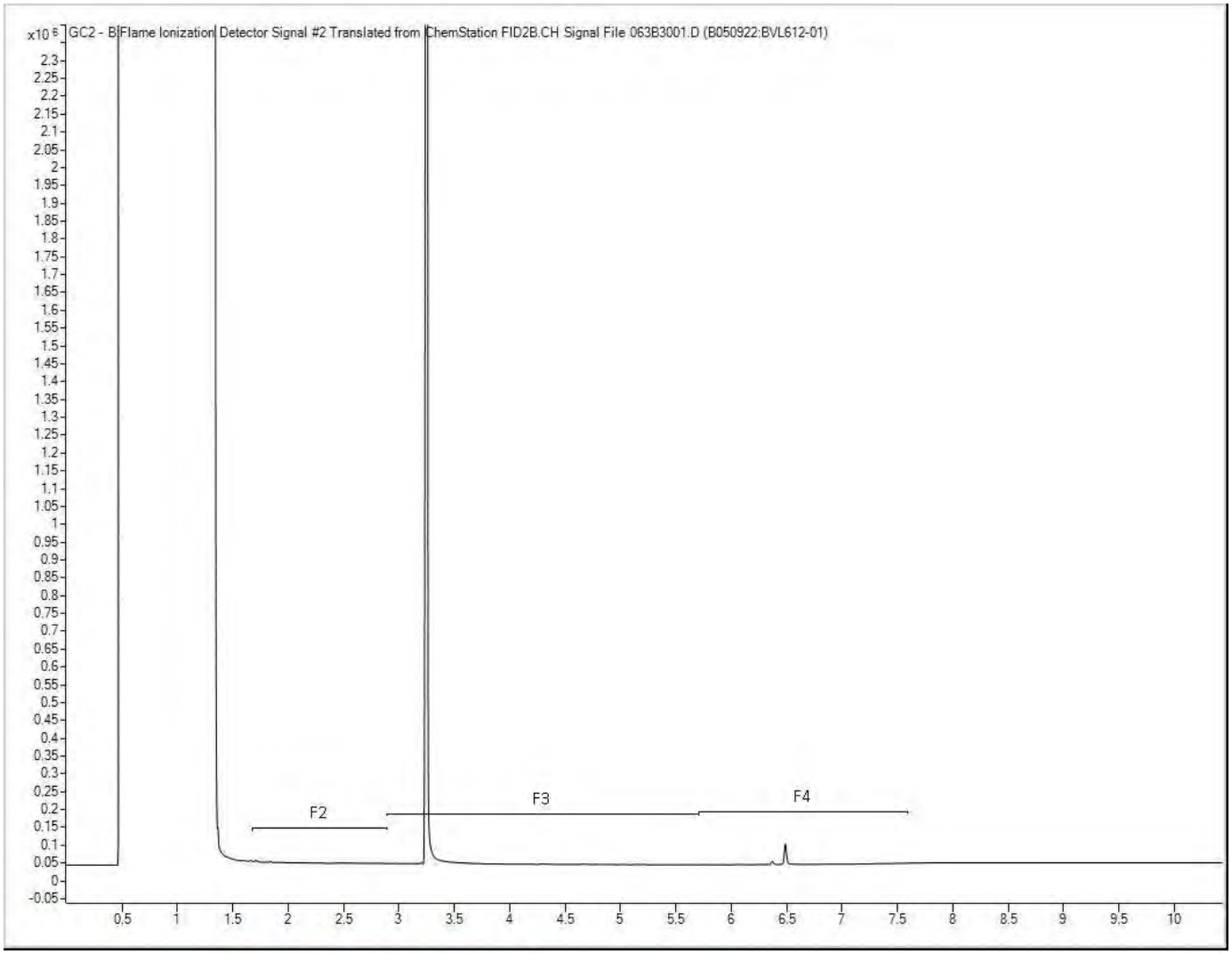
hpchem6\HPchem\1\DATA\2023\07\RUN0730

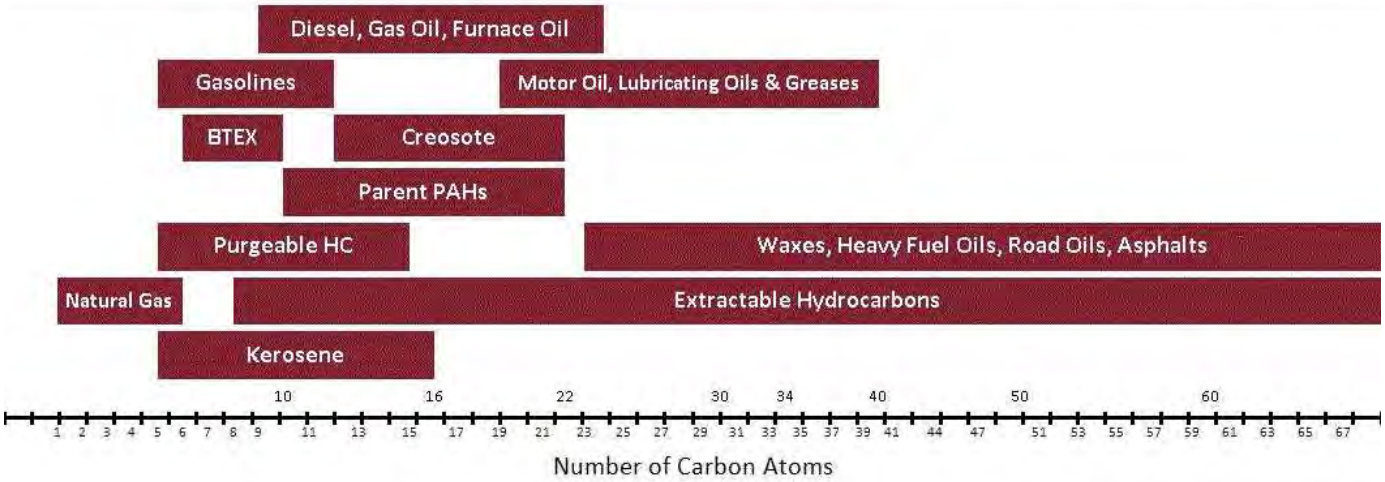
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356837
Report Date: 2023/09/29
Bureau Veritas Sample: BVL612

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: BH1923

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





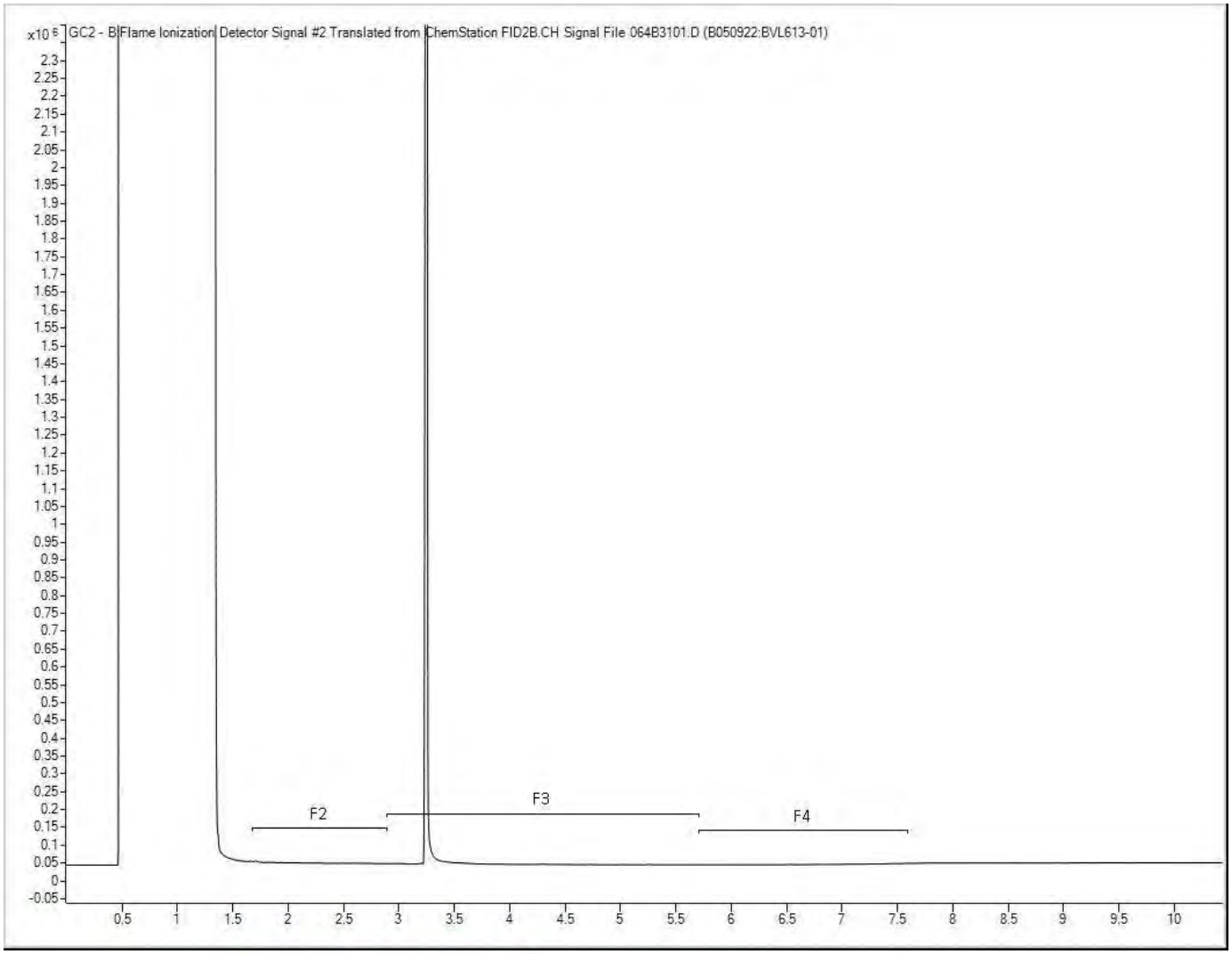
hpchem6\HPchem\1\DATA\2023\07\RUN0730

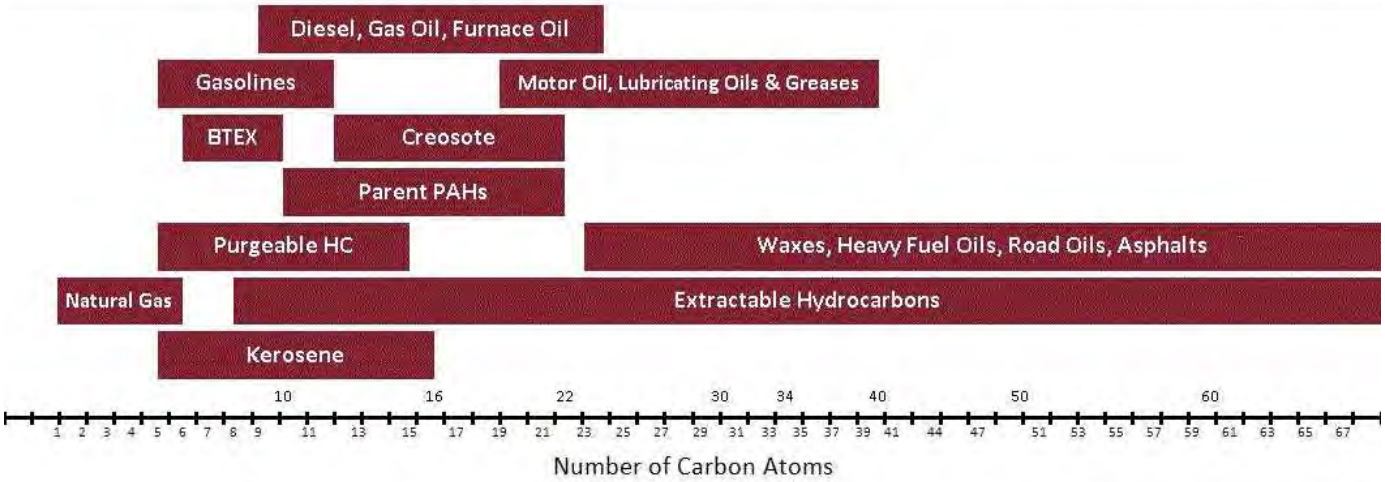
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356837
Report Date: 2023/09/29
Bureau Veritas Sample: BVL613

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: BH6006

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





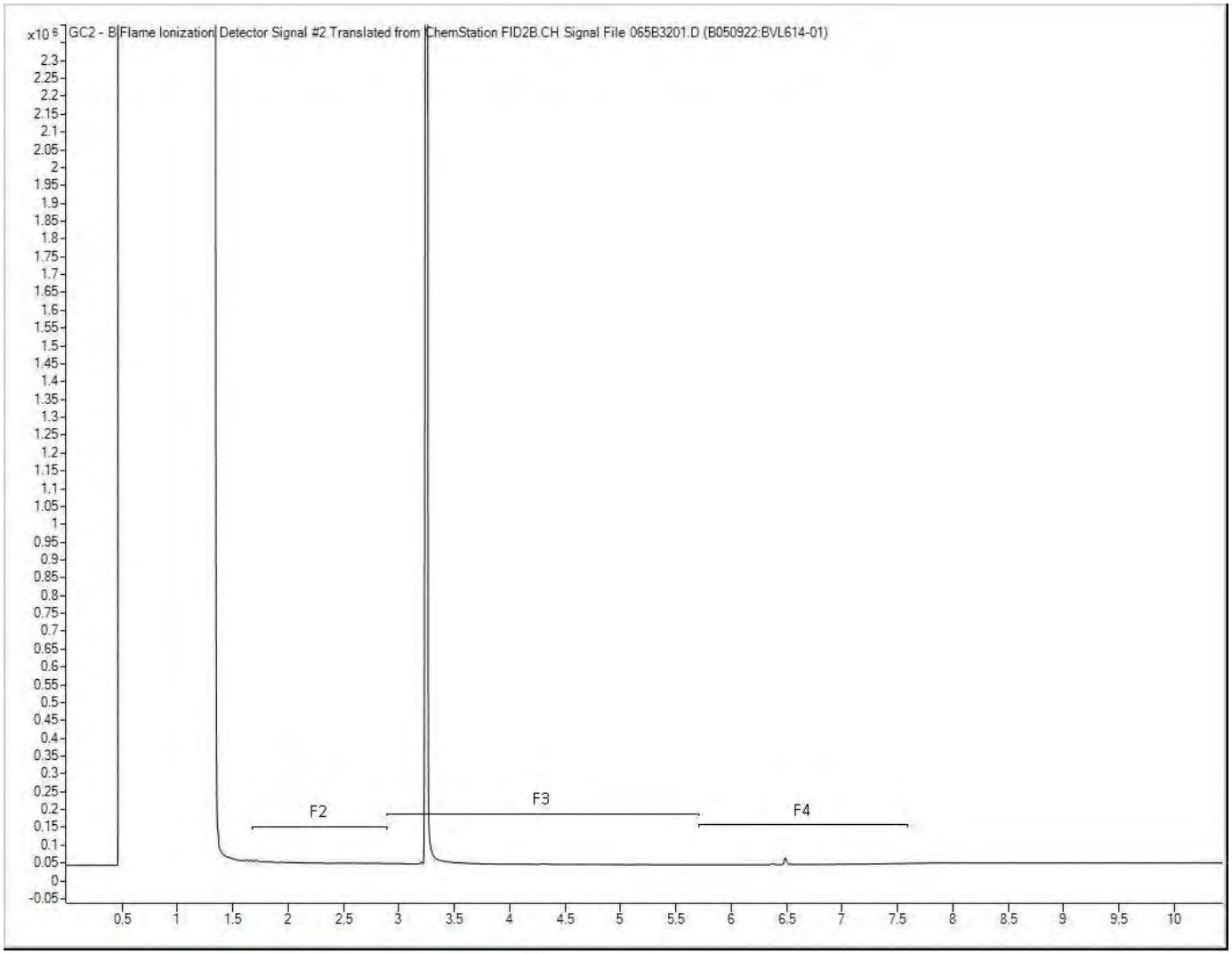
hpchem6\HPchem\1\DATA\2023\07\RUN0730

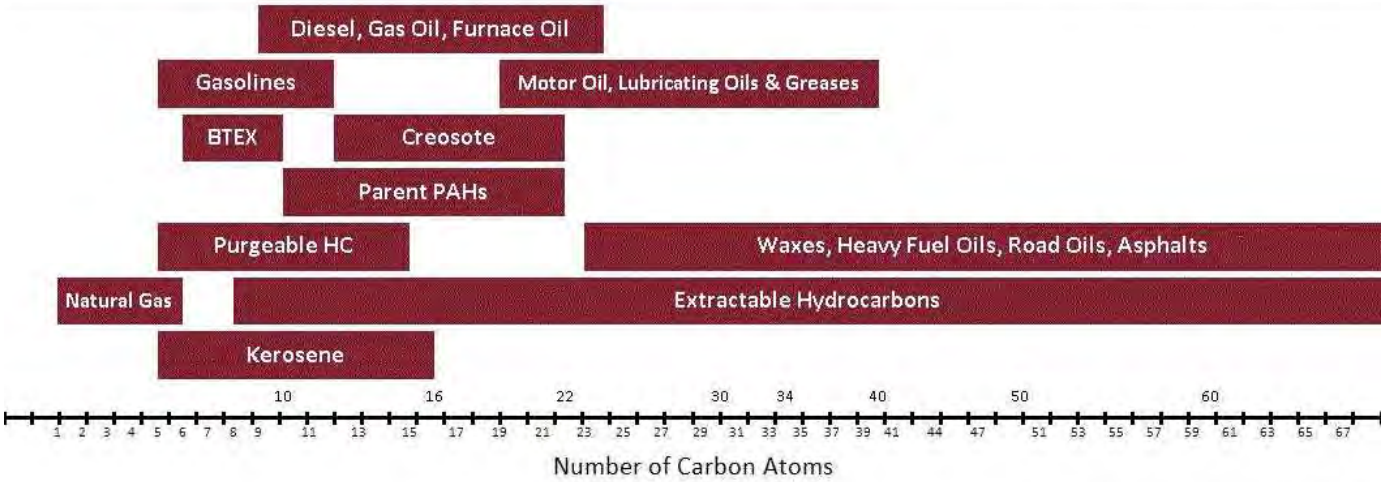
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356837
Report Date: 2023/09/29
Bureau Veritas Sample: BVL614

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: BH1925

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





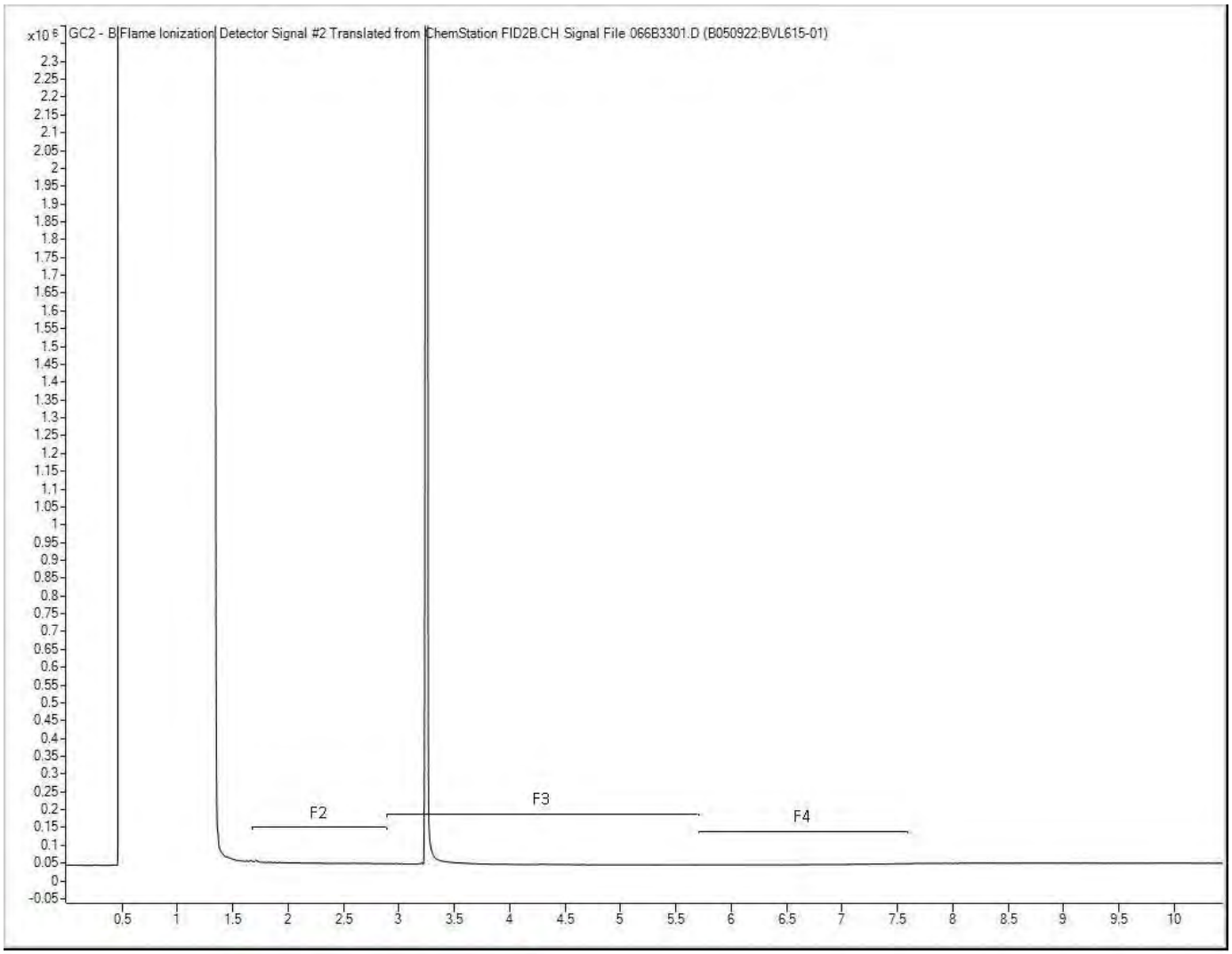
hpchem6\HPchem\1\DATA\2023\07\RUN0730

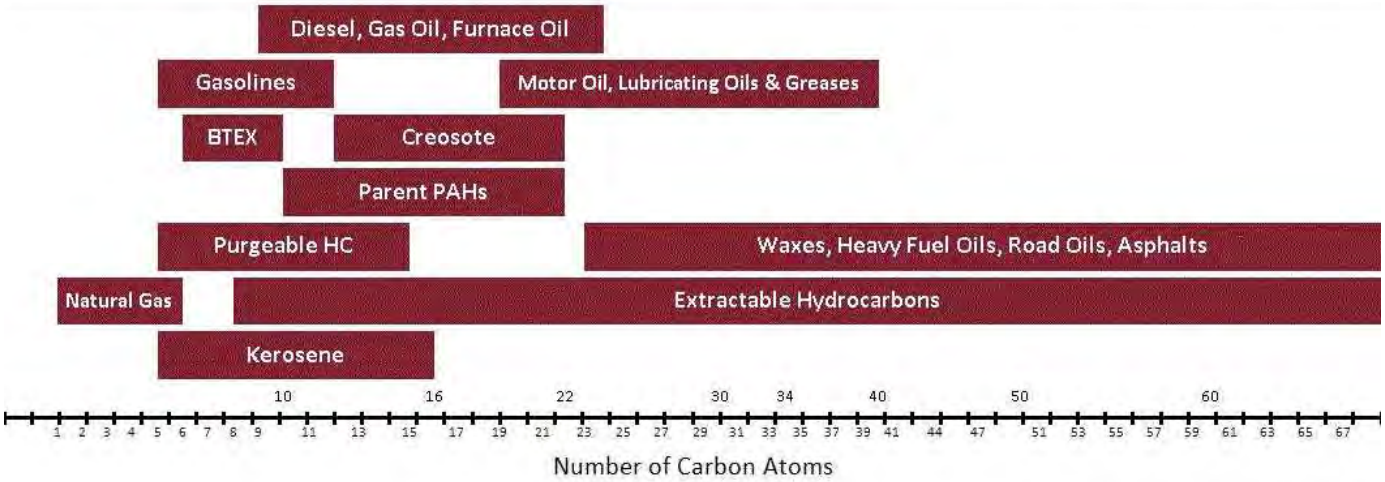
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356837
Report Date: 2023/09/29
Bureau Veritas Sample: BVL615

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: BH1950A

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





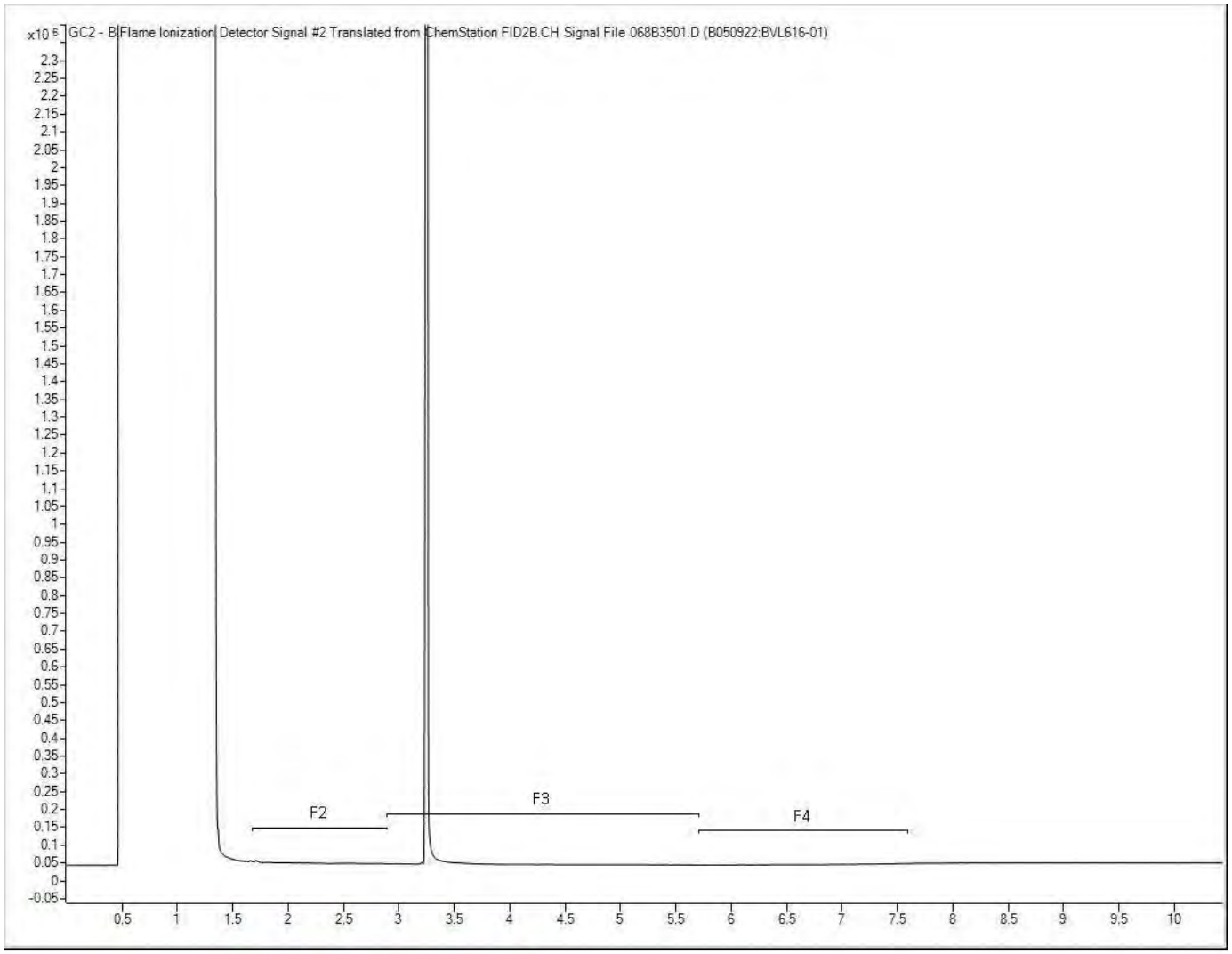
hpchem6\HPchem\1\DATA\2023\07\RUN0730

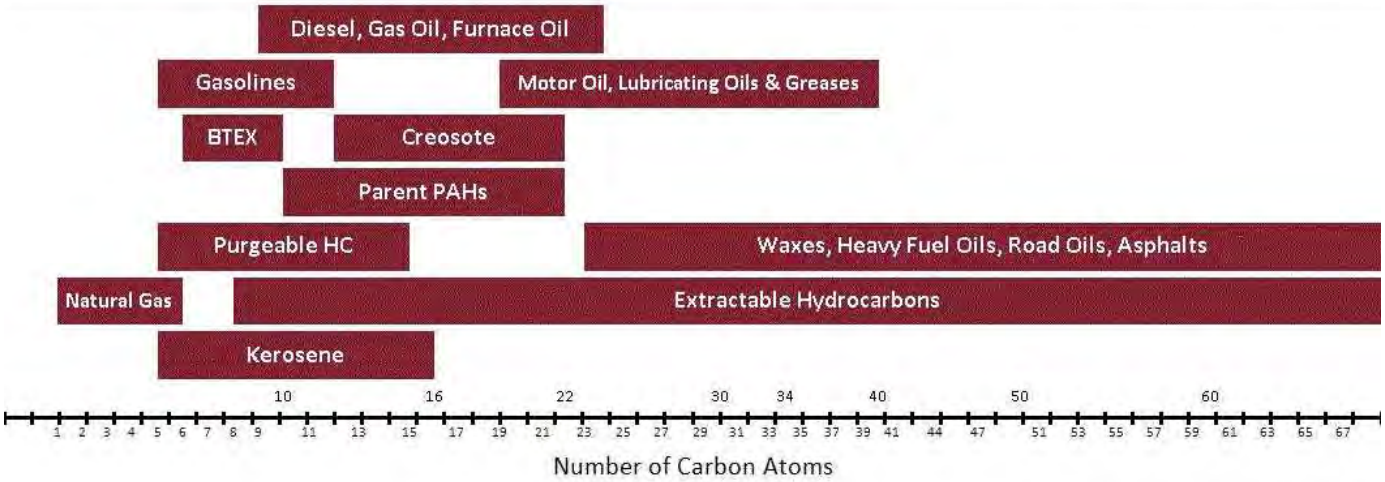
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356837
Report Date: 2023/09/29
Bureau Veritas Sample: BVL616

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: BH2004

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





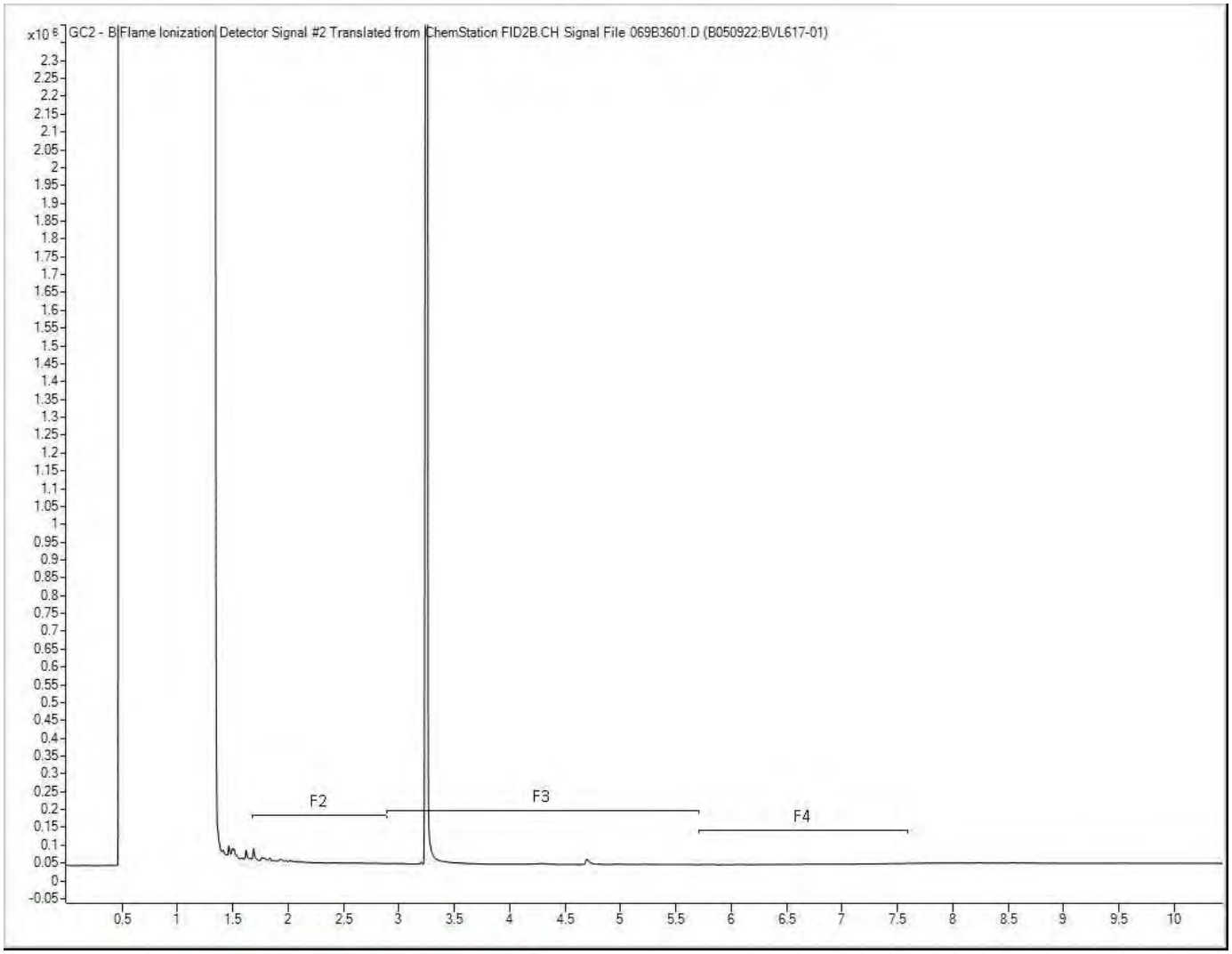
hpchem6\HPchem\1\DATA\2023\07\RUN0730

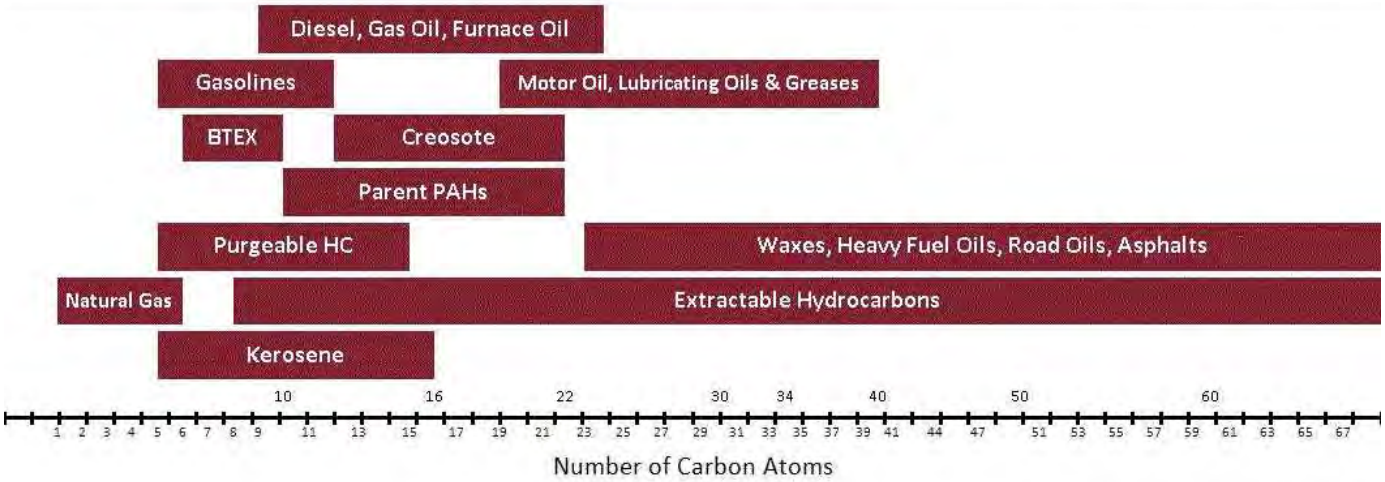
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356837
Report Date: 2023/09/29
Bureau Veritas Sample: BVL617

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: EX1

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





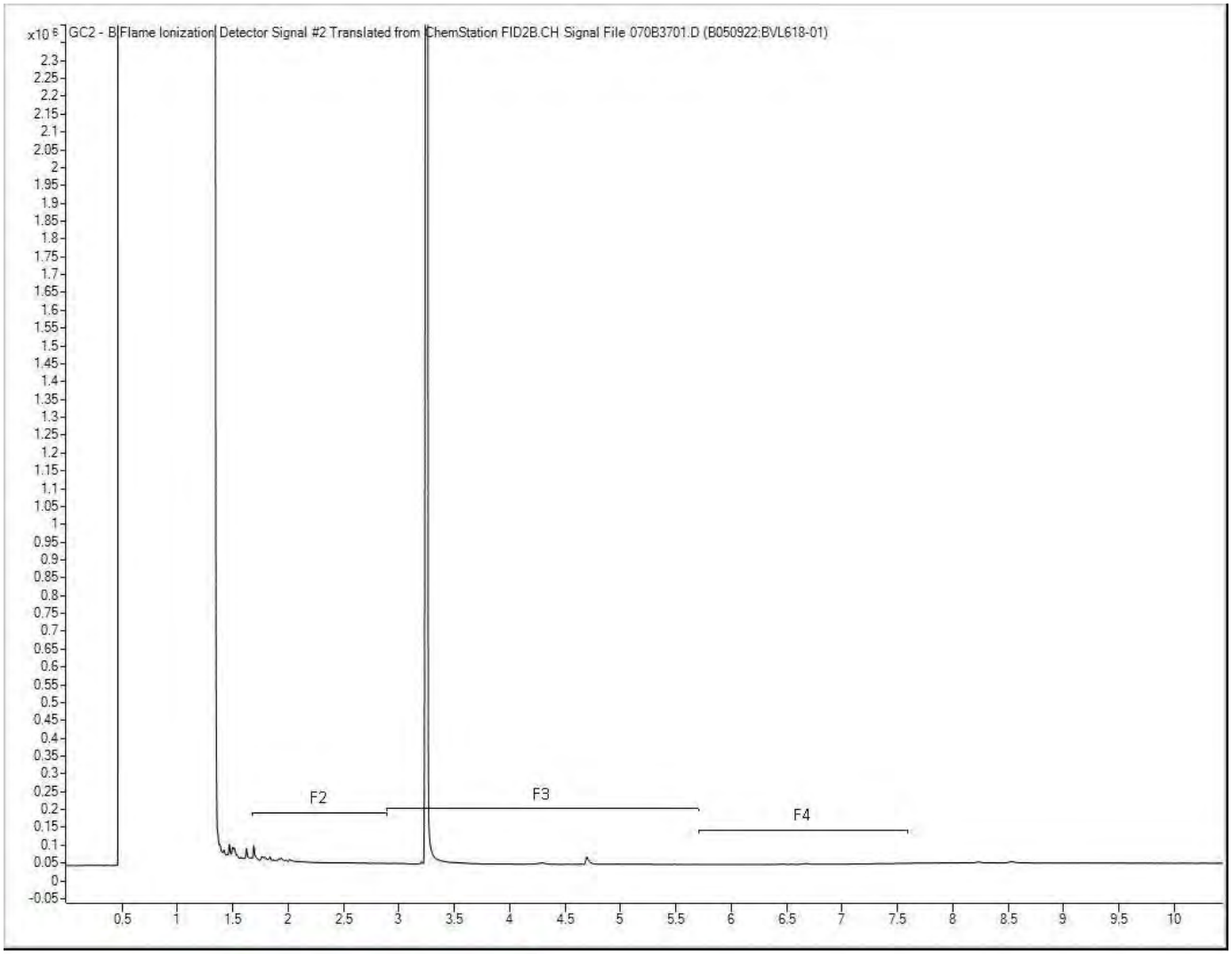
hpchem6\HPchem\1\DATA\2023\07\RUN0730

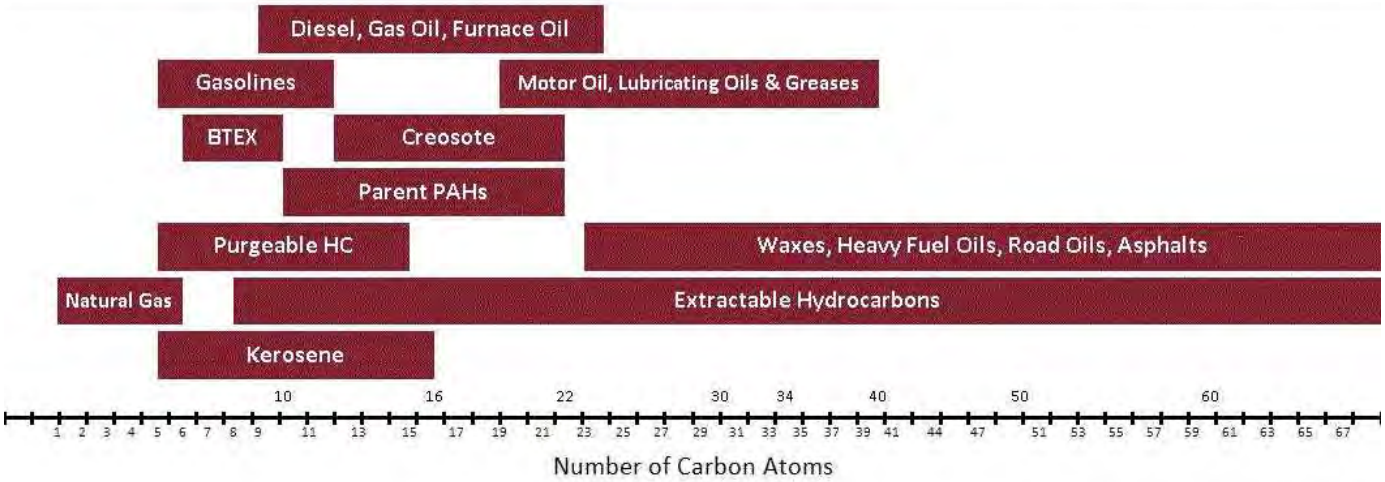
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356837
Report Date: 2023/09/29
Bureau Veritas Sample: BVL618

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: DUP-07

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





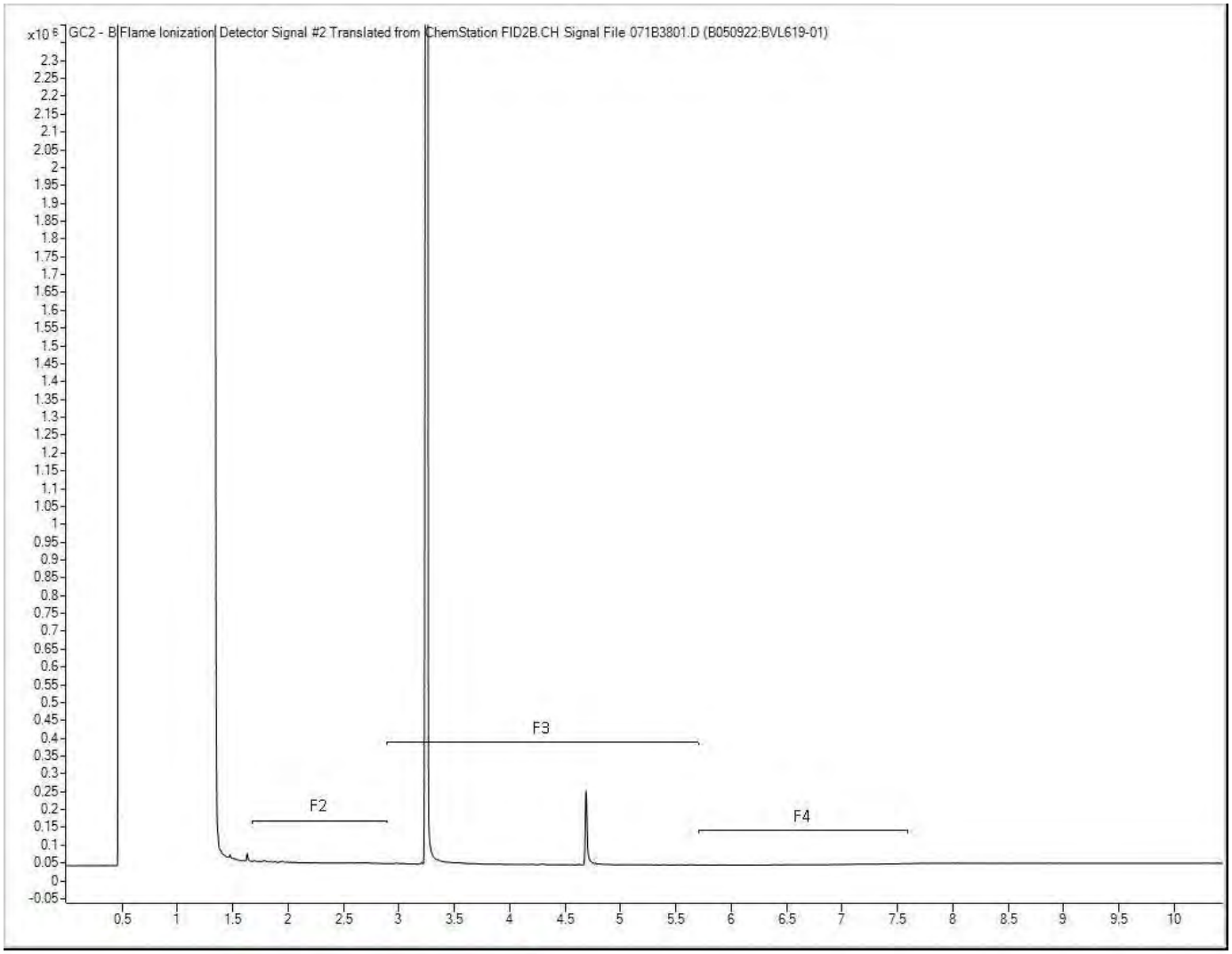
hpchem6\HPchem\1\DATA\2023\07\RUN0730

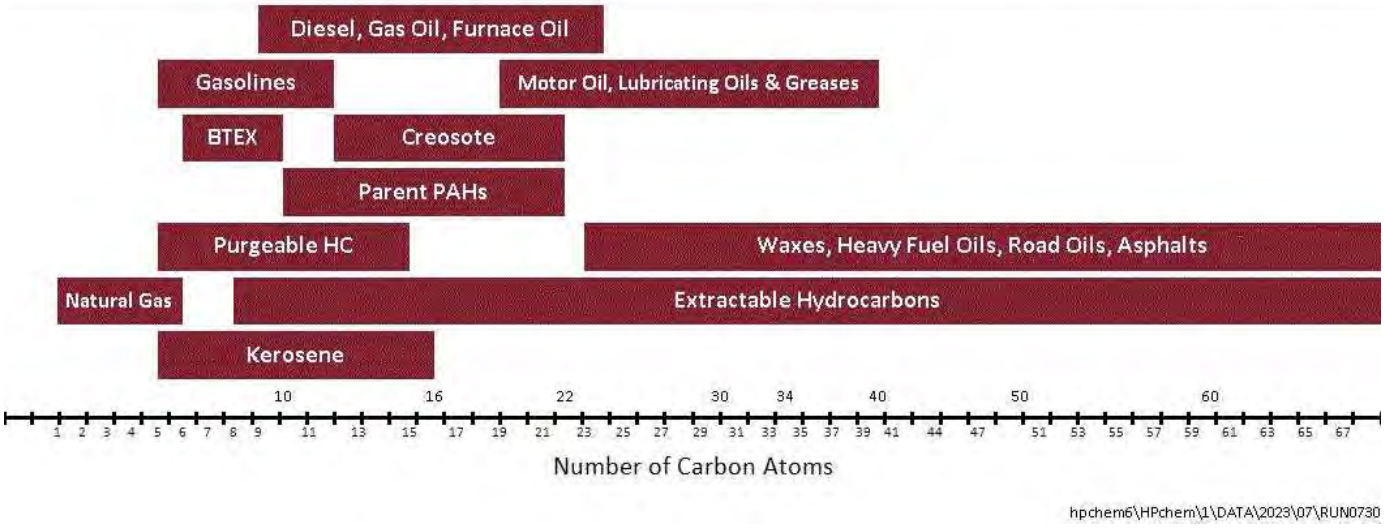
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356837
Report Date: 2023/09/29
Bureau Veritas Sample: BVL619

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: EX2

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





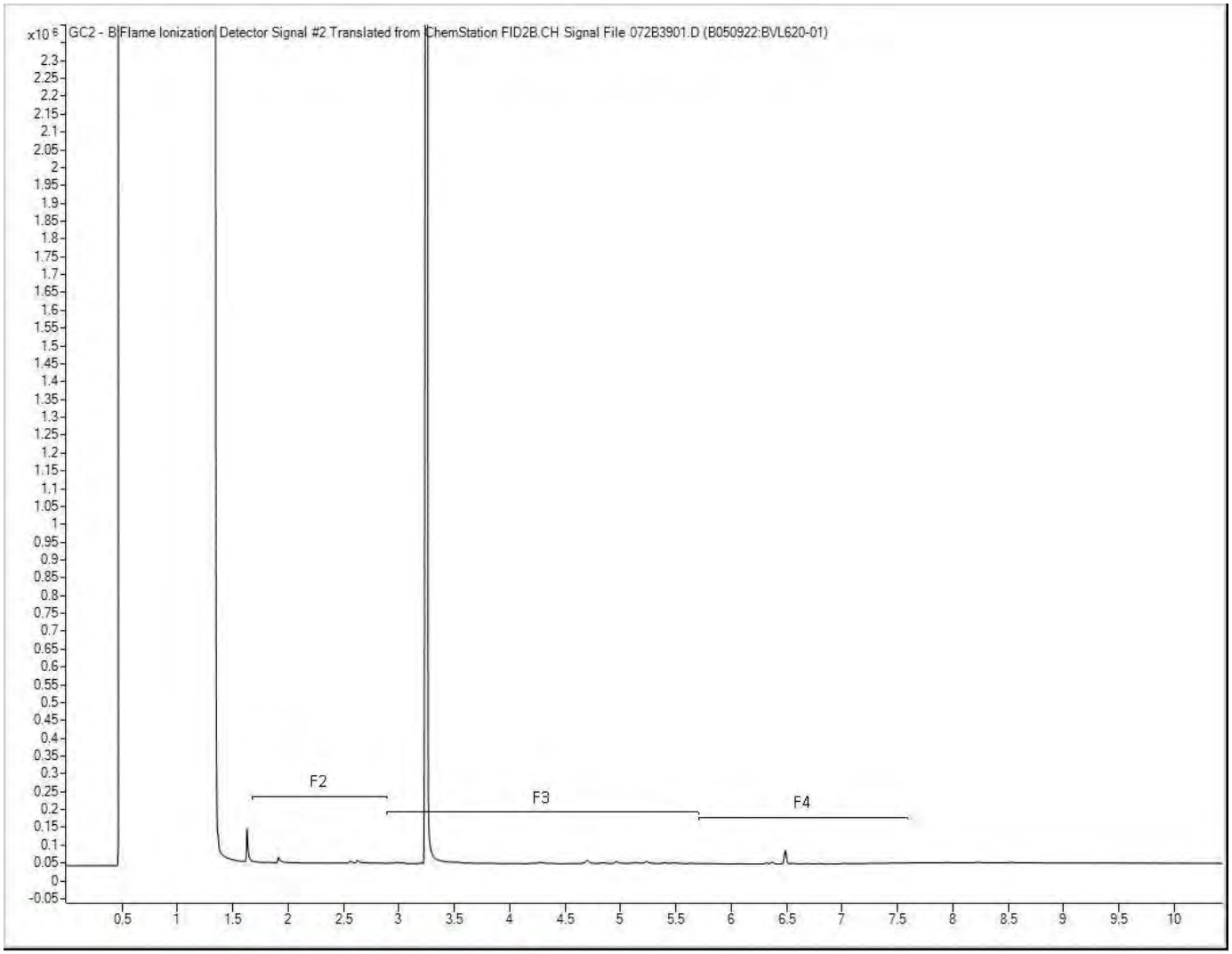
hpchem6\HPchem\1\DATA\2023\07\RUN0730

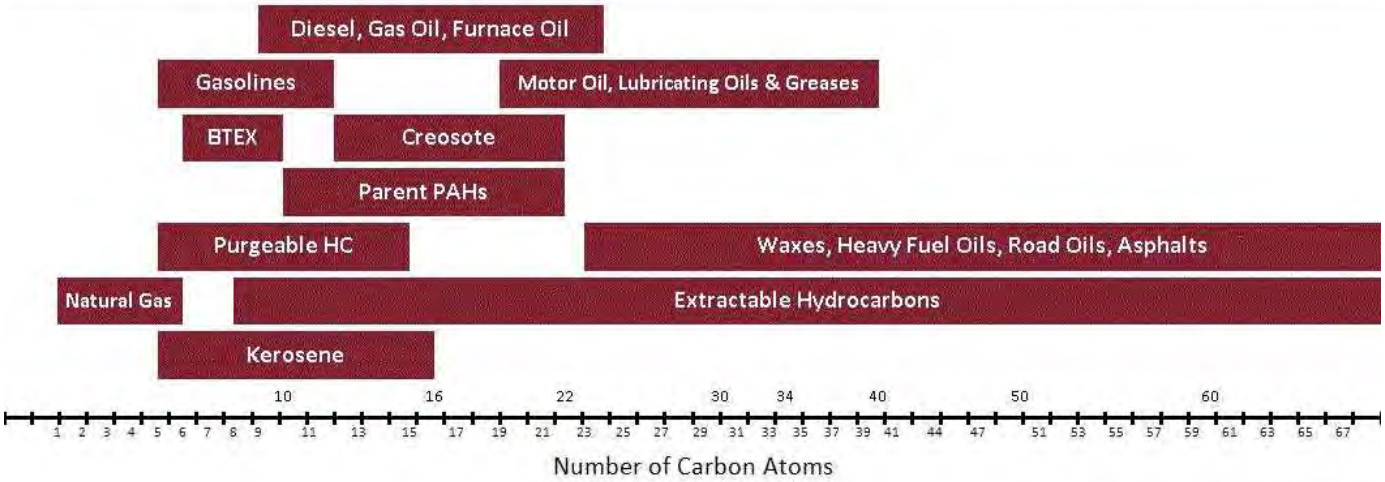
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356837
Report Date: 2023/09/29
Bureau Veritas Sample: BVL620

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: EX3

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





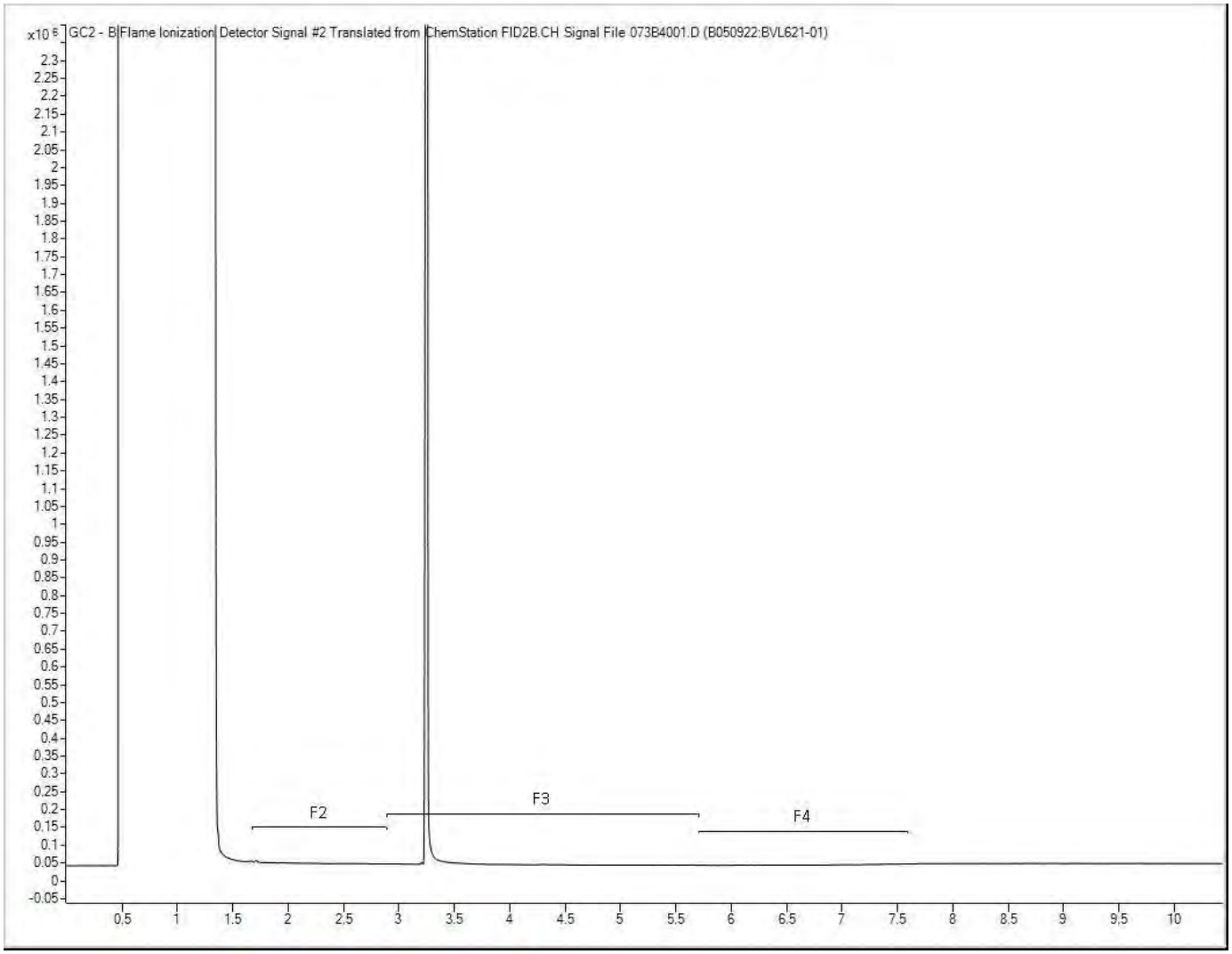
hpchem6\HPchem\1\DATA\2023\07\RUN0730

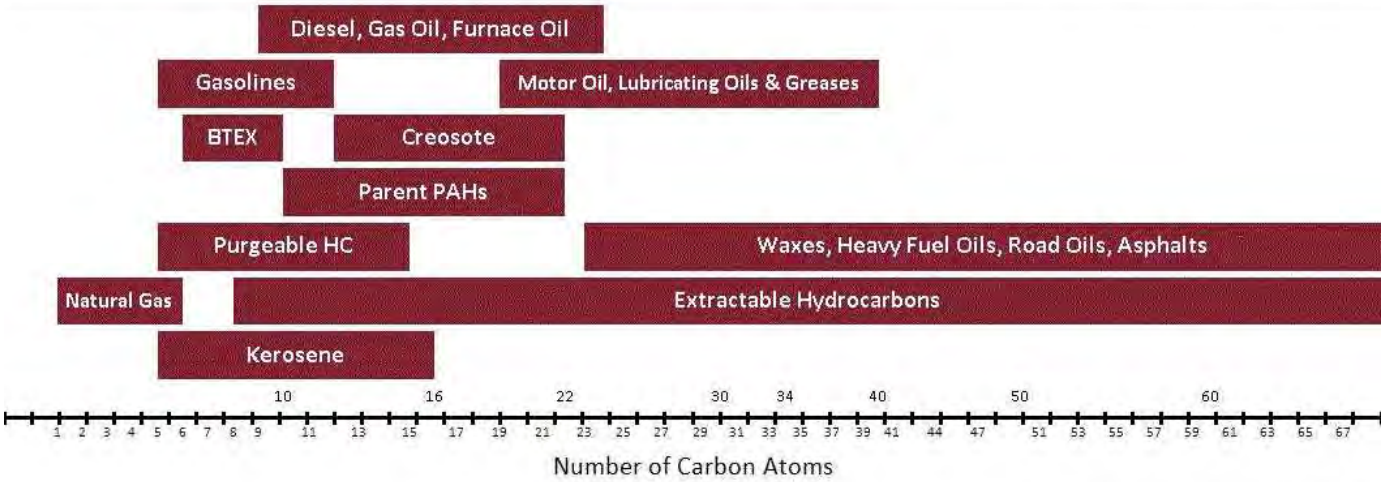
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356837
Report Date: 2023/09/29
Bureau Veritas Sample: BVL621

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: EB-BAILER-01

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





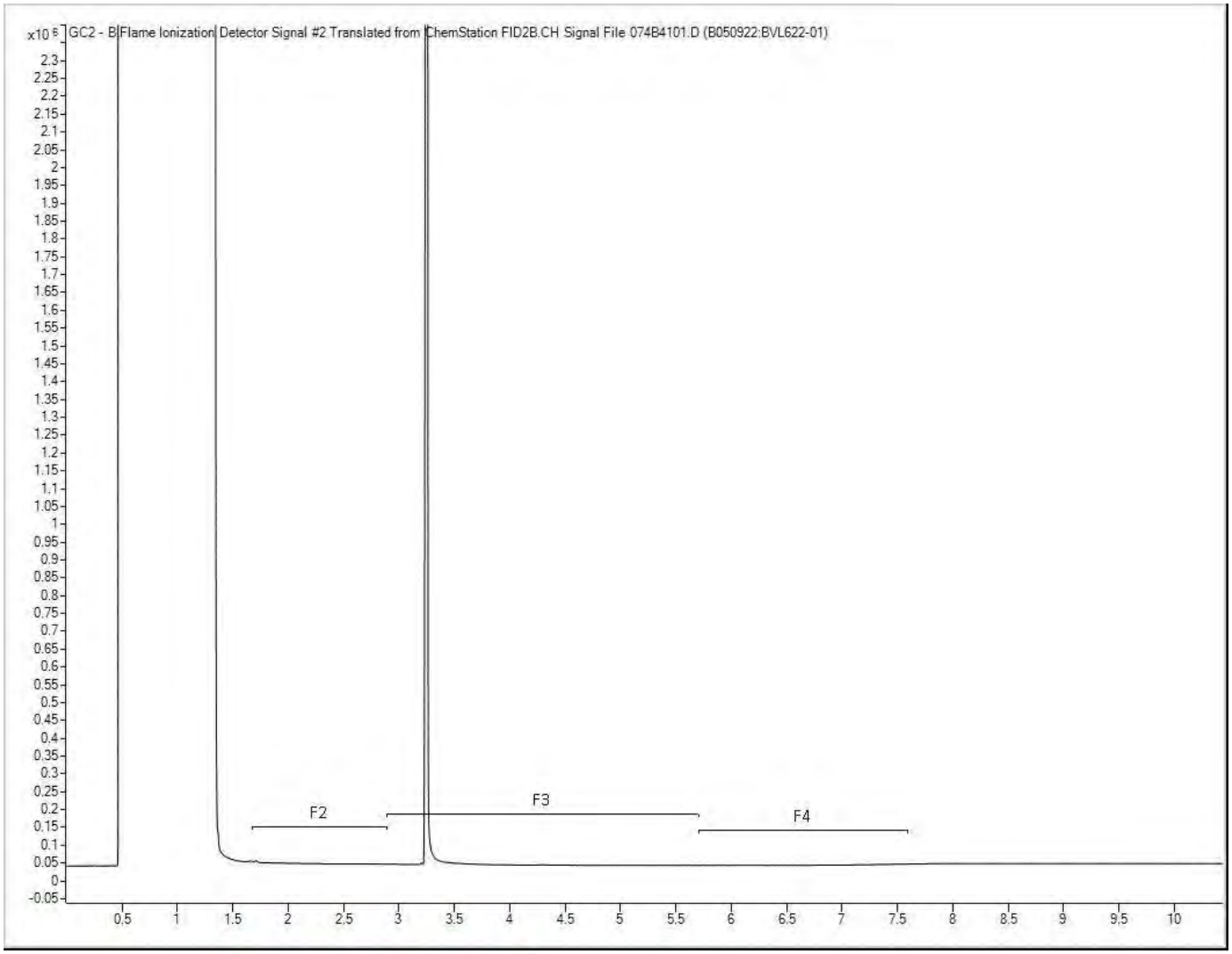
hpchem6\HPchem\1\DATA\2023\07\RUN0730

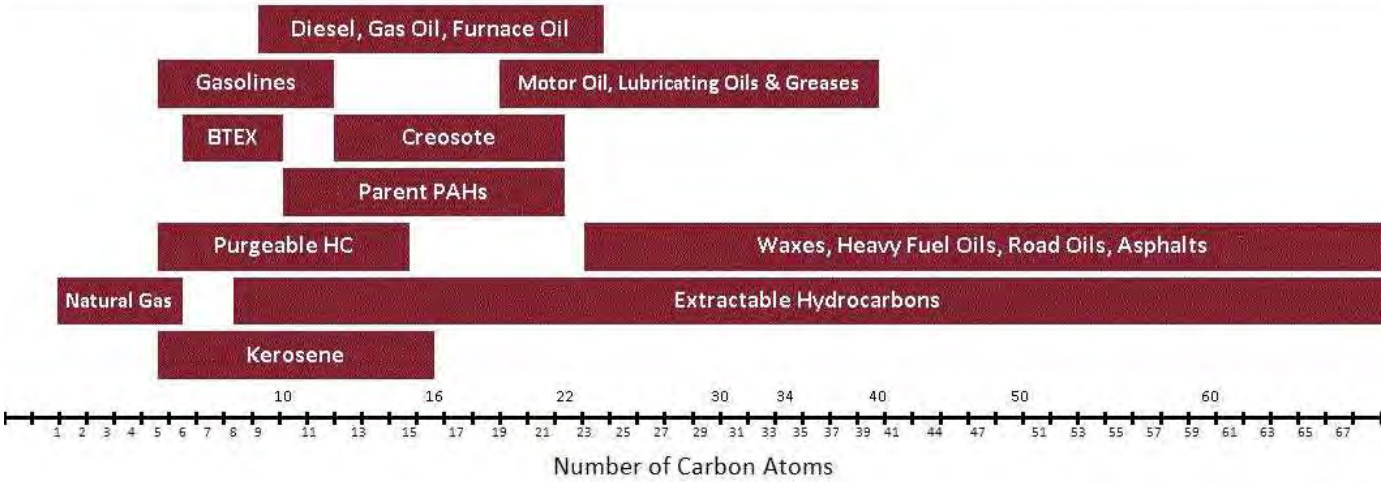
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356837
Report Date: 2023/09/29
Bureau Veritas Sample: BVL622

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: EB-HYDRA-01

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





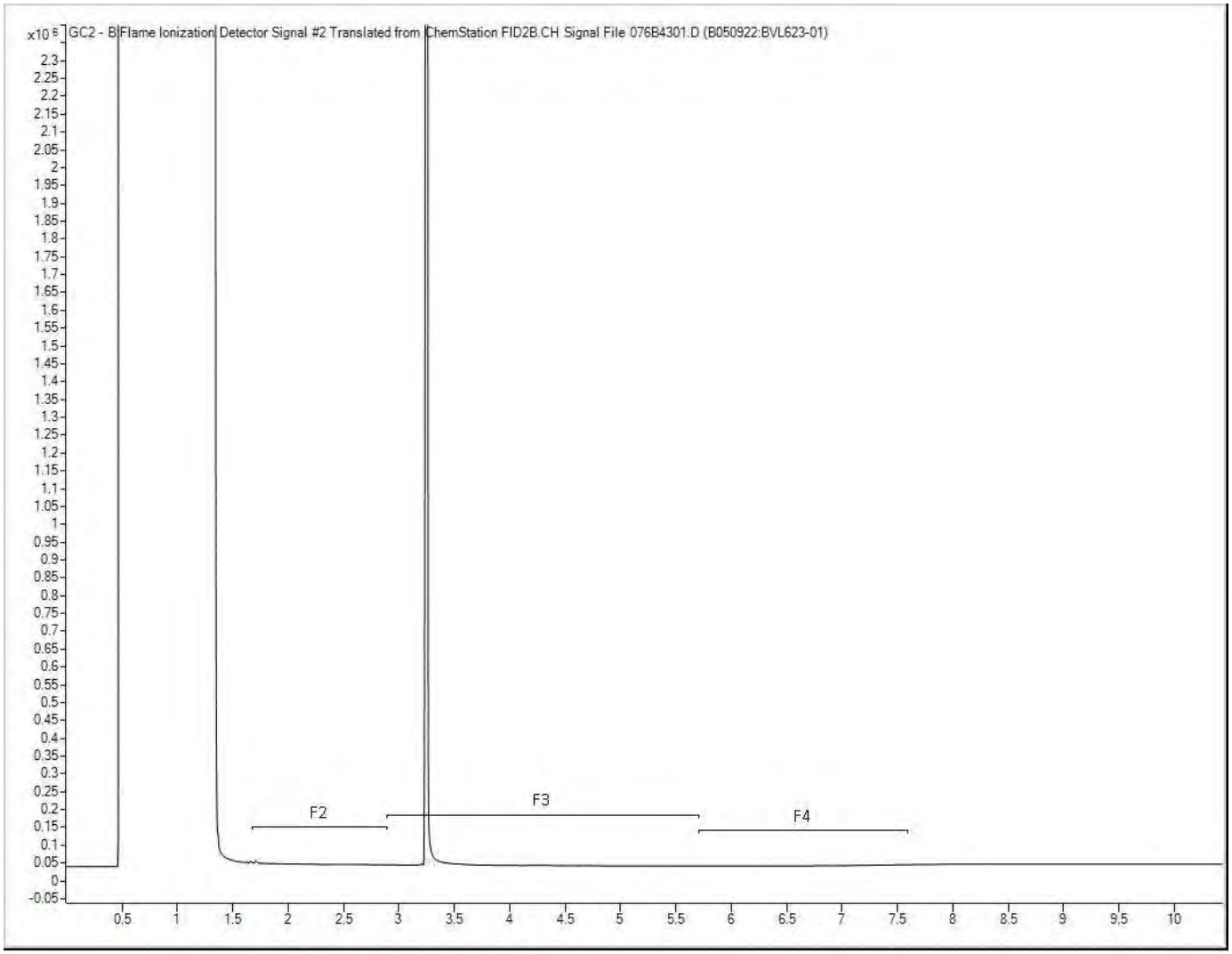
hpchem6\HPchem\1\DATA\2023\07\RUN0730

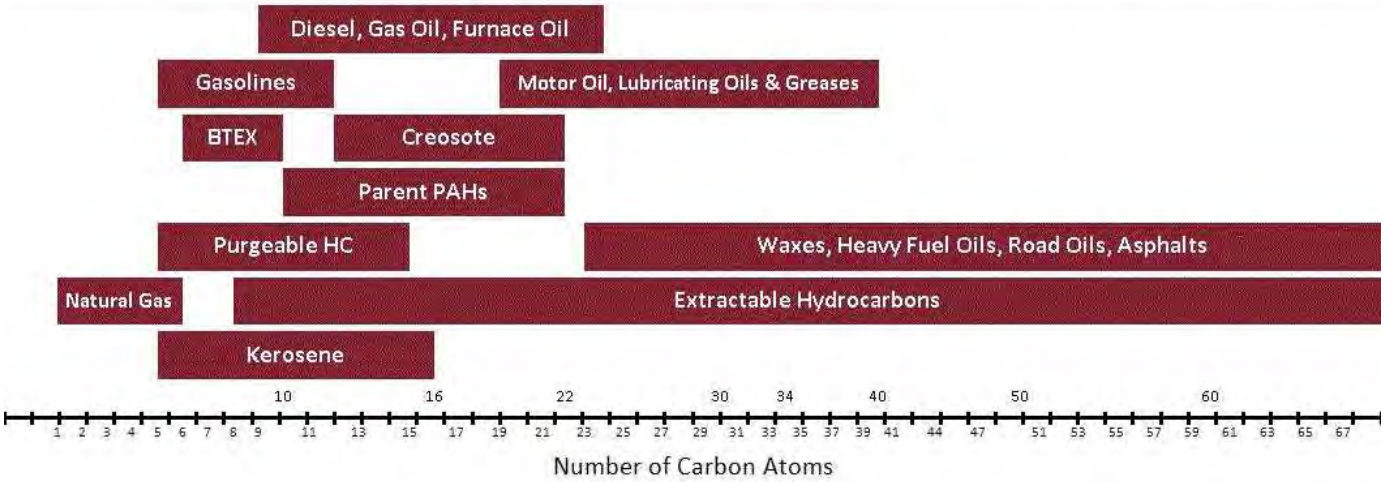
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356837
Report Date: 2023/09/29
Bureau Veritas Sample: BVL623

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: TRIP BLANK-03

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





hpchem6\HPchem\1\DATA\2023\07\RUN0730

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

DATA QUALITY REVIEW CHECKLIST

Consultant: *Parsons Inc.*

Sampling Date: *2023/7/25*

Location: *1620 14 AVE NW, CALGARY*

Laboratory : *Bureau Veritas, Calgary, AB*

Consultant Project Number: *10-12832*

Sample Submission Number: *C356823*

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
Field Blank Concentration	*X*			*All field QC samples have met the acceptable RPD limits.*
Trip Blank Concentration	*X*			
Field Duplicate RPD			*X*	

Has CoA been signed off (Yes/No)?:	*Yes*
Has lab warranted all tests were in statistical control in CoA (Yes/No)?:	*Yes*
Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?:	*Yes*
Were all samples analyzed within hold times (Yes/No)?:	*Yes*
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): *Mackenzie Robart*

Reviewed by (Print): *Michelle Patterson*

Reviewed date: *2023/10/03*

Reviewed by (Signature):

Your P.O. #: 478621.17102
Your Project #: 10-12832
Site Location: 1620-14TH AVE NW, CALGARY
Outlet Number 9445
Your C.O.C. #: 699821-27-01

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/09/29
Report #: R3403453
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C356823
Received: 2023/07/25, 15:46

Sample Matrix: Water
Samples Received: 15

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/F1 in Water by HS GC/MS/FID	6	N/A	2023/07/28	AB SOP-00039	CCME CWS/EPA 8260d m
BTEX/F1 in Water by HS GC/MS/FID	9	N/A	2023/07/29	AB SOP-00039	CCME CWS/EPA 8260d m
F1-BTEX	15	N/A	2023/07/29		Auto Calc
CCME Hydrocarbons in Water (F2; C10-C16) (1)	10	2023/07/28	2023/07/28	AB SOP-00037 AB SOP-00040	CCME PHC-CWS m
CCME Hydrocarbons in Water (F2; C10-C16) (1)	5	2023/07/28	2023/07/29	AB SOP-00037 AB SOP-00040	CCME PHC-CWS m
Total Trihalomethanes Calculation	15	N/A	2023/07/28		Auto Calc
VOCs in Water by HS GC/MS (Std List)	7	N/A	2023/07/27	AB SOP-00056	EPA 5021a/8260d m
VOCs in Water by HS GC/MS (Std List)	8	N/A	2023/07/28	AB SOP-00056	EPA 5021a/8260d m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Silica gel clean up employed.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Your P.O. #: 478621.17102
Your Project #: 10-12832
Site Location: 1620-14TH AVE NW, CALGARY
Outlet Number 9445
Your C.O.C. #: 699821-27-01

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
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Canada T2R 0K1

Report Date: 2023/09/29
Report #: R3403453
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C356823
Received: 2023/07/25, 15:46

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Parminder Virk, Key Account Specialist
Email: Parminder.Virk@bureauveritas.com
Phone# (403)735-2235
==========
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Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C356823
Report Date: 2023/09/29

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620-14TH AVE NW, CALGARY
Your P.O. #: 478621.17102
Sampler Initials: CW

AT1 BTEX AND F1-F2 IN WATER (WATER)

Bureau Veritas ID		BVL456	BVL457	BVL458		BVL459	BVL460		
Sampling Date		2023/07/25 14:00	2023/07/25 07:45	2023/07/25 08:00		2023/07/25 08:15	2023/07/25 08:30		
COC Number		699821-27-01	699821-27-01	699821-27-01		699821-27-01	699821-27-01		
	UNITS	**TRIP BLANK-04**	**BH1977**	**BH2001**	**QC Batch**	**BH1955A**	**BH732**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	<0.10	<0.10	B050931	<0.10	<0.10	0.10	B050931
Volatiles									
Benzene	mg/L	<0.00040	0.030	<0.00040	B049724	<0.00040	<0.00040	0.00040	B049724
Toluene	mg/L	<0.00040	<0.00040	<0.00040	B049724	<0.00040	<0.00040	0.00040	B049724
Ethylbenzene	mg/L	<0.00040	<0.00040	<0.00040	B049724	<0.00040	<0.00040	0.00040	B049724
m & p-Xylene	mg/L	<0.00080	<0.00080	<0.00080	B049724	<0.00080	<0.00080	0.00080	B049724
o-Xylene	mg/L	<0.00040	<0.00040	<0.00040	B049724	<0.00040	<0.00040	0.00040	B049724
Xylenes (Total)	mg/L	<0.00089	<0.00089	<0.00089	B048887	<0.00089	<0.00089	0.00089	B049217
F1 (C6-C10) - BTEX	mg/L	<0.10	<0.10	<0.10	B048887	<0.10	<0.10	0.10	B049217
F1 (C6-C10)	mg/L	<0.10	<0.10	<0.10	B049724	<0.10	<0.10	0.10	B049724
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	104	104	104	B049724	103	103		B049724
4-Bromofluorobenzene (sur.)	%	96	96	95	B049724	93	94		B049724
D4-1,2-Dichloroethane (sur.)	%	93	92	94	B049724	92	91		B049724
O-TERPHENYL (sur.)	%	99	102	96	B050931	103	99		B050931
RDL = Reportable Detection Limit									

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C356823
Report Date: 2023/09/29

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620-14TH AVE NW, CALGARY
Your P.O. #: 478621.17102
Sampler Initials: CW

AT1 BTEX AND F1-F2 IN WATER (WATER)

Bureau Veritas ID		BVL461	BVL462	BVL463	BVL464	BVL465	BVL466		
Sampling Date		2023/07/25 08:50	2023/07/25 09:15	2023/07/25 10:35	2023/07/25 11:00	2023/07/25 11:15	2023/07/25 12:00		
COC Number		699821-27-01	699821-27-01	699821-27-01	699821-27-01	699821-27-01	699821-27-01		
	UNITS	**BH2006**	**BH1937**	**BH1972**	**BH1928**	**BH1936**	**BH1929**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	B050931
Volatiles									
Benzene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	B049724
Toluene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	B049724
Ethylbenzene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	B049724
m & p-Xylene	mg/L	<0.00080	<0.00080	<0.00080	<0.00080	<0.00080	<0.00080	0.00080	B049724
o-Xylene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	B049724
Xylenes (Total)	mg/L	<0.00089	<0.00089	<0.00089	<0.00089	<0.00089	<0.00089	0.00089	B049217
F1 (C6-C10) - BTEX	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	B049217
F1 (C6-C10)	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	B049724
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	104	104	102	106	106	105		B049724
4-Bromofluorobenzene (sur.)	%	98	95	94	92	92	94		B049724
D4-1,2-Dichloroethane (sur.)	%	93	96	92	95	95	95		B049724
O-TERPHENYL (sur.)	%	99	103	94	101	96	97		B050931
RDL = Reportable Detection Limit									

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Bureau Veritas Job #: C356823
Report Date: 2023/09/29

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620-14TH AVE NW, CALGARY
Your P.O. #: 478621.17102
Sampler Initials: CW

AT1 BTEX AND F1-F2 IN WATER (WATER)

Bureau Veritas ID		BVL467		BVL468		BVL469	BVL470		
Sampling Date		2023/07/25 12:15		2023/07/25 12:30		2023/07/25 13:30	2023/07/25 14:15		
COC Number		699821-27-01		699821-27-01		699821-27-01	699821-27-01		
	UNITS	**BH1930**	**RDL**	**BH1939**	**RDL**	**BH1945**	**BH1978**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	0.10	<0.10	0.10	<0.10	<0.10	0.10	B050931
Volatiles									
Benzene	mg/L	<0.00040	0.00040	<0.00045 (1)	0.00045	<0.00040	<0.00040	0.00040	B049724
Toluene	mg/L	<0.00040	0.00040	<0.00040	0.00040	<0.00040	<0.00040	0.00040	B049724
Ethylbenzene	mg/L	<0.00040	0.00040	<0.00040	0.00040	<0.00040	<0.00040	0.00040	B049724
m & p-Xylene	mg/L	<0.00080	0.00080	<0.00080	0.00080	<0.00080	<0.00080	0.00080	B049724
o-Xylene	mg/L	<0.00040	0.00040	<0.00040	0.00040	<0.00040	<0.00040	0.00040	B049724
Xylenes (Total)	mg/L	<0.00089	0.00089	<0.00089	0.00089	<0.00089	<0.00089	0.00089	B049217
F1 (C6-C10) - BTEX	mg/L	<0.10	0.10	<0.10	0.10	<0.10	<0.10	0.10	B049217
F1 (C6-C10)	mg/L	<0.10	0.10	<0.10	0.10	<0.10	<0.10	0.10	B049724
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	104		104		104	104		B049724
4-Bromofluorobenzene (sur.)	%	95		96		95	95		B049724
D4-1,2-Dichloroethane (sur.)	%	92		98		94	93		B049724
O-TERPHENYL (sur.)	%	102		88		99	100		B050931

RDL = Reportable Detection Limit
(1) Detection limit raised due to interferent.

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Bureau Veritas Job #: C356823
Report Date: 2023/09/29

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620-14TH AVE NW, CALGARY
Your P.O. #: 478621.17102
Sampler Initials: CW

VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		BVL456	BVL457	BVL458	BVL459	BVL460	BVL461		
Sampling Date		2023/07/25 14:00	2023/07/25 07:45	2023/07/25 08:00	2023/07/25 08:15	2023/07/25 08:30	2023/07/25 08:50		
COC Number		699821-27-01	699821-27-01	699821-27-01	699821-27-01	699821-27-01	699821-27-01		
	UNITS	**TRIP BLANK-04**	**BH1977**	**BH2001**	**BH1955A**	**BH732**	**BH2006**	**RDL**	**QC Batch**
Volatiles									
Total Trihalomethanes	mg/L	<0.0013	<0.0013	<0.0013	<0.0013	0.024	<0.0013	0.0013	B048910
1,2-dichloroethane	mg/L	<0.00050	0.0028	0.0070	0.0029	<0.00050	0.0060	0.00050	B049730
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	100	102	101	100	100	99		B049730
4-Bromofluorobenzene (sur.)	%	87	102	94	89	89	74		B049730
D4-1,2-Dichloroethane (sur.)	%	109	117	109	110	107	109		B049730
RDL = Reportable Detection Limit									

Bureau Veritas ID		BVL462	BVL463	BVL464	BVL465	BVL466	BVL467		
Sampling Date		2023/07/25 09:15	2023/07/25 10:35	2023/07/25 11:00	2023/07/25 11:15	2023/07/25 12:00	2023/07/25 12:15		
COC Number		699821-27-01	699821-27-01	699821-27-01	699821-27-01	699821-27-01	699821-27-01		
	UNITS	**BH1937**	**BH1972**	**BH1928**	**BH1936**	**BH1929**	**BH1930**	**RDL**	**QC Batch**
Volatiles									
Total Trihalomethanes	mg/L	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	0.0013	B048910
1,2-dichloroethane	mg/L	<0.00050	0.0016	0.0017	<0.00050	<0.00050	<0.00050	0.00050	B049730
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	99	100	98	100	100	100		B049730
4-Bromofluorobenzene (sur.)	%	88	93	91	88	101	89		B049730
D4-1,2-Dichloroethane (sur.)	%	109	112	107	111	114	113		B049730
RDL = Reportable Detection Limit									

Bureau Veritas ID		BVL468	BVL469	BVL470		
Sampling Date		2023/07/25 12:30	2023/07/25 13:30	2023/07/25 14:15		
COC Number		699821-27-01	699821-27-01	699821-27-01		
	UNITS	**BH1939**	**BH1945**	**BH1978**	**RDL**	**QC Batch**
Volatiles						
Total Trihalomethanes	mg/L	<0.0013	<0.0013	<0.0013	0.0013	B048910
1,2-dichloroethane	mg/L	0.062	0.00088	<0.00050	0.00050	B049730
Surrogate Recovery (%)						
1,4-Difluorobenzene (sur.)	%	101	100	99		B049730
4-Bromofluorobenzene (sur.)	%	89	83	92		B049730
D4-1,2-Dichloroethane (sur.)	%	110	114	109		B049730
RDL = Reportable Detection Limit						

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Bureau Veritas Job #: C356823
Report Date: 2023/09/29

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620-14TH AVE NW, CALGARY
Your P.O. #: 478621.17102
Sampler Initials: CW

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	9.7°C

Version #2: Report re-issued to provide results for parameters requested on the orignal Chain of Custody.

Results relate only to the items tested.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C356823
Report Date: 2023/09/29

QUALITY ASSURANCE REPORT

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620-14TH AVE NW, CALGARY
Your P.O. #: 478621.17102
Sampler Initials: CW

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
B049724	1,4-Difluorobenzene (sur.)	2023/07/28	106	50 - 140	103	50 - 140	104	%		
B049724	4-Bromofluorobenzene (sur.)	2023/07/28	98	50 - 140	96	50 - 140	95	%		
B049724	D4-1,2-Dichloroethane (sur.)	2023/07/28	96	50 - 140	95	50 - 140	94	%		
B049730	1,4-Difluorobenzene (sur.)	2023/07/27	101	50 - 140	104	50 - 140	100	%		
B049730	4-Bromofluorobenzene (sur.)	2023/07/27	95	50 - 140	94	50 - 140	97	%		
B049730	D4-1,2-Dichloroethane (sur.)	2023/07/27	92	50 - 140	94	50 - 140	109	%		
B050931	O-TERPHENYL (sur.)	2023/07/28			104	60 - 140	105	%		
B049724	Benzene	2023/07/28	80	50 - 140	79	60 - 130	<0.00040	mg/L	NC	30
B049724	Ethylbenzene	2023/07/28	82	50 - 140	81	60 - 130	<0.00040	mg/L	NC	30
B049724	F1 (C6-C10)	2023/07/28	99	60 - 140	102	60 - 140	<0.10	mg/L	NC	30
B049724	m & p-Xylene	2023/07/28	83	50 - 140	83	60 - 130	<0.00080	mg/L	NC	30
B049724	o-Xylene	2023/07/28	82	50 - 140	83	60 - 130	<0.00040	mg/L	NC	30
B049724	Toluene	2023/07/28	80	50 - 140	80	60 - 130	<0.00040	mg/L	NC	30
B049730	1,2-dichloroethane	2023/07/27	92	50 - 140	94	60 - 130	<0.00050	mg/L	2.7	30
B050931	F2 (C10-C16 Hydrocarbons)	2023/07/28			109	60 - 140	<0.10	mg/L		

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

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

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

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

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

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

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C356823
Report Date: 2023/09/29

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620-14TH AVE NW, CALGARY
Your P.O. #: 478621.17102
Sampler Initials: CW

VALIDATION SIGNATURE PAGE

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

Gita Pokhrel, Laboratory Supervisor

Jingyuan Song, QP, Organics – Senior Analyst

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

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

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas
4000 19st N.E. Calgary, Alberta Canada T2E 6P8 Tel:(403) 291-3077 Toll-free:800-563-6266 Fax:(403) 291-9468 www.bvna.com

CHAIN OF CUSTODY RECORD

C24W
~~Page 3 of 3~~
1 of 2

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#11243 PARSONS INC.	Company Name:	#31652 PARSONS INC.	Quotation #:	C30805	Bureau Veritas Job #:	Bottle Order #:
Attention:	ACCOUNTS PAYABLE	Attention:	Rebecca Neufeld	P.O. #:	478621.17102	C356823	699821
Address:	2751 JOHN STREET	Address:	Unit 510, 214 - 11th Avenue SW	Project:	10-12832	COC #:	Project Manager:
	MARKHAM ON L3R 2Y8		Calgary AB T2R 0K1	Project Name:	1630 - 14th Ave NW, Calgary	C#699821-27-01	Parminder Virk
Tel:	(905) 944-8877 Fax:	Tel:	Fax:	Site #:	Outlet 94445		
Email:	ParsonsIncAP,Parsons@parsons.com	Email:	rebecca.neufeld@parsons.com,Michelle.Patterson@par	Sampled By:	Cody Whittaker		

Regulatory Criteria:
- [x] ATI
- [ ] CCME
- [ ] Other

Special Instructions

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects
Regular (Standard) TAT: [x]
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details
Job Specific Rush TAT (if applies to entire submission) [ ]
Date Required:
Rush Confirmation Number:
(call lab for it)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	AT1 BTEX and F1-F2 in Water	1,2 Dichloroethane	Routine Water							# of Bottles	Comments
1		~~Trip Blank-02~~	~~23/07/24~~	~~1400~~	~~GW~~												
2		Trip Blank-04	23/07/25	1400	GW		X	X							3		
3		BH1977		0745	GW		X	X							3		
4		~~BH2005~~ BH2001		0800	GW		X	X							3		
5		BH1955A		0815	GW		X	X							3		
6		BH732		0830	GW		X	X							3		
7		BH2006		0850	GW		X	X							3		
8		BH1937		0915	GW		X	X							3		
9		BH1972		1035	GW		X	X							3		
10		BH1928	23/07/25	1100	GW		X	X							3		

RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Laboratory Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
Cody Whittaker	23/07/25	15:34	Shaira Cura	2023/07/25	15:46	0	[ ]	8, 9, 12	[x] Yes [ ] No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.
** ALL SAMPLES ARE HELD FOR 60 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

White: Bureau Veritas Yellow: Client

Bureau Veritas Canada (2010) Inc.

Bureau Veritas
4000 19st N.E, Calgary, Alberta Canada T2E 6P8 Tel:(403) 291-3077 Toll-free:800-563-5266 Fax:(403) 291-9468 www.bvna.com

CHAIN OF CUSTODY RECORD

Page 2 of 2

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#11243 PARSONS INC.	Company Name:	#31652 PARSONS INC.	Quotation #	C30805	Bureau Veritas Job #: C356823	Bottle Order #: 699821
Attention:	ACCOUNTS PAYABLE	Attention:	Rebecca Neufeld	P.O. #:	478621.17102	COC #: C#699821-28-01	Project Manager: Parminder Virk
Address:	2751 JOHN STREET MARKHAM ON L3R 2Y8	Address:	Unit 510, 214 - 11th Avenue SW Calgary AB T2R 0K1	Project:	10-12832		
Tel:	(905) 944-8877 Fax:	Tel:	Fax:	Project Name:	1620-14th Ave NW, Calgary		
Email:	ParsonsIncAP.Parsons@parsons.com	Email:	rebecca.neufeld@parsons.com,Michelle.Patterson@par	Site #	Outlet 9445		
				Sampled By:	Cody Whittaker		

Regulatory Criteria:
- [x] ATI
- [ ] CCME
- [ ] Other

Special Instructions:

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	AT1 BTEX and F1-F2 in Water	1,2 Dichloroethane	Routine Water	# of Bottles	Comments
1		BH1936	23/07/25	1115	GW		X	X		3	
2		BH1929	23/07/25	1200	GW		X	X		3	
3		BH1930	23/07/25	1215	GW		X	X		3	
4		BH1939	23/07/25	1230	GW		X	X		3	
5		BH1945	23/07/25	1330	GW		X	X		3	
6		BH1978	23/07/25	1415	GW		X	X		3	
7											
8											
9											
10											

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT: [x]
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note, Standard TAT for certain tests are > 5 days - contact your Project Manager for details

Job Specific Rush TAT (if applies to entire submission) [ ]
Date Required:
Rush Confirmation Number: (call lab for #)

RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
Cody Whittaker	23/07/25	15:30	Shaira Cura	2023/07/25	15:40	0

Laboratory Use Only

Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
[ ]	8, 9, 12	[x] Yes [ ] No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF THE TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.
** ALL SAMPLES ARE HELD FOR 60 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

White: Bureau Veritas Yellow: Client

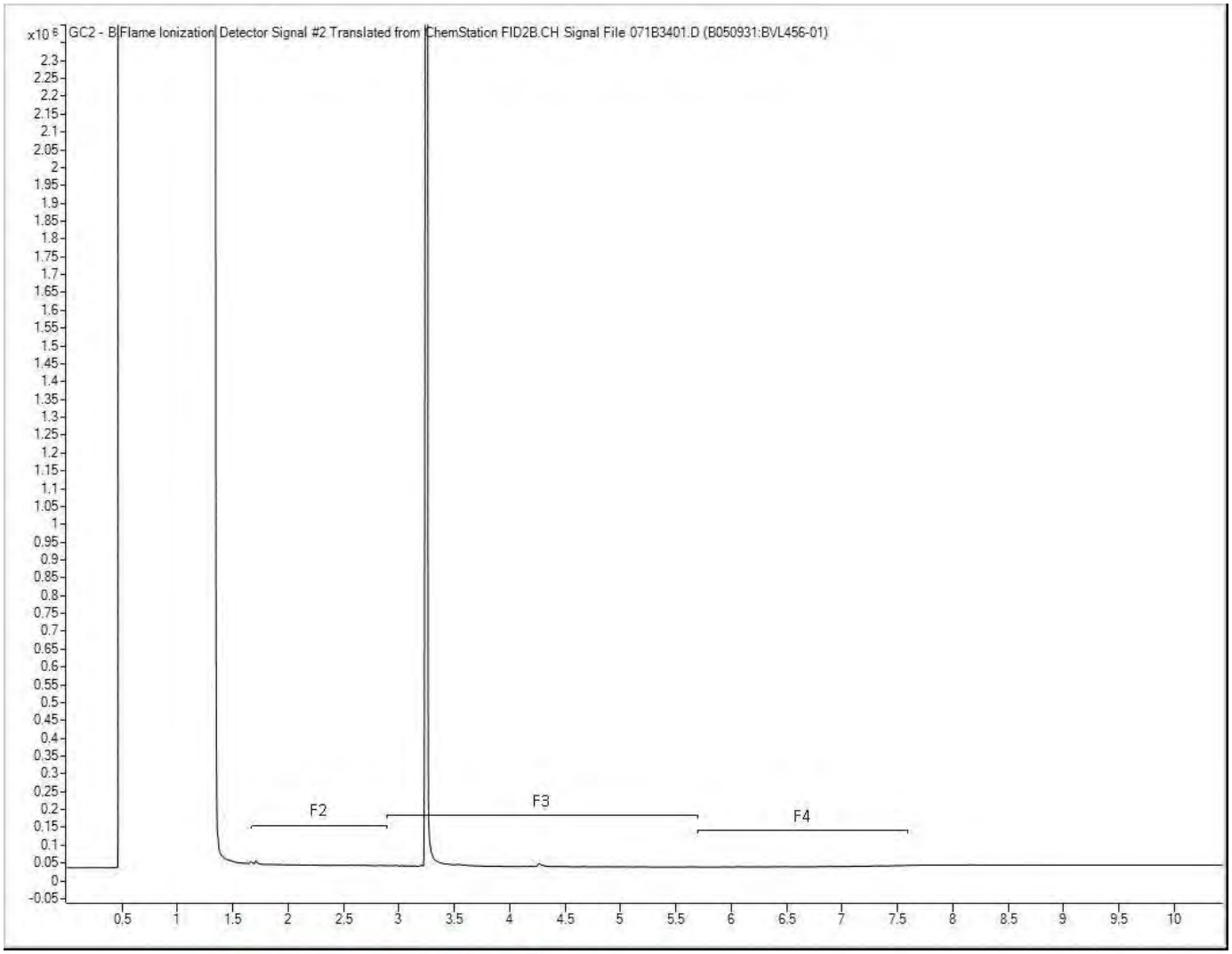
mcal-07-1195

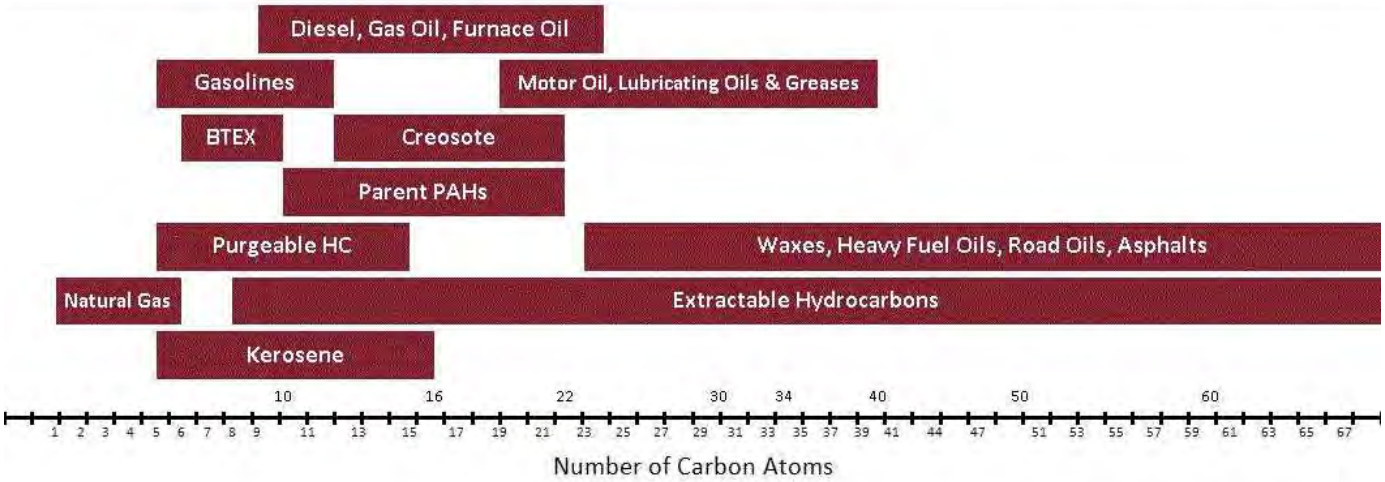
Bureau Veritas Canada (2019) Inc.

Bureau Veritas Job #: C356823
Report Date: 2023/09/29
Bureau Veritas Sample: BVL456

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: TRIP BLANK-04

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





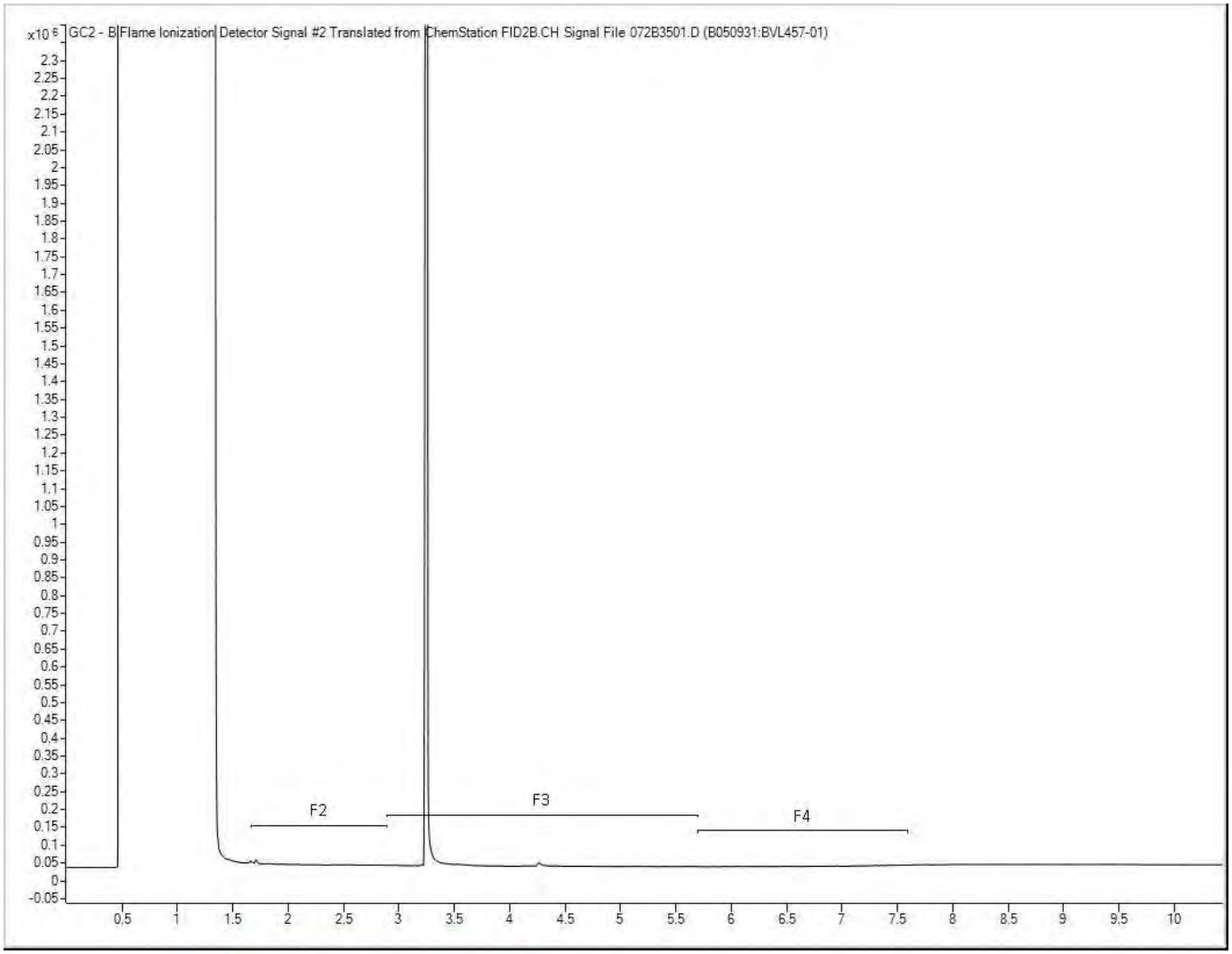
hpchem6\HPchem\1\DATA\2023\07\RUN0728

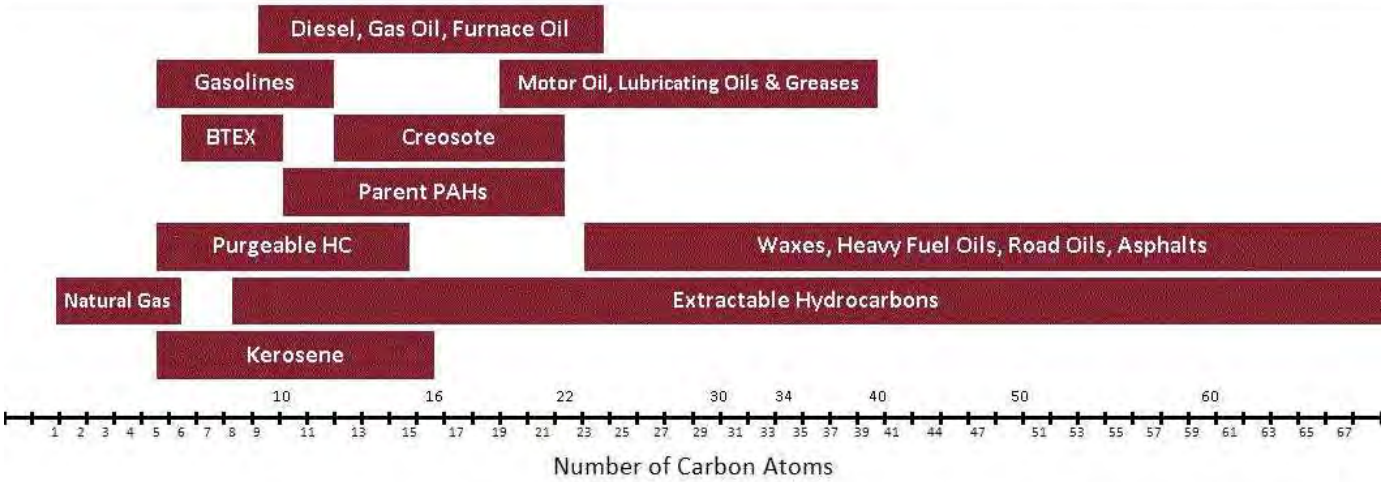
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356823
Report Date: 2023/09/29
Bureau Veritas Sample: BVL457

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: BH1977

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





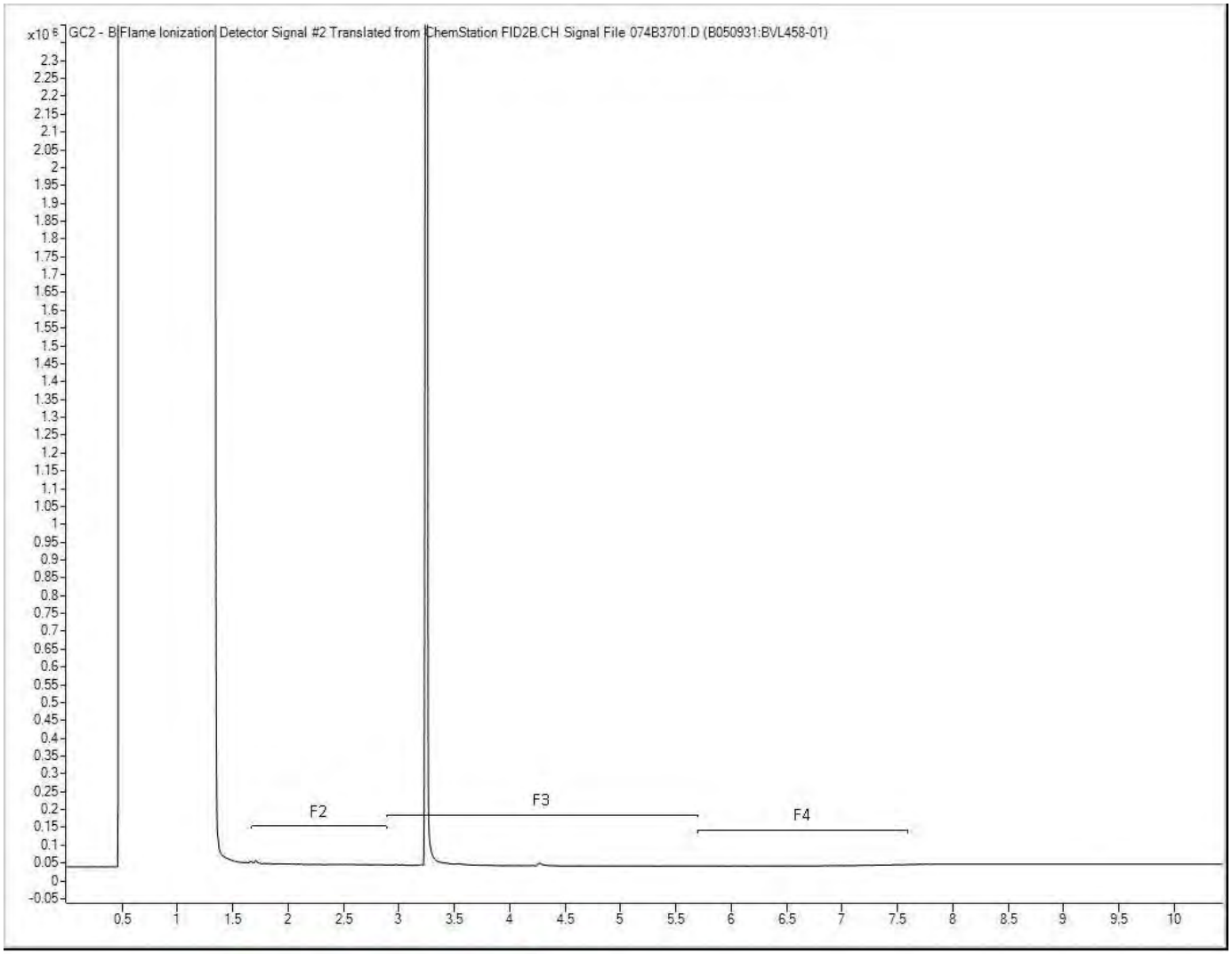
hpchem6\HPchem\1\DATA\2023\07\RUN0728

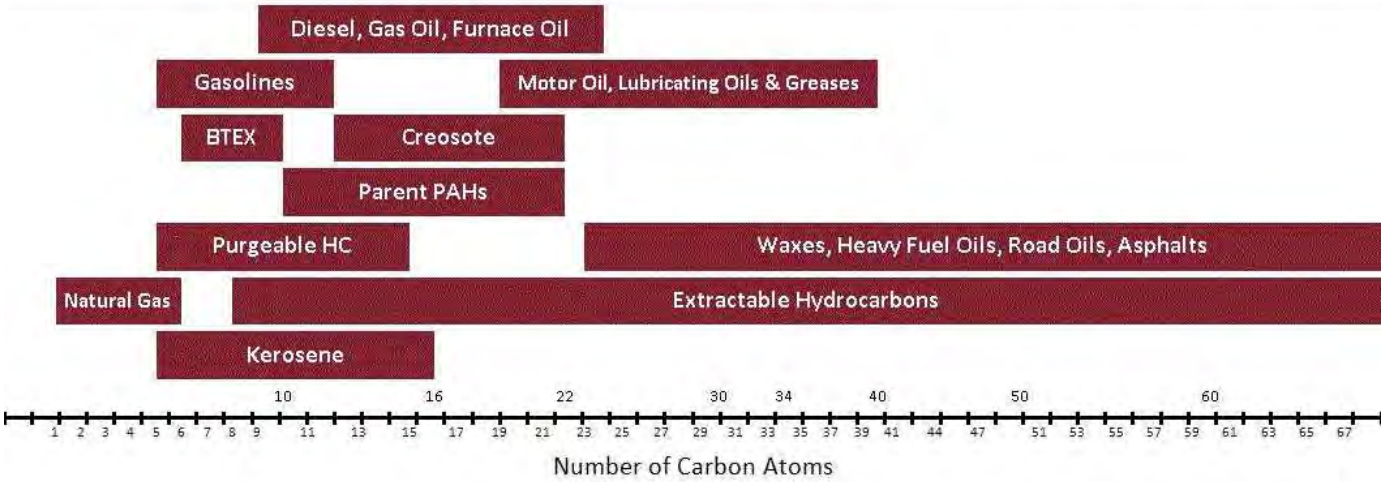
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356823
Report Date: 2023/09/29
Bureau Veritas Sample: BVL458

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: BH2001

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





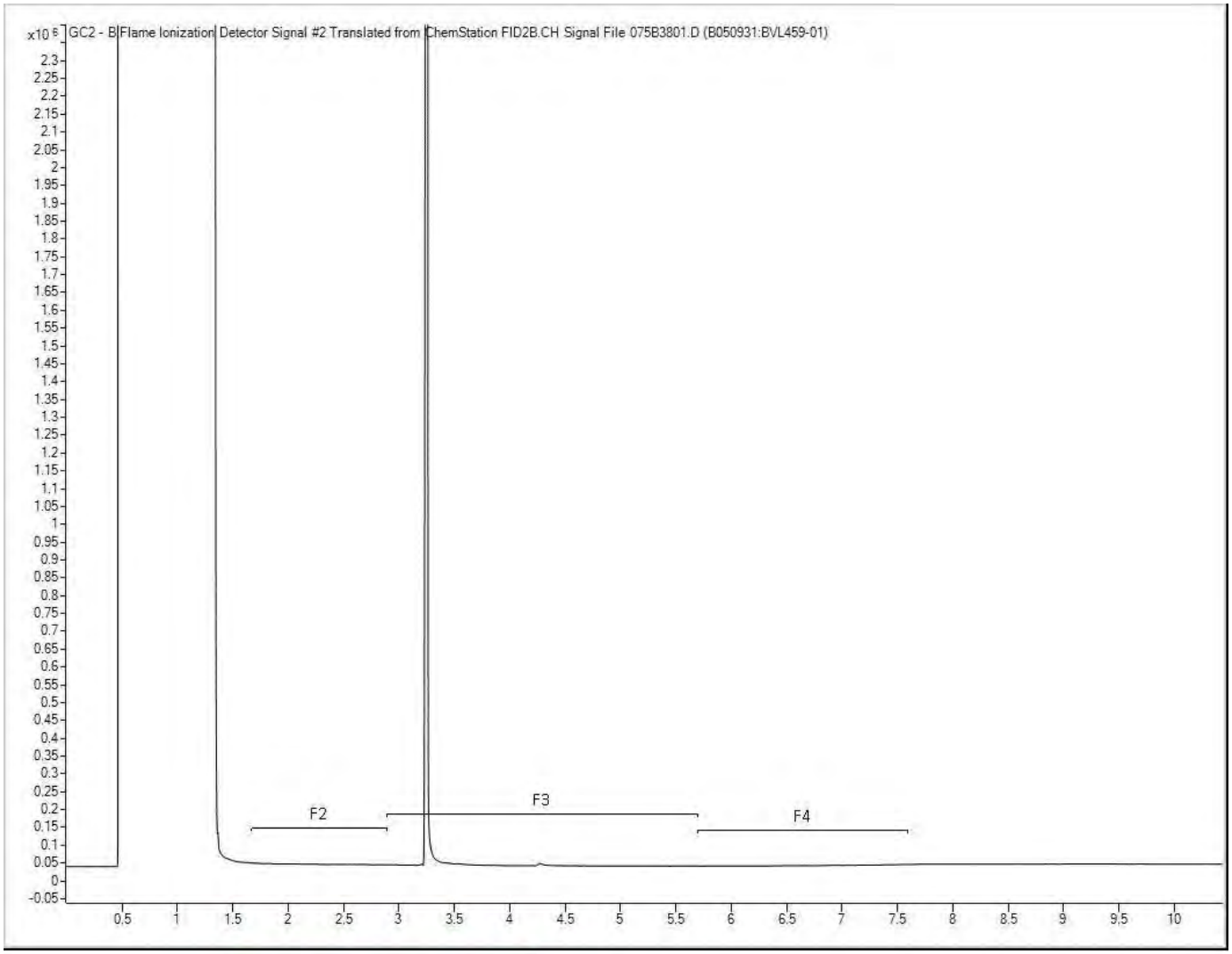
hpchem6\HPchem\1\DATA\2023\07\RUN0728

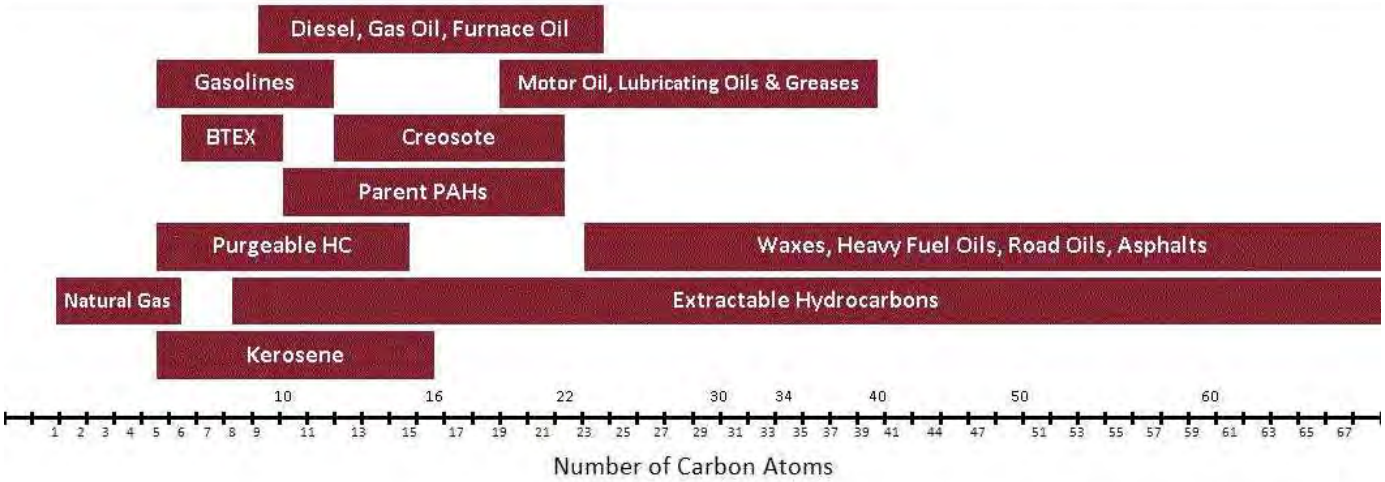
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356823
Report Date: 2023/09/29
Bureau Veritas Sample: BVL459

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: BH1955A

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





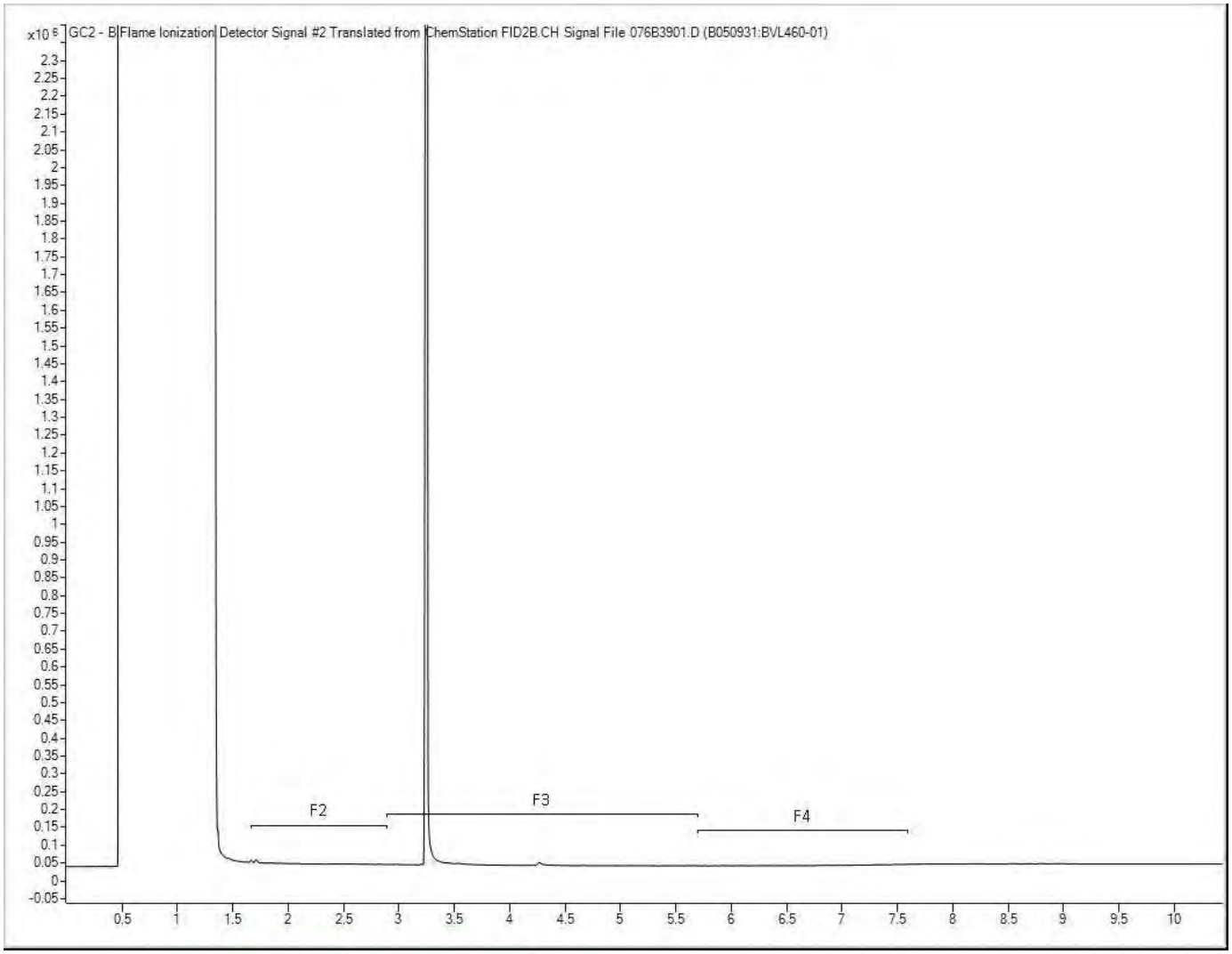
hpchem6\HPchem\1\DATA\2023\07\RUN0728

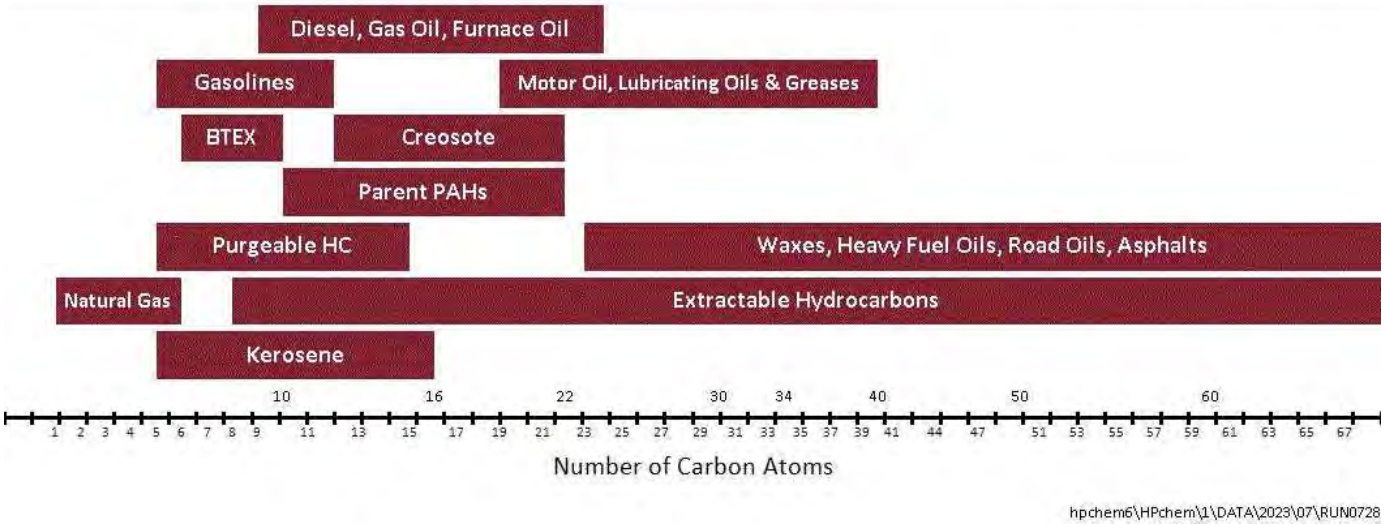
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356823
Report Date: 2023/09/29
Bureau Veritas Sample: BVL460

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: BH732

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





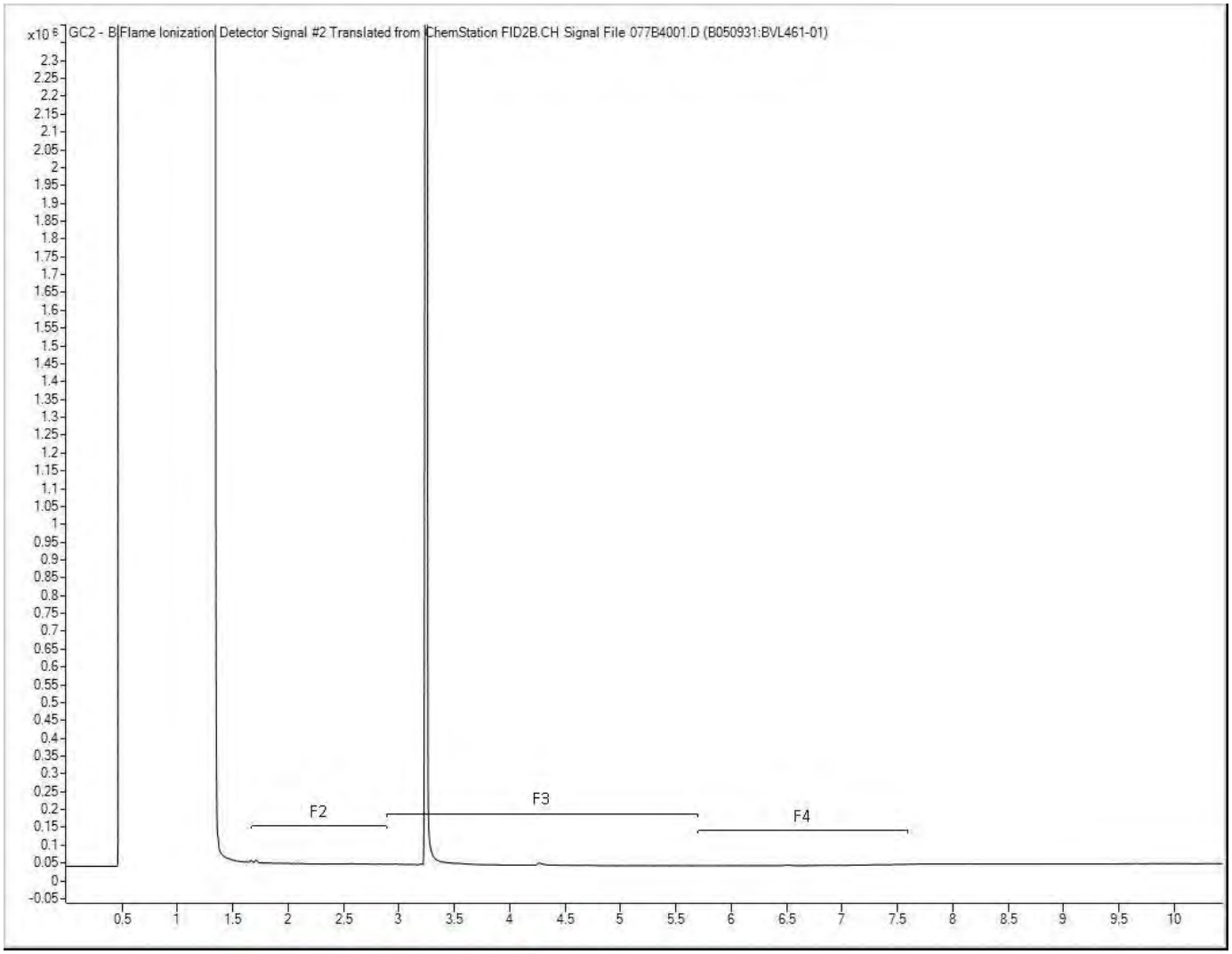
hpchem6\HPchem\1\DATA\2023\07\RUN0728

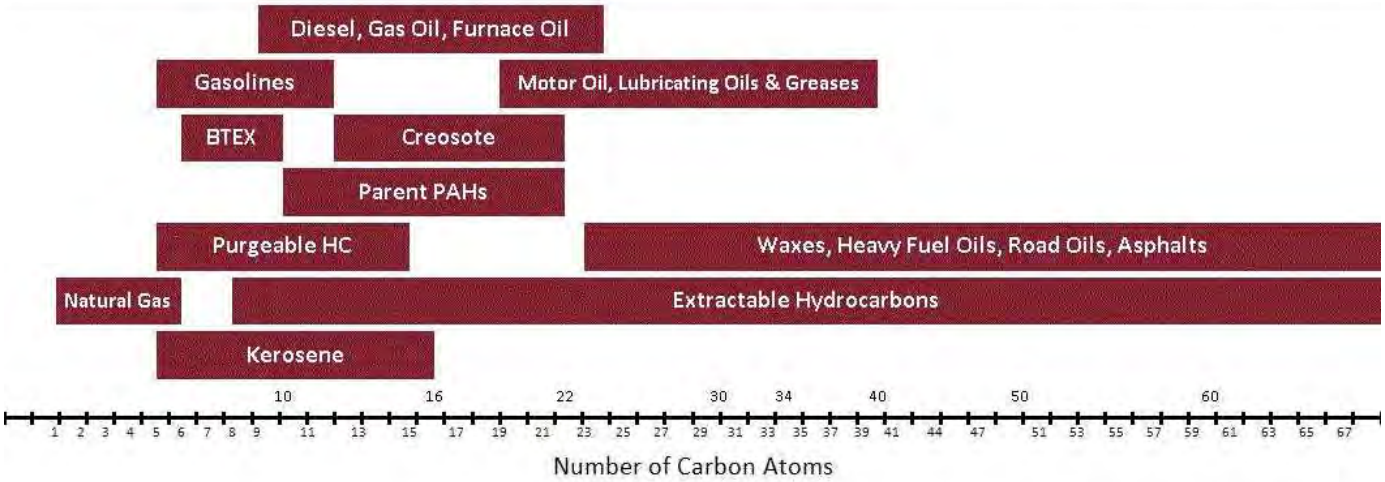
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356823
Report Date: 2023/09/29
Bureau Veritas Sample: BVL461

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: BH2006

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





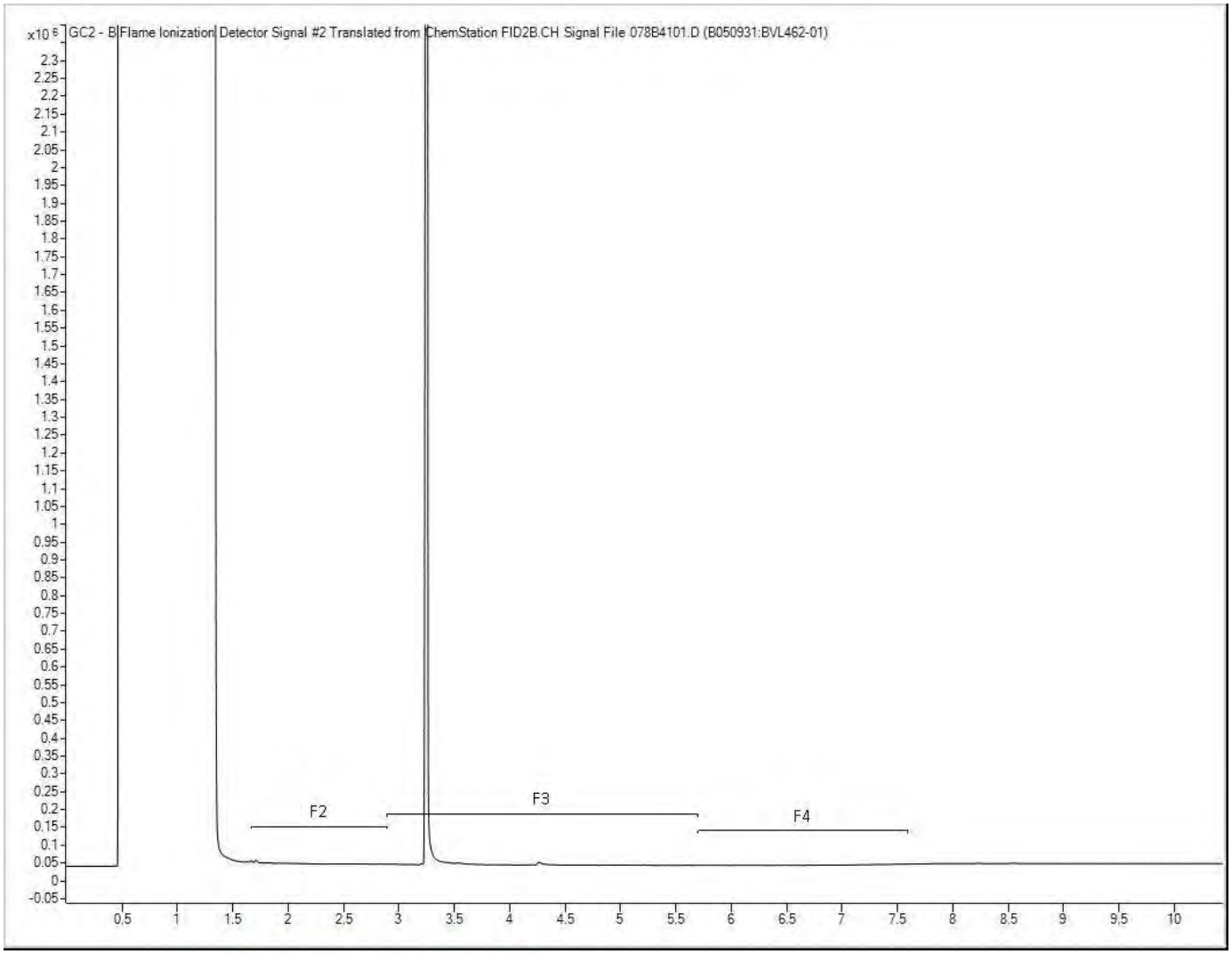
hpchem6\HPchem\1\DATA\2023\07\RUN0728

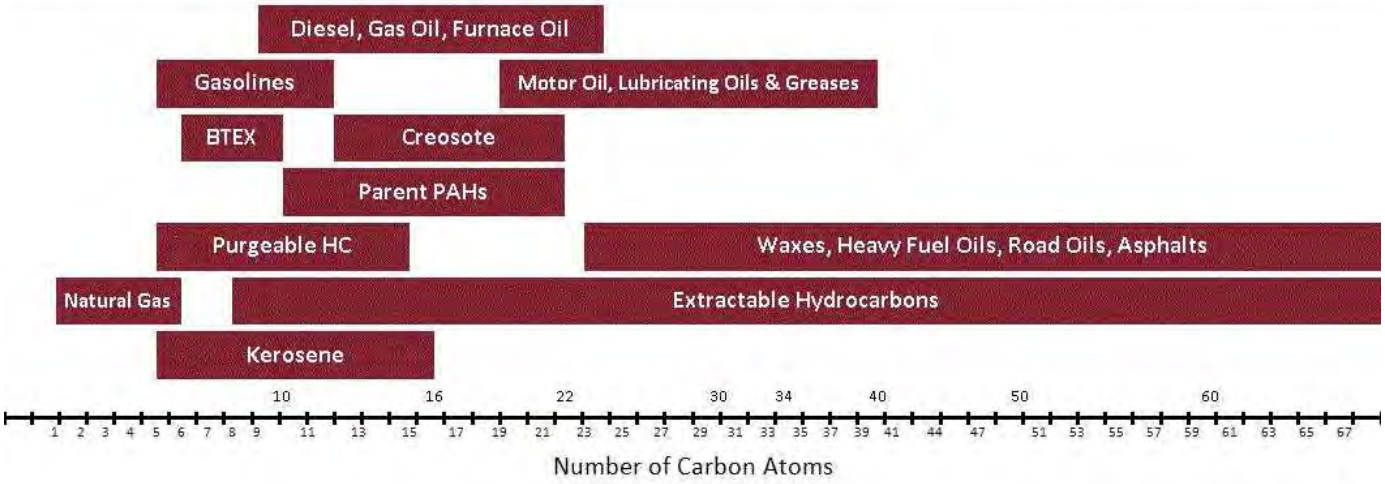
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356823
Report Date: 2023/09/29
Bureau Veritas Sample: BVL462

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: BH1937

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





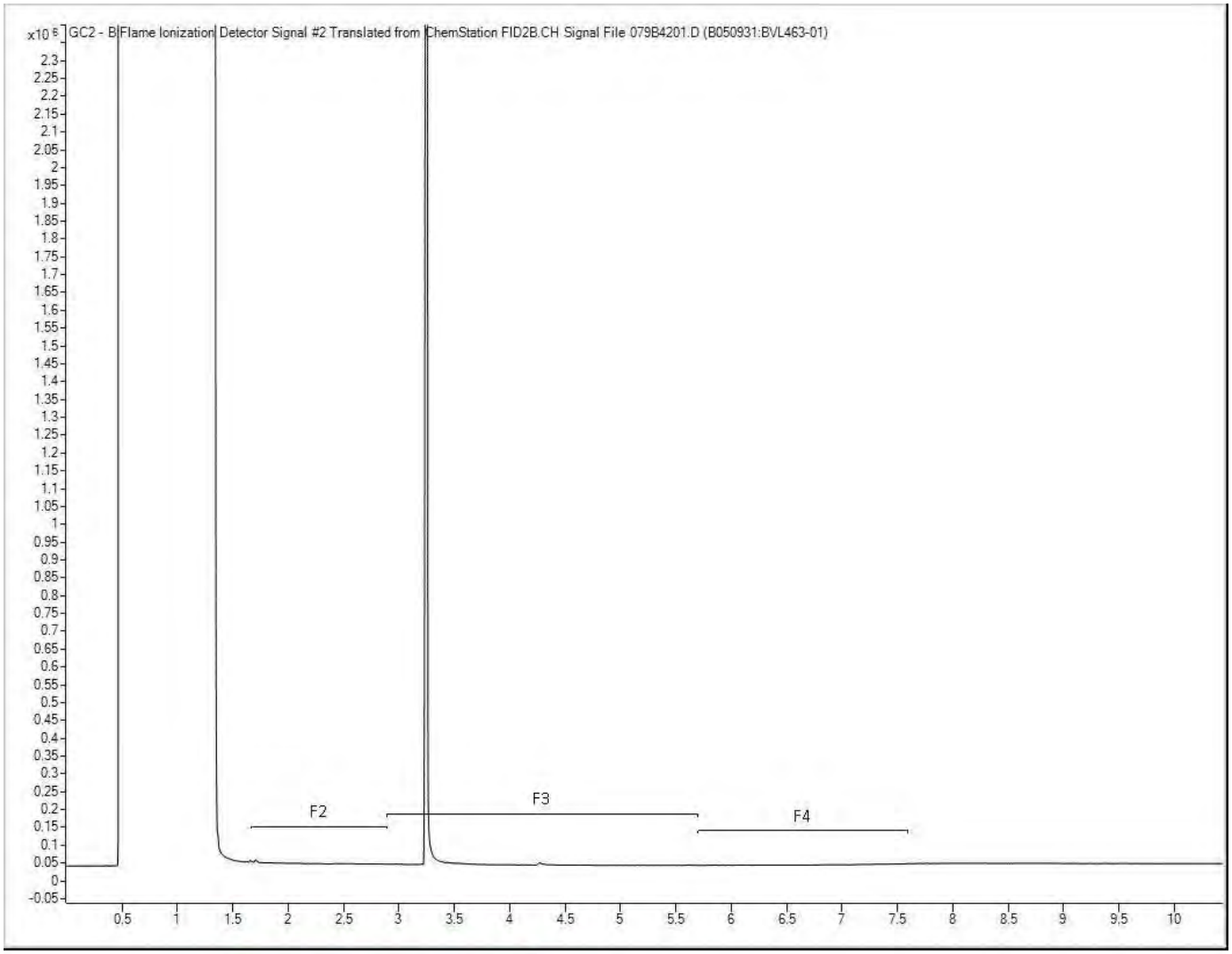
hpchem6\HPchem\1\DATA\2023\07\RUN0728

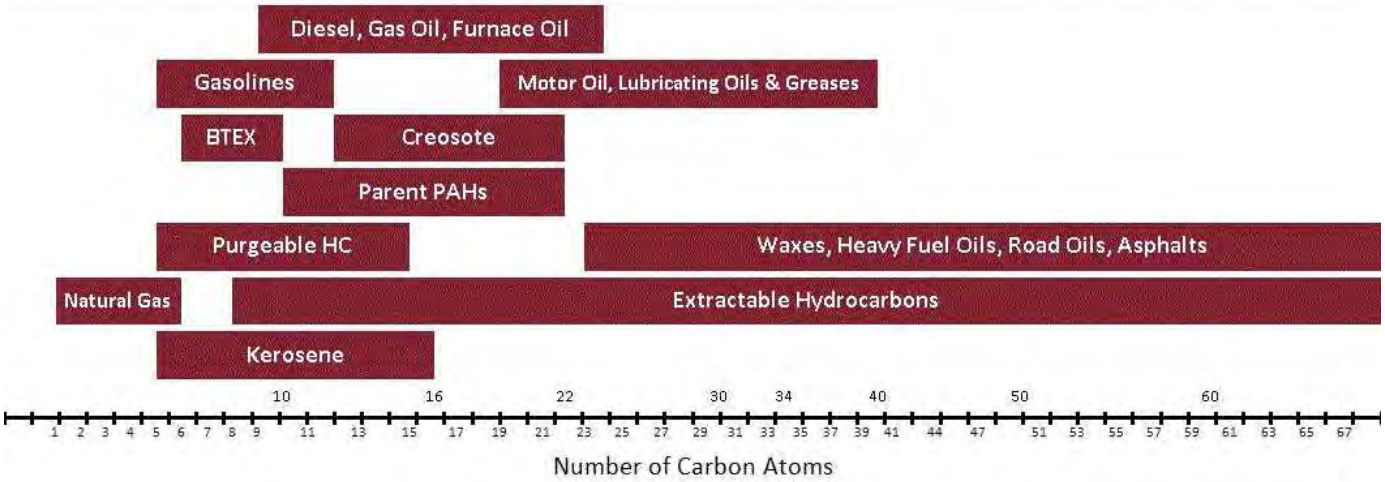
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356823
Report Date: 2023/09/29
Bureau Veritas Sample: BVL463

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: BH1972

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





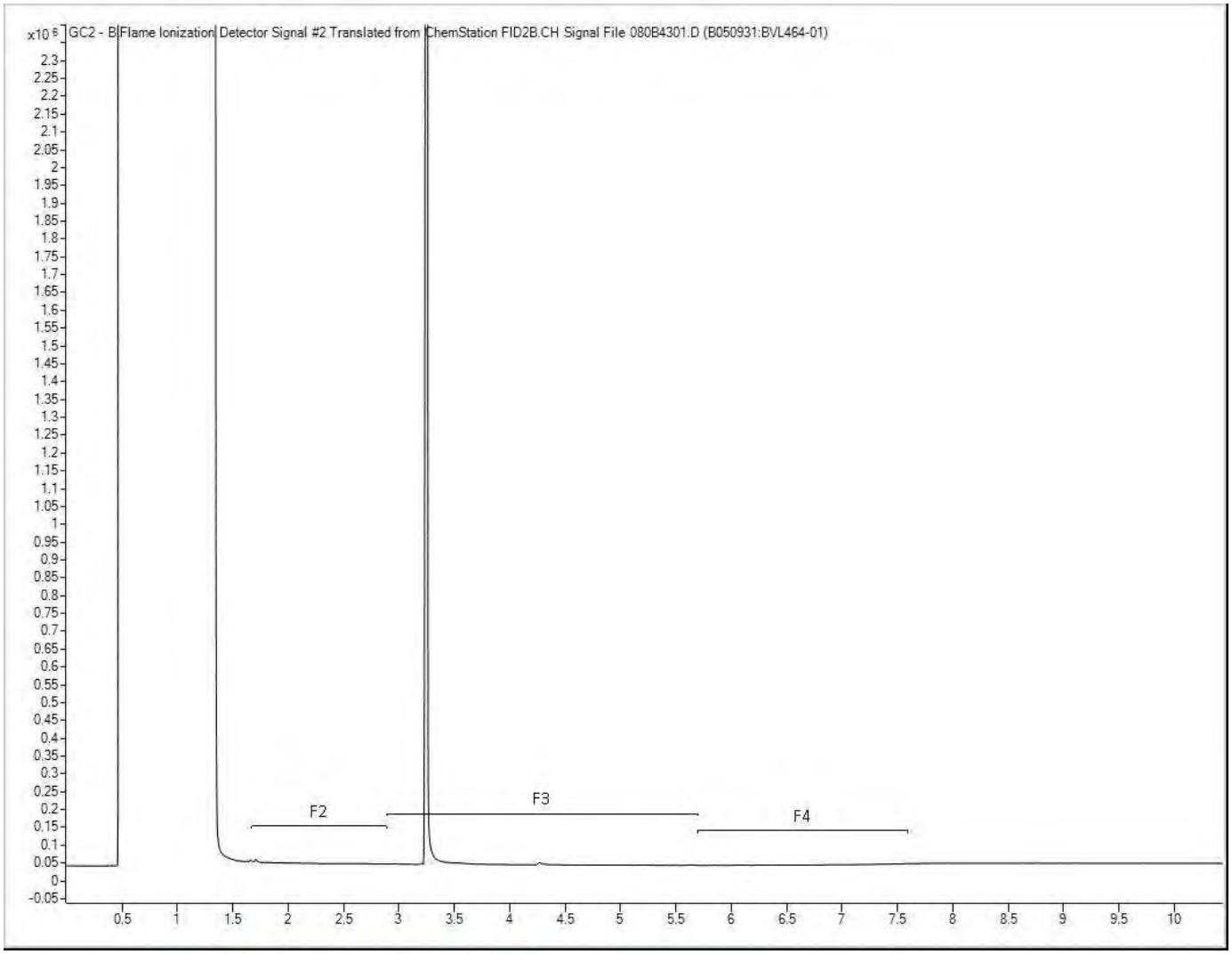
hpchem6\HPchem\1\DATA\2023\07\RUN0728

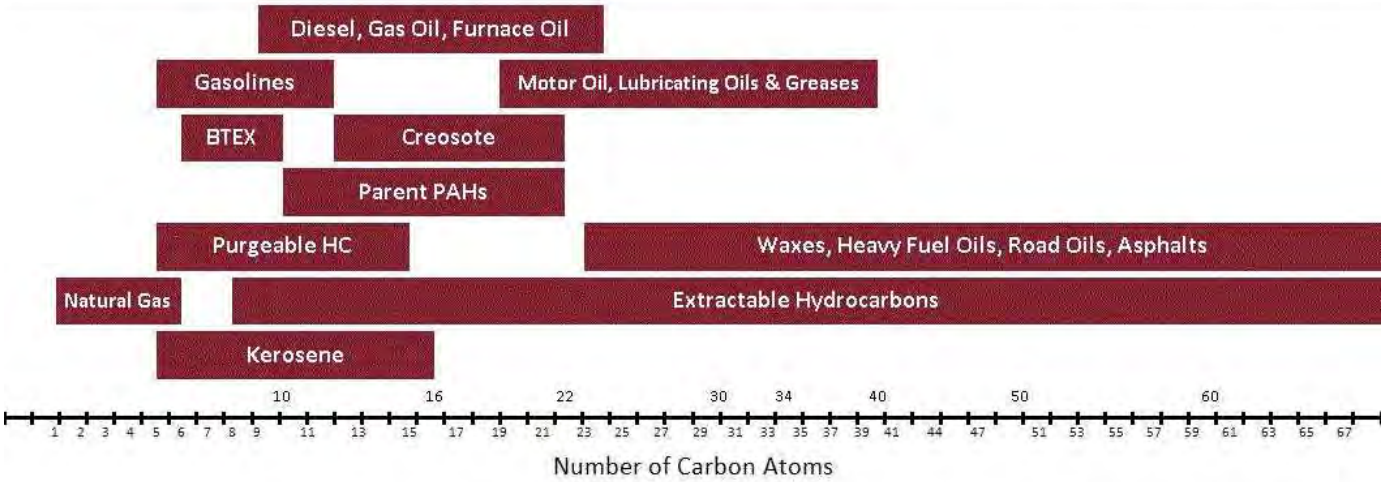
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356823
Report Date: 2023/09/29
Bureau Veritas Sample: BVL464

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: BH1928

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





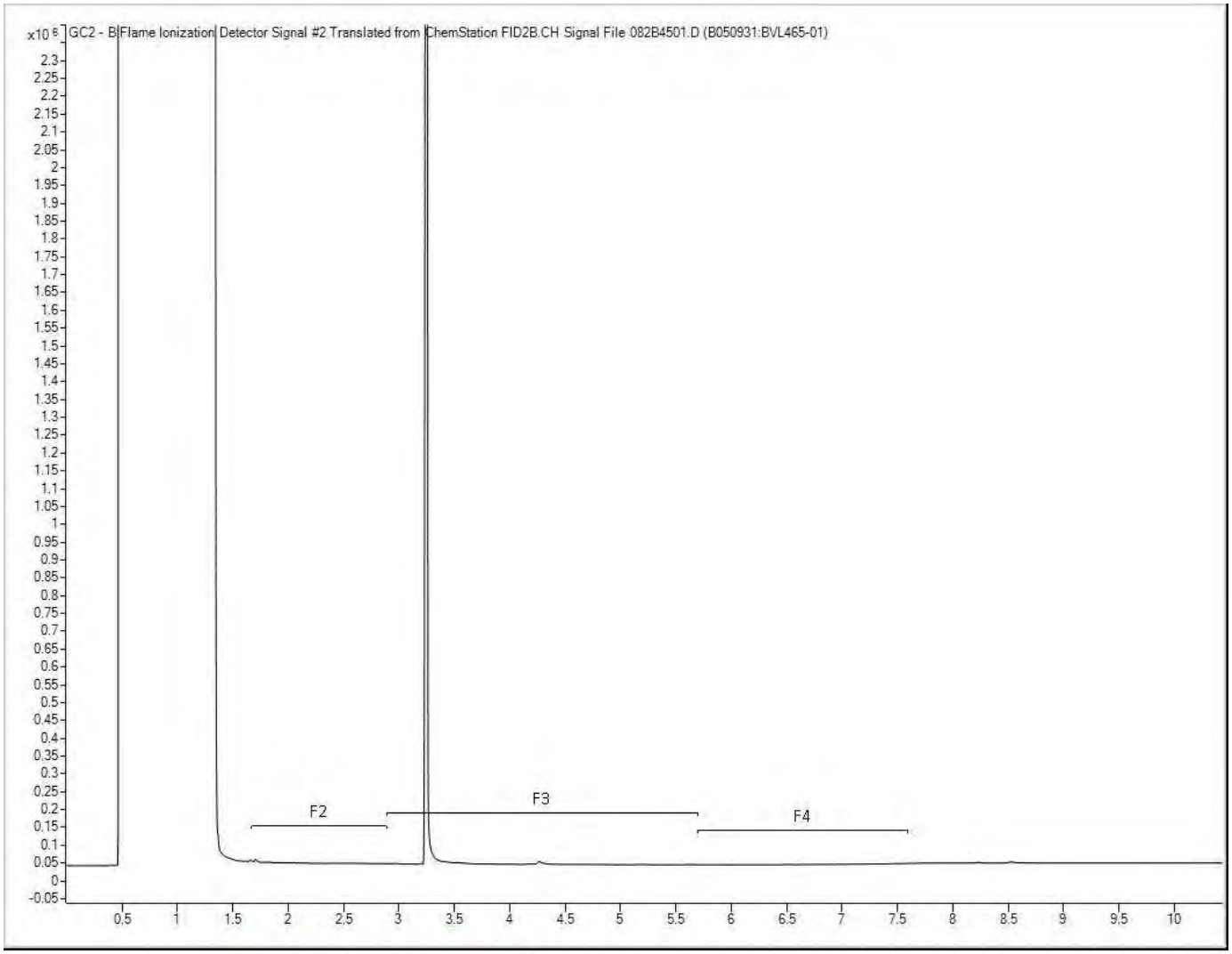
hpchem6\HPchem\1\DATA\2023\07\RUN0728

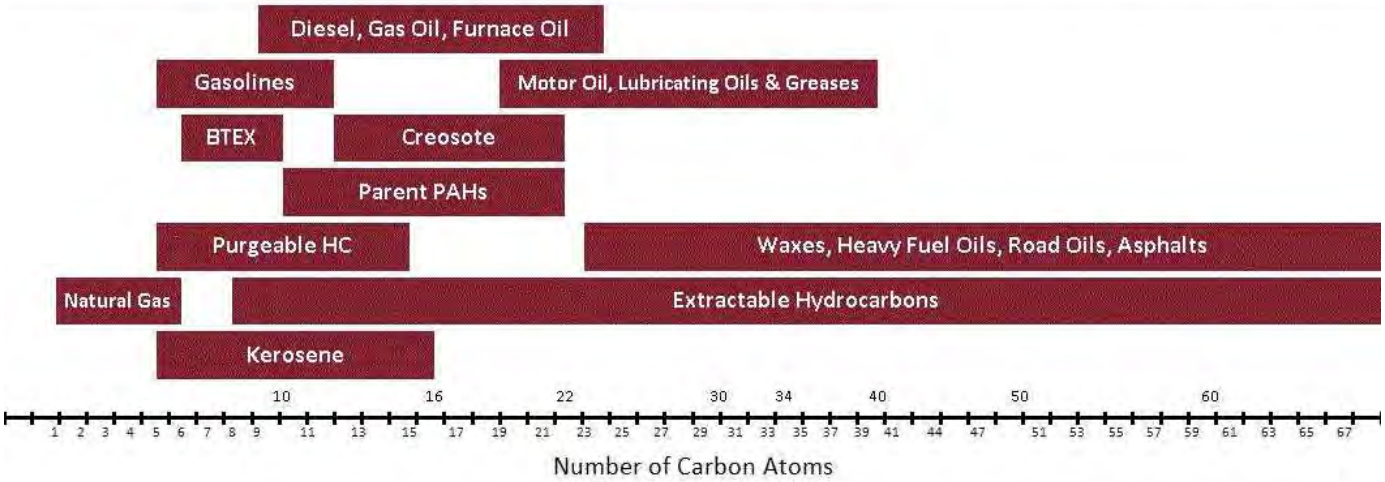
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356823
Report Date: 2023/09/29
Bureau Veritas Sample: BVL465

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: BH1936

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





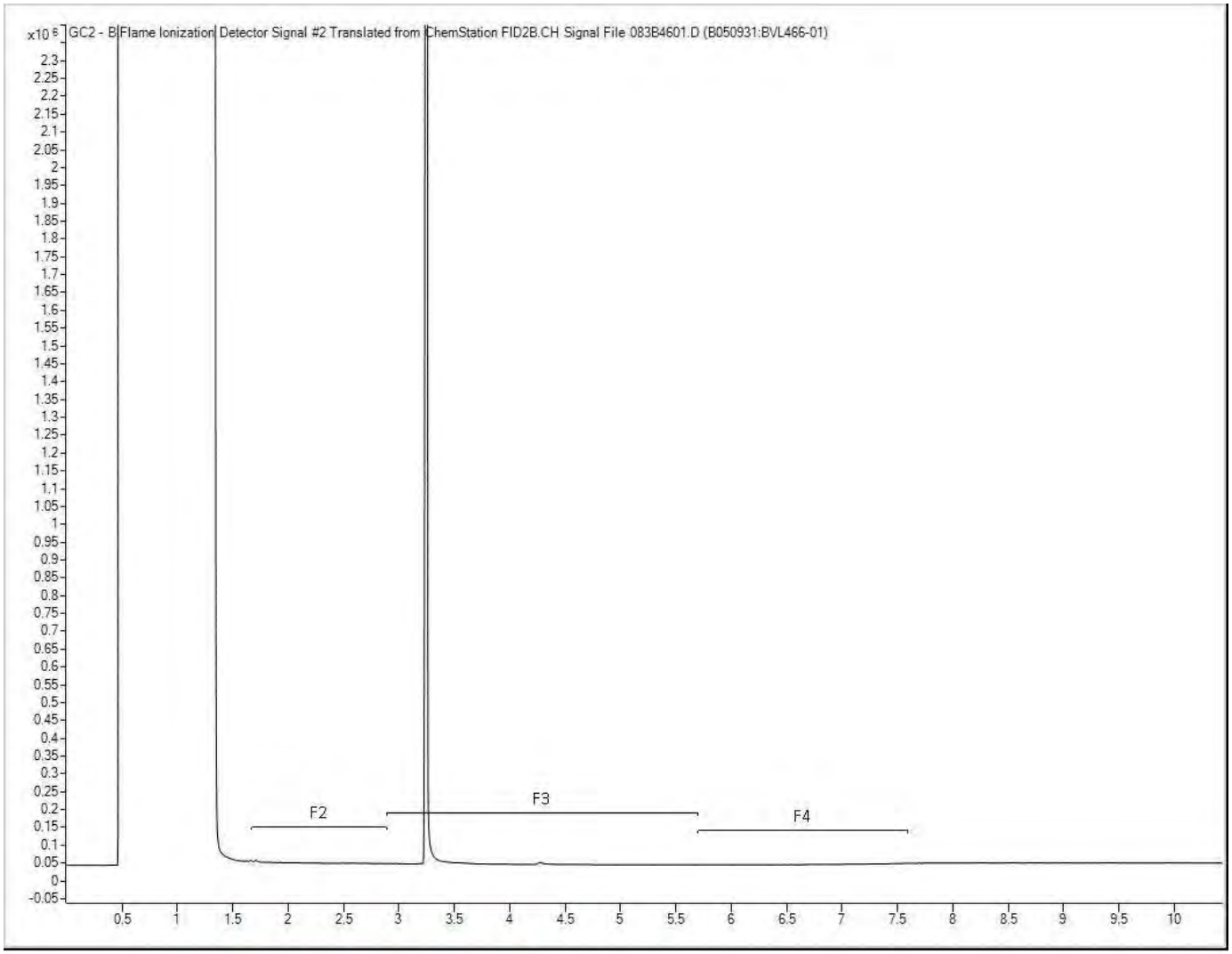
hpchem6\HPchem\1\DATA\2023\07\RUN0728

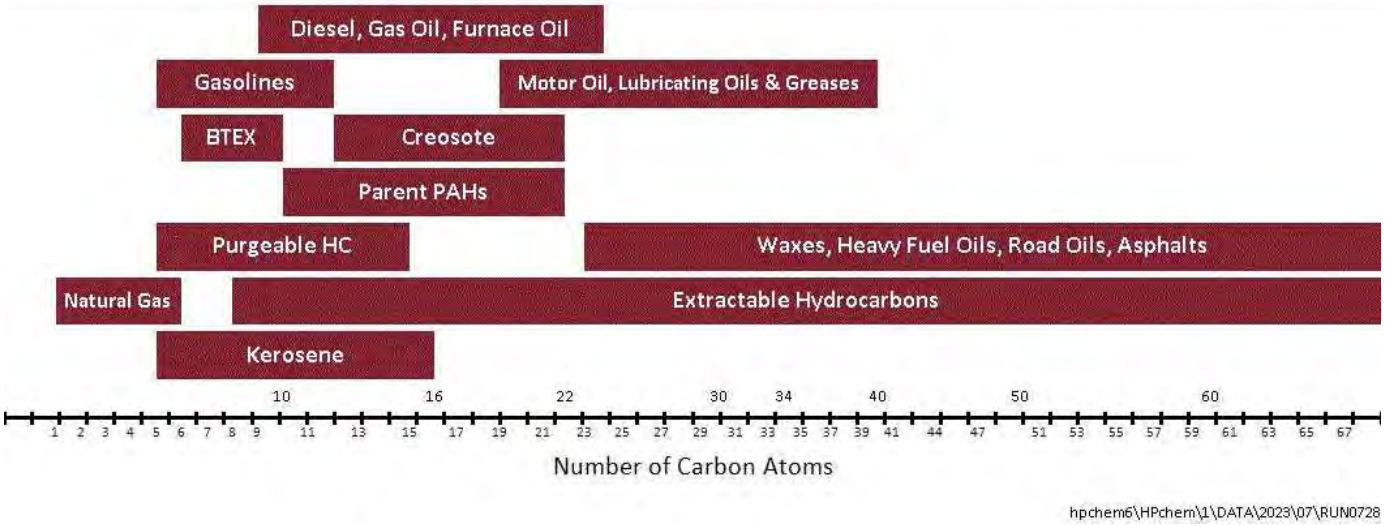
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356823
Report Date: 2023/09/29
Bureau Veritas Sample: BVL466

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: BH1929

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





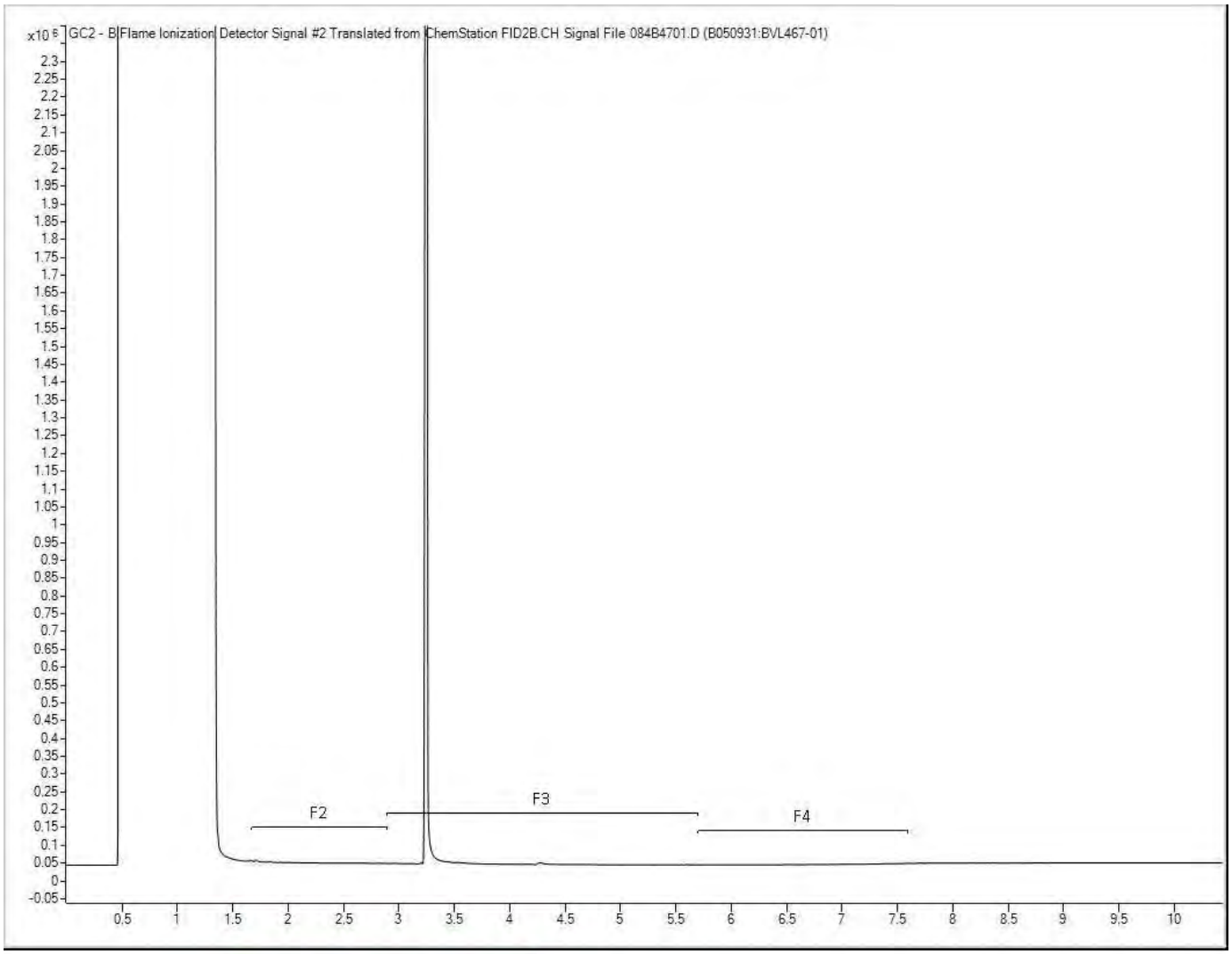
hpchem6\HPchem\1\DATA\2023\07\RUN0728

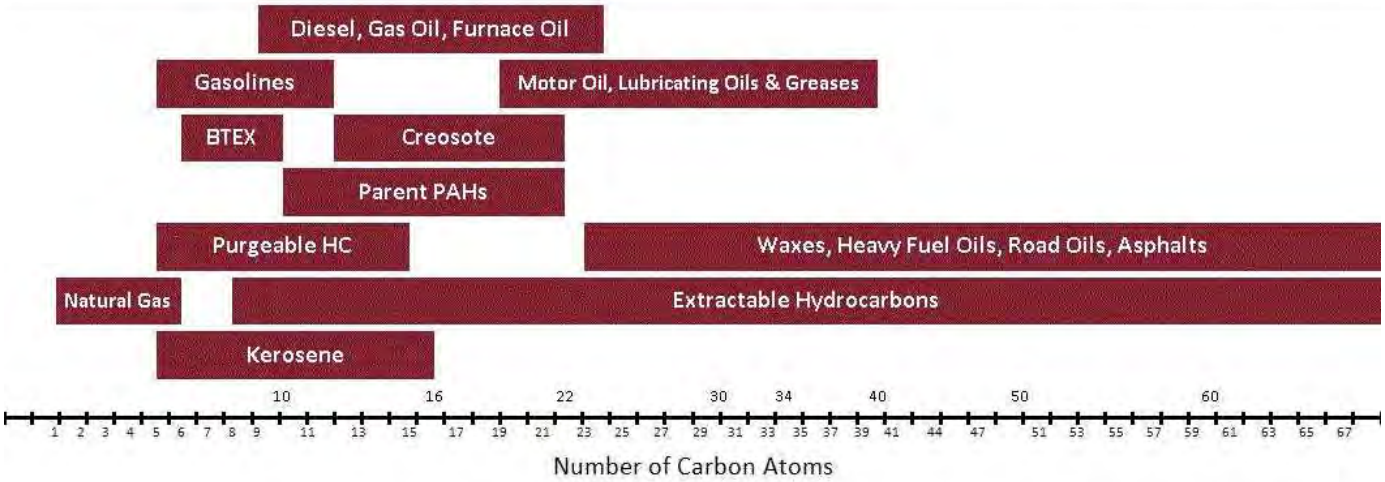
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356823
Report Date: 2023/09/29
Bureau Veritas Sample: BVL467

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: BH1930

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





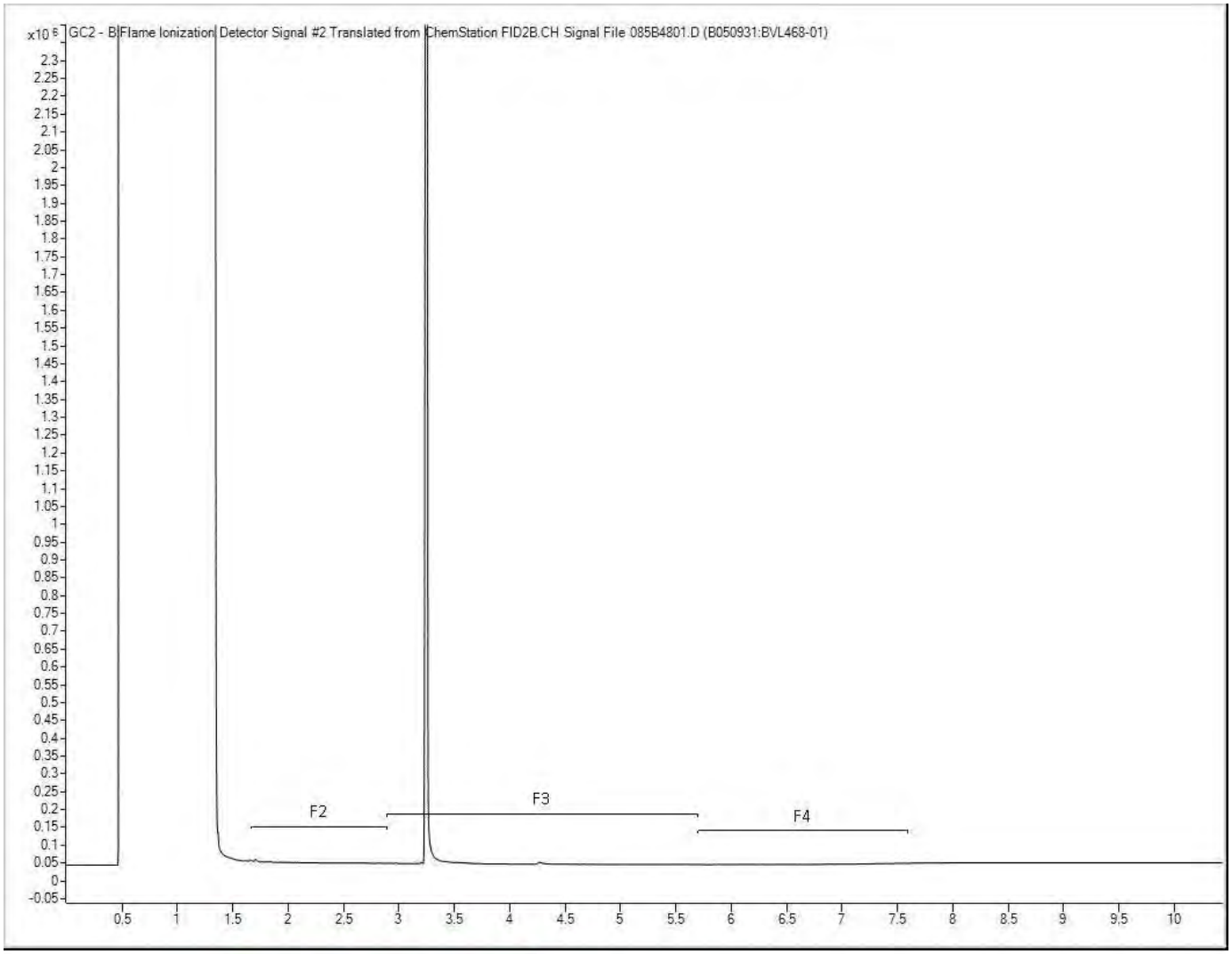
hpchem6\HPchem\1\DATA\2023\07\RUN0728

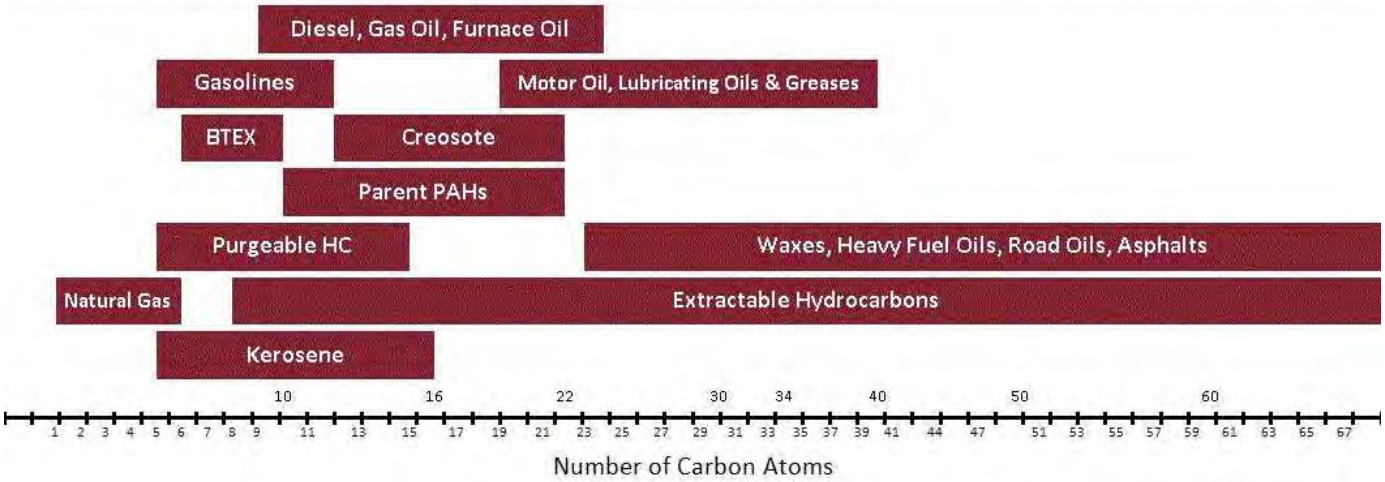
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356823
Report Date: 2023/09/29
Bureau Veritas Sample: BVL468

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: BH1939

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





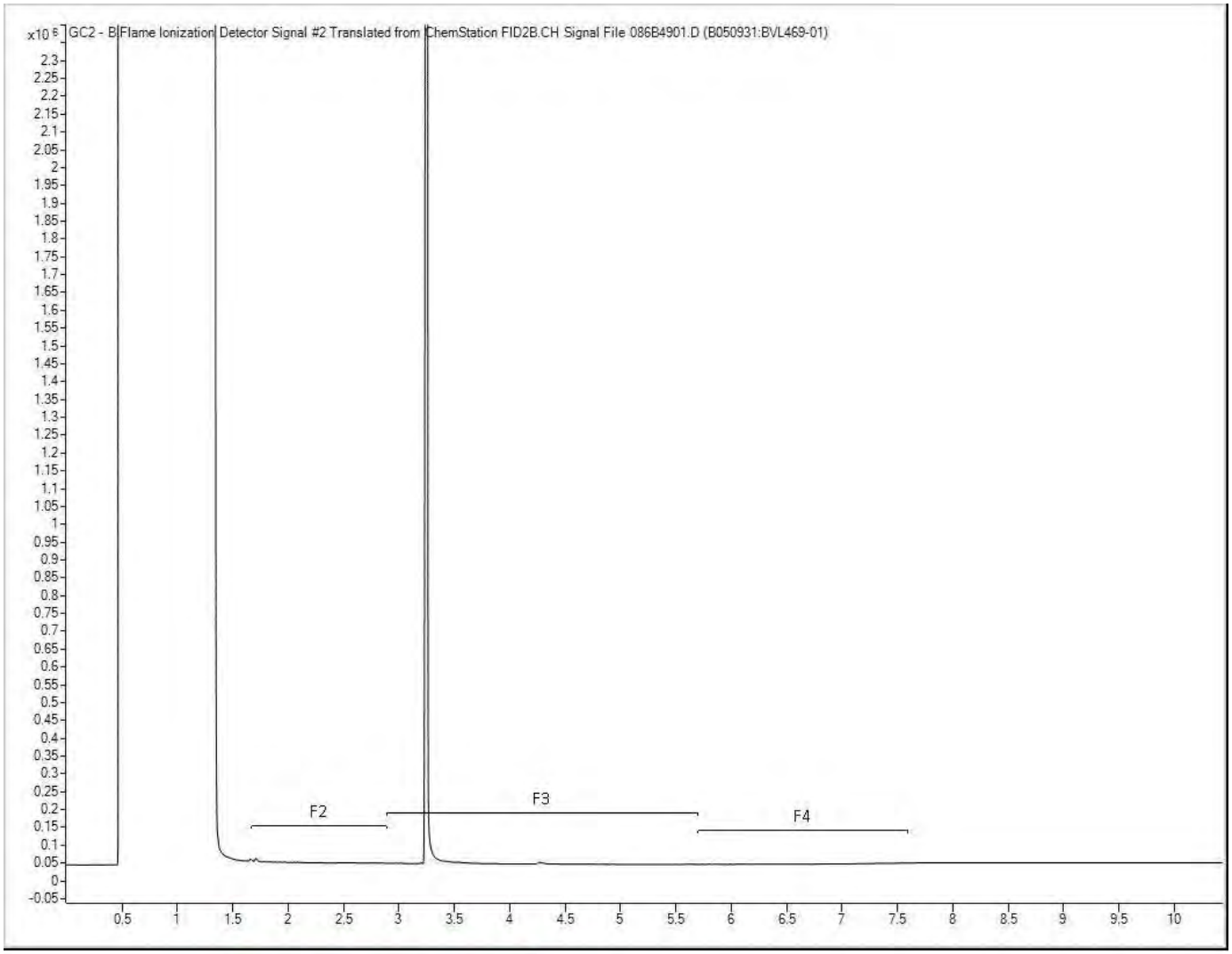
hpchem6\HPchem\1\DATA\2023\07\RUN0728

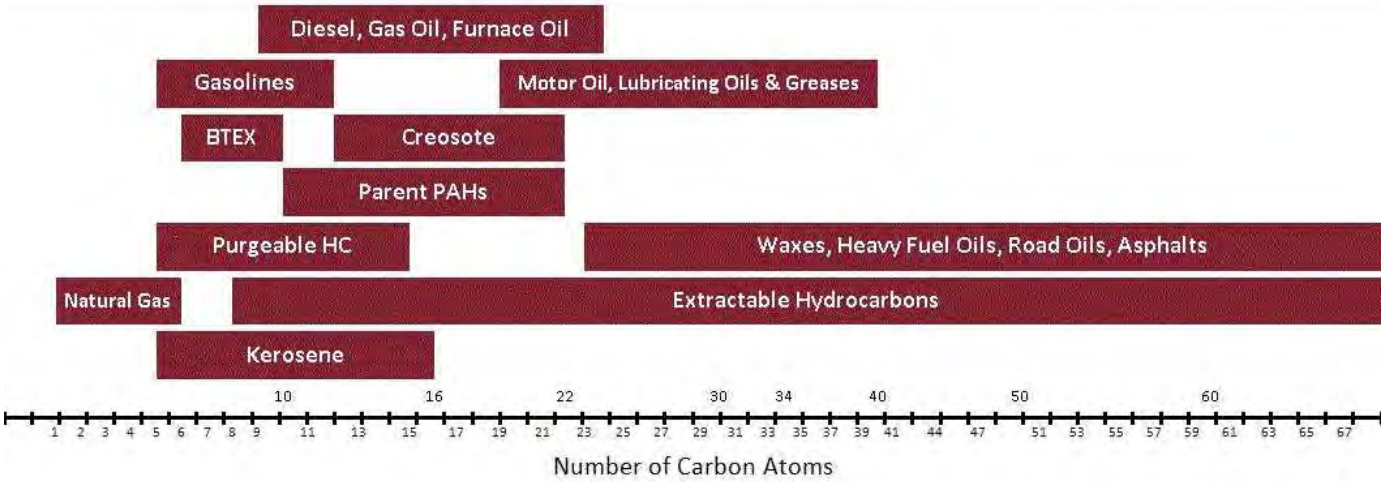
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356823
Report Date: 2023/09/29
Bureau Veritas Sample: BVL469

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: BH1945

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





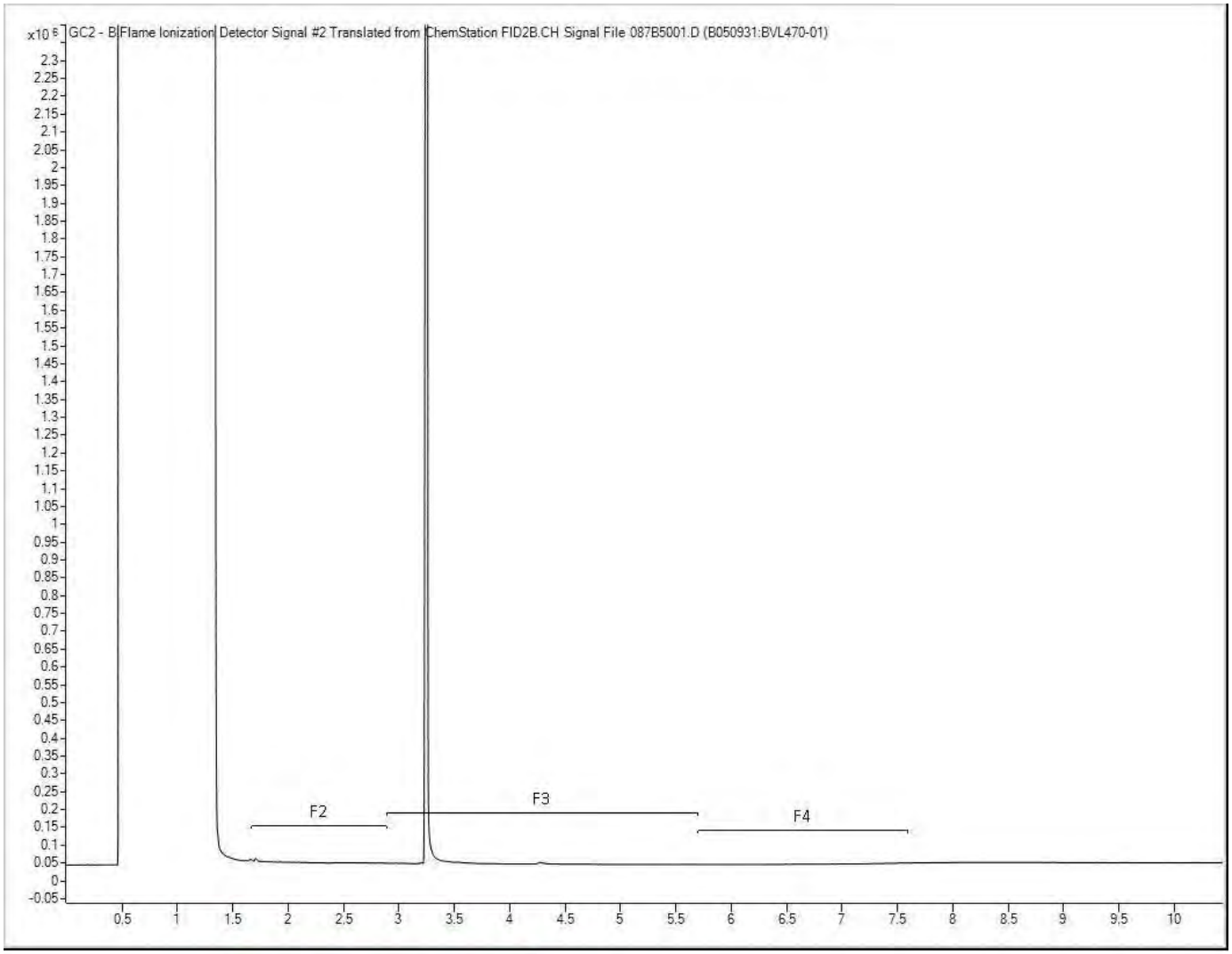
hpchem6\HPchem\1\DATA\2023\07\RUN0728

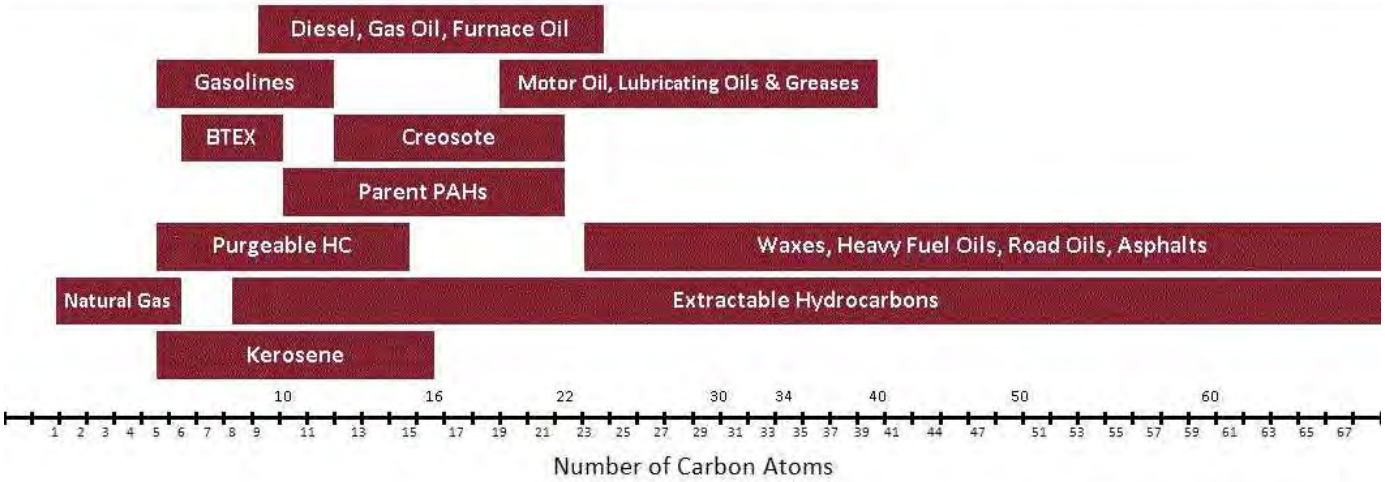
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C356823
Report Date: 2023/09/29
Bureau Veritas Sample: BVL470

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620-14TH AVE NW, CALGARY
Client ID: BH1978

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





hpchem6\HPchem\1\DATA\2023\07\RUN0728

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

DATA QUALITY REVIEW CHECKLIST

Consultant: *Parsons Inc.*

Sampling Date: *2023/7/26*

Location: *1620 14 AVE NW, CALGARY*

Laboratory : *Bureau Veritas, Calgary, AB*

Consultant Project Number: *10-12832*

Sample Submission Number: *C357512*

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
Field Blank Concentration			*X*	*All field QC samples have met the acceptable RPD limits.*
Trip Blank Concentration			*X*	
Field Duplicate RPD	*X*			

Has CoA been signed off (Yes/No)?:	*Yes*
Has lab warranted all tests were in statistical control in CoA (Yes/No)?:	*Yes*
Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?:	*Yes*
Were all samples analyzed within hold times (Yes/No)?:	*Yes*
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): *Mackenzie Robart*

Reviewed by (Print): *Michelle Patterson*

Reviewed date: *2023/10/30*

Reviewed by (Signature):

Your P.O. #: 478621.17102
Your Project #: 10-12832
Site#: 9445
Site Location: 1620 14TH AVE, NW, CALGARY
Your C.O.C. #: 699821-20-01, 699821-19-01

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/10/27
Report #: R3417515
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C357512
Received: 2023/07/26, 15:19

Sample Matrix: Water
Samples Received: 14

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/F1 in Water by HS GC/MS/FID	14	N/A	2023/08/01	AB SOP-00039	CCME CWS/EPA 8260d m
F1-BTEX	14	N/A	2023/08/02		Auto Calc
CCME Hydrocarbons in Water (F2; C10-C16) (1)	14	2023/08/03	2023/08/04	AB SOP-00037 AB SOP-00040	CCME PHC-CWS m
VOCs in Water by HS GC/MS (Std List)	14	N/A	2023/08/01	AB SOP-00056	EPA 5021a/8260d m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Silica gel clean up employed.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Your P.O. #: 478621.17102
Your Project #: 10-12832
Site#: 9445
Site Location: 1620 14TH AVE, NW, CALGARY
Your C.O.C. #: 699821-20-01, 699821-19-01

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/10/27
Report #: R3417515
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C357512
Received: 2023/07/26, 15:19

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Parminder Virk, Key Account Specialist
Email: Parminder.Virk@bureauveritas.com
Phone# (403)735-2235
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Scott Cantwell, General Manager responsible for Alberta Environmental laboratory operations.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C357512
Report Date: 2023/10/27

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14TH AVE, NW, CALGARY
Your P.O. #: 478621.17102
Sampler Initials: CW

AT1 BTEX AND F1-F2 IN WATER (WATER)

Bureau Veritas ID		BVO840	BVO841	BVO842	BVO843	BVO844	BVO845		
Sampling Date		2023/07/26 08:15	2023/07/26 08:45	2023/07/26 09:00	2023/07/26 09:15	2023/07/26 09:45	2023/07/26 10:15		
COC Number		699821-20-01	699821-20-01	699821-20-01	699821-20-01	699821-20-01	699821-20-01		
	UNITS	**BH4003B**	**BH4009B**	**BH1983A**	**BH4003A**	**BH1985**	**BH4002**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	<0.10	<0.10	0.18	<0.10	0.68	0.10	B052362
Volatiles									
Benzene	mg/L	<0.00040	0.0018	<0.00040	0.65	<0.00040	0.0084	0.00040	B052740
Toluene	mg/L	<0.00040	<0.00040	<0.00040	0.0014	<0.00040	0.18	0.00040	B052740
Ethylbenzene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00065	0.00040	B052740
m & p-Xylene	mg/L	<0.00080	<0.00080	<0.00080	<0.00080	<0.00080	1.8	0.00080	B052740
o-Xylene	mg/L	<0.00040	<0.00040	<0.00040	0.042	<0.00040	0.73	0.00040	B052740
Xylenes (Total)	mg/L	<0.00089	<0.00089	<0.00089	0.042	<0.00089	2.6	0.00089	B051603
F1 (C6-C10) - BTEX	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	2.2	0.10	B051603
F1 (C6-C10)	mg/L	<0.10	<0.10	<0.10	0.69	<0.10	4.9	0.10	B052740
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	100	103	101	98	101	99		B052740
4-Bromofluorobenzene (sur.)	%	102	103	102	103	102	98		B052740
D4-1,2-Dichloroethane (sur.)	%	95	96	101	108	99	96		B052740
O-TERPHENYL (sur.)	%	99	110	98	98	99	98		B052362

RDL = Reportable Detection Limit

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C357512
Report Date: 2023/10/27

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14TH AVE, NW, CALGARY
Your P.O. #: 478621.17102
Sampler Initials: CW

AT1 BTEX AND F1-F2 IN WATER (WATER)

Bureau Veritas ID		BVO846	BVO847	BVO848	BVO849	BVO850	BVO851		
Sampling Date		2023/07/26 10:45	2023/07/26 11:30	2023/07/26 12:00	2023/07/26 12:30	2023/07/26 07:50	2023/07/26 07:30		
COC Number		699821-20-01	699821-20-01	699821-20-01	699821-20-01	699821-19-01	699821-19-01		
	UNITS	**BH4008B**	**BH4007**	**BH4009A**	**BH4006**	**BH4005**	**BH4004A**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	0.20	1.3	0.28	0.25	<0.10	0.10	B052362
Volatiles									
Benzene	mg/L	<0.00040	0.97	0.0080	0.42	0.022	<0.00040	0.00040	B052740
Toluene	mg/L	<0.00040	0.0024	<0.00040	0.00071	<0.00040	<0.00040	0.00040	B052740
Ethylbenzene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	B052740
m & p-Xylene	mg/L	<0.00080	0.0017	<0.00080	<0.00080	<0.00080	<0.00080	0.00080	B052740
o-Xylene	mg/L	<0.00040	0.068	<0.00040	0.038	<0.00040	<0.00040	0.00040	B052740
Xylenes (Total)	mg/L	<0.00089	0.070	<0.00089	0.038	<0.00089	<0.00089	0.00089	B051603
F1 (C6-C10) - BTEX	mg/L	<0.10	0.90	<0.10	<0.10	<0.10	<0.10	0.10	B051603
F1 (C6-C10)	mg/L	<0.10	1.9	<0.10	0.49	<0.10	<0.10	0.10	B052740
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	102	97	102	99	100	93		B052740
4-Bromofluorobenzene (sur.)	%	101	103	101	102	99	103		B052740
D4-1,2-Dichloroethane (sur.)	%	97	96	97	101	95	112		B052740
O-TERPHENYL (sur.)	%	99	97	97	97	98	97		B052362
RDL = Reportable Detection Limit									

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Bureau Veritas Job #: C357512
Report Date: 2023/10/27

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14TH AVE, NW, CALGARY
Your P.O. #: 478621.17102
Sampler Initials: CW

AT1 BTEX AND F1-F2 IN WATER (WATER)

Bureau Veritas ID		BVO852	BVO853		
Sampling Date		2023/07/26 07:15	2023/07/26 07:15		
COC Number		699821-19-01	699821-19-01		
	UNITS	**BH4004B**	**DUP-13**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon					
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	<0.10	0.10	B052362
Volatiles					
Benzene	mg/L	<0.00040	<0.00040	0.00040	B052740
Toluene	mg/L	<0.00040	<0.00040	0.00040	B052740
Ethylbenzene	mg/L	<0.00040	<0.00040	0.00040	B052740
m & p-Xylene	mg/L	<0.00080	<0.00080	0.00080	B052740
o-Xylene	mg/L	<0.00040	<0.00040	0.00040	B052740
Xylenes (Total)	mg/L	<0.00089	<0.00089	0.00089	B051603
F1 (C6-C10) - BTEX	mg/L	<0.10	<0.10	0.10	B051603
F1 (C6-C10)	mg/L	<0.10	<0.10	0.10	B052740
Surrogate Recovery (%)					
1,4-Difluorobenzene (sur.)	%	100	104		B052740
4-Bromofluorobenzene (sur.)	%	103	104		B052740
D4-1,2-Dichloroethane (sur.)	%	102	100		B052740
O-TERPHENYL (sur.)	%	99	101		B052362
RDL = Reportable Detection Limit					

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Bureau Veritas Job #: C357512
Report Date: 2023/10/27

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14TH AVE, NW, CALGARY
Your P.O. #: 478621.17102
Sampler Initials: CW

VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		BVO840	BVO841	BVO842	BVO843	BVO844	BVO845		
Sampling Date		2023/07/26 08:15	2023/07/26 08:45	2023/07/26 09:00	2023/07/26 09:15	2023/07/26 09:45	2023/07/26 10:15		
COC Number		699821-20-01	699821-20-01	699821-20-01	699821-20-01	699821-20-01	699821-20-01		
	UNITS	**BH4003B**	**BH4009B**	**BH1983A**	**BH4003A**	**BH1985**	**BH4002**	**RDL**	**QC Batch**
Volatiles									
1,2-dichloroethane	mg/L	0.0011	0.0028	<0.00050	0.11	<0.00050	0.00059	0.00050	B052745
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	96	96	96	101	97	98		B052745
4-Bromofluorobenzene (sur.)	%	95	95	95	91	95	96		B052745
D4-1,2-Dichloroethane (sur.)	%	104	109	113	119	108	107		B052745
RDL = Reportable Detection Limit									

Bureau Veritas ID		BVO846	BVO847	BVO848	BVO849	BVO850	BVO851		
Sampling Date		2023/07/26 10:45	2023/07/26 11:30	2023/07/26 12:00	2023/07/26 12:30	2023/07/26 07:50	2023/07/26 07:30		
COC Number		699821-20-01	699821-20-01	699821-20-01	699821-20-01	699821-19-01	699821-19-01		
	UNITS	**BH4008B**	**BH4007**	**BH4009A**	**BH4006**	**BH4005**	**BH4004A**	**RDL**	**QC Batch**
Volatiles									
1,2-dichloroethane	mg/L	<0.00050	0.047	0.0025	0.039	<0.00050	<0.00050	0.00050	B052745
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	97	101	97	100	98	97		B052745
4-Bromofluorobenzene (sur.)	%	95	93	95	93	95	94		B052745
D4-1,2-Dichloroethane (sur.)	%	110	120	108	115	111	105		B052745
RDL = Reportable Detection Limit									

Bureau Veritas ID		BVO852	BVO853		
Sampling Date		2023/07/26 07:15	2023/07/26 07:15		
COC Number		699821-19-01	699821-19-01		
	UNITS	**BH4004B**	**DUP-13**	**RDL**	**QC Batch**
Volatiles					
1,2-dichloroethane	mg/L	<0.00050	<0.00050	0.00050	B052745
Surrogate Recovery (%)					
1,4-Difluorobenzene (sur.)	%	96	96		B052745
4-Bromofluorobenzene (sur.)	%	96	95		B052745
D4-1,2-Dichloroethane (sur.)	%	113	106		B052745
RDL = Reportable Detection Limit					

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Bureau Veritas Job #: C357512
Report Date: 2023/10/27

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14TH AVE, NW, CALGARY
Your P.O. #: 478621.17102
Sampler Initials: CW

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	10.3°C

Version 2: Client sample ID for sample BVO840 was changed from BH4003A to BH4003B and sample BVO843 was changed from BH4003B to BH4003A as per client request received 2023/10/27.

Results relate only to the items tested.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C357512
Report Date: 2023/10/27

QUALITY ASSURANCE REPORT

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14TH AVE, NW, CALGARY
Your P.O. #: 478621.17102
Sampler Initials: CW

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
B052362	O-TERPHENYL (sur.)	2023/08/03			99	60 - 140	100	%		
B052740	1,4-Difluorobenzene (sur.)	2023/08/01	99	50 - 140	101	50 - 140	102	%		
B052740	4-Bromofluorobenzene (sur.)	2023/08/01	102	50 - 140	100	50 - 140	103	%		
B052740	D4-1,2-Dichloroethane (sur.)	2023/08/01	99	50 - 140	97	50 - 140	97	%		
B052745	1,4-Difluorobenzene (sur.)	2023/08/01	101	50 - 140	101	50 - 140	96	%		
B052745	4-Bromofluorobenzene (sur.)	2023/08/01	101	50 - 140	100	50 - 140	94	%		
B052745	D4-1,2-Dichloroethane (sur.)	2023/08/01	96	50 - 140	92	50 - 140	109	%		
B052362	F2 (C10-C16 Hydrocarbons)	2023/08/03			99	60 - 140	<0.10	mg/L		
B052740	Benzene	2023/08/01	98	50 - 140	101	60 - 130	<0.00040	mg/L	NC	30
B052740	Ethylbenzene	2023/08/01	98	50 - 140	102	60 - 130	<0.00040	mg/L	NC	30
B052740	F1 (C6-C10)	2023/08/01	88	60 - 140	95	60 - 140	<0.10	mg/L	NC	30
B052740	m & p-Xylene	2023/08/01	98	50 - 140	103	60 - 130	<0.00080	mg/L	NC	30
B052740	o-Xylene	2023/08/01	94	50 - 140	97	60 - 130	<0.00040	mg/L	NC	30
B052740	Toluene	2023/08/01	97	50 - 140	101	60 - 130	<0.00040	mg/L	NC	30
B052745	1,2-dichloroethane	2023/08/01	89	50 - 140	88	60 - 130	<0.00050	mg/L	5.5	30

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

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

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

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

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

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

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Bureau Veritas Job #: C357512
Report Date: 2023/10/27

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14TH AVE, NW, CALGARY
Your P.O. #: 478621.17102
Sampler Initials: CW

VALIDATION SIGNATURE PAGE

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

Gita Pokhrel, Laboratory Supervisor

Rahul Suryawanshi, Senior Analyst

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

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

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas
4000 19st N.E, Calgary, Alberta Canada T2E 6P6 Tel:(403) 291-3077 Toll-free 800-563-6266 Fax:(403) 291-9468 www.bvna.com

Page 1 of 2

CHAIN OF CUSTODY RECORD

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#11243 PARSONS INC.	Company Name:	#31652 PARSONS INC.	Quotation #:	C30805	Bureau Veritas Job #:	Bottle Order #:
Attention:	ACCOUNTS PAYABLE	Attention:	Rebecca Neufeld	P.O. #:	478621.17102		699821
Address:	2751 JOHN STREET	Address:	Unit 510, 214 - 11th Avenue SW	Project:	10-12832	COC #:	Project Manager:
	MARKHAM ON L3R 2Y8		Calgary AB T2R 0K1	Project Name: Outlet	9445	C#699821-20-01	Parminder Virk
Tel:	(905) 944-8877 Fax:	Tel:	Fax:	Site #:	1620, 14th Avenue NW, Calgary		
Email:	ParsonsIncAP.Parsons@parsons.com	Email:	rebecca.neufeld@parsons.com,Michelle.Patterson@par	Sampled By:	Cody Whittaker		

Regulatory Criteria:
- [x] ATI
- [ ] CCME
- [ ] Other

Special Instructions: Same Day Sampling

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects
Regular (Standard) TAT: [x]
(will be applied if Rush TAT is not specified).
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details
Job Specific Rush TAT (if applies to entire submission) [ ]
Date Required:
Rush Confirmation Number:
(call lab for #)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	AT1 BTEX and F1-F2 in Water	1,2 Dichloroethane	Routine Water							# of Bottles	Comments
1		BH4003A	23/07/26	0815	GW		X	X								3	
2		BH4009B		0845	GW		X	X								3	
3		BH1983A		0900	GW		X	X								3	
4		BH4003B		0915	GW		X	X								3	
5		BH1985		0945	GW		X	X								3	
6		BH4002		1015	GW		X	X								3	
7		BH4008B		1045	GW		X	X								3	
8		BH4007		1130	GW		X	X								3	
9		BH4009A		1200	GW		X	X								3	
10		BH4006	23/07/26	1230	GW		X	X								3	

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Laboratory Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal intact on Cooler?
Cody Whittaker / Cody Whittaker	23/07/26	15:00	Ekta Dalal	23/07/26	15:19	0	[ ]	10/10/11	[x] Yes [ ] No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.
** ALL SAMPLES ARE HELD FOR 60 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

White: Bureau Veritas Yellow: Client

mcal-07-1336

Bureau Veritas Canada (2019) Inc.

Bureau Veritas
4000 19st N.E. Calgary, Alberta Canada T2E 6P8 Tel:(403) 291-3077 Toll-free 800-563-6266 Fax:(403) 291-9468 www.bvna.com

Page 2 of 2

CHAIN OF CUSTODY RECORD

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#11243 PARSONS INC.	Company Name:	#31652 PARSONS INC.	Quotation #:	C30805	Bureau Veritas Job #:	Bottle Order #:
Attention:	ACCOUNTS PAYABLE	Attention:	Rebecca Neufeld	P.O. #:	478621.17102		699621
Address:	2751 JOHN STREET	Address:	Unit 510, 214 - 11th Avenue SW	Project:	10-12832	COC #:	Project Manager:
	MARKHAM ON L3R 2Y8		Calgary AB T2R 0K1	~~Project Name~~	Outlet 4445		
Tel:	(905) 944-8877 Fax:	Tel:	Fax:	Site #:	1620, 14th Ave NW, Calgary	C#699621-19-01	Parminder Virk
Email:	ParsonsIncAP.Parsons@parsons.com	Email:	rebecca.neufeld@parsons.com,Michelle.Patterson@par	Sampled By:	Cody Whittaker		

Regulatory Criteria:
- [x] ATI
- [ ] CCME
- [ ] Other

Special Instructions: Same Day Sampling

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	AT1 BTEX and F1-F2 in Water	1,2 Dichloroethane	Routine Water	# of Bottles	Comments
1		BH4005	23/07/26	0750	GW		X	X		3	
2		BH4004 A		0730	GW		X	X		3	
3		BH4004 B		0715	GW		X	X		3	
4		DUP-13	23/07/26	0715	GW		X	X		3	
5											
6											
7											
8											
9											
10											

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT: [x]
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests..
Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details

Job Specific Rush TAT (if applies to entire submission) [ ]
Date Required:
Rush Confirmation Number: (call lab for #)

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Laboratory Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
Cody Whittaker	23/07/26	15:00	Neha Patel	23/07/26	15:19	0	[ ]		[x] Yes [ ] No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.
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** ALL SAMPLES ARE HELD FOR 60 DAYS AFTER SAMPLE RECEIPT. FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

White: Bureau Veritas Yellow: Client

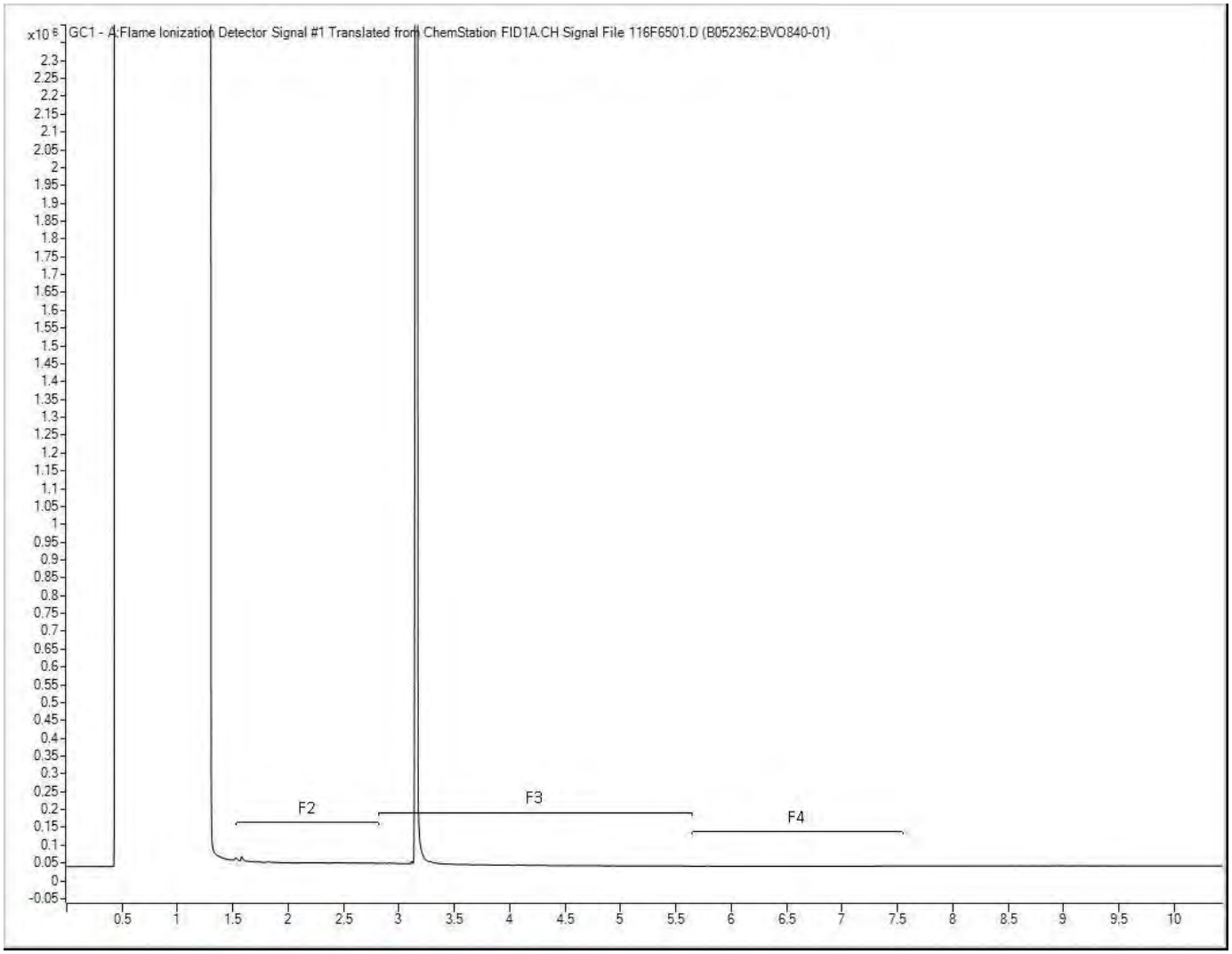
Ice Yes

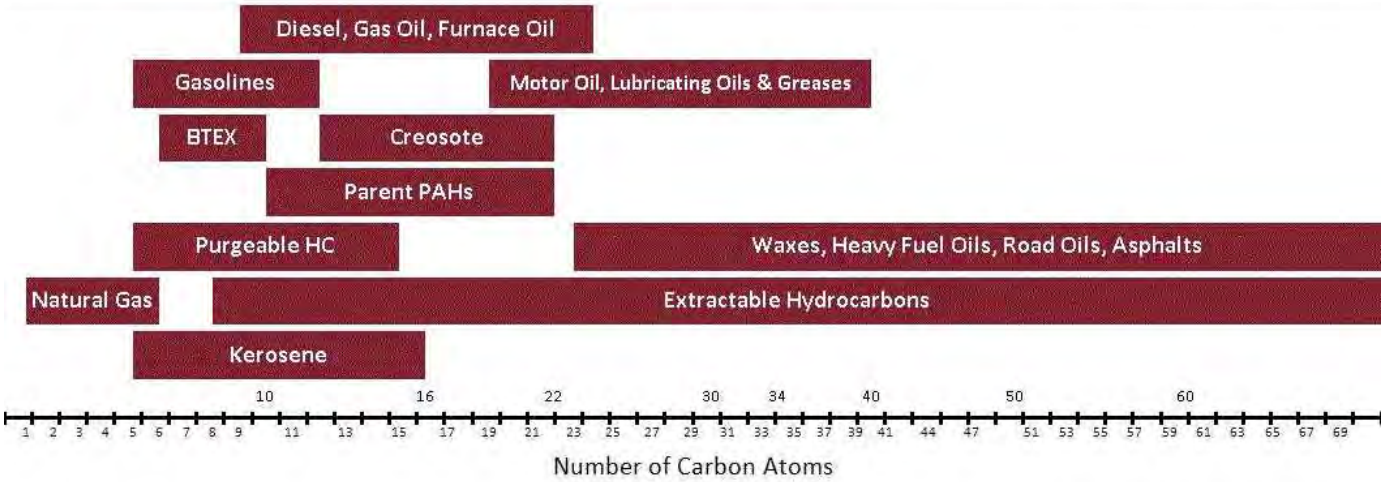
Bureau Veritas Canada (2019) Inc.

Bureau Veritas Job #: C357512
Report Date: 2023/10/27
Bureau Veritas Sample: BVO840

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14TH AVE, NW, CALGARY
Client ID: BH4003B

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





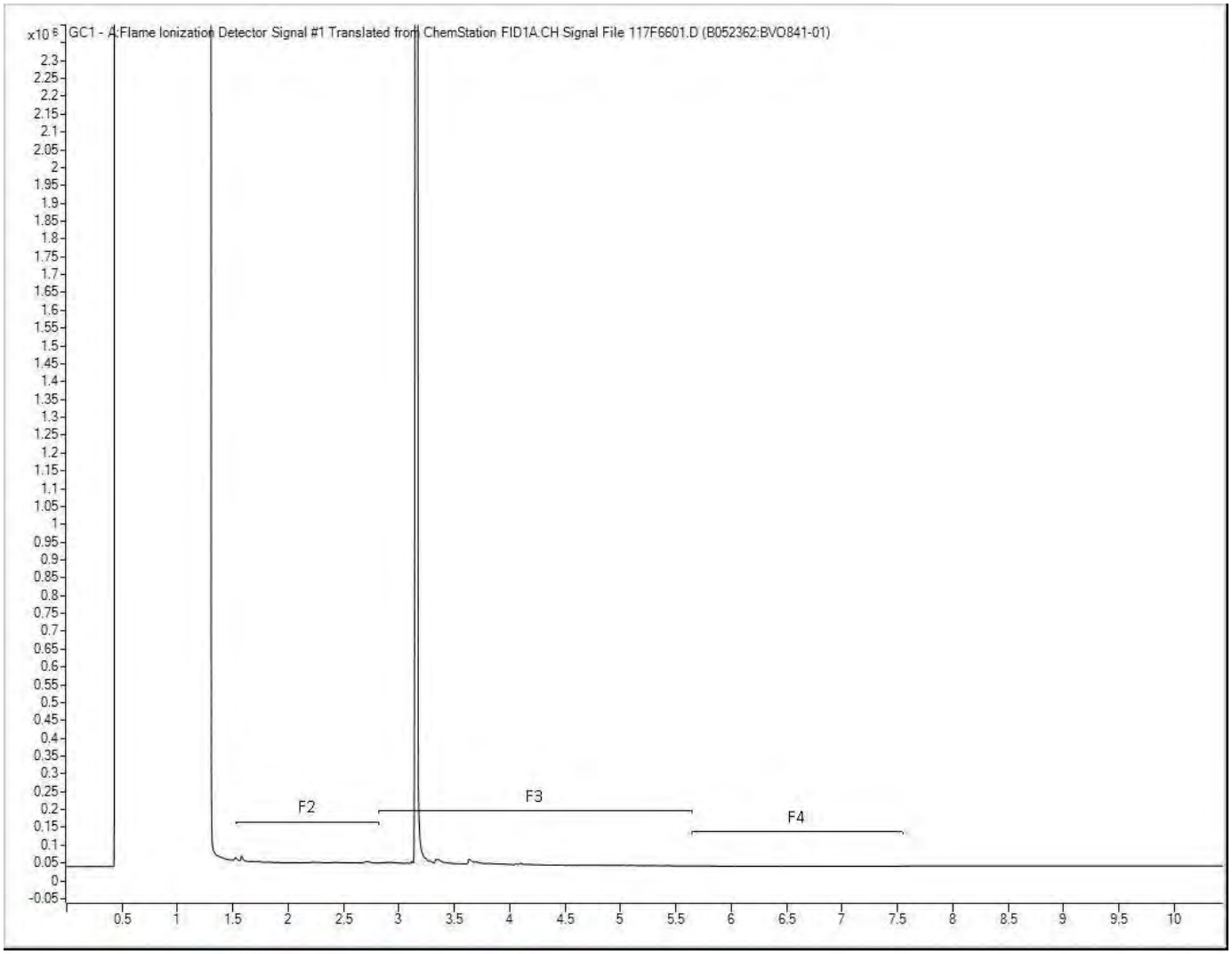
hpchem20\HPchem\1\DATA\2023\08\RUN0803

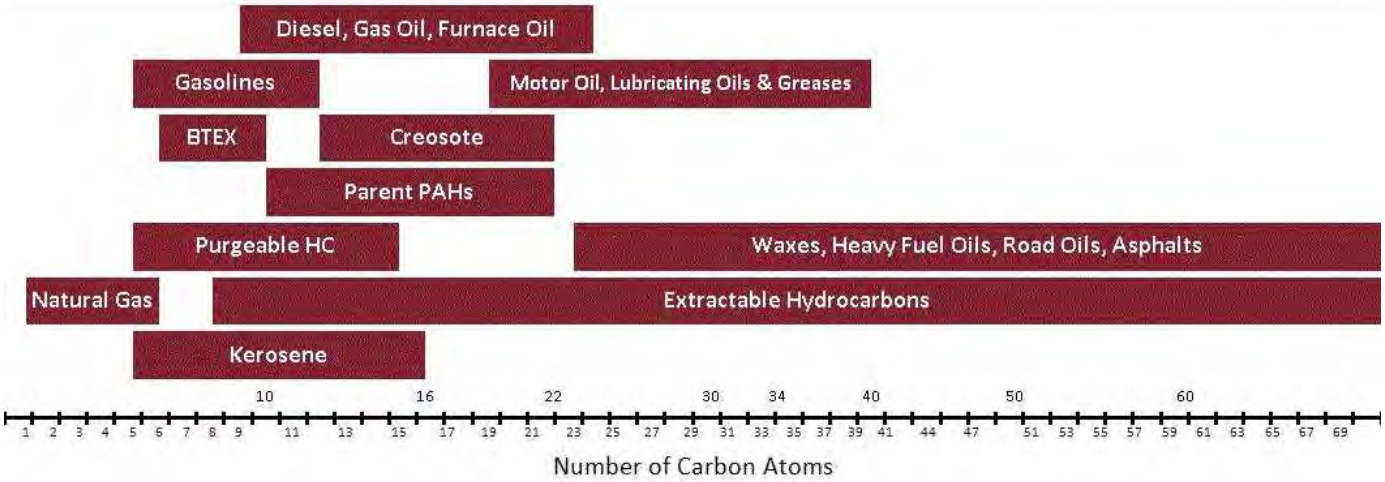
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357512
Report Date: 2023/10/27
Bureau Veritas Sample: BVO841

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14TH AVE, NW, CALGARY
Client ID: BH4009B

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





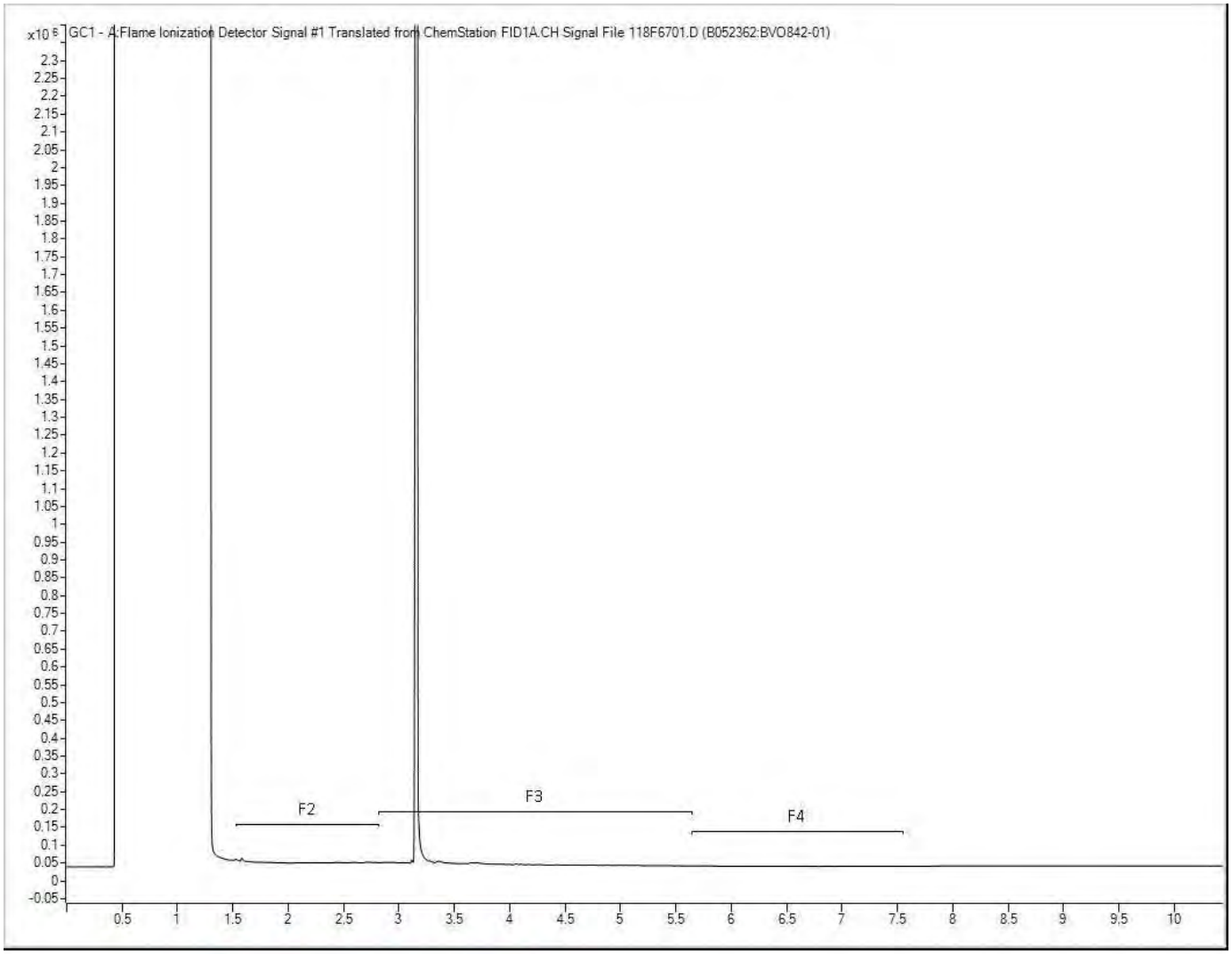
hpchem20\HPchem\1\DATA\2023\08\RUN0803

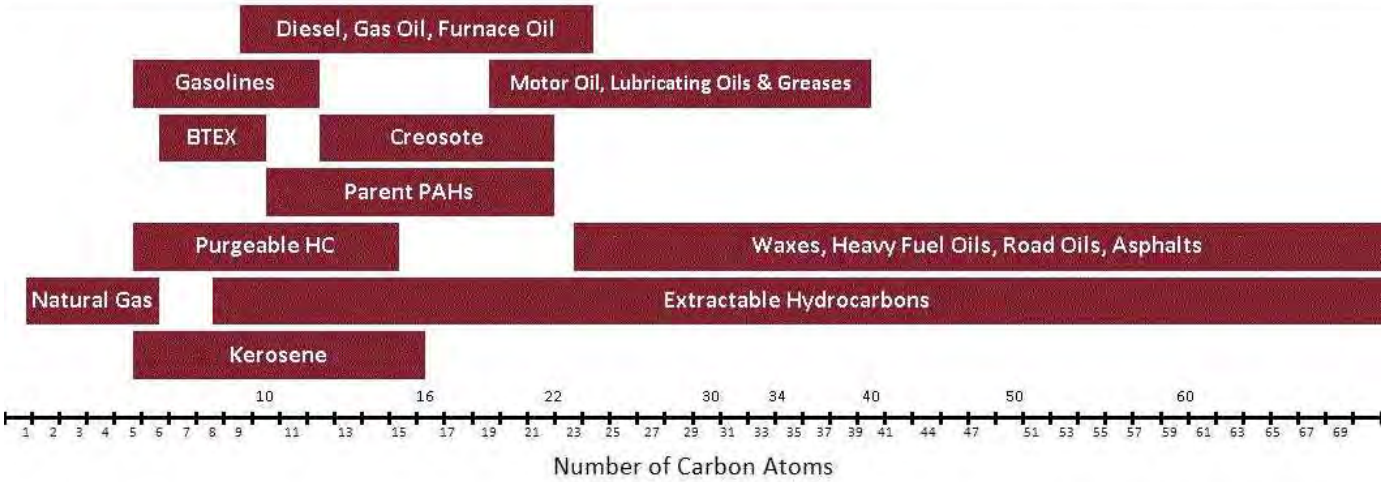
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357512
Report Date: 2023/10/27
Bureau Veritas Sample: BVO842

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14TH AVE, NW, CALGARY
Client ID: BH1983A

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





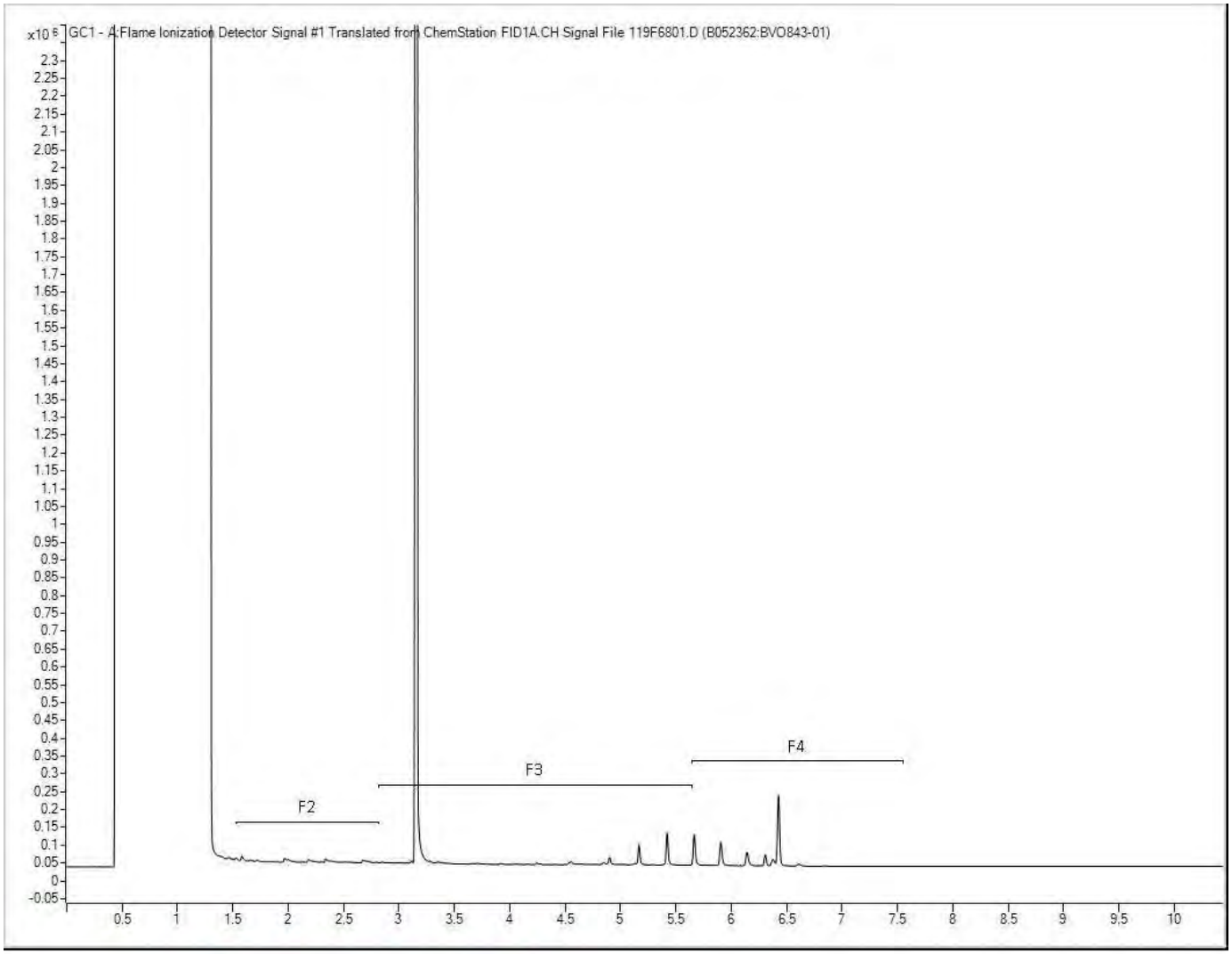
hpchem20\HPchem\1\DATA\2023\08\RUN0803

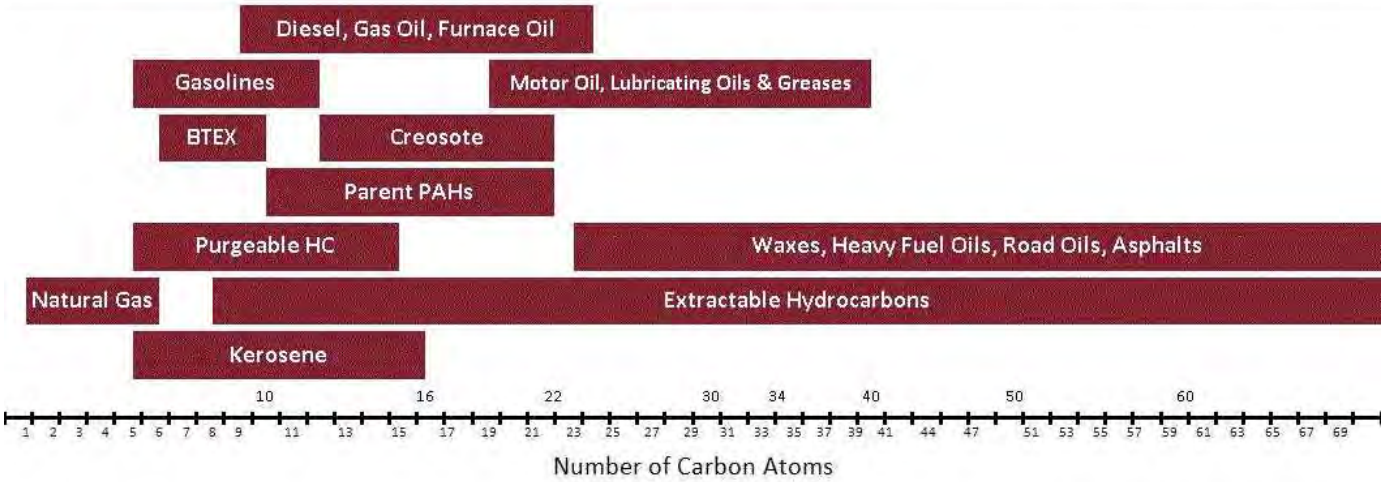
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357512
Report Date: 2023/10/27
Bureau Veritas Sample: BVO843

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14TH AVE, NW, CALGARY
Client ID: BH4003A

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





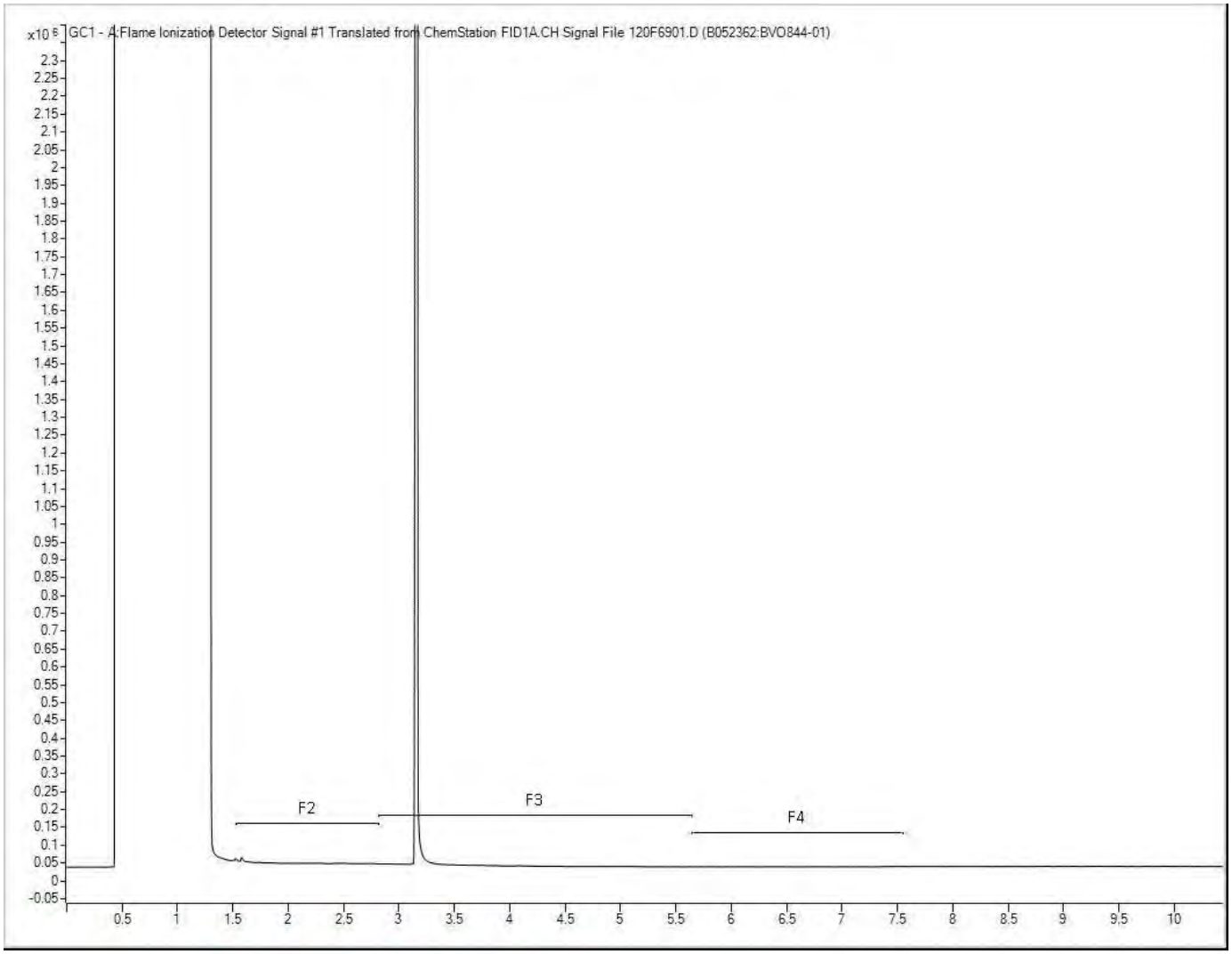
hpchem20\HPchem\1\DATA\2023\08\RUN0803

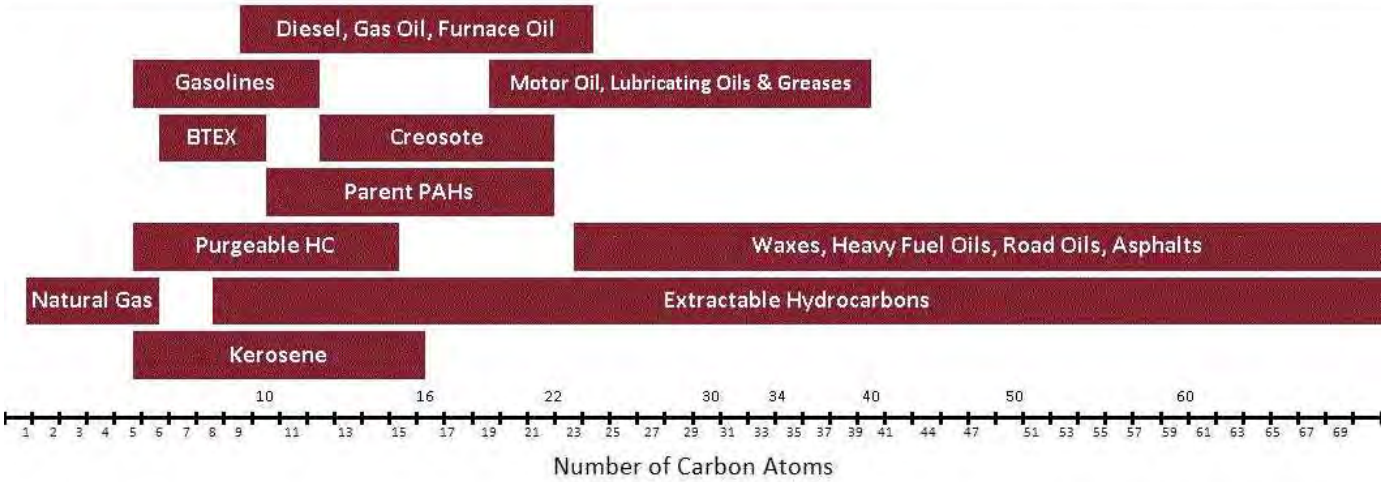
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357512
Report Date: 2023/10/27
Bureau Veritas Sample: BVO844

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14TH AVE, NW, CALGARY
Client ID: BH1985

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





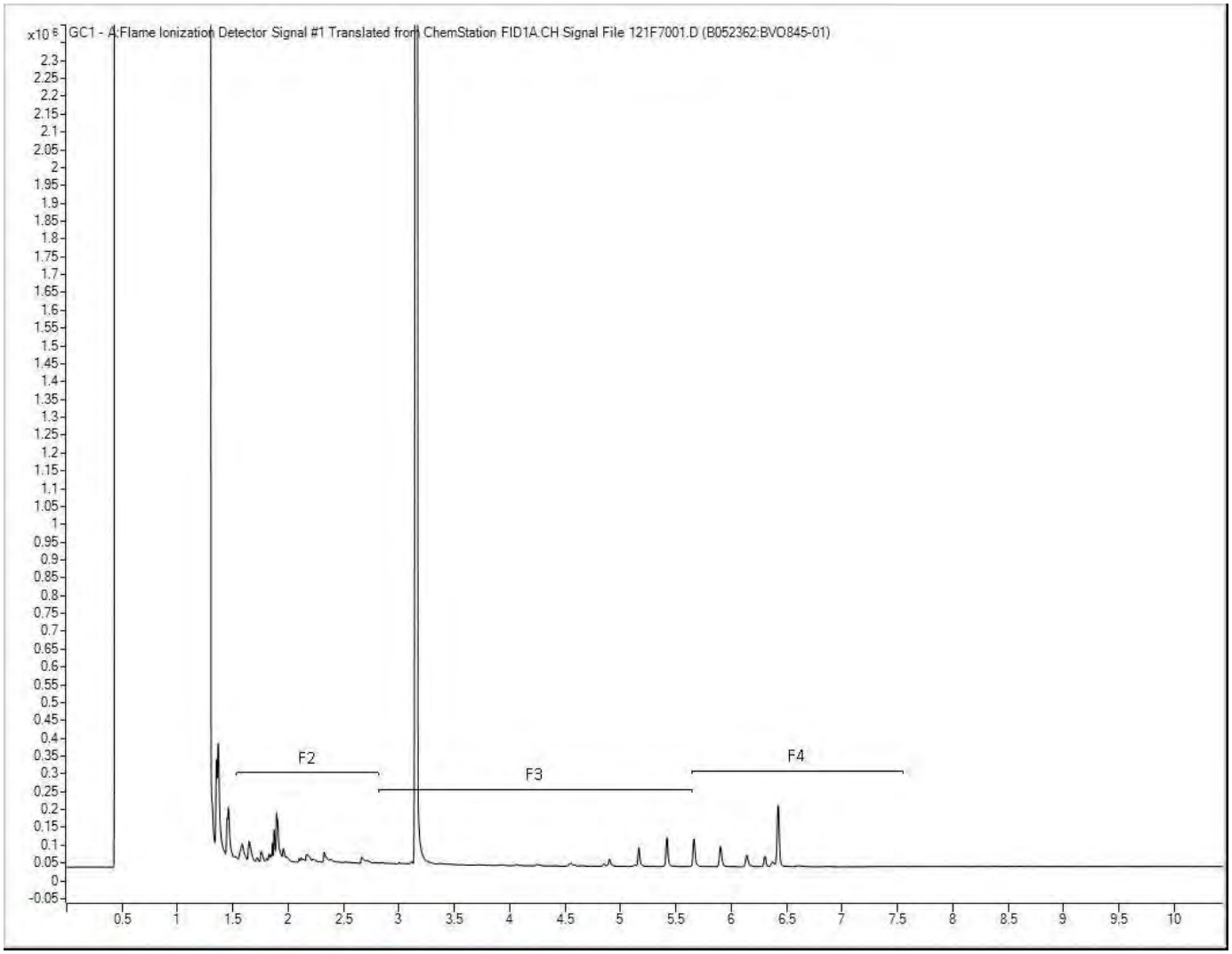
hpchem20\HPchem\1\DATA\2023\08\RUN0803

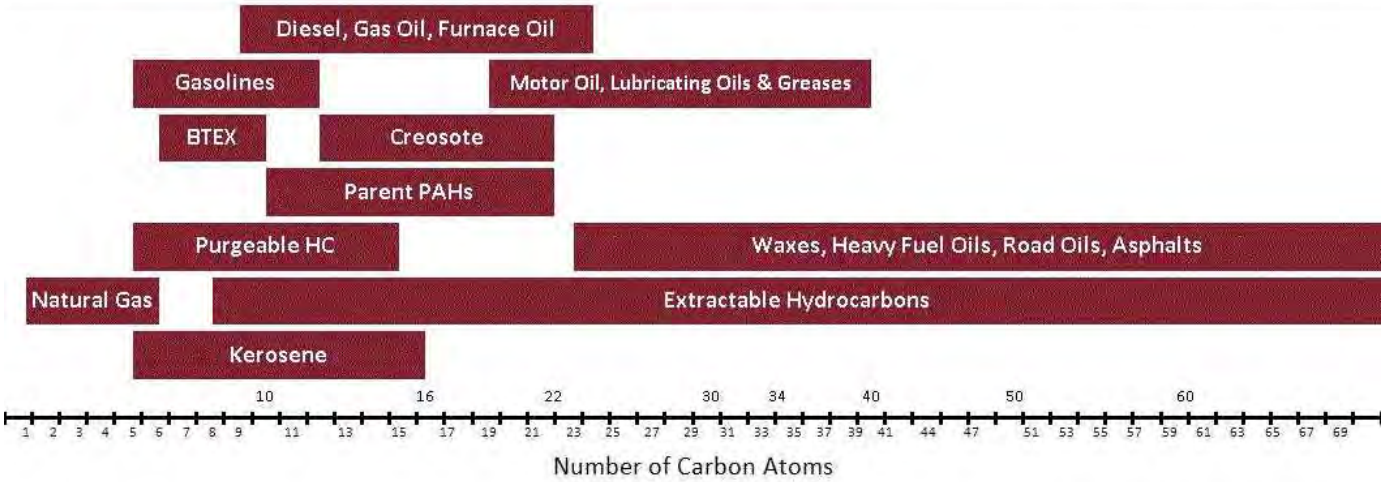
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357512
Report Date: 2023/10/27
Bureau Veritas Sample: BVO845

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14TH AVE, NW, CALGARY
Client ID: BH4002

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





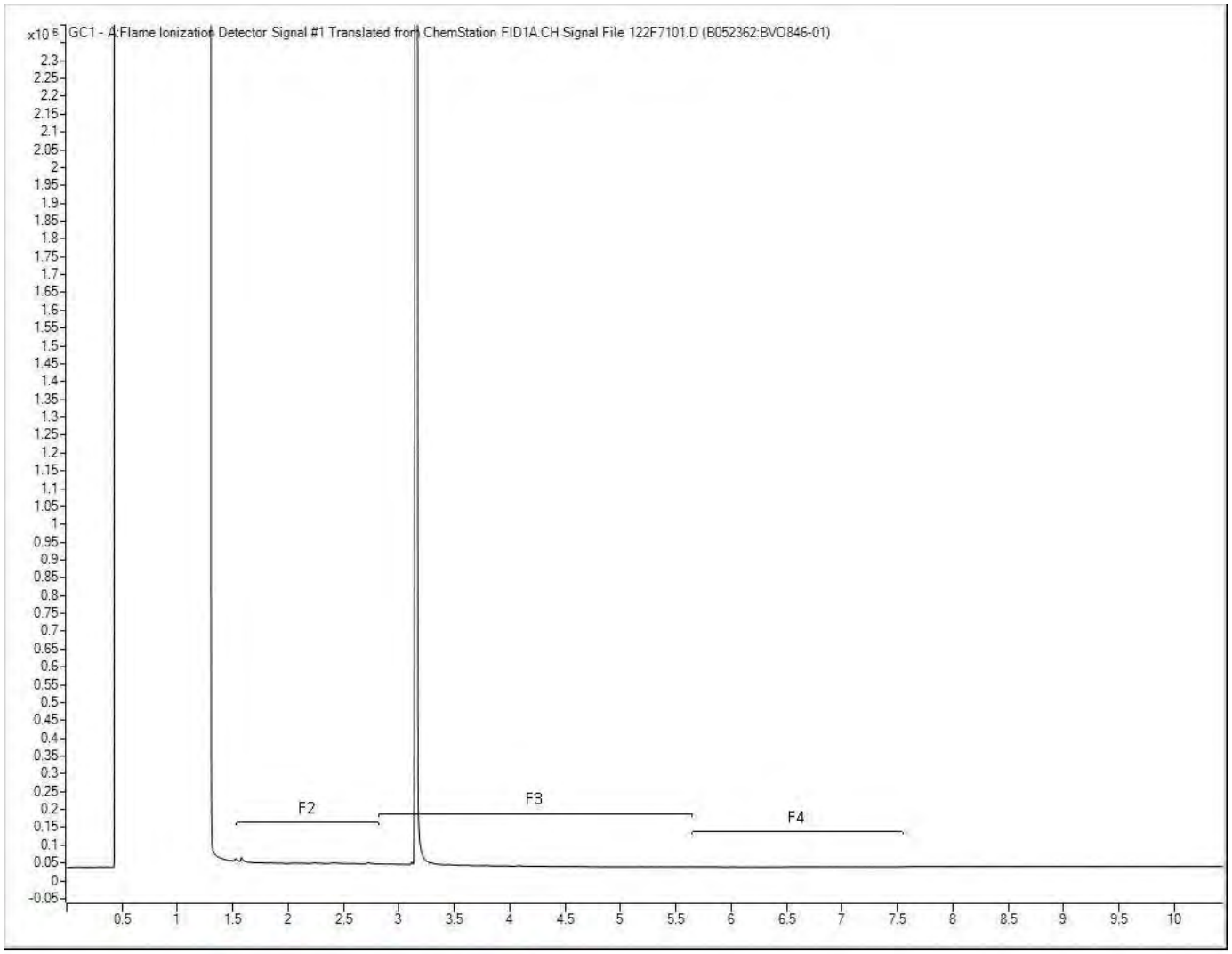
hpchem20\HPchem\1\DATA\2023\08\RUN0803

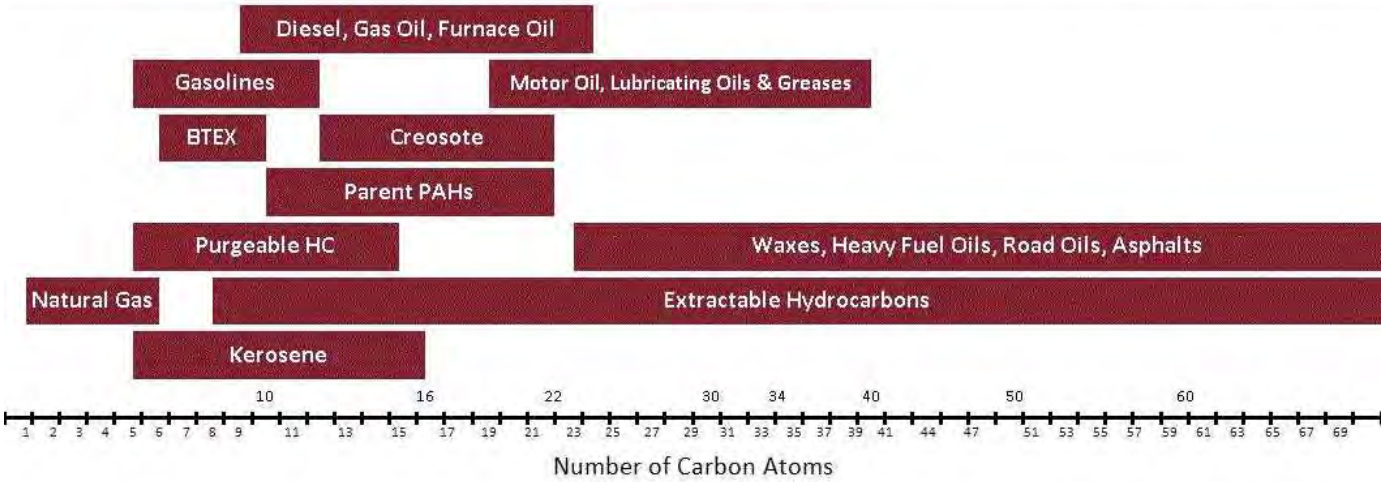
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357512
Report Date: 2023/10/27
Bureau Veritas Sample: BVO846

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14TH AVE, NW, CALGARY
Client ID: BH4008B

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





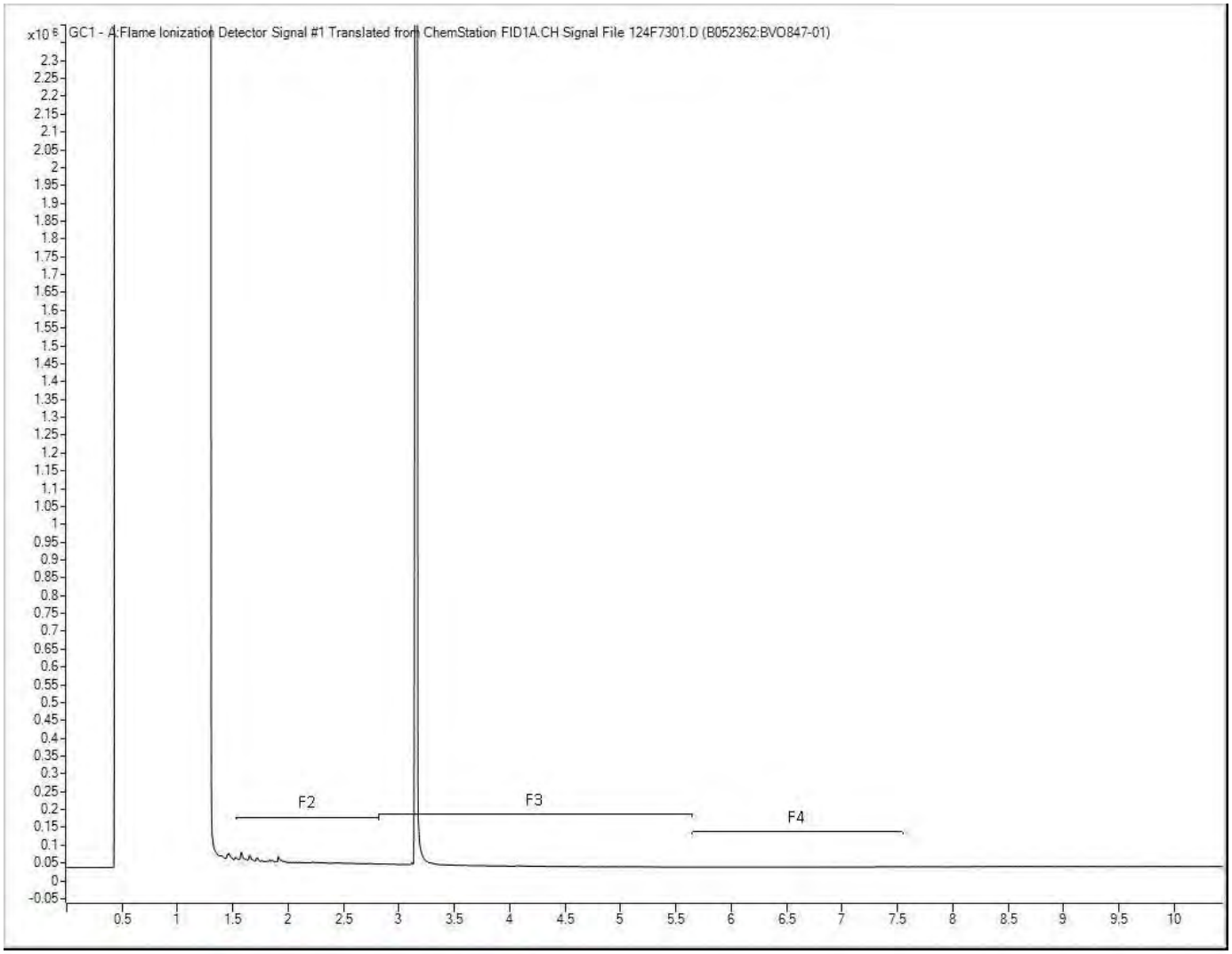
hpchem20\HPchem\1\DATA\2023\08\RUN0803

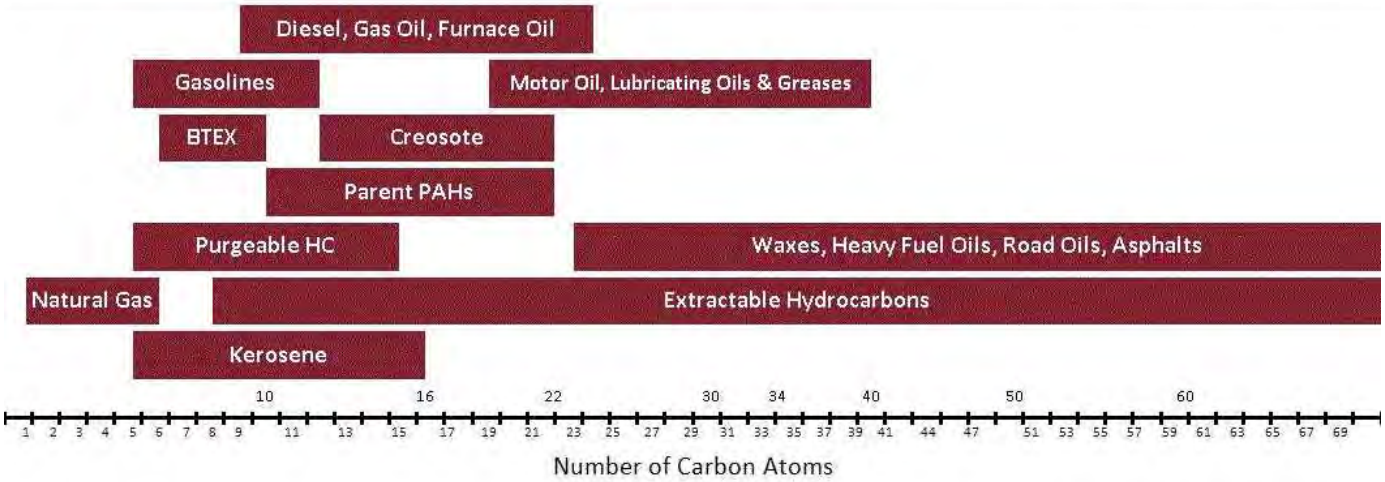
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357512
Report Date: 2023/10/27
Bureau Veritas Sample: BVO847

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14TH AVE, NW, CALGARY
Client ID: BH4007

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





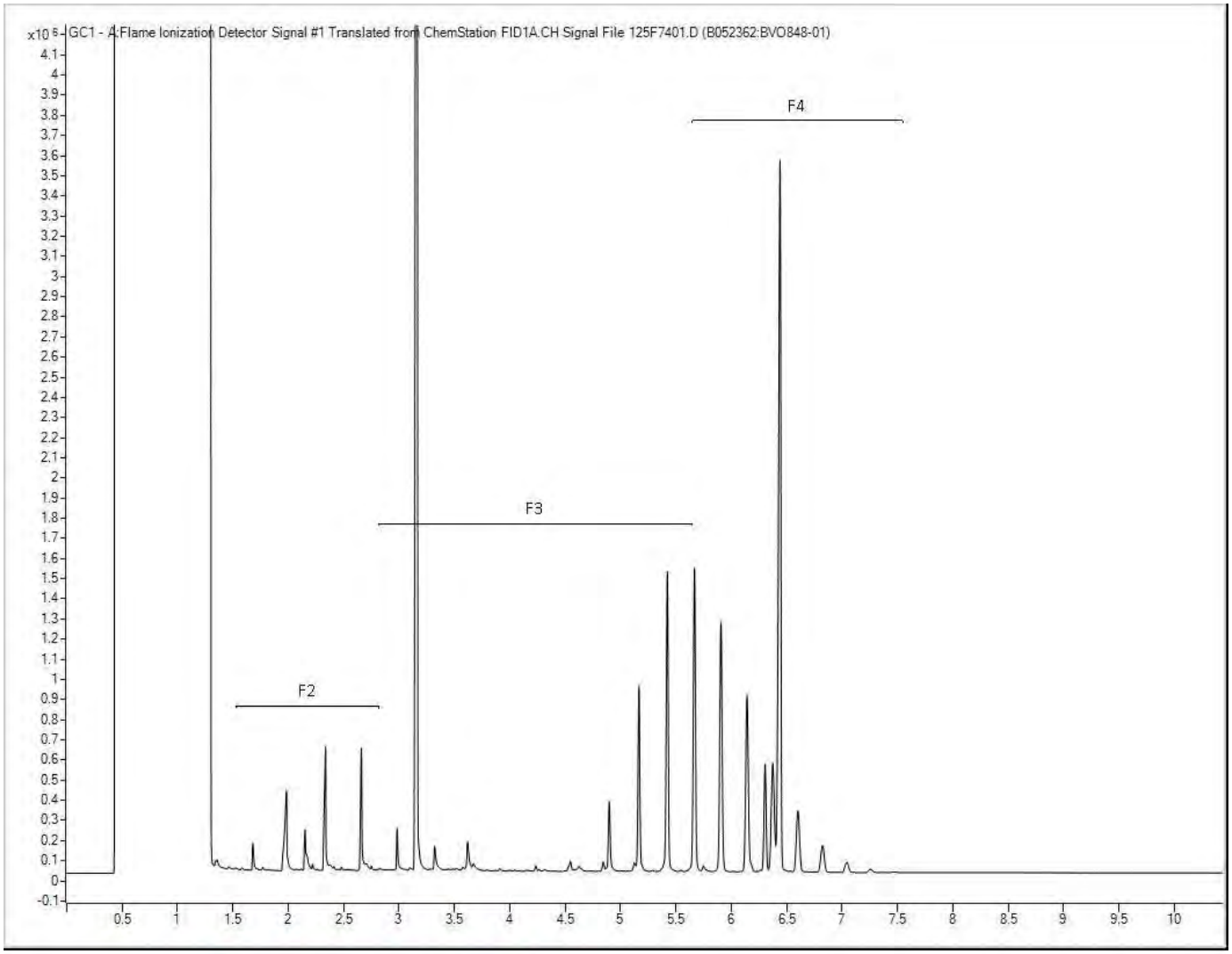
hpchem20\HPchem\1\DATA\2023\08\RUN0803

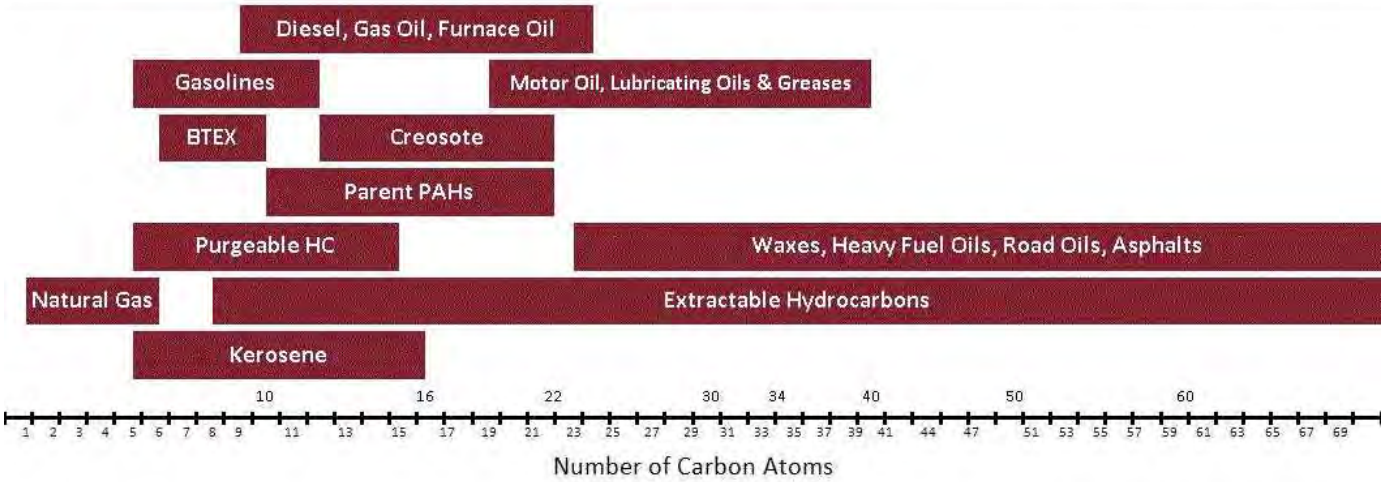
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357512
Report Date: 2023/10/27
Bureau Veritas Sample: BVO848

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14TH AVE, NW, CALGARY
Client ID: BH4009A

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





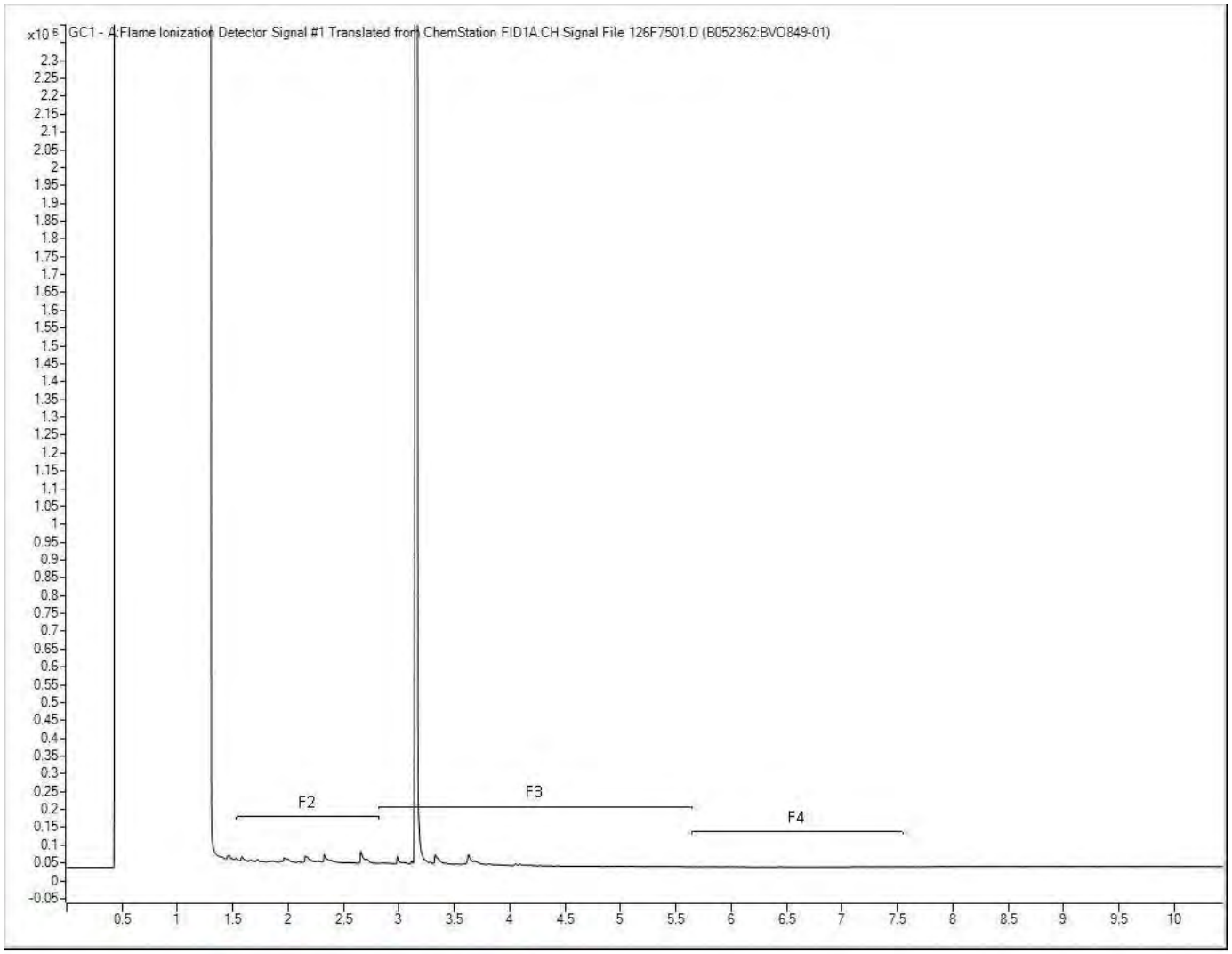
hpchem20\HPchem\1\DATA\2023\08\RUN0803

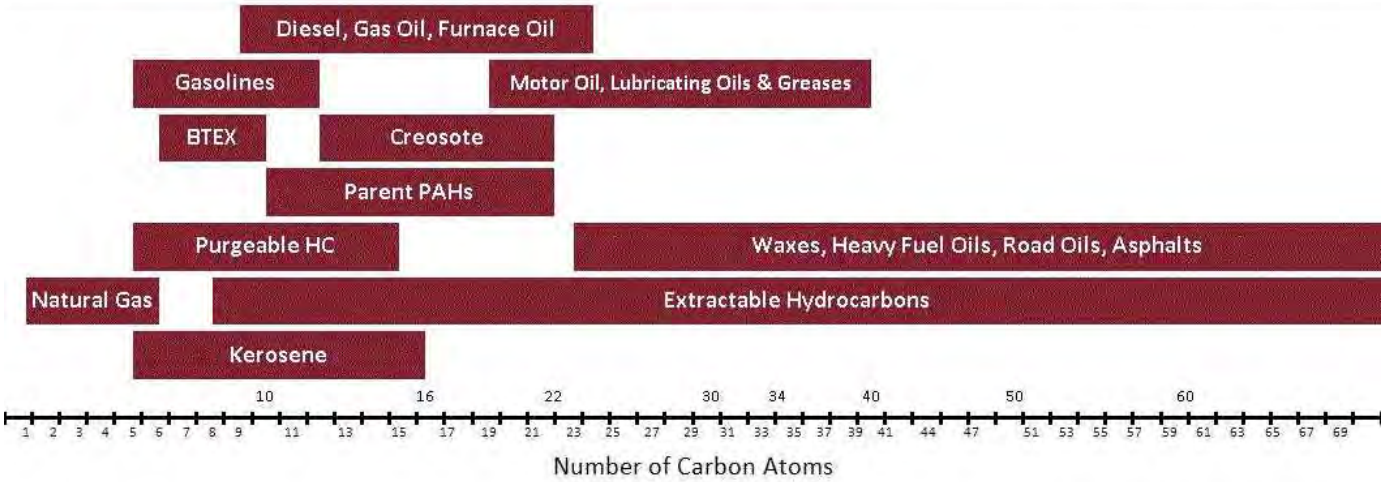
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357512
Report Date: 2023/10/27
Bureau Veritas Sample: BVO849

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14TH AVE, NW, CALGARY
Client ID: BH4006

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





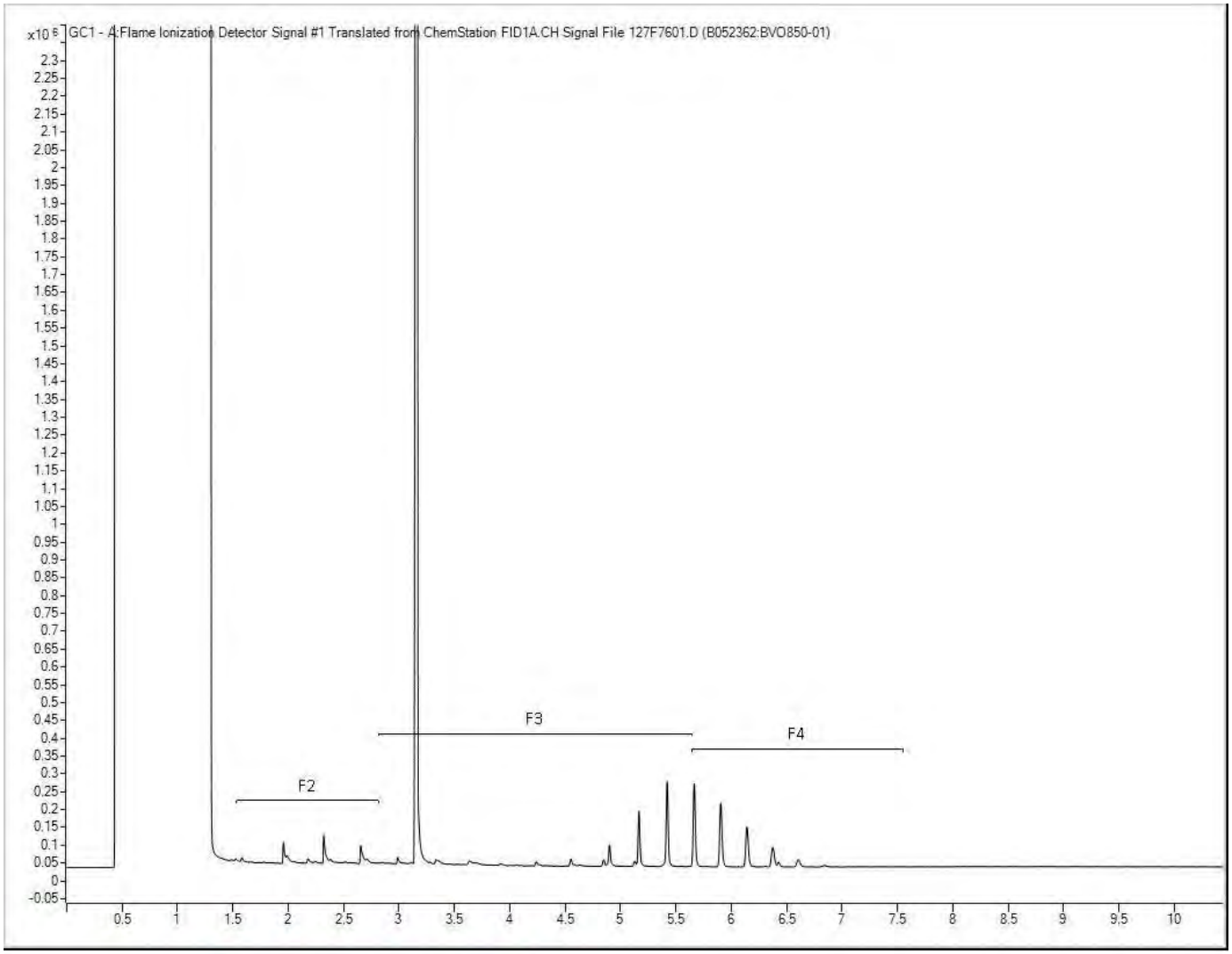
hpchem20\HPchem\1\DATA\2023\08\RUN0803

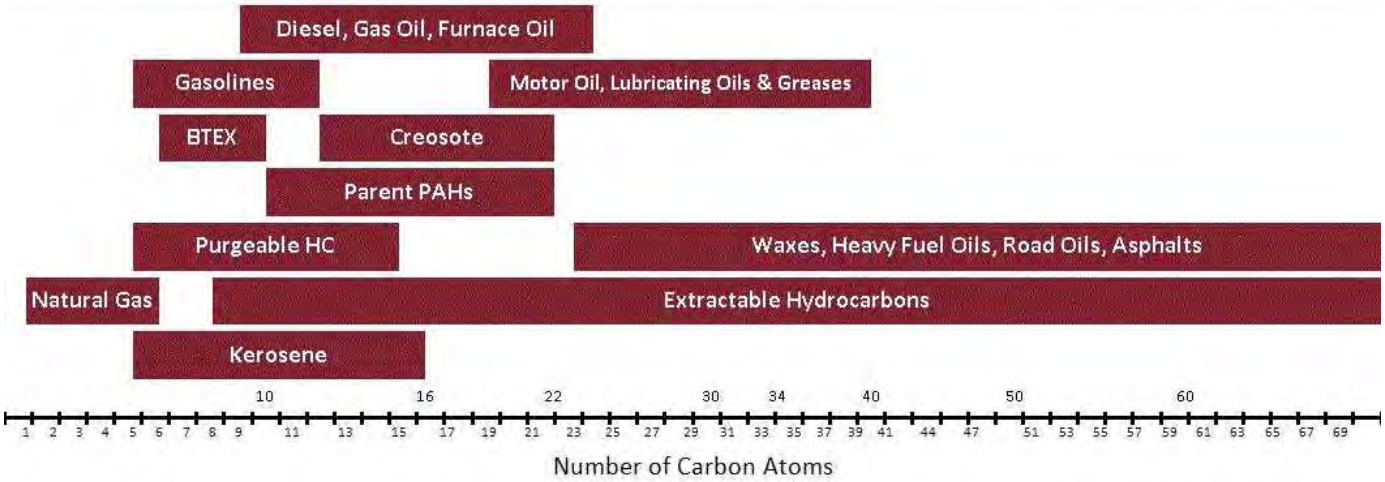
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357512
Report Date: 2023/10/27
Bureau Veritas Sample: BVO850

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14TH AVE, NW, CALGARY
Client ID: BH4005

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





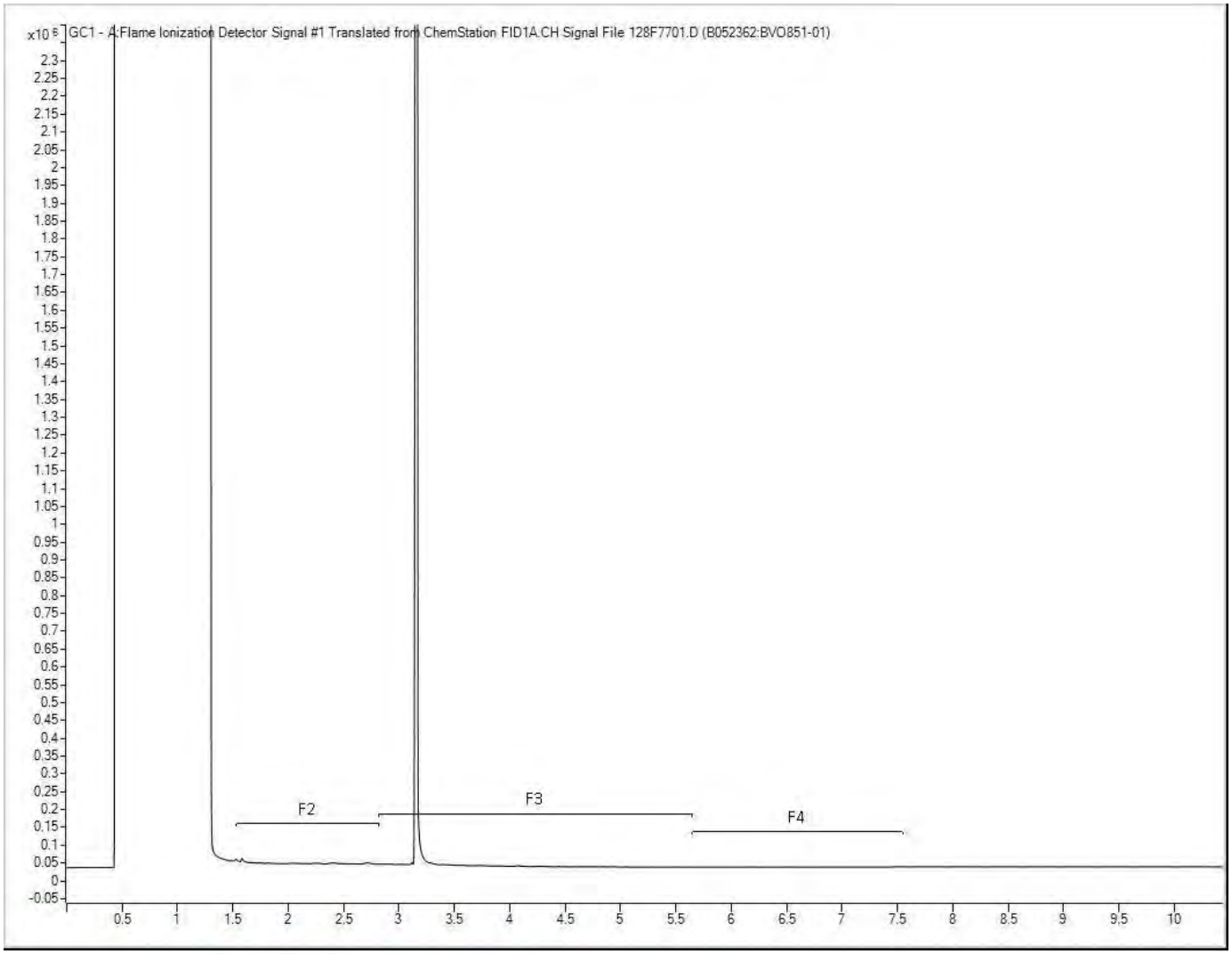
hpchem20\HPchem\1\DATA\2023\08\RUN0803

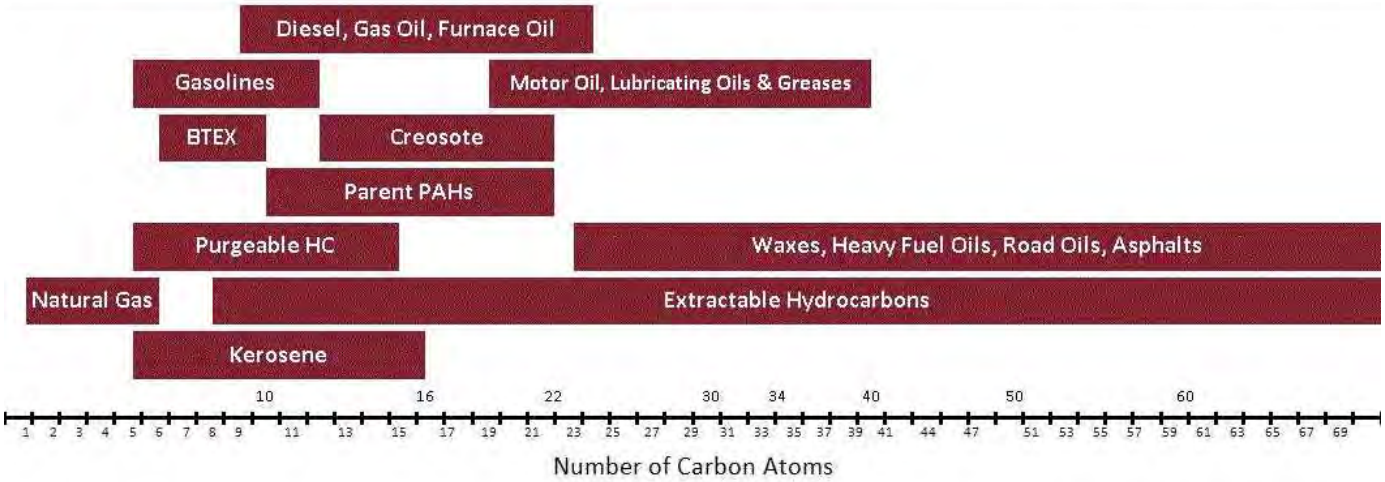
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357512
Report Date: 2023/10/27
Bureau Veritas Sample: BVO851

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14TH AVE, NW, CALGARY
Client ID: BH4004A

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





hpchem20\HPchem\1\DATA\2023\08\RUN0803

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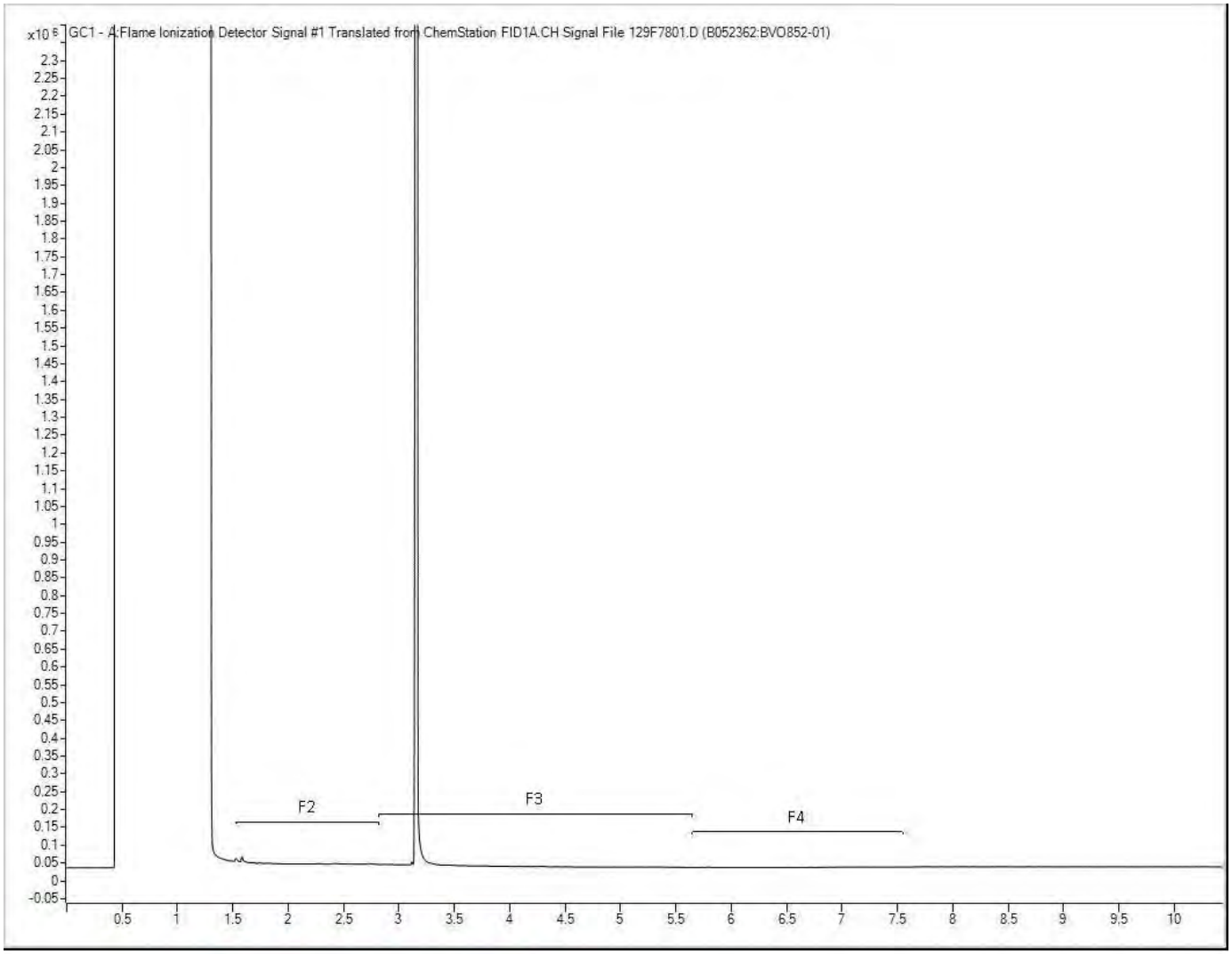
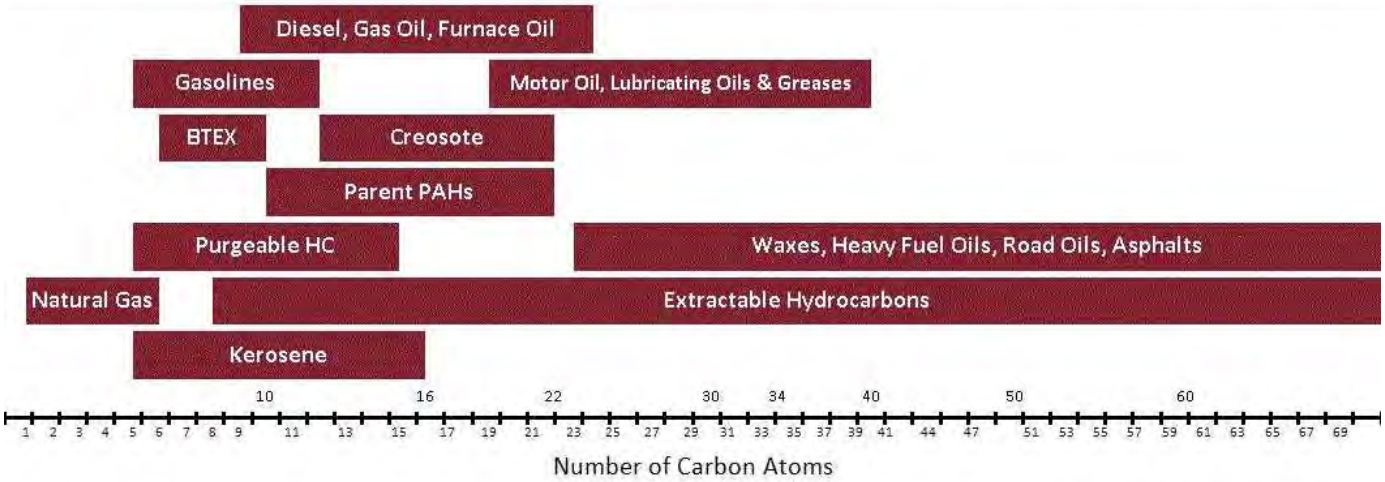
Bureau Veritas Job #: C357512
Report Date: 2023/10/27
Bureau Veritas Sample: BVO852

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14TH AVE, NW, CALGARY
Client ID: BH4004B

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





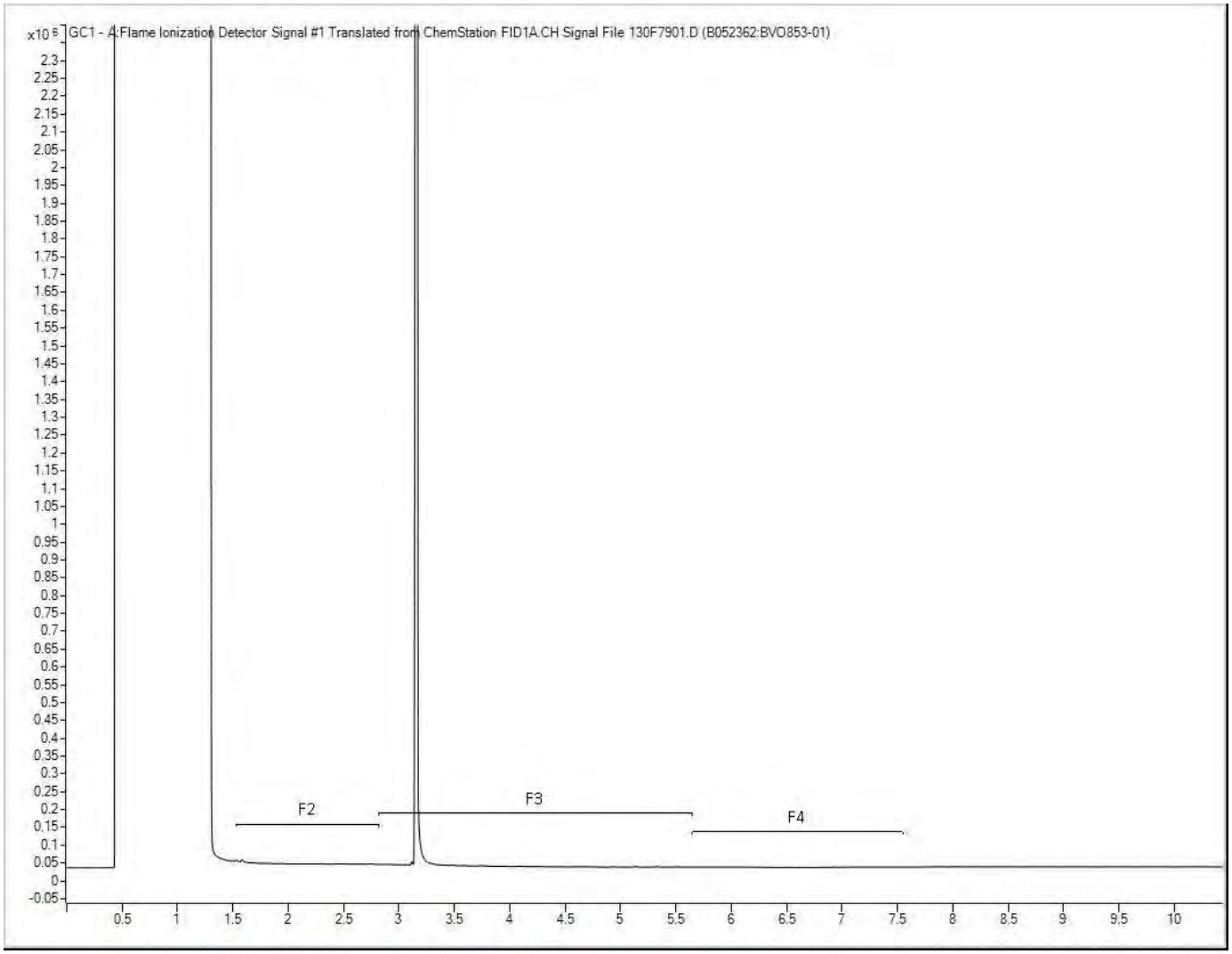
hpchem20\HPchem\1\DATA\2023\08\RUN0803

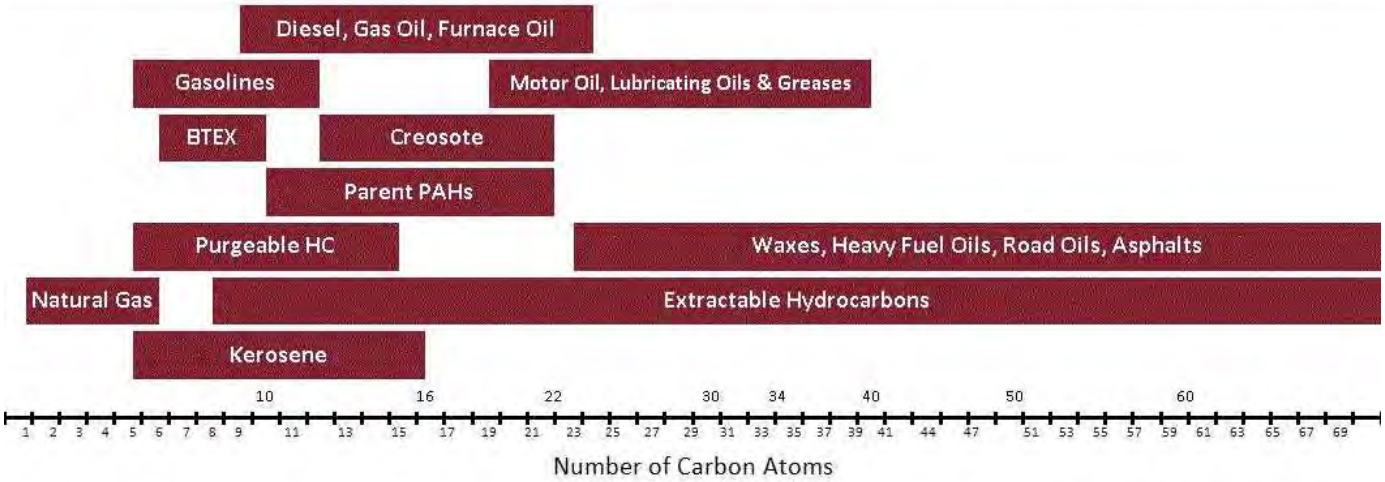
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357512
Report Date: 2023/10/27
Bureau Veritas Sample: BVO853

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14TH AVE, NW, CALGARY
Client ID: DUP-13

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





hpchem20\HPchem\1\DATA\2023\08\RUN0803

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

DATA QUALITY REVIEW CHECKLIST

Consultant: *Parsons Inc.*

Sampling Date: *2023/7/26*

Location: *1620 14 AVE NW, CALGARY*

Laboratory : *Bureau Veritas, Calgary, AB*

Consultant Project Number: *10-12832*

Sample Submission Number: *C357524*

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
Field Blank Concentration	*X*			*All field QC samples have met the acceptable RPD limits.*
Trip Blank Concentration	*X*			
Field Duplicate RPD			*X*	

Has CoA been signed off (Yes/No)?:	*Yes*
Has lab warranted all tests were in statistical control in CoA (Yes/No)?:	*Yes*
Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?:	*Yes*
Were all samples analyzed within hold times (Yes/No)?:	*Yes*
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): *Mackenzie Robart*

Reviewed by (Print): *Michelle Patterson*

Reviewed date: *2023/10/03*

Reviewed by (Signature):

Your P.O. #: 478621.17102
Your Project #: 10-12832
Site#: 9445
Site Location: 1620 14 AVE NW CALGARY
Your C.O.C. #: 699821-17-01, 699821-16-01

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/08/05
Report #: R3376964
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C357524
Received: 2023/07/26, 15:19

Sample Matrix: Water
Samples Received: 11

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/F1 in Water by HS GC/MS/FID	11	N/A	2023/08/01	AB SOP-00039	CCME CWS/EPA 8260d m
F1-BTEX	11	N/A	2023/08/02		Auto Calc
CCME Hydrocarbons in Water (F2; C10-C16) (1)	6	2023/08/03	2023/08/03	AB SOP-00037 AB SOP-00040	CCME PHC-CWS m
CCME Hydrocarbons in Water (F2; C10-C16) (1)	3	2023/08/03	2023/08/04	AB SOP-00037 AB SOP-00040	CCME PHC-CWS m
CCME Hydrocarbons in Water (F2; C10-C16) (1)	2	2023/08/04	2023/08/04	AB SOP-00037 AB SOP-00040	CCME PHC-CWS m
VOCs in Water by HS GC/MS (Std List)	11	N/A	2023/08/01	AB SOP-00056	EPA 5021a/8260d m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Silica gel clean up employed.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Your P.O. #: 478621.17102
Your Project #: 10-12832
Site#: 9445
Site Location: 1620 14 AVE NW CALGARY
Your C.O.C. #: 699821-17-01, 699821-16-01

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/08/05
Report #: R3376964
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C357524
Received: 2023/07/26, 15:19

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Parminder Virk, Key Account Specialist
Email: Parminder.Virk@bureauveritas.com
Phone# (403)735-2235
==========
This report has been generated and distributed using a secure automated process.
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Scott Cantwell, General Manager responsible for Alberta Environmental laboratory operations.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C357524
Report Date: 2023/08/05

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14 AVE NW CALGARY
Your P.O. #: 478621.17102
Sampler Initials: GC

AT1 BTEX AND F1-F2 IN WATER (WATER)

Bureau Veritas ID		BVO882	BVO883	BVO884	BVO885	BVO886	BVO887		
Sampling Date		2023/07/26 11:00	2023/07/26 11:15	2023/07/26 11:30	2023/07/26 12:15	2023/07/26 12:30	2023/07/26 12:45		
COC Number		699821-17-01	699821-17-01	699821-17-01	699821-17-01	699821-17-01	699821-17-01		
	UNITS	**BH1933**	**BH912**	**BH1981**	**BH1935**	**BH1934**	**BH1951**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	B052363
Volatiles									
Benzene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	B053253
Toluene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	B053253
Ethylbenzene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	B053253
m & p-Xylene	mg/L	<0.00080	<0.00080	<0.00080	<0.00080	<0.00080	<0.00080	0.00080	B053253
o-Xylene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	B053253
Xylenes (Total)	mg/L	<0.00089	<0.00089	<0.00089	<0.00089	<0.00089	<0.00089	0.00089	B051947
F1 (C6-C10) - BTEX	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	B051947
F1 (C6-C10)	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	B053253
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	97	97	96	104	103	99		B053253
4-Bromofluorobenzene (sur.)	%	99	97	98	95	99	99		B053253
D4-1,2-Dichloroethane (sur.)	%	110	104	117	93	93	106		B053253
O-TERPHENYL (sur.)	%	108	102	93	99	100	101		B052363
RDL = Reportable Detection Limit									

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C357524
Report Date: 2023/08/05

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14 AVE NW CALGARY
Your P.O. #: 478621.17102
Sampler Initials: GC

AT1 BTEX AND F1-F2 IN WATER (WATER)

Bureau Veritas ID		BVO888	BVO889	BVO890		BVO891	BVO893		
Sampling Date		2023/07/26 13:00	2023/07/26 13:15	2023/07/26 13:30		2023/07/26 13:45	2023/07/26 14:00		
COC Number		699821-17-01	699821-17-01	699821-17-01		699821-17-01	699821-16-01		
	UNITS	**BH1954**	**BH2012**	**EB-BAILER-02**	**QC Batch**	**EB-HYDRA-02**	**TRIP BLANK-07**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	<0.10	<0.10	B052363	<0.10	<0.10	0.10	B052364
Volatiles									
Benzene	mg/L	<0.00040	<0.00040	<0.00040	B053253	<0.00040	<0.00040	0.00040	B053253
Toluene	mg/L	<0.00040	<0.00040	<0.00040	B053253	<0.00040	<0.00040	0.00040	B053253
Ethylbenzene	mg/L	<0.00040	<0.00040	<0.00040	B053253	<0.00040	<0.00040	0.00040	B053253
m & p-Xylene	mg/L	<0.00080	<0.00080	<0.00080	B053253	<0.00080	<0.00080	0.00080	B053253
o-Xylene	mg/L	<0.00040	<0.00040	<0.00040	B053253	<0.00040	<0.00040	0.00040	B053253
Xylenes (Total)	mg/L	<0.00089	<0.00089	<0.00089	B051947	<0.00089	<0.00089	0.00089	B051947
F1 (C6-C10) - BTEX	mg/L	<0.10	<0.10	<0.10	B051947	<0.10	<0.10	0.10	B051947
F1 (C6-C10)	mg/L	<0.10	<0.10	<0.10	B053253	<0.10	<0.10	0.10	B053253
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	103	103	104	B053253	103	104		B053253
4-Bromofluorobenzene (sur.)	%	96	94	95	B053253	96	94		B053253
D4-1,2-Dichloroethane (sur.)	%	95	94	95	B053253	93	94		B053253
O-TERPHENYL (sur.)	%	98	98	99	B052363	100	99		B052364
RDL = Reportable Detection Limit									

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C357524
Report Date: 2023/08/05

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14 AVE NW CALGARY
Your P.O. #: 478621.17102
Sampler Initials: GC

VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		BVO882	BVO883	BVO884	BVO885	BVO886	BVO887		
Sampling Date		2023/07/26 11:00	2023/07/26 11:15	2023/07/26 11:30	2023/07/26 12:15	2023/07/26 12:30	2023/07/26 12:45		
COC Number		699821-17-01	699821-17-01	699821-17-01	699821-17-01	699821-17-01	699821-17-01		
	UNITS	**BH1933**	**BH912**	**BH1981**	**BH1935**	**BH1934**	**BH1951**	**RDL**	**QC Batch**
Volatiles									
1,2-dichloroethane	mg/L	<0.00050	0.00067	0.030	<0.00050	<0.00050	<0.00050	0.00050	B053260
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	94	94	94	94	94	95		B053260
4-Bromofluorobenzene (sur.)	%	93	93	93	93	93	93		B053260
D4-1,2-Dichloroethane (sur.)	%	110	114	108	112	114	111		B053260
RDL = Reportable Detection Limit									

Bureau Veritas ID		BVO888	BVO889	BVO890	BVO891	BVO893		
Sampling Date		2023/07/26 13:00	2023/07/26 13:15	2023/07/26 13:30	2023/07/26 13:45	2023/07/26 14:00		
COC Number		699821-17-01	699821-17-01	699821-17-01	699821-17-01	699821-16-01		
	UNITS	**BH1954**	**BH2012**	**EB-BAILER-02**	**EB-HYDRA-02**	**TRIP BLANK-07**	**RDL**	**QC Batch**
Volatiles								
1,2-dichloroethane	mg/L	0.010	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	B053260
Surrogate Recovery (%)								
1,4-Difluorobenzene (sur.)	%	95	95	93	94	93		B053260
4-Bromofluorobenzene (sur.)	%	92	93	93	93	94		B053260
D4-1,2-Dichloroethane (sur.)	%	108	113	115	109	126		B053260
RDL = Reportable Detection Limit								

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Bureau Veritas Job #: C357524
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PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14 AVE NW CALGARY
Your P.O. #: 478621.17102
Sampler Initials: GC

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	12.0°C

Results relate only to the items tested.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C357524
Report Date: 2023/08/05

QUALITY ASSURANCE REPORT

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14 AVE NW CALGARY
Your P.O. #: 478621.17102
Sampler Initials: GC

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
B052363	O-TERPHENYL (sur.)	2023/08/03			92	60 - 140	95	%		
B052364	O-TERPHENYL (sur.)	2023/08/04			100	60 - 140	97	%		
B053253	1,4-Difluorobenzene (sur.)	2023/08/01	97	50 - 140	104	50 - 140	105	%		
B053253	4-Bromofluorobenzene (sur.)	2023/08/01	99	50 - 140	96	50 - 140	99	%		
B053253	D4-1,2-Dichloroethane (sur.)	2023/08/01	116	50 - 140	94	50 - 140	94	%		
B053260	1,4-Difluorobenzene (sur.)	2023/08/01	102	50 - 140	102	50 - 140	93	%		
B053260	4-Bromofluorobenzene (sur.)	2023/08/01	101	50 - 140	101	50 - 140	92	%		
B053260	D4-1,2-Dichloroethane (sur.)	2023/08/01	102	50 - 140	96	50 - 140	107	%		
B052363	F2 (C10-C16 Hydrocarbons)	2023/08/03			94	60 - 140	<0.10	mg/L		
B052364	F2 (C10-C16 Hydrocarbons)	2023/08/04			93	60 - 140	<0.10	mg/L		
B053253	Benzene	2023/08/01	75	50 - 140	80	60 - 130	<0.00040	mg/L	NC	30
B053253	Ethylbenzene	2023/08/01	73	50 - 140	84	60 - 130	<0.00040	mg/L	NC	30
B053253	F1 (C6-C10)	2023/08/01	62	60 - 140	95	60 - 140	<0.10	mg/L	NC	30
B053253	m & p-Xylene	2023/08/01	75	50 - 140	86	60 - 130	<0.00080	mg/L	NC	30
B053253	o-Xylene	2023/08/01	78	50 - 140	85	60 - 130	<0.00040	mg/L	NC	30
B053253	Toluene	2023/08/01	73	50 - 140	82	60 - 130	<0.00040	mg/L	NC	30
B053260	1,2-dichloroethane	2023/08/01	97	50 - 140	93	60 - 130	<0.00050	mg/L	1.8	30

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

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

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

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

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

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

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C357524
Report Date: 2023/08/05

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14 AVE NW CALGARY
Your P.O. #: 478621.17102
Sampler Initials: GC

VALIDATION SIGNATURE PAGE

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

Gita Pokhrel, Laboratory Supervisor

Qiliang (Alex) Wu, Senior Analyst

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

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Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas
4000 19st N.E. Calgary, Alberta Canada T2E 6P8 Tel.(403) 291-3077 Toll-free:800-563-6266 Fax:(403) 291-9468 www.bvna.com

CHAIN OF CUSTODY RECORD

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#11243 PARSONS INC.	Company Name:	#31652 PARSONS INC.	Quotation #:	C30805	Bureau Veritas Job #: C357524	Bottle Order #: 699821
Attention:	ACCOUNTS PAYABLE	Attention:	Rebecca Neufeld	P.O. #:	478621.17102		
Address:	2751 JOHN STREET MARKHAM ON L3R 2Y8	Address:	Unit 510, 214 - 11th Avenue SW Calgary AB T2R 0K1	Project:	10-12832	COC #: C#699821-17-01	Project Manager: Parminder Virk
Tel:	(905) 944-8877 Fax:	Tel:	Fax:	Project Name:	1620 14 avenue Calgary		
Email:	ParsonsIncAP.Parsons@parsons.com	Email:	rebecca.neufeld@parsons.com,Michelle.Patterson@par	Site #:	9445		
				Sampled By:	Gavin Clarke		

Regulatory Criteria:
- [x] ATI
- [ ] CCME
- [ ] Other

Special Instructions: Same day sampling

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects
Regular (Standard) TAT: [x]
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details
Job Specific Rush TAT (if applies to entire submission) [ ]
Date Required:
Rush Confirmation Number: (call lab for #)

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	ATI BTEX and F1-F2 in Water	1,2 Dichloroethane	Routine Water							# of Bottles	Comments
1		BH1933	July 26/23	11:00	GW		✓	✓								3	
2		BH912	↓	11:15	GW		✓	✓								3	
3		BH1981		11:30	GW		✓	✓								3	
4		BH1935		12:15	GW		✓	✓								3	
5		BH1934		12:30	GW		✓	✓								3	
6		BH1951		12:45	GW		✓	✓								3	
7		BH1954		13:00	GW		✓	✓								3	
8		BH2012		13:15	GW		✓	✓								3	
9		EB-Bailer-02	↓	13:30	GW		✓	✓								3	
10		EB-Hydra-02	July 26/23	13:45	GW		✓	✓								3	

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Laboratory Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
Gavin Clarke	23/07/26	15:00	Ekta Patel	23/07/26	15:19	Ø	[ ]	11/12/13	[x] Yes [ ] No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.
** ALL SAMPLES ARE HELD FOR 60 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

White: Bureau Veritas Yellow: Client

Ice: Yes

mcal-07-1338

1/1

Bureau Veritas Canada (2019) Inc.

Bureau Veritas
4000 19st N.E. Calgary, Alberta Canada T2E 6P8 Tel:(403) 291-3077 Toll-free 800-563-6266 Fax:(403) 291-9468 www.bvna.com

CHAIN OF CUSTODY RECORD

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#11243 PARSONS INC.	Company Name:	#31652 PARSONS INC.	Quotation #:	C30805	Bureau Veritas Job #:	Bottle Order #:
Attention:	ACCOUNTS PAYABLE	Attention:	Rebecca Neufeld	P.O. #:	478621.17102	C357524	899821
Address:	2751 JOHN STREET	Address:	Unit 510, 214 - 11th Avenue SW	Project:	10-12832	COC #:	Project Manager:
	MARKHAM ON L3R 2Y8		Calgary AB T2R 0K1	Project Name:	1620 14 Ave NW Calgary	C#699821-16-01	Parminder Virk
Tel:	(905) 944-8877 Fax:	Tel:	Fax:	Site #:	9445		
Email:	ParsonsIncAP.Parsons@parsons.com	Email:	rebecca.neufeld@parsons.com,Michelle.Patterson@par	Sampled By:	Gavin Clarke		

Regulatory Criteria:
- [x] AT1
- [ ] CCME
- [ ] Other

Special Instructions: Same Day sampling

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects
Regular (Standard) TAT: [✓]
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details
Job Specific Rush TAT (if applies to entire submission) [ ]
Date Required:
Rush Confirmation Number: *(call lab for #)*

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	AT1 BTEX and F1-F2 in Water	1,2 Dichloroethane	Routine Water							# of Bottles	Comments
1		Trip Blank-07	JUN 26/23	14:00	GW		✓	✓								3	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

*RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Laboratory Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
Gavin Clarke	23/07/26	15:00	Bhola Patel	23/07/26	15:19	0	[ ]	11/12/13	[✓] Yes [ ] No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.
** ALL SAMPLES ARE HELD FOR 60 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

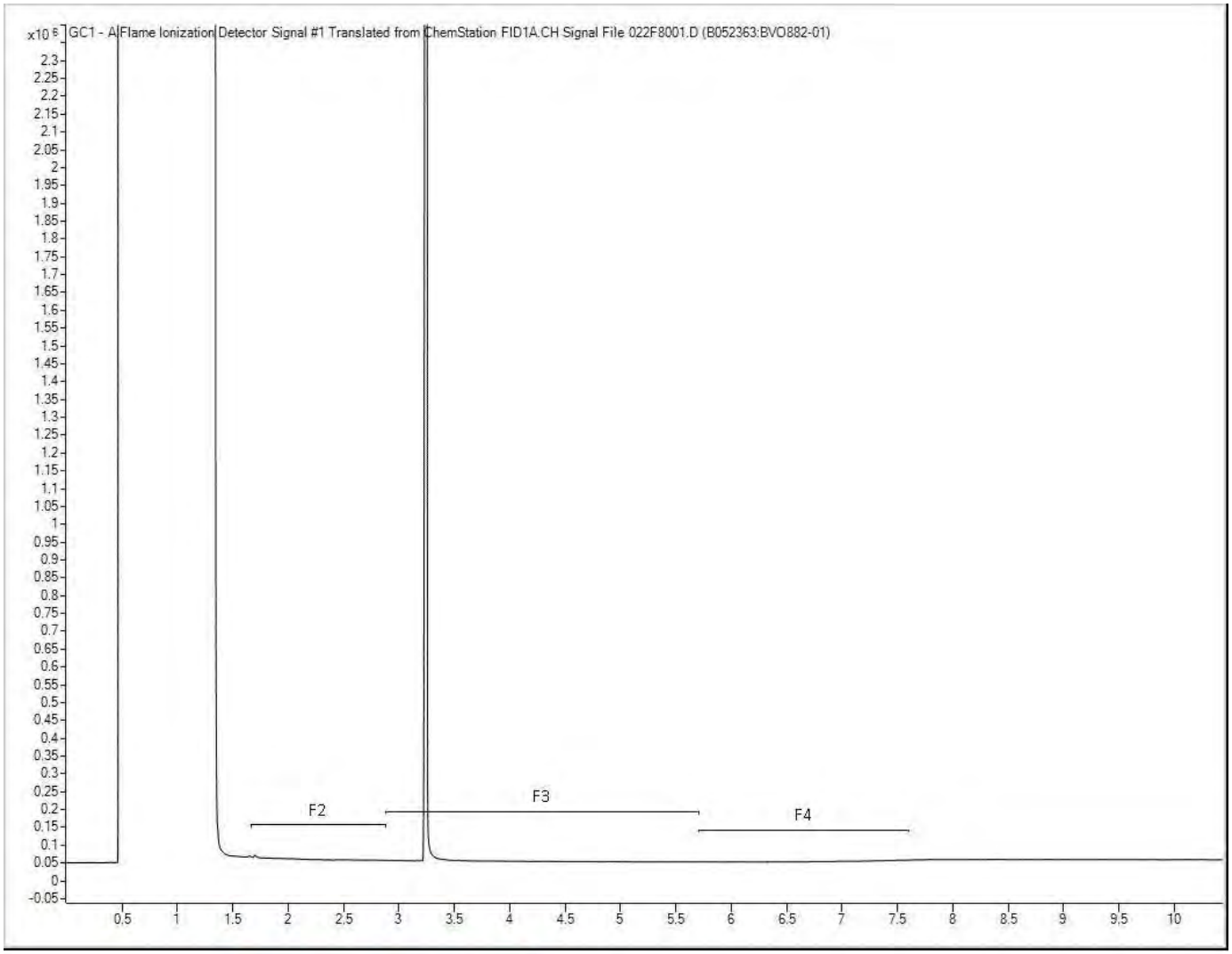
White: Bureau Veritas Yellow: Client

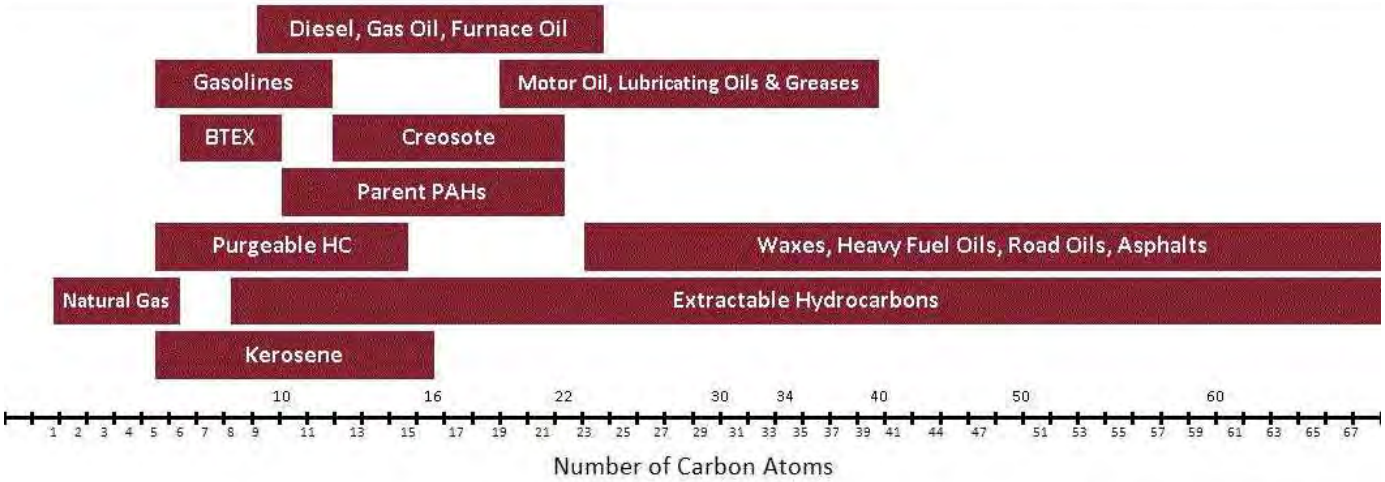
1/2 ~~No~~
Yes EPL
2023/07/26

Bureau Veritas Job #: C357524
Report Date: 2023/08/05
Bureau Veritas Sample: BVO882

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14 AVE NW CALGARY
Client ID: BH1933

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





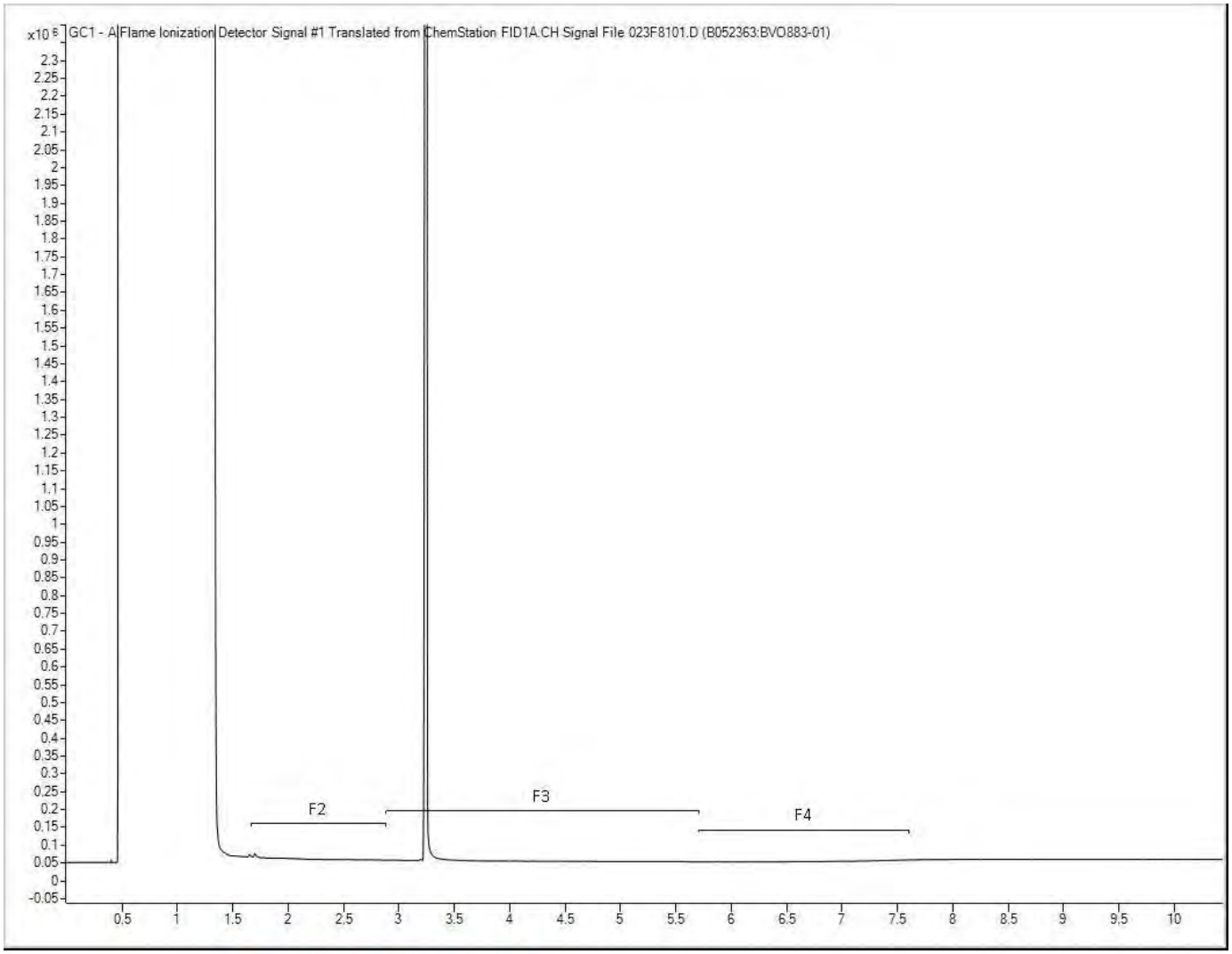
hpchem6\HPchem\1\DATA\2023\08\RUN0802

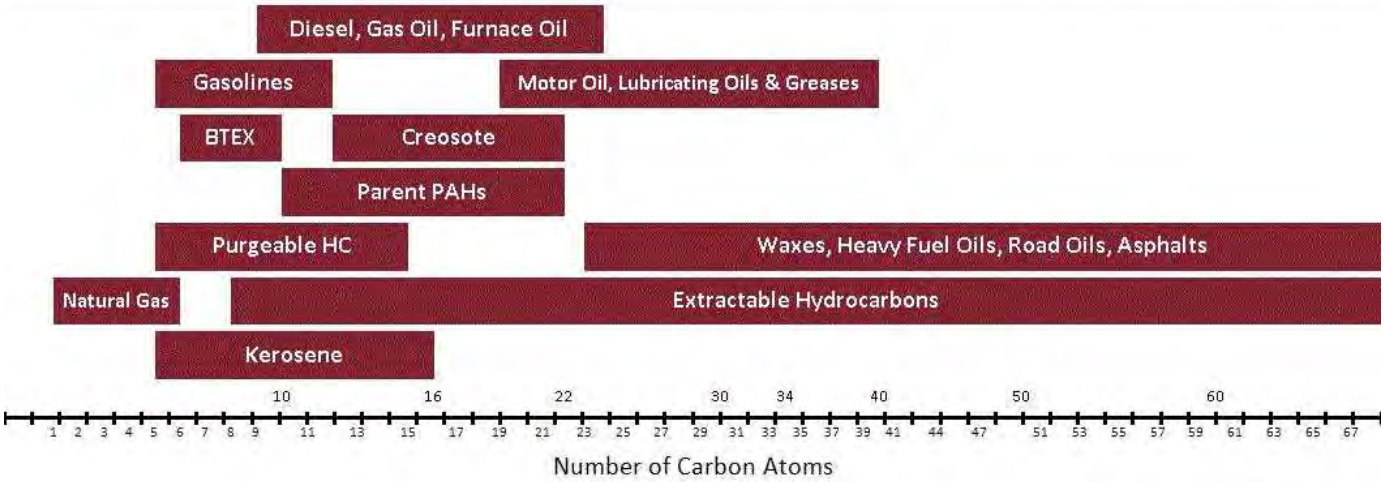
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357524
Report Date: 2023/08/05
Bureau Veritas Sample: BVO883

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14 AVE NW CALGARY
Client ID: BH912

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





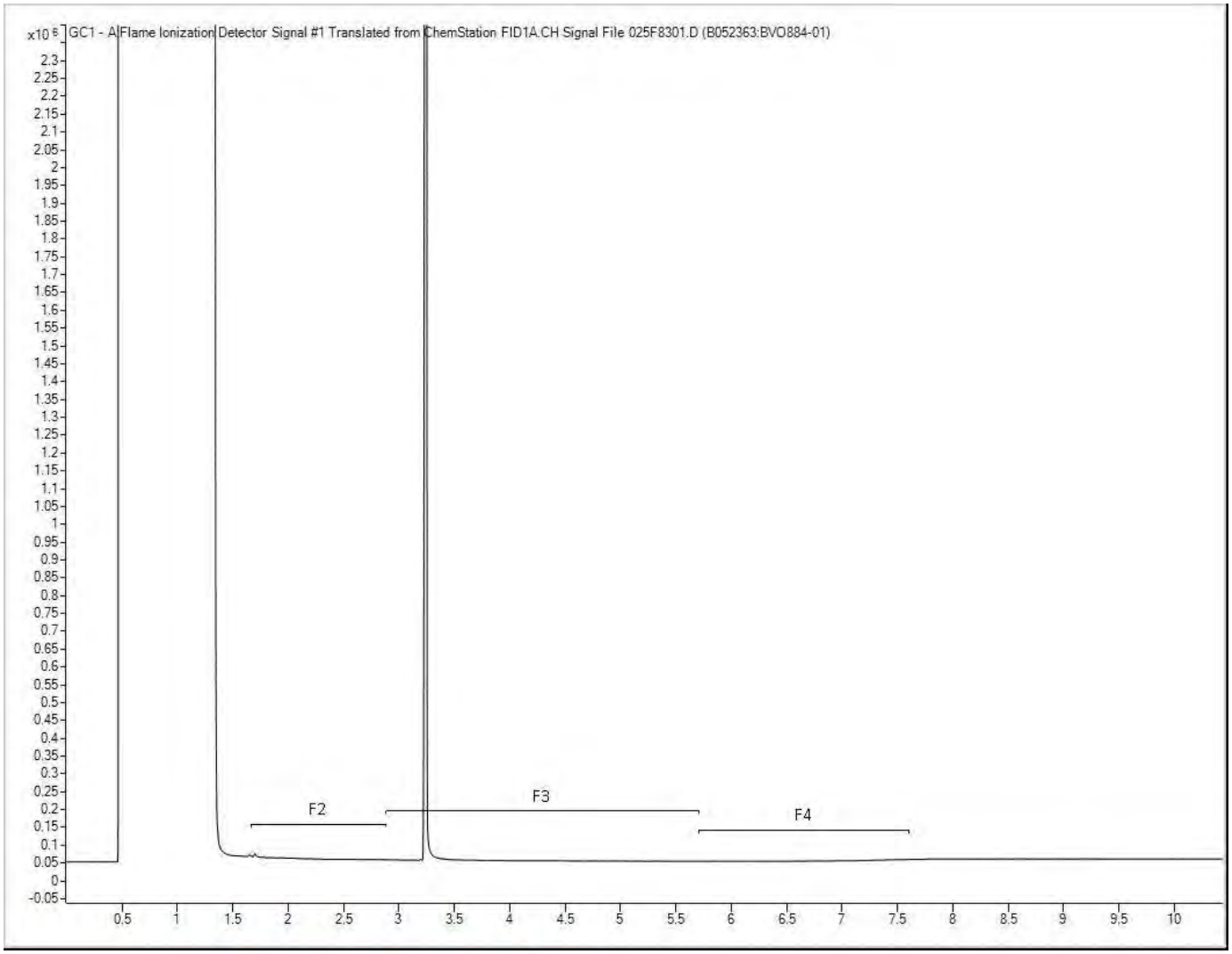
hpchem6\HPchem\1\DATA\2023\08\RUN0802

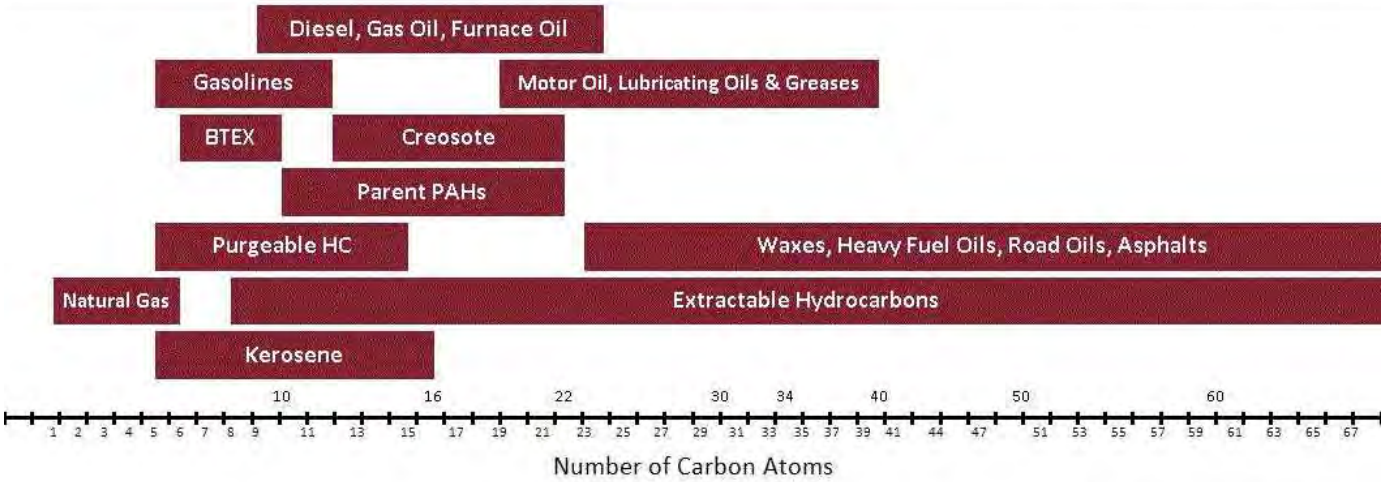
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357524
Report Date: 2023/08/05
Bureau Veritas Sample: BVO884

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14 AVE NW CALGARY
Client ID: BH1981

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





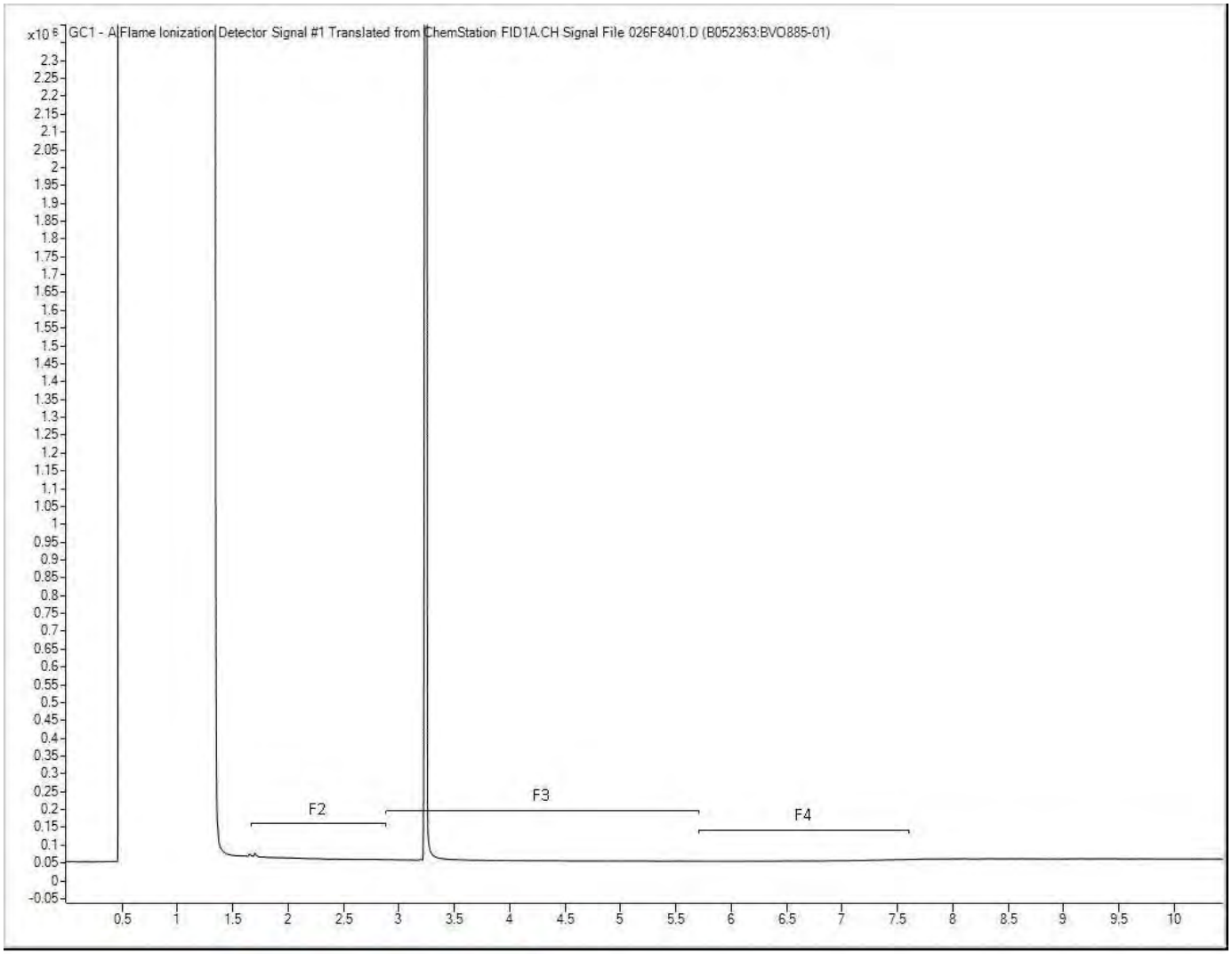
hpchem6\HPchem\1\DATA\2023\08\RUN0802

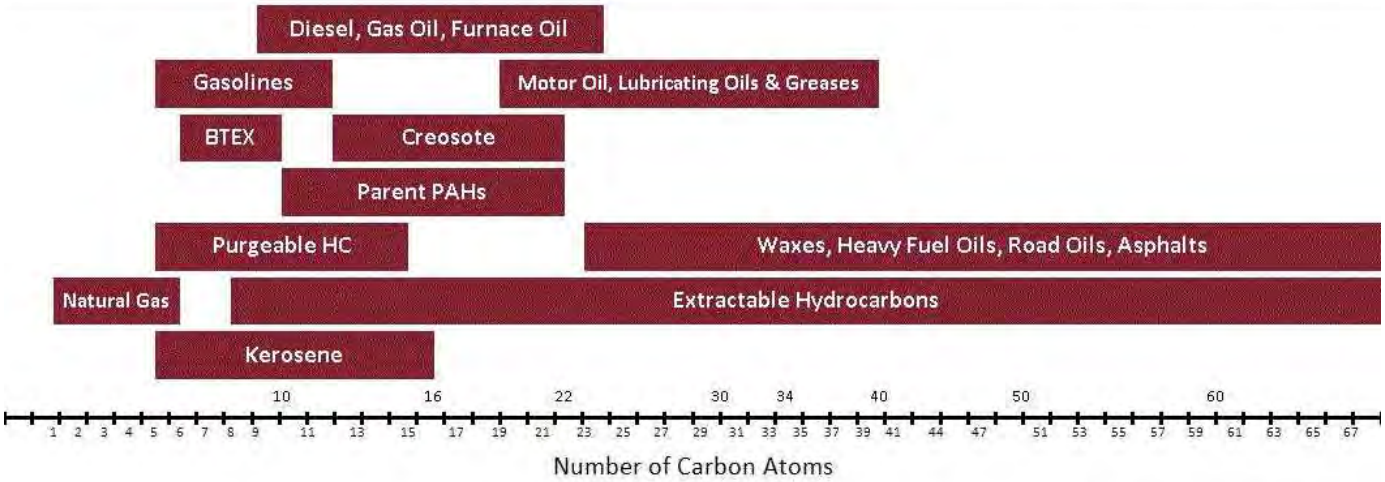
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357524
Report Date: 2023/08/05
Bureau Veritas Sample: BVO885

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14 AVE NW CALGARY
Client ID: BH1935

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





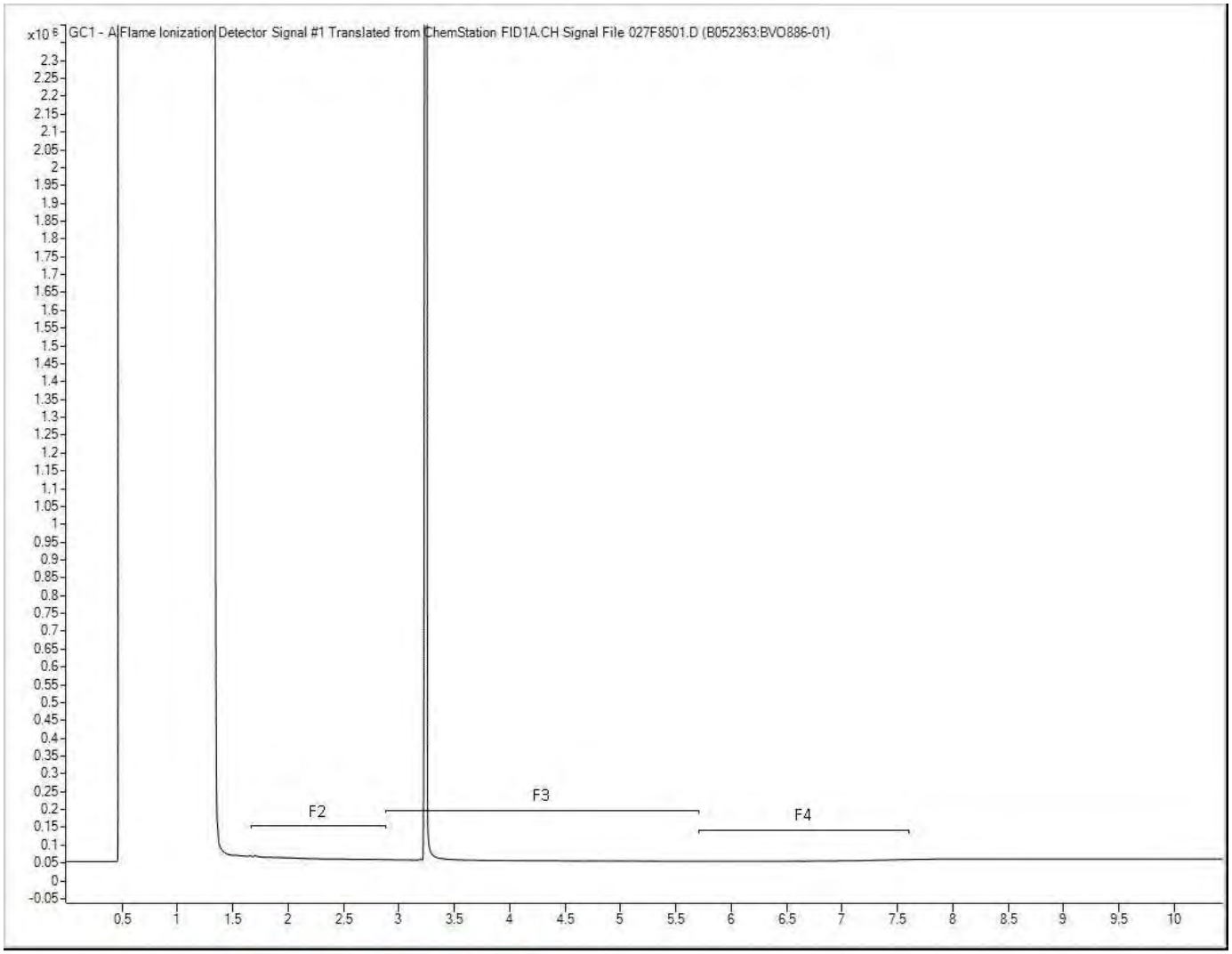
hpchem6\HPchem\1\DATA\2023\08\RUN0802

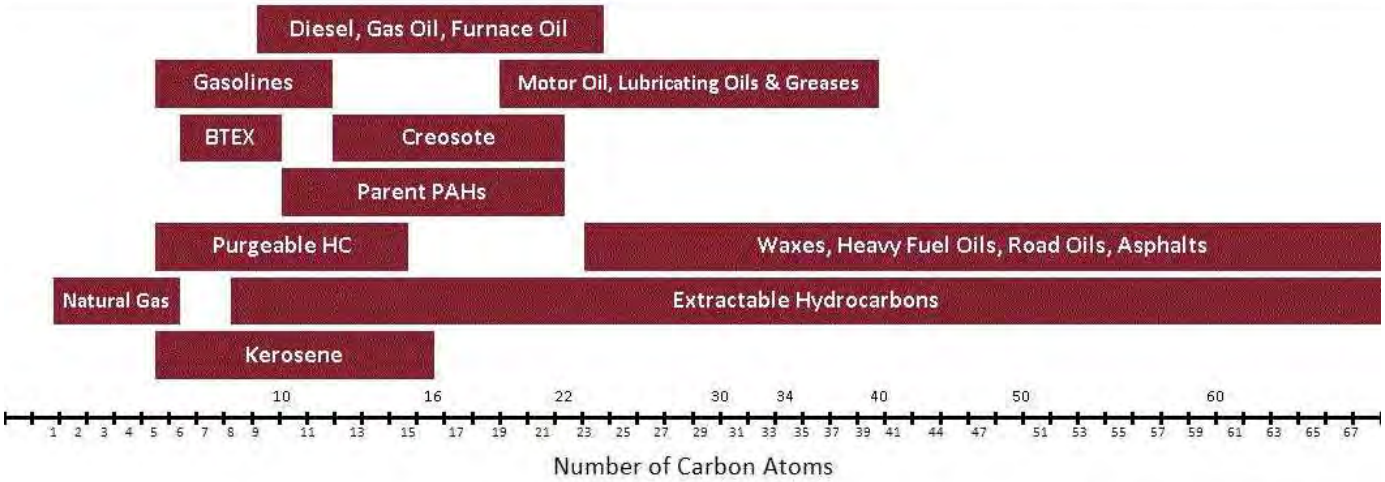
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357524
Report Date: 2023/08/05
Bureau Veritas Sample: BVO886

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14 AVE NW CALGARY
Client ID: BH1934

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





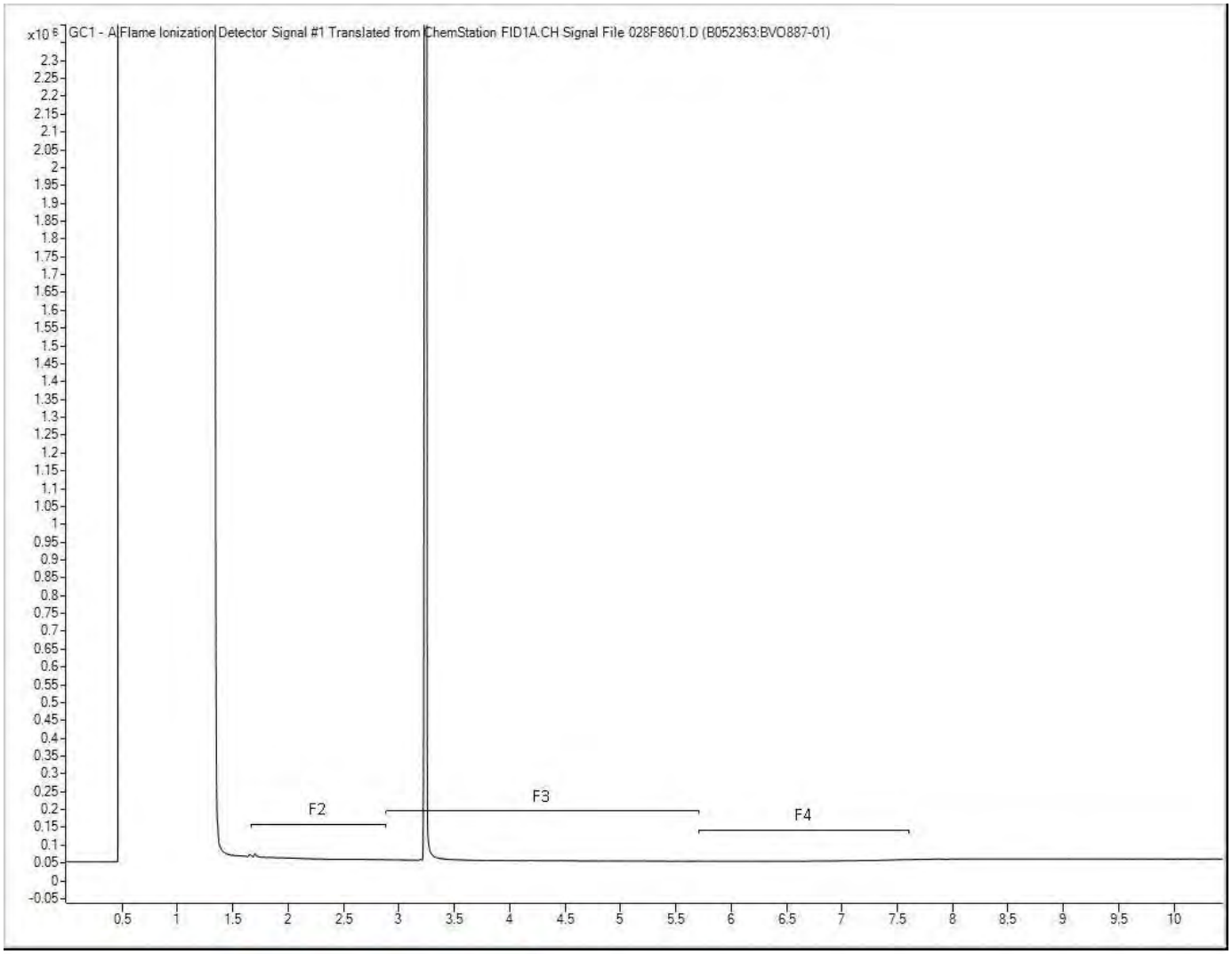
hpchem6\HPchem\1\DATA\2023\08\RUN0802

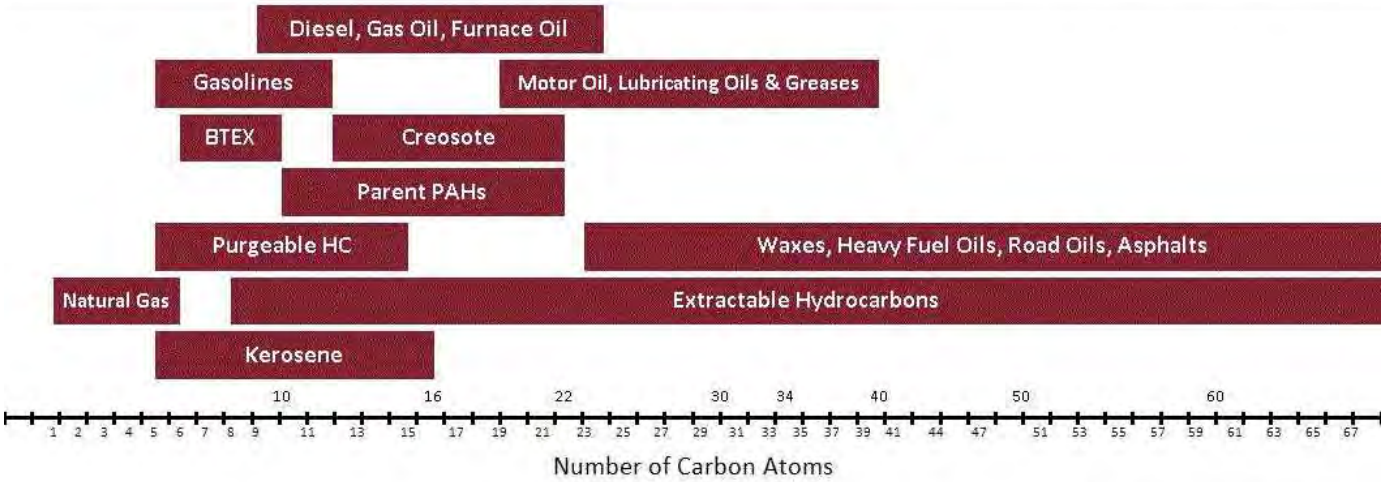
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357524
Report Date: 2023/08/05
Bureau Veritas Sample: BVO887

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14 AVE NW CALGARY
Client ID: BH1951

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





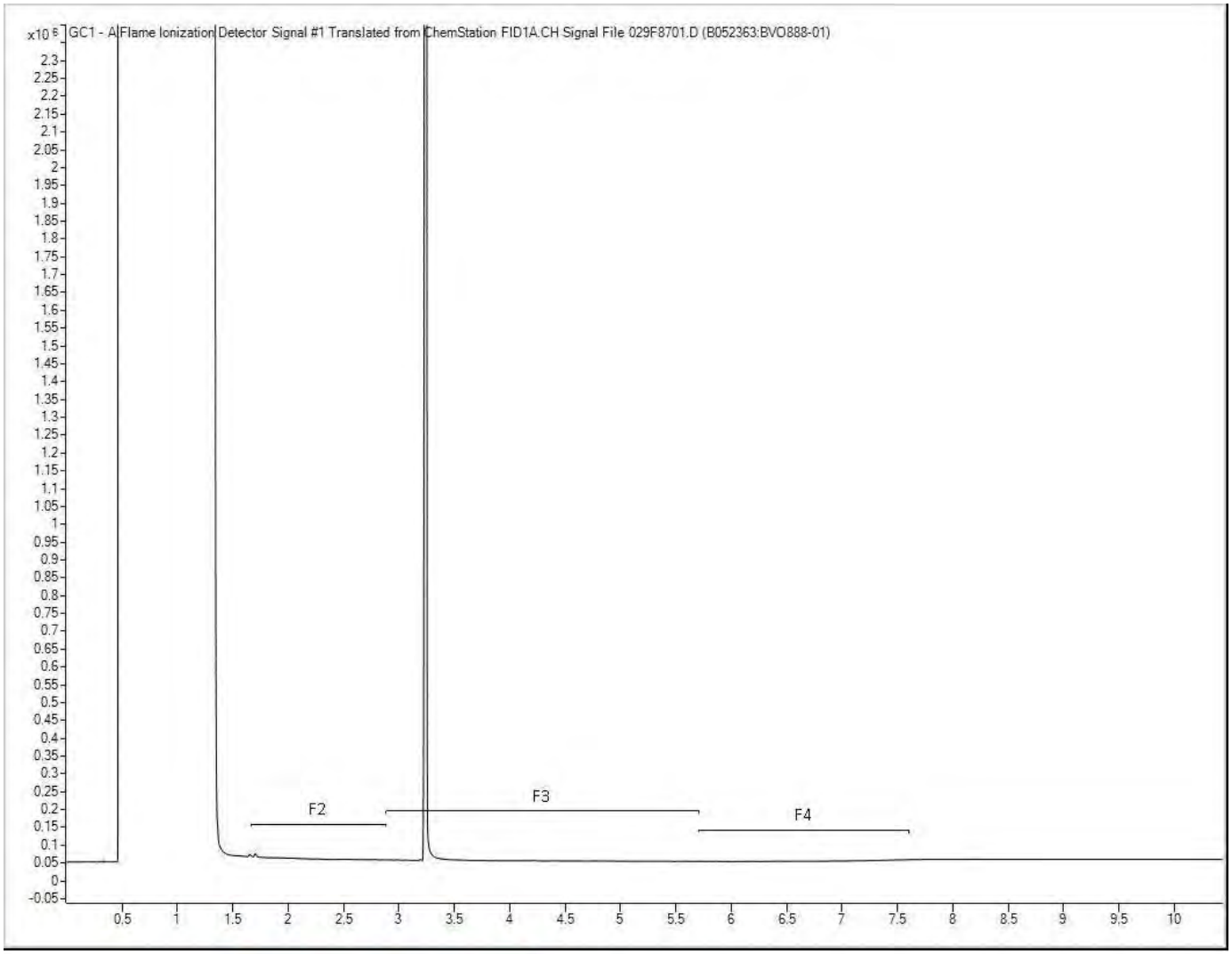
hpchem6\HPchem\1\DATA\2023\08\RUN0802

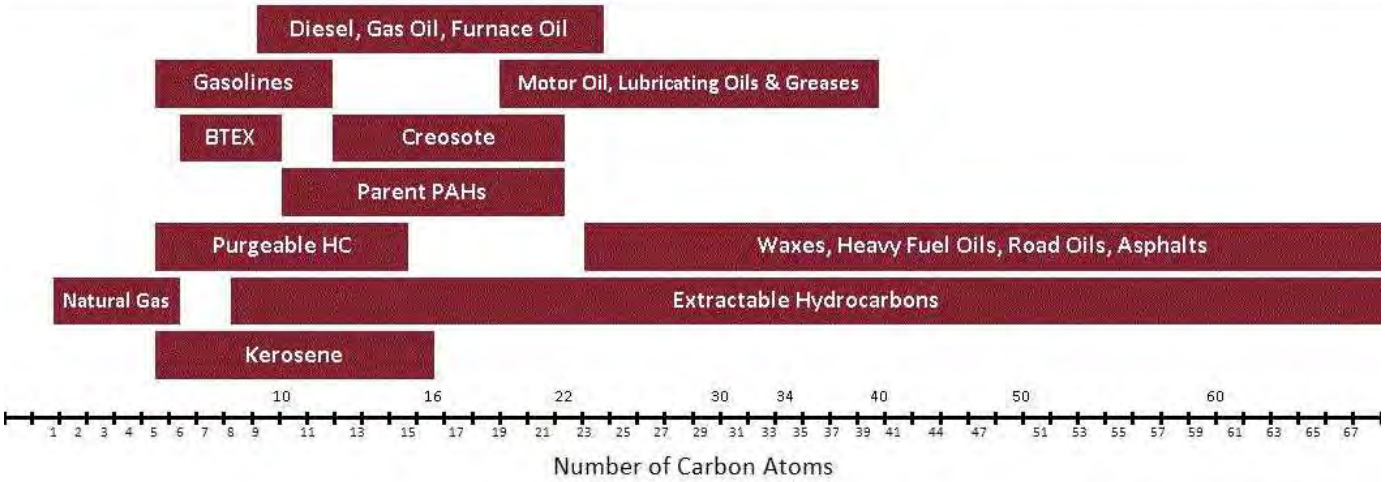
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357524
Report Date: 2023/08/05
Bureau Veritas Sample: BVO888

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14 AVE NW CALGARY
Client ID: BH1954

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





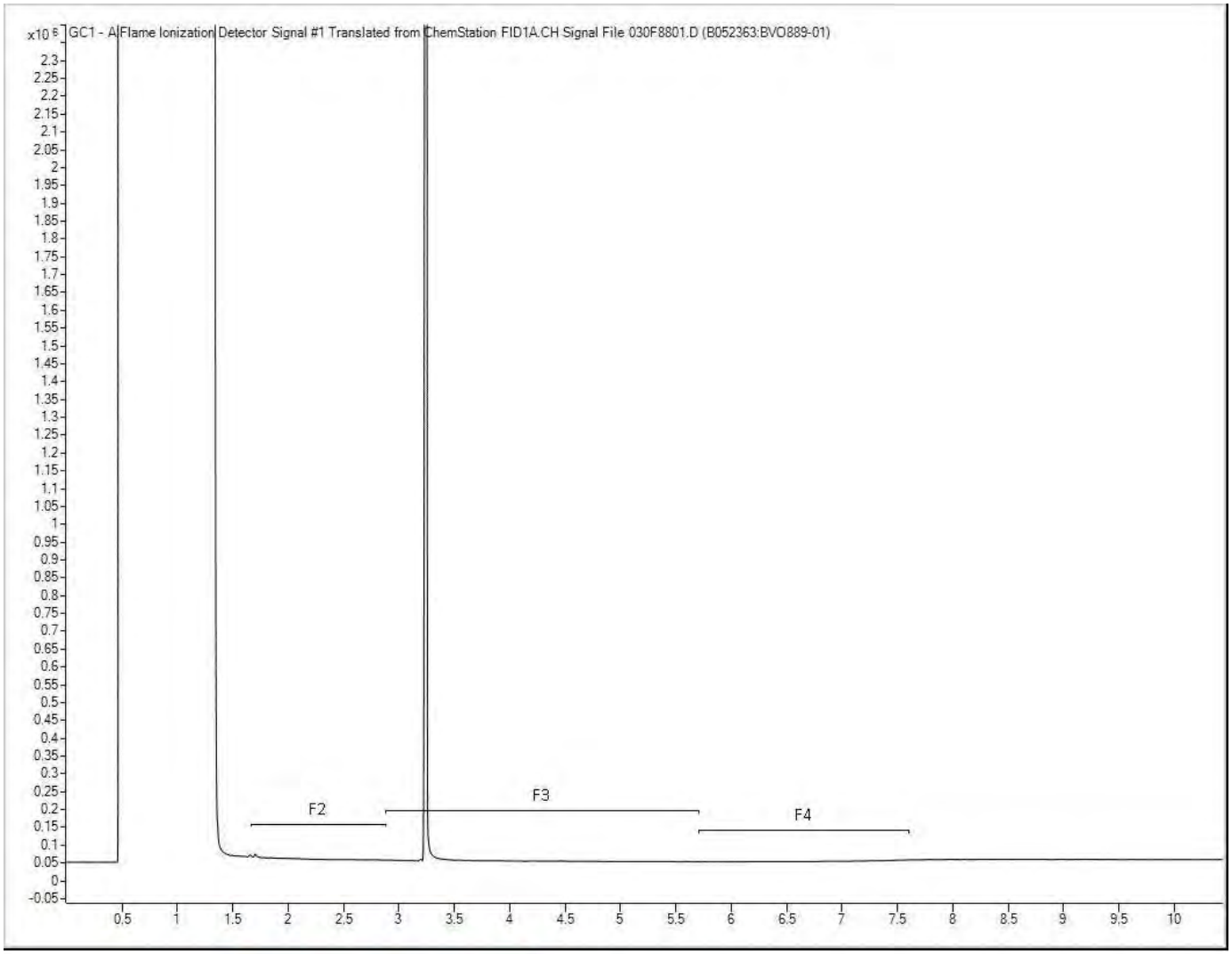
hpchem6\HPchem\1\DATA\2023\08\RUN0802

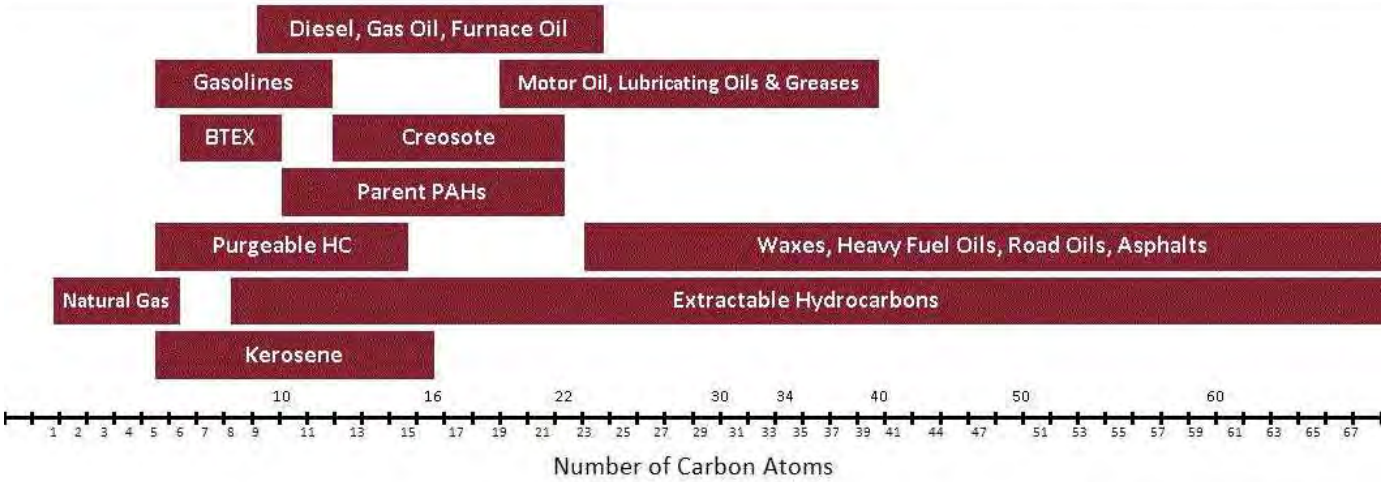
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357524
Report Date: 2023/08/05
Bureau Veritas Sample: BVO889

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14 AVE NW CALGARY
Client ID: BH2012

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





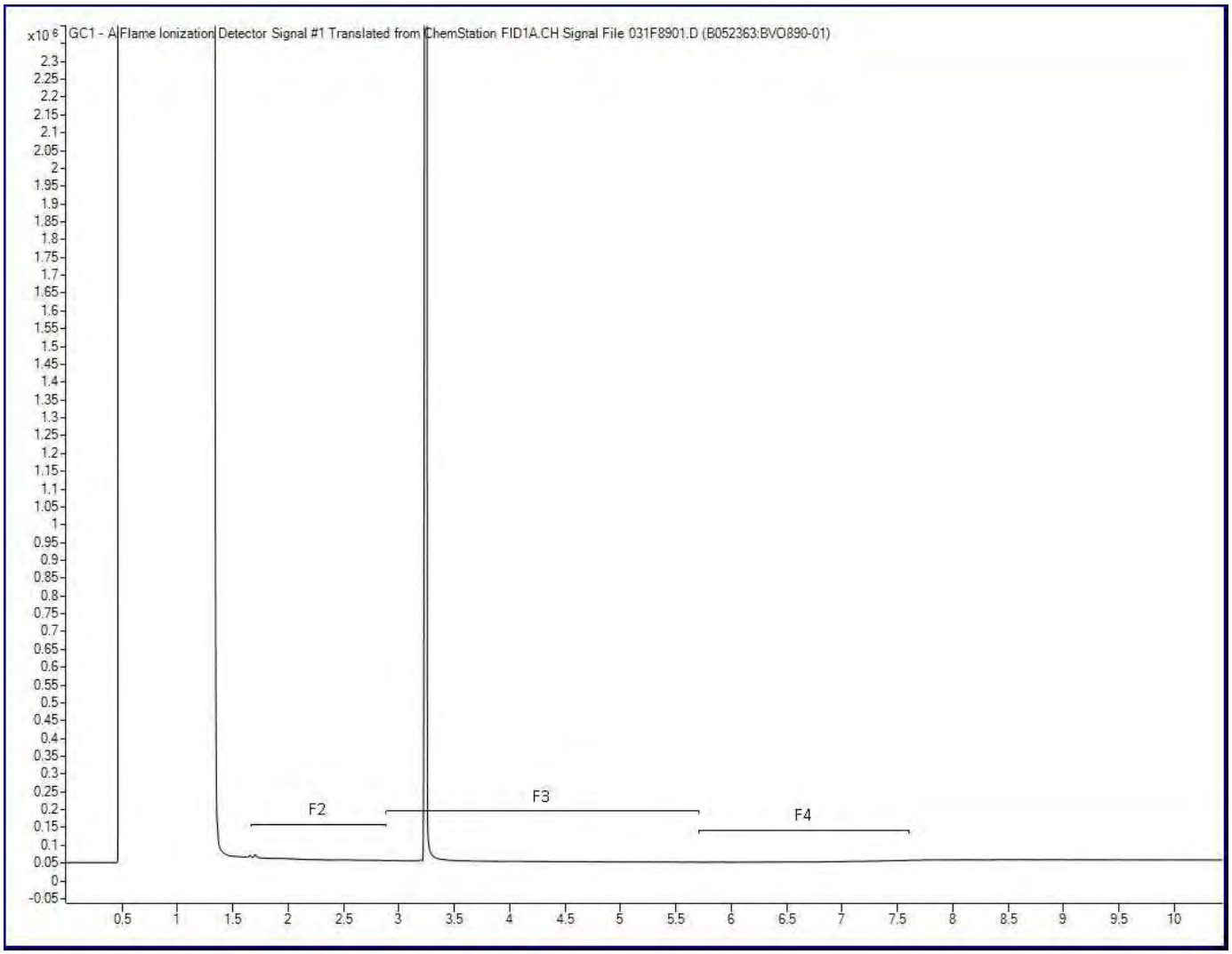
hpchem6\HPchem\1\DATA\2023\08\RUN0802

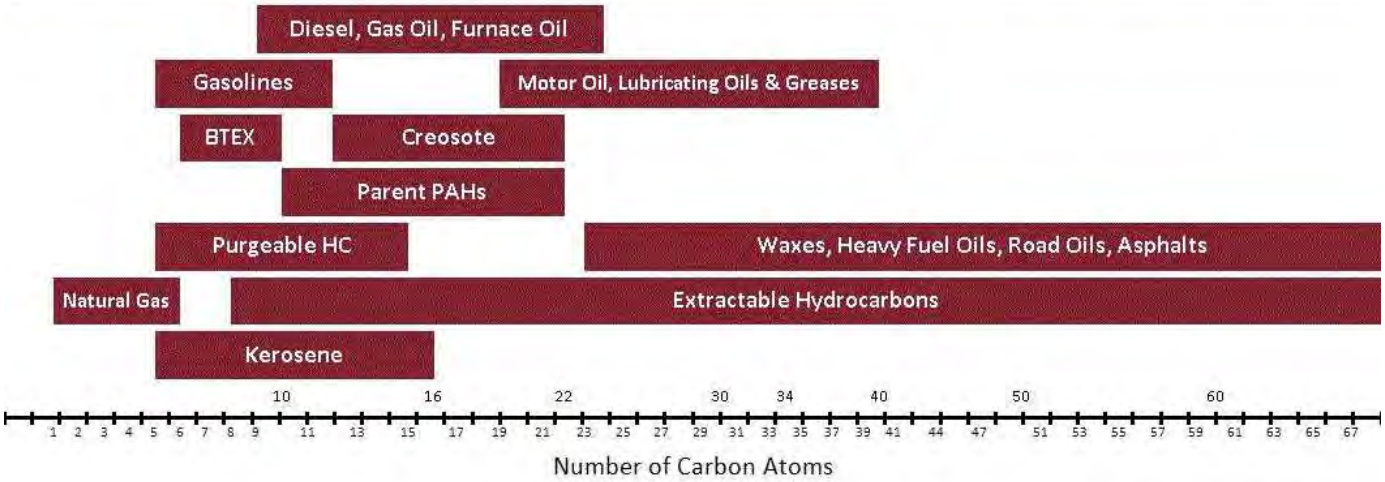
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357524
Report Date: 2023/08/05
Bureau Veritas Sample: BVO890

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14 AVE NW CALGARY
Client ID: EB-BAILER-02

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





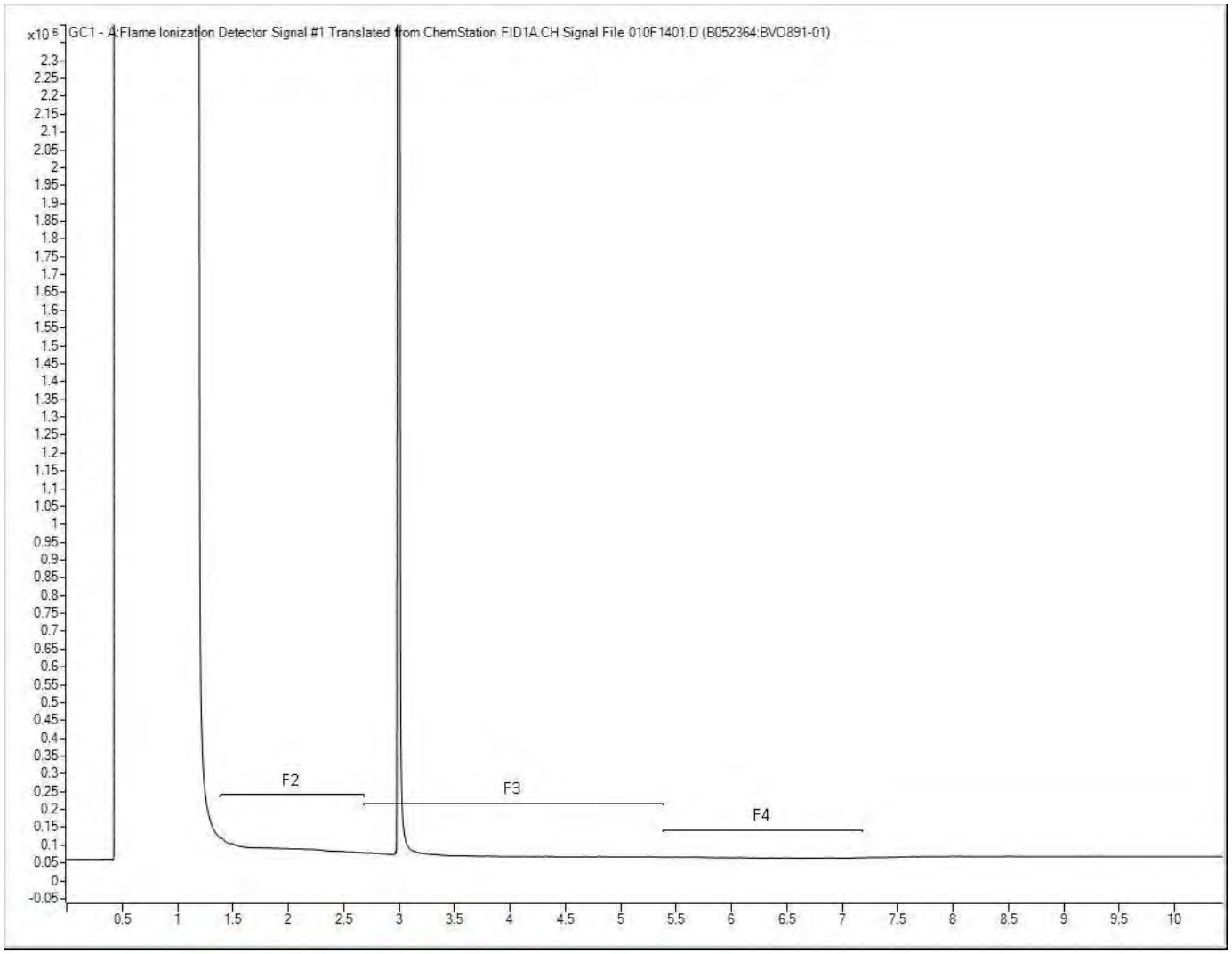
hpchem6\HPchem\1\DATA\2023\08\RUN0802

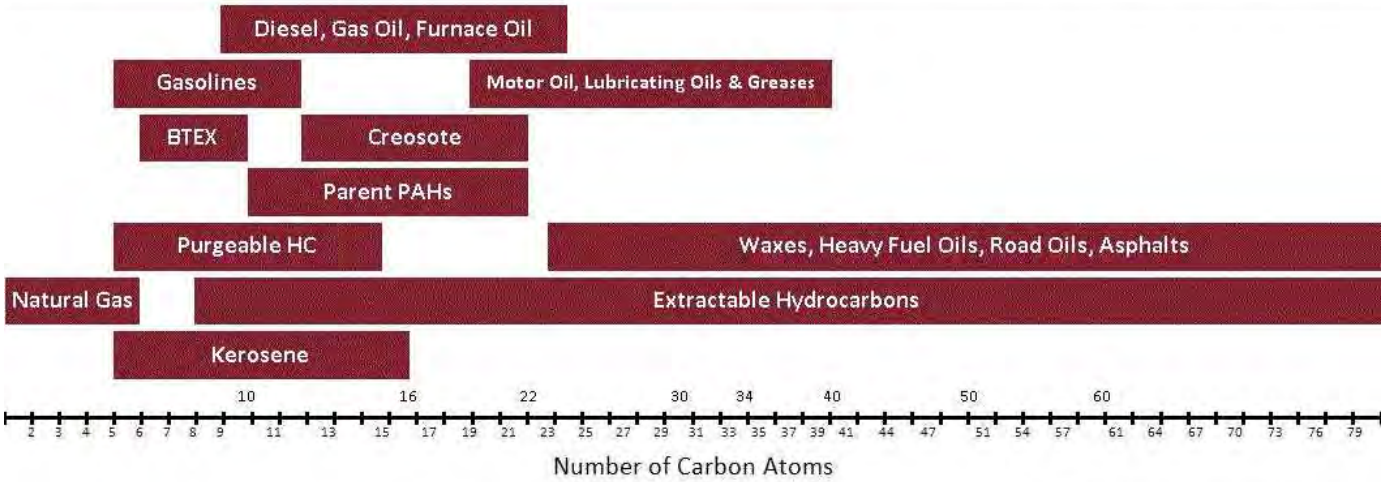
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357524
Report Date: 2023/08/05
Bureau Veritas Sample: BVO891

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14 AVE NW CALGARY
Client ID: EB-HYDRA-02

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





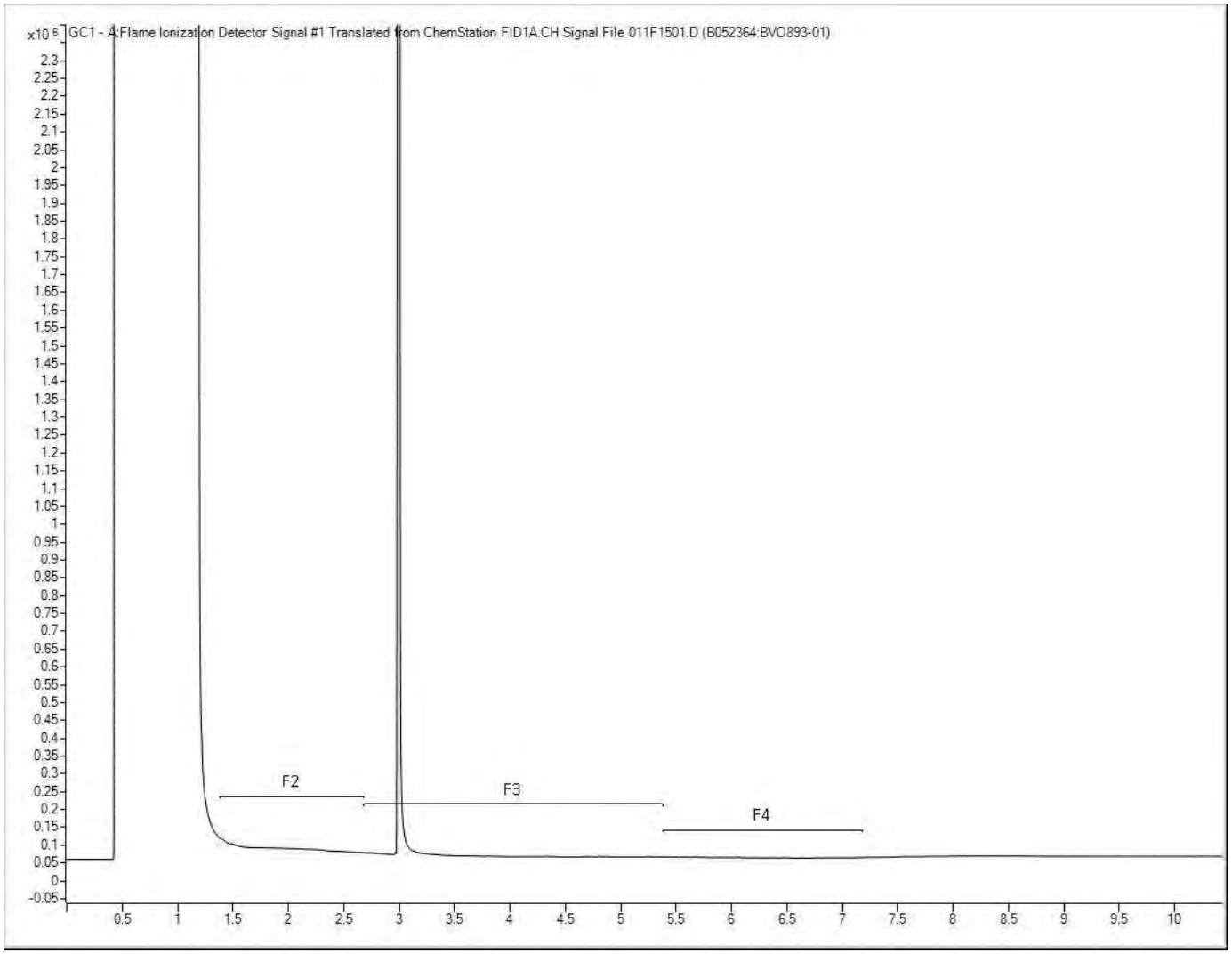
hpchem7\HPchem\1\DATA\2023\08\RUN0804

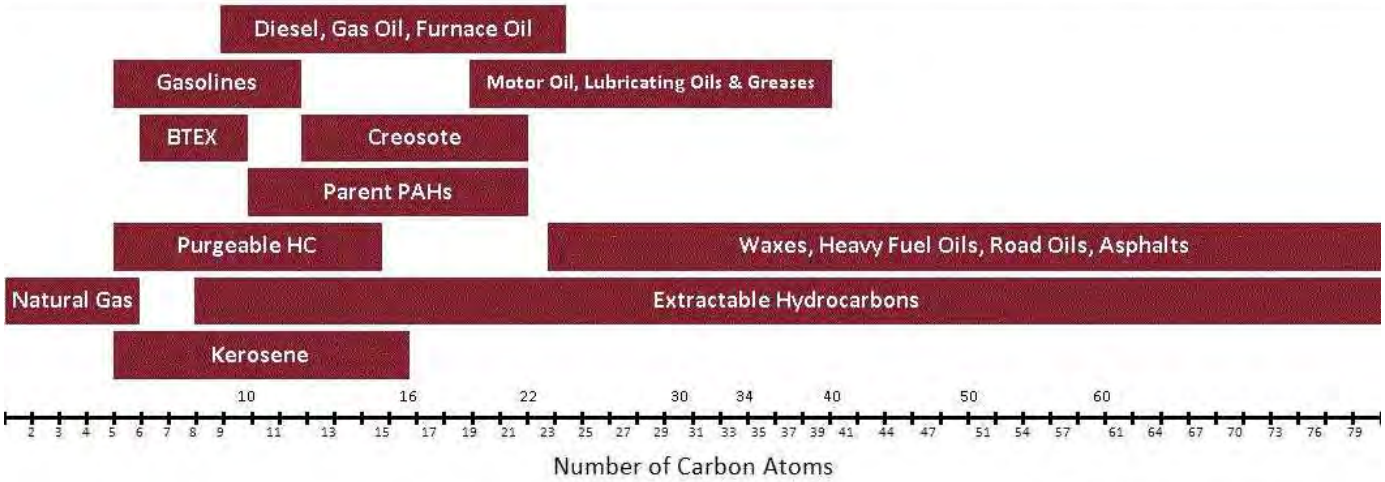
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357524
Report Date: 2023/08/05
Bureau Veritas Sample: BVO893

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14 AVE NW CALGARY
Client ID: TRIP BLANK-07

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





hpchem7\HPchem\1\DATA\2023\08\RUN0804

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

DATA QUALITY REVIEW CHECKLIST

Consultant: *Parsons Inc.*

Sampling Date: *2023/7/26*

Location: *1620 14 AVE NW, CALGARY*

Laboratory : *Bureau Veritas, Calgary, AB*

Consultant Project Number: *10-12832*

Sample Submission Number: *C357542*

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
Field Blank Concentration			*X*	*All field QC samples have met the acceptable RPD limits.*
Trip Blank Concentration			*X*	
Field Duplicate RPD	*X*			

Has CoA been signed off (Yes/No)?:	*Yes*
Has lab warranted all tests were in statistical control in CoA (Yes/No)?:	*Yes*
Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?:	*Yes*
Were all samples analyzed within hold times (Yes/No)?:	*Yes*
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): *Mackenzie Robart*

Reviewed by (Print): *Michelle Patterson*

Reviewed date: *2023/10/03*

Reviewed by (Signature):

Your P.O. #: 478621.17102
Your Project #: 10-12832
Site#: 9445
Site Location: 1620 14 AVE NW CALGARY
Your C.O.C. #: 699821-18-01

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/08/05
Report #: R3376965
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C357542
Received: 2023/07/26, 15:19

Sample Matrix: Water
Samples Received: 8

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/F1 in Water by HS GC/MS/FID	8	N/A	2023/07/30	AB SOP-00039	CCME CWS/EPA 8260d m
F1-BTEX	8	N/A	2023/07/30		Auto Calc
CCME Hydrocarbons in Water (F2; C10-C16) (1)	2	2023/08/04	2023/08/04	AB SOP-00037 AB SOP-00040	CCME PHC-CWS m
CCME Hydrocarbons in Water (F2; C10-C16) (1)	6	2023/08/04	2023/08/05	AB SOP-00037 AB SOP-00040	CCME PHC-CWS m
VOCs in Water by HS GC/MS (Std List)	8	N/A	2023/07/30	AB SOP-00056	EPA 5021a/8260d m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Silica gel clean up employed.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Your P.O. #: 478621.17102
Your Project #: 10-12832
Site#: 9445
Site Location: 1620 14 AVE NW CALGARY
Your C.O.C. #: 699821-18-01

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/08/05
Report #: R3376965
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C357542
Received: 2023/07/26, 15:19

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Parminder Virk, Key Account Specialist
Email: Parminder.Virk@bureauveritas.com
Phone# (403)735-2235

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

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C357542
Report Date: 2023/08/05

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14 AVE NW CALGARY
Your P.O. #: 478621.17102
Sampler Initials: GC

AT1 BTEX AND F1-F2 IN WATER (WATER)

Bureau Veritas ID		BVO936	BVO937	BVO938	BVO939	BVO940	BVO941		
Sampling Date		2023/07/26 07:15	2023/07/26 07:45	2023/07/26 08:15	2023/07/26 08:45	2023/07/26 09:15	2023/07/26 09:30		
COC Number		699821-18-01	699821-18-01	699821-18-01	699821-18-01	699821-18-01	699821-18-01		
	UNITS	**BH1901**	**BH1902**	**BH1903**	**BH1904**	**BH1905**	**DUP06**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	<0.10	<0.10	<0.10	3.2	4.2	0.10	B052364
Volatiles									
Benzene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	0.13	0.13	0.00040	B052624
Toluene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	0.0066	0.0088	0.00040	B052624
Ethylbenzene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	0.19	0.24	0.00040	B052624
m & p-Xylene	mg/L	<0.00080	<0.00080	<0.00080	<0.00080	1.4 (1)	1.6 (1)	0.00080	B052624
o-Xylene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	0.69	0.75	0.00040	B052624
Xylenes (Total)	mg/L	<0.00089	<0.00089	<0.00089	<0.00089	2.1	2.3	0.00089	B051811
F1 (C6-C10) - BTEX	mg/L	<0.10	<0.10	<0.10	<0.10	2.0	2.8	0.10	B051811
F1 (C6-C10)	mg/L	<0.10	<0.10	<0.10	<0.10	4.4	5.5	0.10	B052624
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	98	99	99	100	96	87		B052624
4-Bromofluorobenzene (sur.)	%	97	97	97	97	95	95		B052624
D4-1,2-Dichloroethane (sur.)	%	77	77	75	78	85	112		B052624
O-TERPHENYL (sur.)	%	84	90	111	112	112	112		B052364

RDL = Reportable Detection Limit
(1) Qualifying ion outside of acceptance criteria. Results are tentatively identified and potentially biased high.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C357542
Report Date: 2023/08/05

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14 AVE NW CALGARY
Your P.O. #: 478621.17102
Sampler Initials: GC

AT1 BTEX AND F1-F2 IN WATER (WATER)

Bureau Veritas ID		BVO942		BVO943		
Sampling Date		2023/07/26 10:00		2023/07/26 10:30		
COC Number		699821-18-01		699821-18-01		
	UNITS	**BH1957**	**RDL**	**BH1959**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon						
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	0.10	<0.10	0.10	B052364
Volatiles						
Benzene	mg/L	<0.00040	0.00040	<0.00040	0.00040	B052624
Toluene	mg/L	<0.00040	0.00040	<0.00040	0.00040	B052624
Ethylbenzene	mg/L	<0.00040	0.00040	<0.00040	0.00040	B052624
m & p-Xylene	mg/L	<0.0015 (1)	0.0015	<0.00080	0.00080	B052624
o-Xylene	mg/L	<0.00080 (1)	0.00080	<0.00040	0.00040	B052624
Xylenes (Total)	mg/L	<0.0017	0.0017	<0.00089	0.00089	B051811
F1 (C6-C10) - BTEX	mg/L	<0.10	0.10	<0.10	0.10	B051811
F1 (C6-C10)	mg/L	<0.10	0.10	<0.10	0.10	B052624
Surrogate Recovery (%)						
1,4-Difluorobenzene (sur.)	%	99		98		B052624
4-Bromofluorobenzene (sur.)	%	95		96		B052624
D4-1,2-Dichloroethane (sur.)	%	75		75		B052624
O-TERPHENYL (sur.)	%	112		111		B052364

RDL = Reportable Detection Limit
(1) Detection limit raised due to interferent.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C357542
Report Date: 2023/08/05

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14 AVE NW CALGARY
Your P.O. #: 478621.17102
Sampler Initials: GC

VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		BVO936	BVO937	BVO938	BVO939	BVO940	BVO941		
Sampling Date		2023/07/26 07:15	2023/07/26 07:45	2023/07/26 08:15	2023/07/26 08:45	2023/07/26 09:15	2023/07/26 09:30		
COC Number		699821-18-01	699821-18-01	699821-18-01	699821-18-01	699821-18-01	699821-18-01		
	UNITS	**BH1901**	**BH1902**	**BH1903**	**BH1904**	**BH1905**	**DUP06**	**RDL**	**QC Batch**
Volatiles									
1,2-dichloroethane	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.025	0.033	0.00050	B052638
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	97	97	97	97	101	101		B052638
4-Bromofluorobenzene (sur.)	%	94	94	94	94	94	98		B052638
D4-1,2-Dichloroethane (sur.)	%	103	110	111	107	115	115		B052638
RDL = Reportable Detection Limit									

Bureau Veritas ID		BVO942	BVO943		
Sampling Date		2023/07/26 10:00	2023/07/26 10:30		
COC Number		699821-18-01	699821-18-01		
	UNITS	**BH1957**	**BH1959**	**RDL**	**QC Batch**
Volatiles					
1,2-dichloroethane	mg/L	<0.00050	<0.00050	0.00050	B052638
Surrogate Recovery (%)					
1,4-Difluorobenzene (sur.)	%	98	97		B052638
4-Bromofluorobenzene (sur.)	%	95	94		B052638
D4-1,2-Dichloroethane (sur.)	%	107	105		B052638
RDL = Reportable Detection Limit					

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Bureau Veritas Job #: C357542
Report Date: 2023/08/05

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14 AVE NW CALGARY
Your P.O. #: 478621.17102
Sampler Initials: GC

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	12.0°C

Results relate only to the items tested.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C357542
Report Date: 2023/08/05

QUALITY ASSURANCE REPORT

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14 AVE NW CALGARY
Your P.O. #: 478621.17102
Sampler Initials: GC

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
B052364	O-TERPHENYL (sur.)	2023/08/04			100	60 - 140	97	%		
B052624	1,4-Difluorobenzene (sur.)	2023/07/30	93	50 - 140	94	50 - 140	100	%		
B052624	4-Bromofluorobenzene (sur.)	2023/07/30	96	50 - 140	95	50 - 140	98	%		
B052624	D4-1,2-Dichloroethane (sur.)	2023/07/30	79	50 - 140	76	50 - 140	82	%		
B052638	1,4-Difluorobenzene (sur.)	2023/07/30	101	50 - 140	102	50 - 140	97	%		
B052638	4-Bromofluorobenzene (sur.)	2023/07/30	100	50 - 140	99	50 - 140	93	%		
B052638	D4-1,2-Dichloroethane (sur.)	2023/07/30	93	50 - 140	94	50 - 140	112	%		
B052364	F2 (C10-C16 Hydrocarbons)	2023/08/04			93	60 - 140	<0.10	mg/L		
B052624	Benzene	2023/07/30	77	50 - 140	77	60 - 130	<0.00040	mg/L	NC	30
B052624	Ethylbenzene	2023/07/30	81	50 - 140	83	60 - 130	<0.00040	mg/L	NC	30
B052624	F1 (C6-C10)	2023/07/30	66	60 - 140	83	60 - 140	<0.10	mg/L	NC	30
B052624	m & p-Xylene	2023/07/30	83	50 - 140	84	60 - 130	<0.00080	mg/L	NC	30
B052624	o-Xylene	2023/07/30	85	50 - 140	85	60 - 130	<0.00040	mg/L	NC	30
B052624	Toluene	2023/07/30	80	50 - 140	79	60 - 130	<0.00040	mg/L	NC	30
B052638	1,2-dichloroethane	2023/07/30	88	50 - 140	92	60 - 130	<0.00050	mg/L	NC	30

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

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

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

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

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

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

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Bureau Veritas Job #: C357542
Report Date: 2023/08/05

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14 AVE NW CALGARY
Your P.O. #: 478621.17102
Sampler Initials: GC

VALIDATION SIGNATURE PAGE

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

Qiliang (Alex) Wu, Senior Analyst

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

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Bureau Veritas
4000 19st N.E, Calgary, Alberta Canada T2E 6P8 Tel (403) 291-3077 Toll-free 800-563-6266 Fax (403) 291-9466 www.bvna.com

CHAIN OF CUSTODY RECORD

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#11243 PARSONS INC.	Company Name:	#31652 PARSONS INC.	Quotation #:	C30805	Bureau Veritas Job #: C357542	Bottle Order #: 699821
Attention:	ACCOUNTS PAYABLE	Attention:	Rebecca Neufeld	P.O. #:	478621.17102		
Address:	2751 JOHN STREET MARKHAM ON L3R 2Y8	Address:	Unit 510, 214 - 11th Avenue SW Calgary AB T2R 0K1	Project:	10-12832	COC #: C#699821-18-01	Project Manager: Parminder Virk
Tel:	(905) 944-8877 Fax:	Tel:	Fax:	Project Name:	1220 Home NW Calgary		
Email:	ParsonsIncAP.Parsons@parsons.com	Email:	rebecca.neufeld@parsons.com,Michelle.Patterson@par	Site #:	9443		
				Sampled By:	Gavin Clarke		

Regulatory Criteria:
- [x] ATI
- [ ] CCME
- [ ] Other

Special Instructions: Same Day Sampling

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	AT1 BTEX and F1-F2 in Water	1,2 Dichloroethane	Routine Water	# of Bottles	Comments
1		BH1901	July 26/23	07:15	GW		✓	✓		3	
2		BH1902		07:45	GW		✓	✓		3	
3		BH1903		08:15	GW		✓	✓		3	
4		BH1904		08:45	GW		✓	✓		3	
5		BH1905		09:15	GW		✓	✓		3	
6		DUP06		09:30	GW		✓	✓		3	
7		BH1957		10:00	GW		✓	✓		3	
8		BH1959	July 26/23	10:30	GW		✓	✓		3	
9											
10											

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT: [x]
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests..
Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details

Job Specific Rush TAT (if applies to entire submission) [ ]
Date Required:
Rush Confirmation Number: (call lab for #)

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
Gavin Clarke	23/07/26	15:00	Bhpa Patel	23/07/26	15:19	Ø	[ ]	11/12/13	[x] Yes [ ] No

Laboratory Use Only

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.
** ALL SAMPLES ARE HELD FOR 60 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

White: Bureau Veritas Yellow: Client

mcal-07-1337

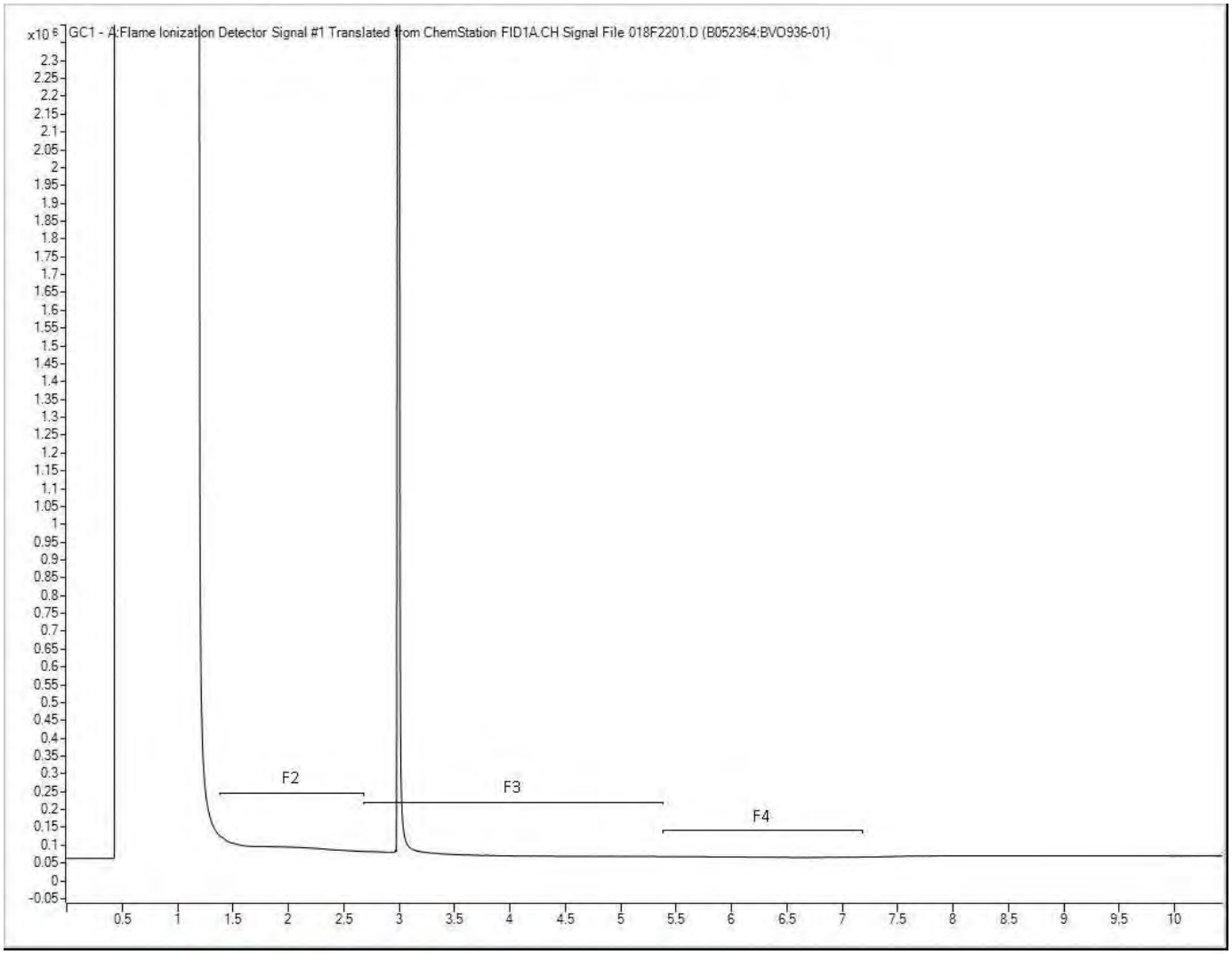
1/1

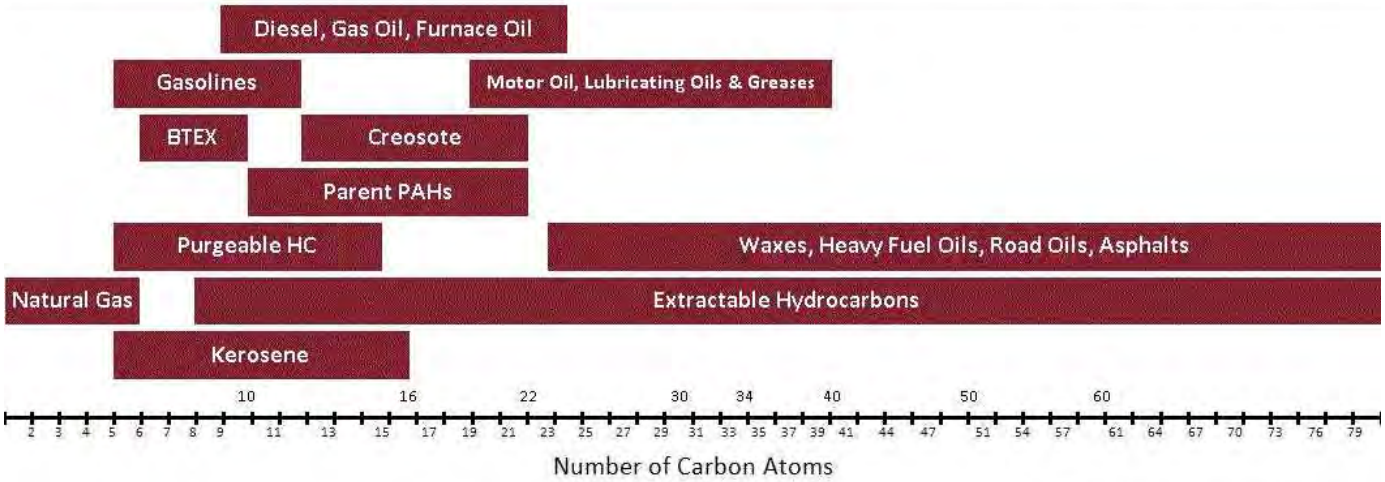
Bureau Veritas Canada (2019) Inc.

Bureau Veritas Job #: C357542
Report Date: 2023/08/05
Bureau Veritas Sample: BVO936

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14 AVE NW CALGARY
Client ID: BH1901

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





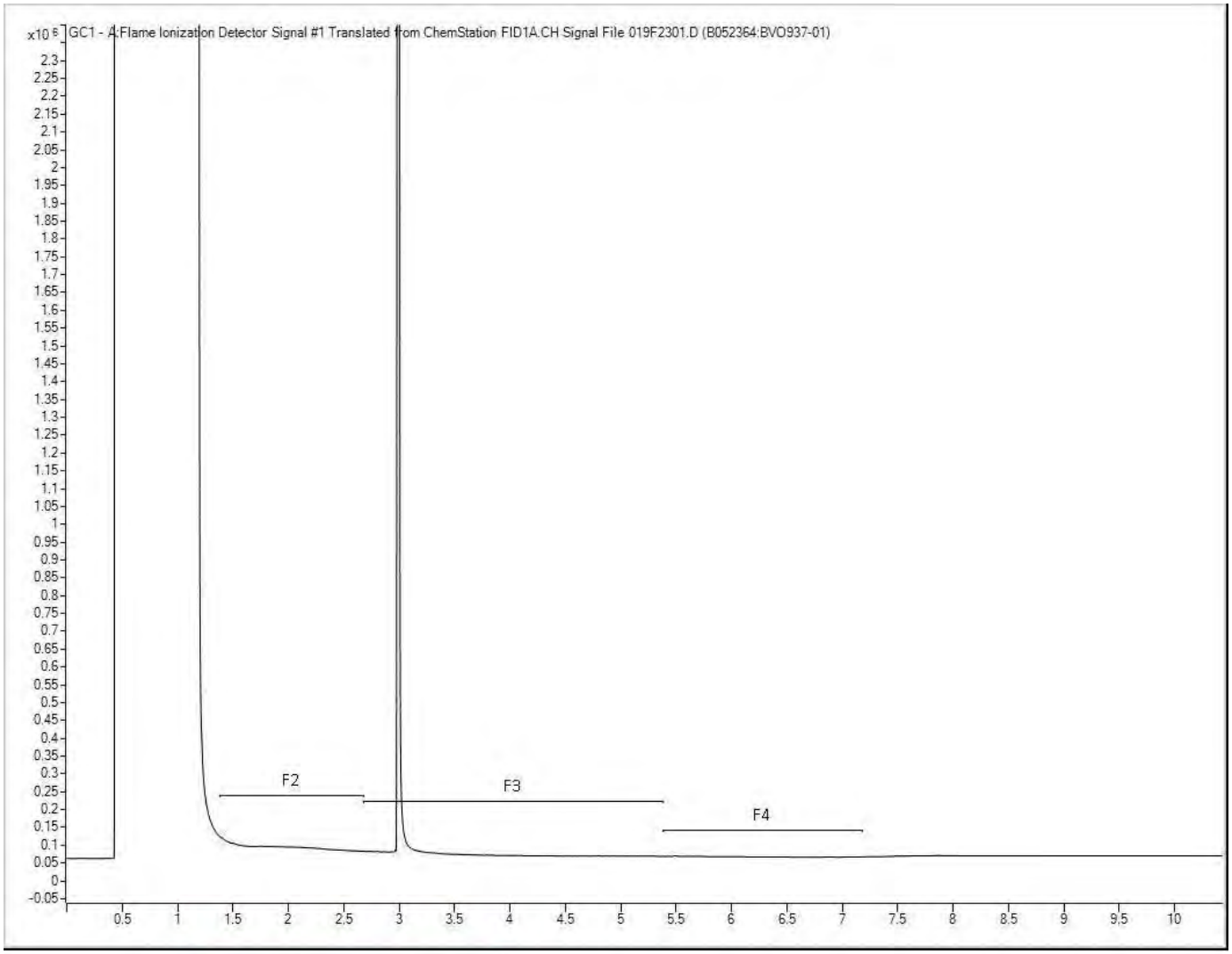
hpchem7\HPchem\1\DATA\2023\08\RUN0804

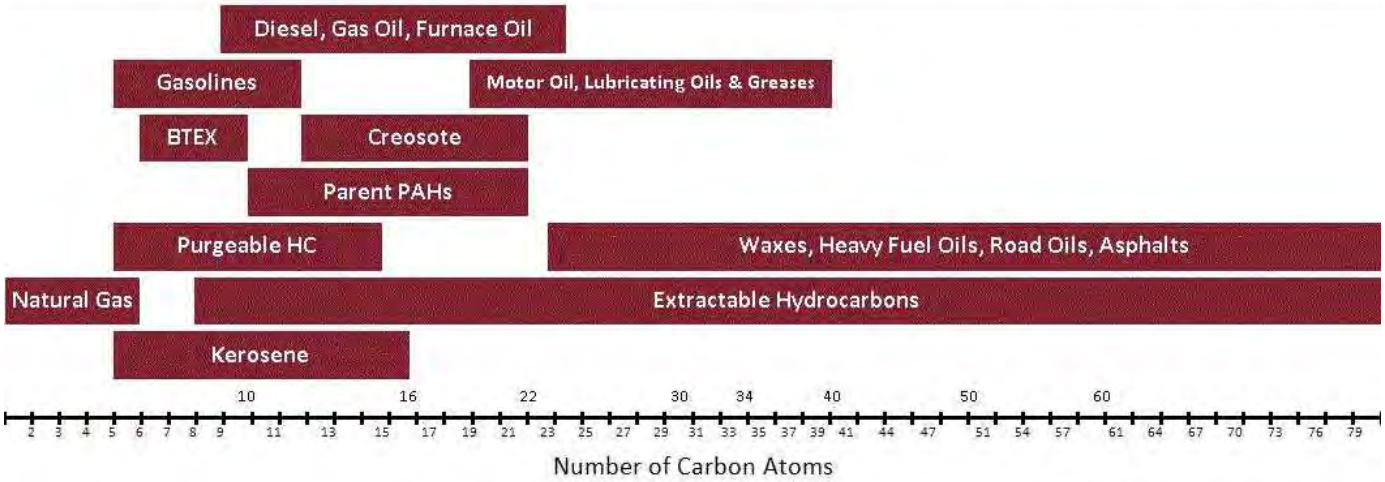
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357542
Report Date: 2023/08/05
Bureau Veritas Sample: BVO937

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14 AVE NW CALGARY
Client ID: BH1902

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





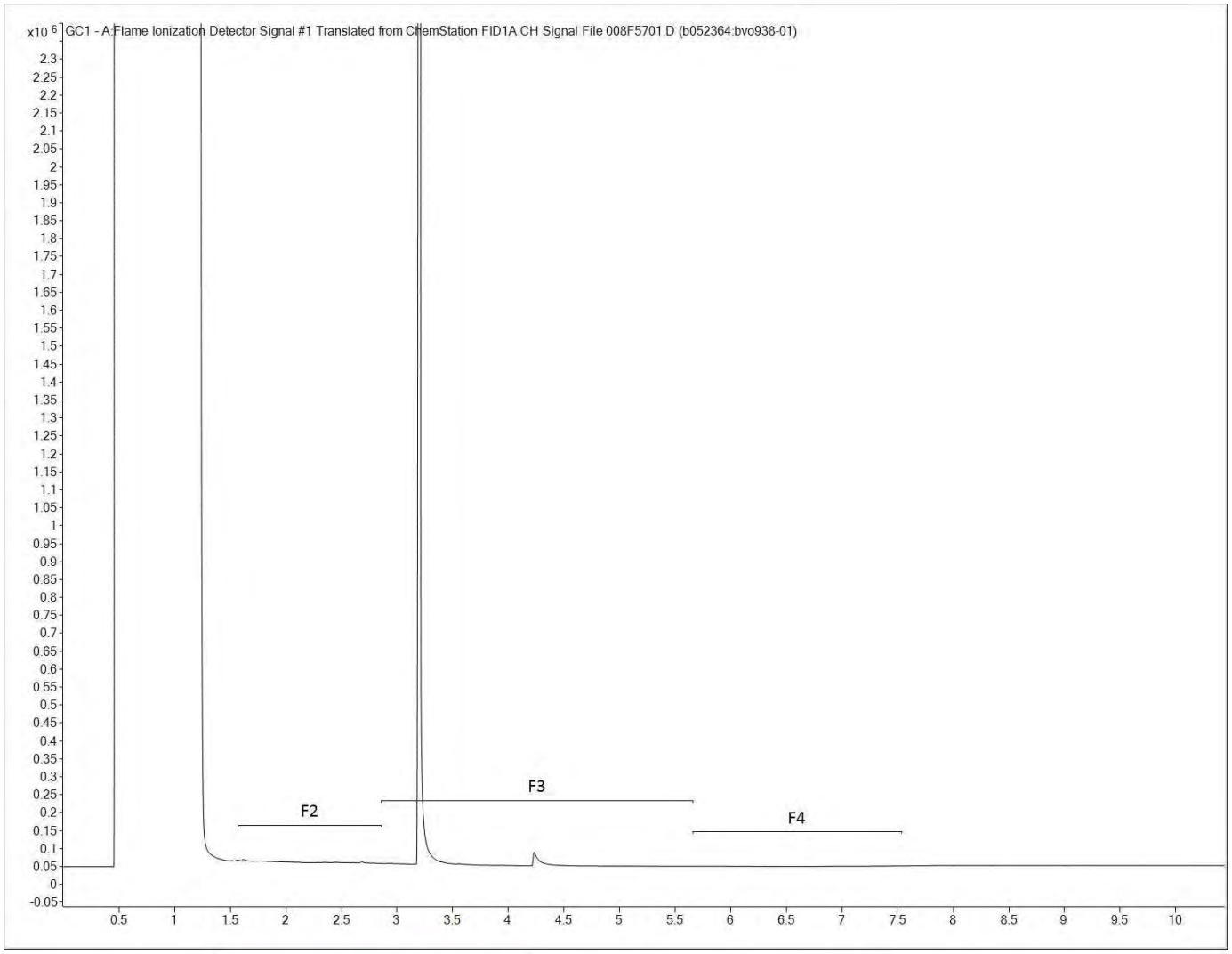
hpchem7\HPchem\1\DATA\2023\08\RUN0804

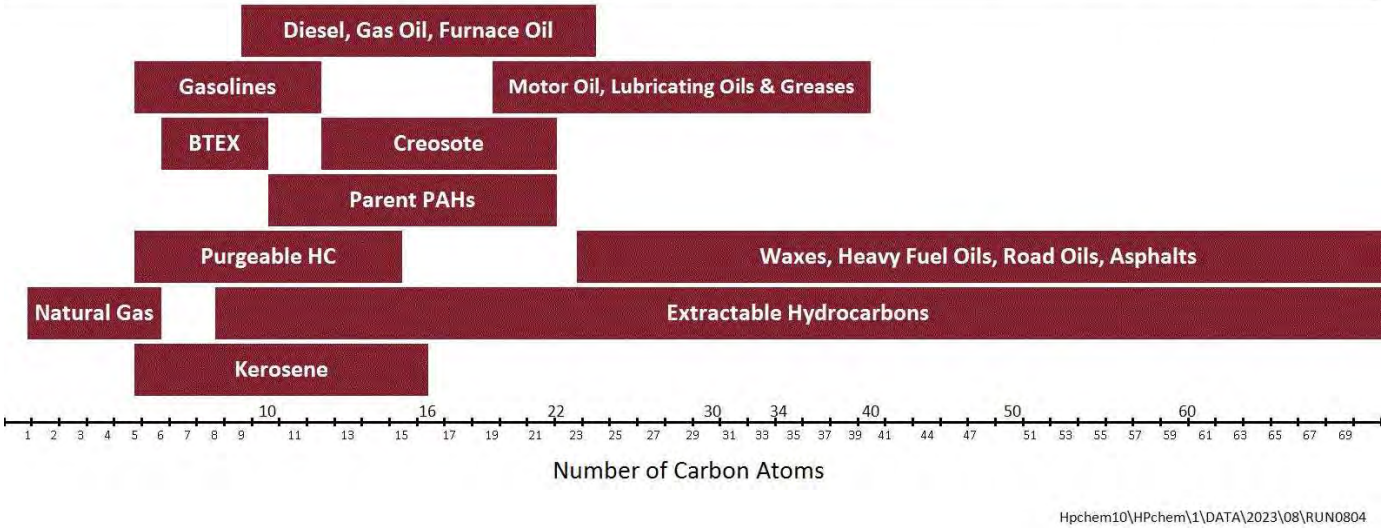
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357542
Report Date: 2023/08/05
Bureau Veritas Sample: BVO938

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14 AVE NW CALGARY
Client ID: BH1903

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





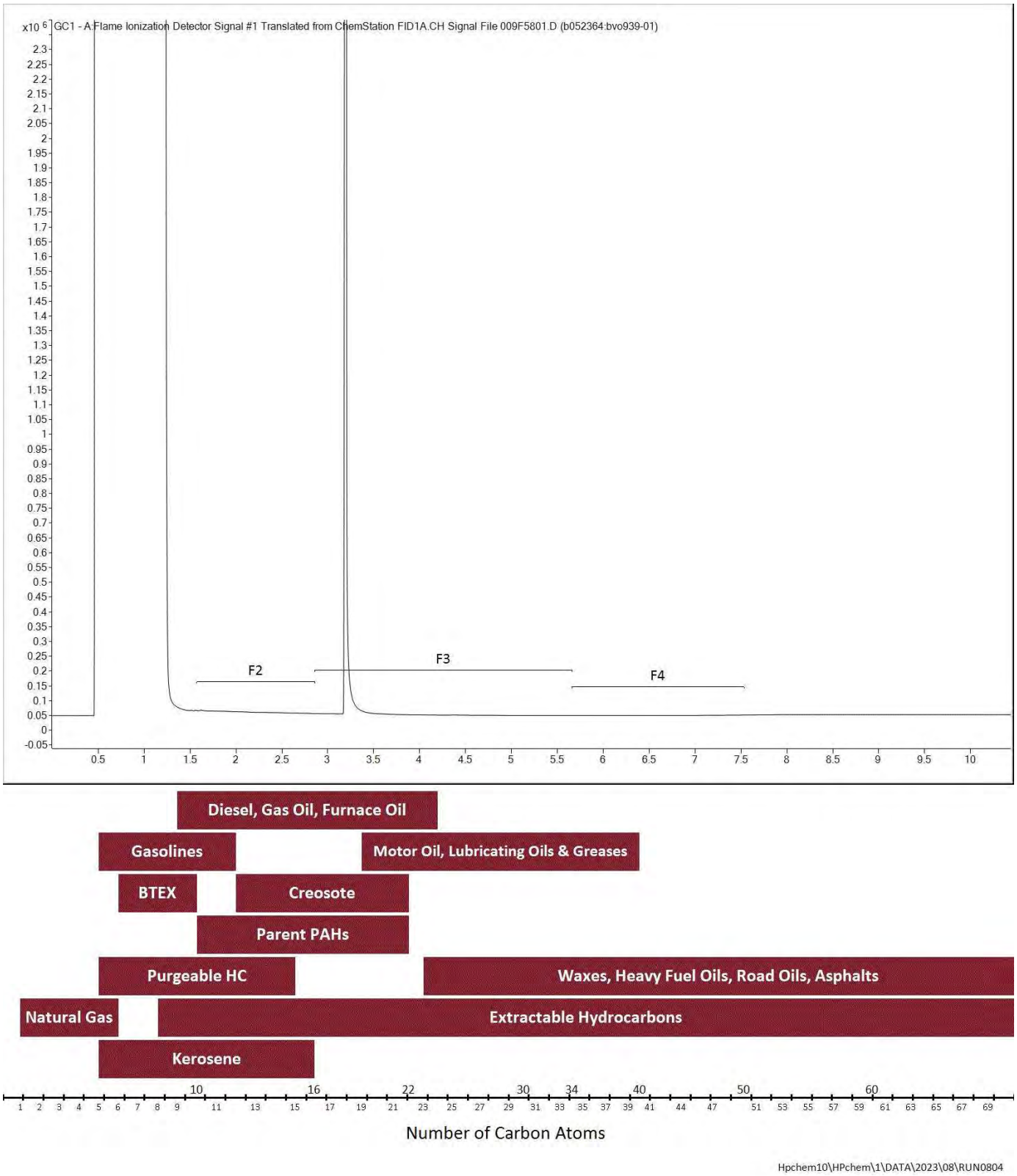
Hpchem10\HPchem\1\DATA\2023\08\RUN0804

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357542
Report Date: 2023/08/05
Bureau Veritas Sample: BVO939

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14 AVE NW CALGARY
Client ID: BH1904

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram

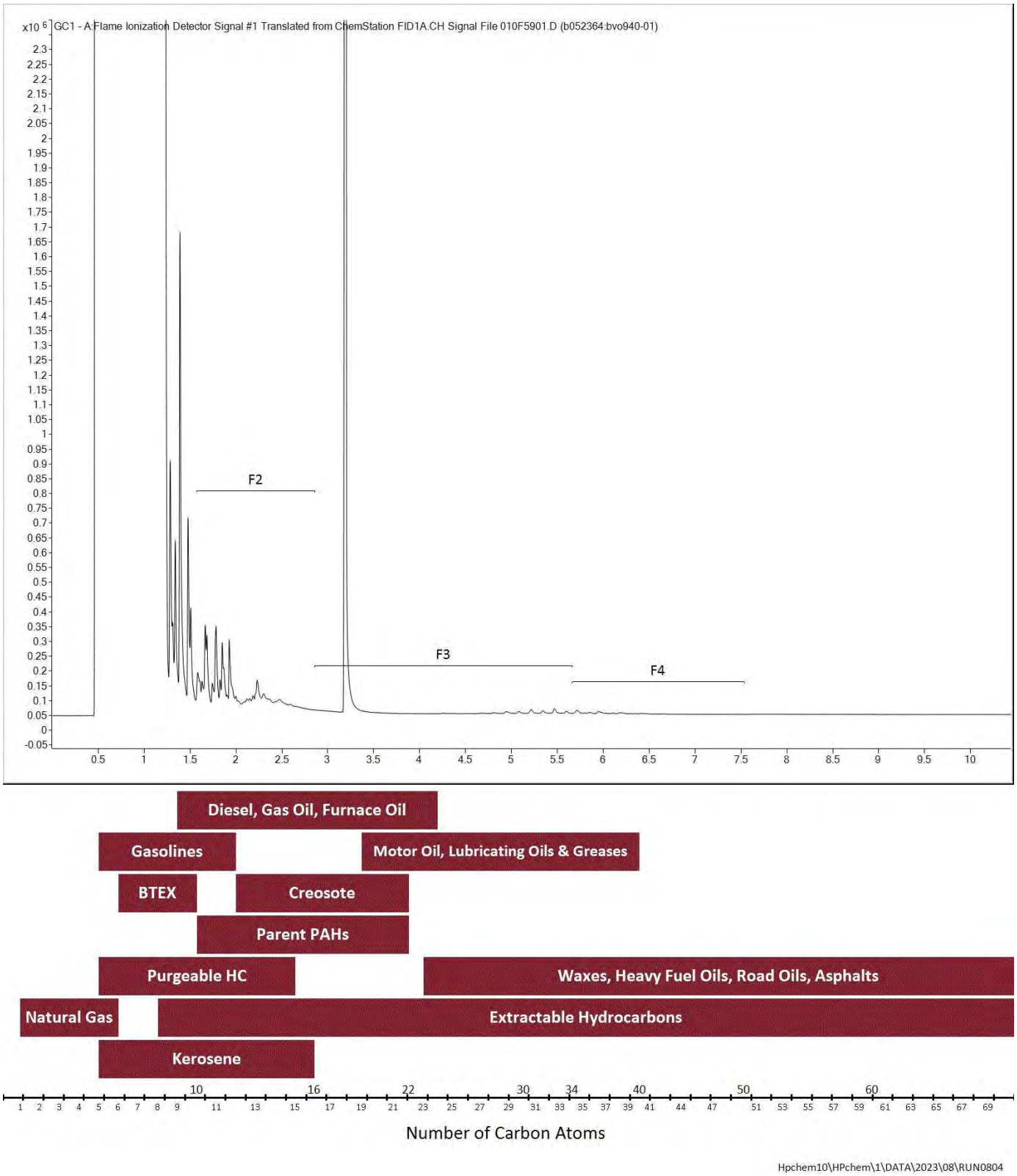


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357542
Report Date: 2023/08/05
Bureau Veritas Sample: BVO940

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14 AVE NW CALGARY
Client ID: BH1905

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram

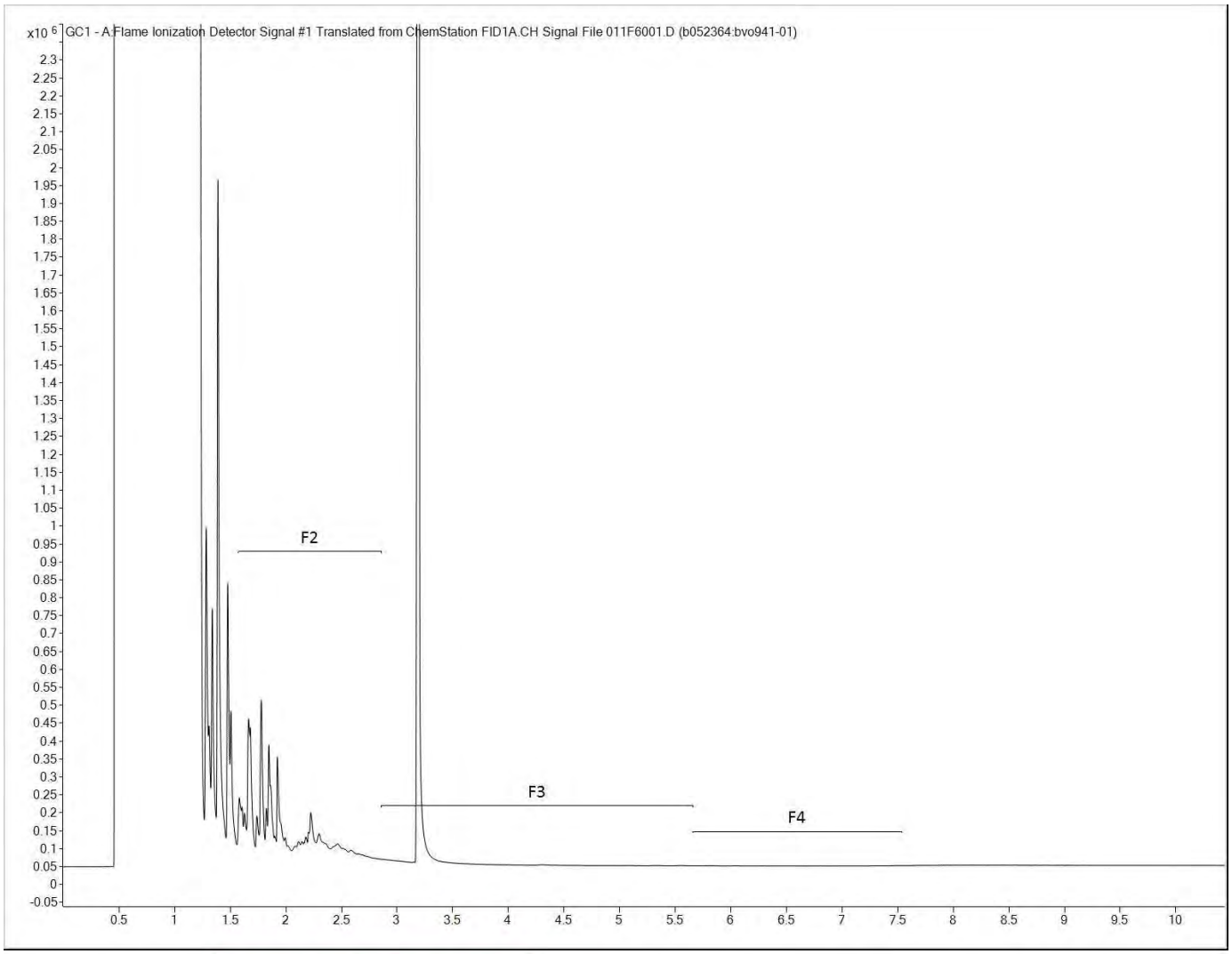


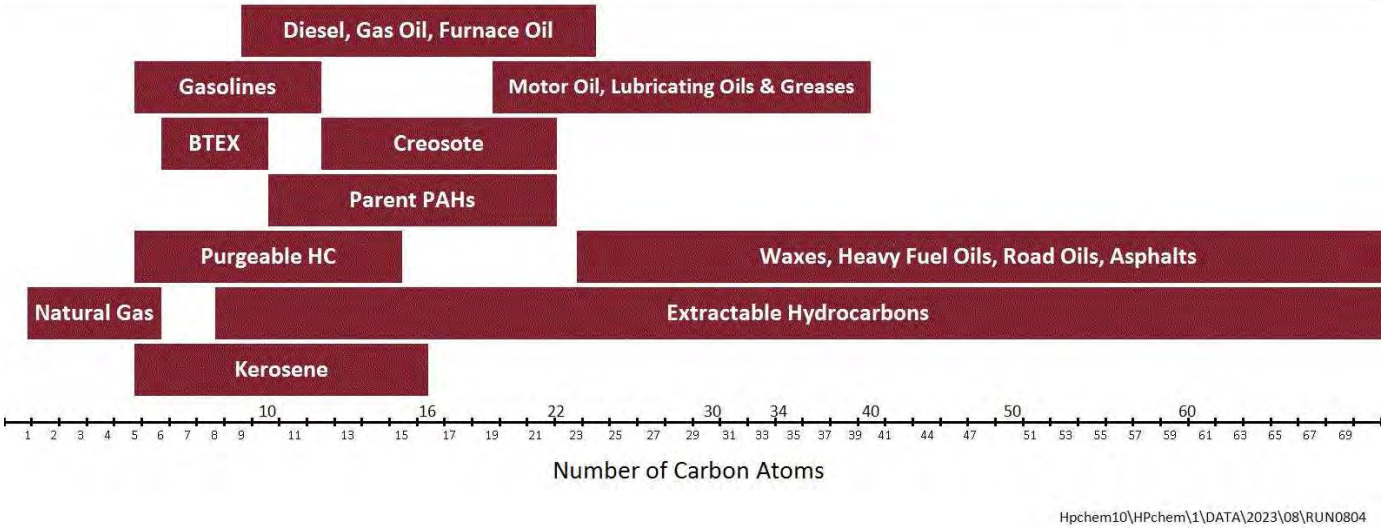
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357542
Report Date: 2023/08/05
Bureau Veritas Sample: BVO941

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14 AVE NW CALGARY
Client ID: DUP06

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





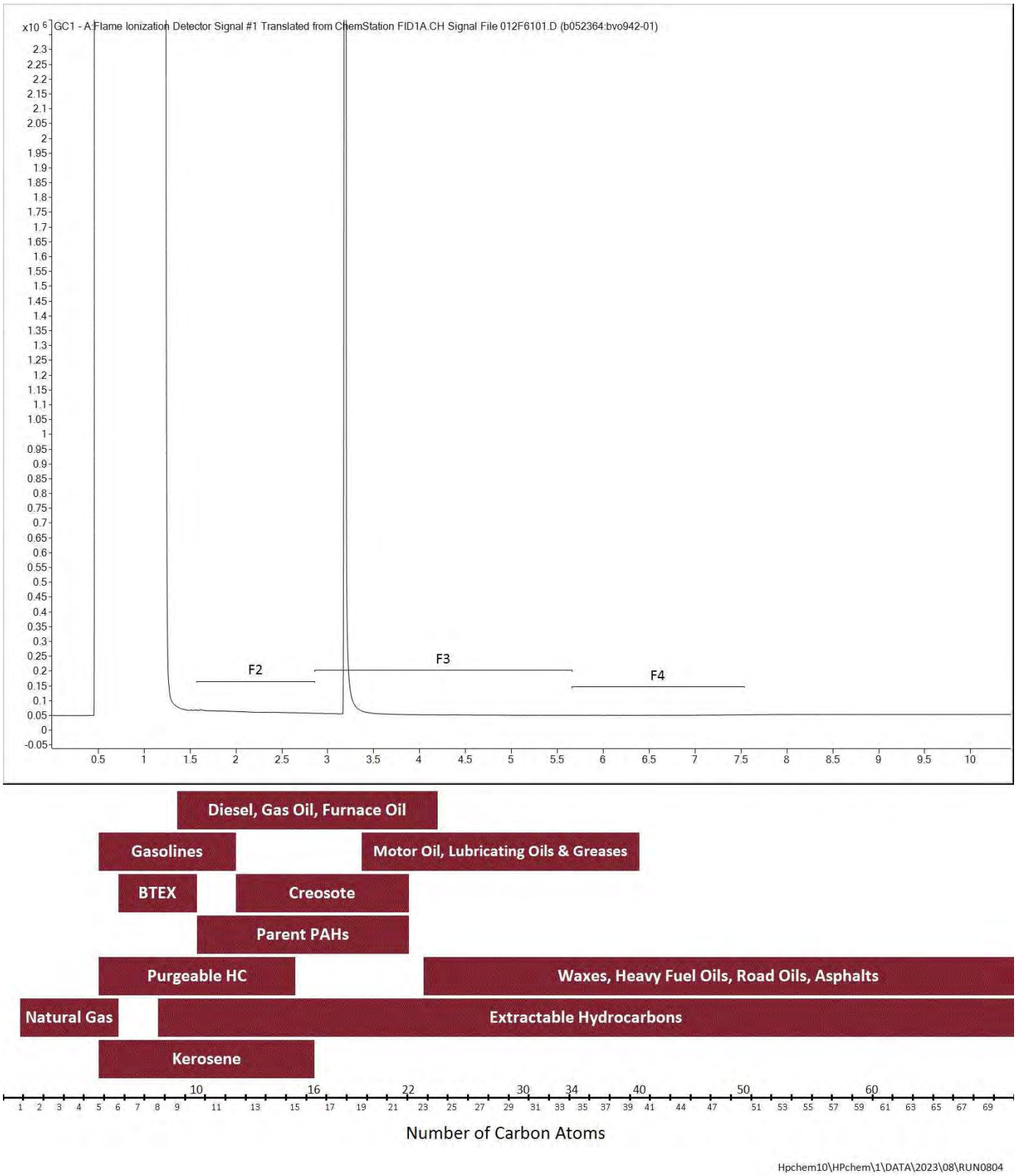
Hpchem10\HPchem\1\DATA\2023\08\RUN0804

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357542
Report Date: 2023/08/05
Bureau Veritas Sample: BVO942

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14 AVE NW CALGARY
Client ID: BH1957

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram

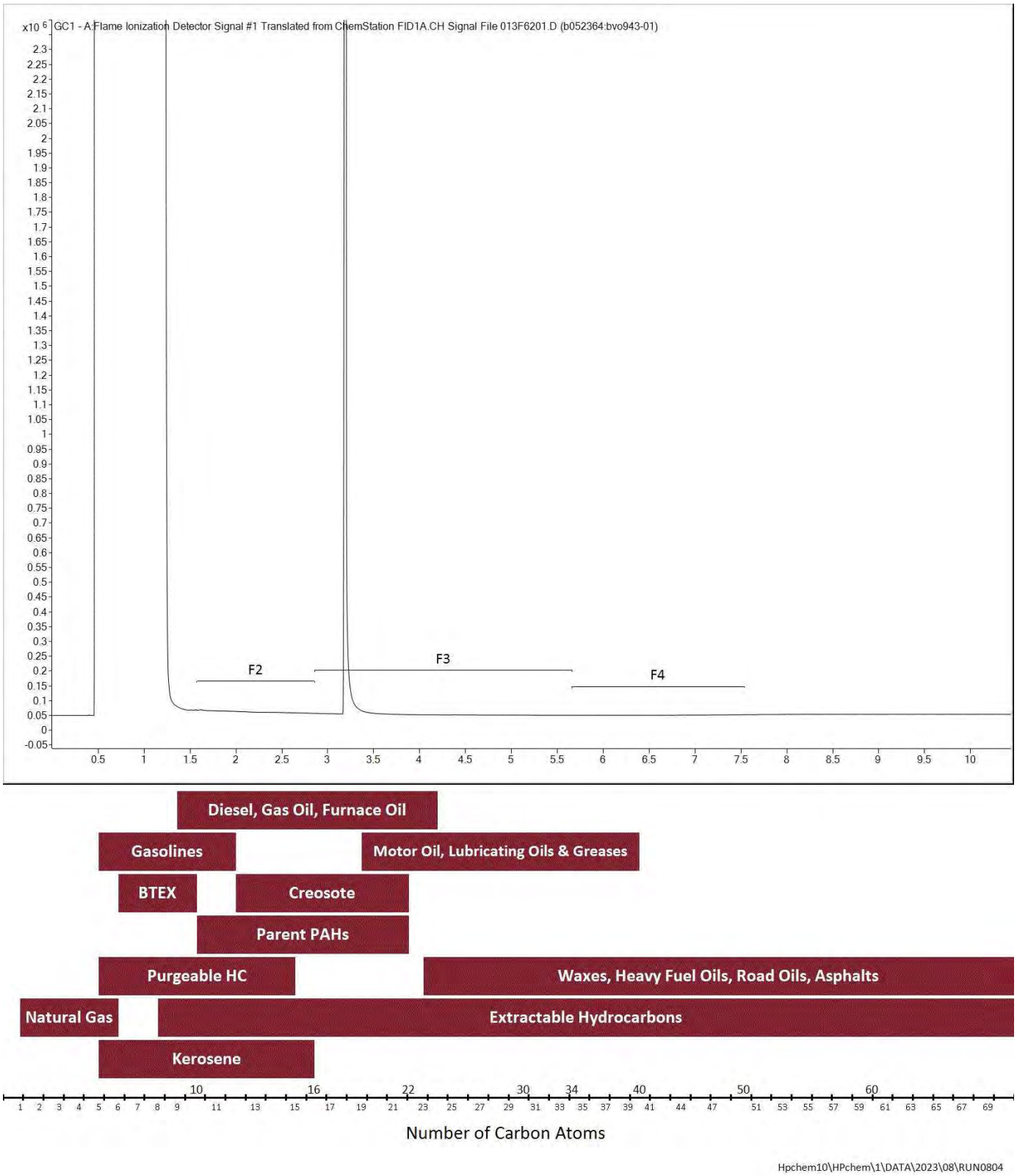


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357542
Report Date: 2023/08/05
Bureau Veritas Sample: BVO943

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14 AVE NW CALGARY
Client ID: BH1959

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

DATA QUALITY REVIEW CHECKLIST

Consultant: *Parsons Inc.*

Sampling Date: *2023/7/27*

Location: *1620 14 AVE NW, CALGARY*

Laboratory : *Bureau Veritas, Calgary, AB*

Consultant Project Number: *10-12832*

Sample Submission Number: *C357956*

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

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

Has CoA been signed off (Yes/No)?:	*Yes*
Has lab warranted all tests were in statistical control in CoA (Yes/No)?:	*Yes*
Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?:	*Yes*
Were all samples analyzed within hold times (Yes/No)?:	*Yes*
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): *Mackenzie Robart*

Reviewed by (Print): *Michelle Patterson*

Reviewed date: *2023/10/03*

Reviewed by (Signature):

Your P.O. #: 478621.17102
Your Project #: 10-12832
Site#: 9445
Site Location: 1620 14AVE NEW CALGARY
WBS 478621.17102
Outlet Number 9445
Your C.O.C. #: 699821-15-01, 699821-14-01

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/09/29
Report #: R3403456
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C357956
Received: 2023/07/27, 15:46

Sample Matrix: Water
Samples Received: 16

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/F1 in Water by HS GC/MS/FID	11	N/A	2023/08/01	AB SOP-00039	CCME CWS/EPA 8260d m
BTEX/F1 in Water by HS GC/MS/FID	5	N/A	2023/08/02	AB SOP-00039	CCME CWS/EPA 8260d m
F1-BTEX	16	N/A	2023/08/02		Auto Calc
CCME Hydrocarbons in Water (F2; C10-C16) (1)	16	2023/08/04	2023/08/05	AB SOP-00037 AB SOP-00040	CCME PHC-CWS m
Total Trihalomethanes Calculation	16	N/A	2023/08/02		Auto Calc
VOCs in Water by HS GC/MS (Std List)	5	N/A	2023/08/01	AB SOP-00056	EPA 5021a/8260d m
VOCs in Water by HS GC/MS (Std List)	11	N/A	2023/08/02	AB SOP-00056	EPA 5021a/8260d m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Silica gel clean up employed.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Your P.O. #: 478621.17102
Your Project #: 10-12832
Site#: 9445
Site Location: 1620 14AVE NEW CALGARY
WBS 478621.17102
Outlet Number 9445
Your C.O.C. #: 699821-15-01, 699821-14-01

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/09/29
Report #: R3403456
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C357956
Received: 2023/07/27, 15:46

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Parminder Virk, Key Account Specialist
Email: Parminder.Virk@bureauveritas.com
Phone# (403)735-2235
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Scott Cantwell, General Manager responsible for Alberta Environmental laboratory operations.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C357956
Report Date: 2023/09/29

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14AVE NEW CALGARY
Your P.O. #: 478621.17102

AT1 BTEX AND F1-F2 IN WATER (WATER)

Bureau Veritas ID		BVR185	BVR186	BVR187	BVR188	BVR189	BVR190		
Sampling Date		2023/07/27 07:15	2023/07/27 07:30	2023/07/27 07:45	2023/07/27 08:00	2023/07/27 08:30	2023/07/27 09:00		
COC Number		699821-15-01	699821-15-01	699821-15-01	699821-15-01	699821-15-01	699821-15-01		
	UNITS	**BH3001B**	**BH3002B**	**BH2002**	**BH3001C**	**BH3002A**	**BH2003**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	B053598
Volatiles									
Benzene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	B053250
Toluene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	B053250
Ethylbenzene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	B053250
m & p-Xylene	mg/L	<0.00080	<0.00080	<0.00080	<0.00080	<0.00080	<0.00080	0.00080	B053250
o-Xylene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	B053250
Xylenes (Total)	mg/L	<0.00089	<0.00089	<0.00089	<0.00089	<0.00089	<0.00089	0.00089	B052785
F1 (C6-C10) - BTEX	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	B052785
F1 (C6-C10)	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	B053250
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	101	102	102	101	100	102		B053250
4-Bromofluorobenzene (sur.)	%	104	103	103	103	104	104		B053250
D4-1,2-Dichloroethane (sur.)	%	98	97	98	97	97	98		B053250
O-TERPHENYL (sur.)	%	104	101	102	102	99	102		B053598
RDL = Reportable Detection Limit									

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C357956
Report Date: 2023/09/29

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14AVE NEW CALGARY
Your P.O. #: 478621.17102

AT1 BTEX AND F1-F2 IN WATER (WATER)

Bureau Veritas ID		BVR191	BVR192	BVR193	BVR194	BVR195	BVR196		
Sampling Date		2023/07/27 09:30	2023/07/27 10:00	2023/07/27 10:30	2023/07/27 11:00	2023/07/27 11:30	2023/07/27 12:00		
COC Number		699821-15-01	699821-15-01	699821-15-01	699821-15-01	699821-14-01	699821-14-01		
	UNITS	**BH3003B**	**BH3001A**	**BH1942**	**BH1941**	**BH1980**	**BH1964**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	<0.10	<0.10	0.11	<0.10	<0.10	0.10	B053598
Volatiles									
Benzene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	B053250
Toluene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	B053250
Ethylbenzene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	B053250
m & p-Xylene	mg/L	<0.00080	<0.00080	<0.00080	<0.00080	<0.00080	<0.00080	0.00080	B053250
o-Xylene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	B053250
Xylenes (Total)	mg/L	<0.00089	<0.00089	<0.00089	<0.00089	<0.00089	<0.00089	0.00089	B052785
F1 (C6-C10) - BTEX	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	B052785
F1 (C6-C10)	mg/L	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	0.10	B053250
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	103	100	101	101	101	102		B053250
4-Bromofluorobenzene (sur.)	%	105	103	104	101	102	101		B053250
D4-1,2-Dichloroethane (sur.)	%	98	95	98	98	99	99		B053250
O-TERPHENYL (sur.)	%	106	100	94	101	103	105		B053598
RDL = Reportable Detection Limit									

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C357956
Report Date: 2023/09/29

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14AVE NEW CALGARY
Your P.O. #: 478621.17102

AT1 BTEX AND F1-F2 IN WATER (WATER)

Bureau Veritas ID		BVR197	BVR198	BVR199	BVR200		
Sampling Date		2023/07/27 12:30	2023/07/27 13:00	2023/07/27 13:30	2023/07/27 14:00		
COC Number		699821-14-01	699821-14-01	699821-14-01	699821-14-01		
	UNITS	**BH1961**	**EB-BAILER-03**	**EB-HYDRA-04**	**TRIP BLANK-09**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon							
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	<0.10	<0.10	<0.10	0.10	B053598
Volatiles							
Benzene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	B053250
Toluene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	B053250
Ethylbenzene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	B053250
m & p-Xylene	mg/L	<0.00080	<0.00080	<0.00080	<0.00080	0.00080	B053250
o-Xylene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	0.00040	B053250
Xylenes (Total)	mg/L	<0.00089	<0.00089	<0.00089	<0.00089	0.00089	B052785
F1 (C6-C10) - BTEX	mg/L	<0.10	<0.10	<0.10	<0.10	0.10	B052785
F1 (C6-C10)	mg/L	<0.10	<0.10	<0.10	<0.10	0.10	B053250
Surrogate Recovery (%)							
1,4-Difluorobenzene (sur.)	%	102	101	102	101		B053250
4-Bromofluorobenzene (sur.)	%	103	103	101	100		B053250
D4-1,2-Dichloroethane (sur.)	%	99	98	99	99		B053250
O-TERPHENYL (sur.)	%	102	101	105	101		B053598
RDL = Reportable Detection Limit							

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Bureau Veritas Job #: C357956
Report Date: 2023/09/29

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14AVE NEW CALGARY
Your P.O. #: 478621.17102

VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		BVR185	BVR186	BVR187	BVR188	BVR189	BVR190		
Sampling Date		2023/07/27 07:15	2023/07/27 07:30	2023/07/27 07:45	2023/07/27 08:00	2023/07/27 08:30	2023/07/27 09:00		
COC Number		699821-15-01	699821-15-01	699821-15-01	699821-15-01	699821-15-01	699821-15-01		
	UNITS	**BH3001B**	**BH3002B**	**BH2002**	**BH3001C**	**BH3002A**	**BH2003**	**RDL**	**QC Batch**
Volatiles									
Total Trihalomethanes	mg/L	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	0.0013	B052836
1,2-dichloroethane	mg/L	0.0043	<0.00050	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	B053251
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	97	96	95	95	95	95		B053251
4-Bromofluorobenzene (sur.)	%	93	94	94	94	92	93		B053251
D4-1,2-Dichloroethane (sur.)	%	108	107	113	111	108	110		B053251
RDL = Reportable Detection Limit									

Bureau Veritas ID		BVR191	BVR192	BVR193	BVR194	BVR195	BVR196		
Sampling Date		2023/07/27 09:30	2023/07/27 10:00	2023/07/27 10:30	2023/07/27 11:00	2023/07/27 11:30	2023/07/27 12:00		
COC Number		699821-15-01	699821-15-01	699821-15-01	699821-15-01	699821-14-01	699821-14-01		
	UNITS	**BH3003B**	**BH3001A**	**BH1942**	**BH1941**	**BH1980**	**BH1964**	**RDL**	**QC Batch**
Volatiles									
Total Trihalomethanes	mg/L	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	<0.0013	0.0013	B052836
1,2-dichloroethane	mg/L	<0.00050	0.0016	<0.00050	<0.00050	0.0037	<0.00050	0.00050	B053251
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	94	95	94	94	95	94		B053251
4-Bromofluorobenzene (sur.)	%	92	93	93	93	93	93		B053251
D4-1,2-Dichloroethane (sur.)	%	107	113	107	114	113	113		B053251
RDL = Reportable Detection Limit									

Bureau Veritas ID		BVR197	BVR198	BVR199	BVR200		
Sampling Date		2023/07/27 12:30	2023/07/27 13:00	2023/07/27 13:30	2023/07/27 14:00		
COC Number		699821-14-01	699821-14-01	699821-14-01	699821-14-01		
	UNITS	**BH1961**	**EB-BAILER-03**	**EB-HYDRA-04**	**TRIP BLANK-09**	**RDL**	**QC Batch**
Volatiles							
Total Trihalomethanes	mg/L	<0.0013	<0.0013	<0.0013	<0.0013	0.0013	B052836
1,2-dichloroethane	mg/L	<0.00050	<0.00050	<0.00050	<0.00050	0.00050	B053251
Surrogate Recovery (%)							
1,4-Difluorobenzene (sur.)	%	93	94	95	94		B053251
4-Bromofluorobenzene (sur.)	%	94	92	94	93		B053251
D4-1,2-Dichloroethane (sur.)	%	112	105	111	113		B053251
RDL = Reportable Detection Limit							

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C357956
Report Date: 2023/09/29

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14AVE NEW CALGARY
Your P.O. #: 478621.17102

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	11.3°C

Version #2: Report re-issued to provide results for parameters requested on the orignal Chain of Custody.

Results relate only to the items tested.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C357956
Report Date: 2023/09/29

QUALITY ASSURANCE REPORT

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14AVE NEW CALGARY
Your P.O. #: 478621.17102

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
B053250	1,4-Difluorobenzene (sur.)	2023/08/01	99	50 - 140	98	50 - 140	100	%		
B053250	4-Bromofluorobenzene (sur.)	2023/08/01	104	50 - 140	103	50 - 140	103	%		
B053250	D4-1,2-Dichloroethane (sur.)	2023/08/01	101	50 - 140	97	50 - 140	95	%		
B053251	1,4-Difluorobenzene (sur.)	2023/08/01	104	50 - 140	104	50 - 140	94	%		
B053251	4-Bromofluorobenzene (sur.)	2023/08/01	100	50 - 140	103	50 - 140	93	%		
B053251	D4-1,2-Dichloroethane (sur.)	2023/08/01	102	50 - 140	92	50 - 140	106	%		
B053598	O-TERPHENYL (sur.)	2023/08/05			109	60 - 140	106	%		
B053250	Benzene	2023/08/01	101	50 - 140	102	60 - 130	<0.00040	mg/L	NC	30
B053250	Ethylbenzene	2023/08/01	99	50 - 140	103	60 - 130	<0.00040	mg/L	NC	30
B053250	F1 (C6-C10)	2023/08/01	95	60 - 140	102	60 - 140	<0.10	mg/L	NC	30
B053250	m & p-Xylene	2023/08/01	100	50 - 140	103	60 - 130	<0.00080	mg/L	NC	30
B053250	o-Xylene	2023/08/01	96	50 - 140	99	60 - 130	<0.00040	mg/L	NC	30
B053250	Toluene	2023/08/01	99	50 - 140	102	60 - 130	<0.00040	mg/L	NC	30
B053251	1,2-dichloroethane	2023/08/01	101	50 - 140	124	60 - 130	<0.00050	mg/L	NC	30
B053598	F2 (C10-C16 Hydrocarbons)	2023/08/05			114	60 - 140	<0.10	mg/L		

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

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

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

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

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

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

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C357956
Report Date: 2023/09/29

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14AVE NEW CALGARY
Your P.O. #: 478621.17102

VALIDATION SIGNATURE PAGE

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

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

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

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas
4000 19st N.E, Calgary, Alberta Canada T2E 6P8 Tel (403) 291-3077 Toll-free 800-563-6266 Fax (403) 291-9468 www.bvna.com

CHAIN OF CUSTODY RECORD

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#11243 PARSONS INC.	Company Name:	#31652 PARSONS INC.	Quotation #:	C30805	Bureau Veritas Job #:	Bottle Order #: 699821
Attention:	ACCOUNTS PAYABLE	Attention:	Rebecca Neufeld	P.O. #:	478621.17102		
Address:	2751 JOHN STREET	Address:	Unit 510, 214 - 11th Avenue SW	Project:	10-12832		
	MARKHAM ON L3R 2Y8		Calgary AB T2R 0K1	Project Name:	1620 14 ave NW Calgary	COC #: C#699821-15-01	Project Manager: Parminder Virk
Tel:	(905) 944-8877 Fax:	Tel:	Fax:	Site #:	9445		
Email:	ParsonsIncAP.Parsons@parsons.com	Email:	rebecca.neufeld@parsons.com,Michelle.Patterson@par	Sampled By:	Cody Whittaker		

Regulatory Criteria:
- [x] ATI
- [ ] CCME
- [ ] Other

Special Instructions: same day sampling

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects
Regular (Standard) TAT: [x]
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details
Job Specific Rush TAT (if applies to entire submission) [ ]
Date Required:
Rush Confirmation Number: (call lab for #)

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	AT1 BTEX and F1-F2 in Water	1,2 Dichloroethane	Routine Water							# of Bottles	Comments
1		BH 3001B	July 27/23	07 15	GW		✓	✓								3	
2		BH 3002B		07:30	GW		✓	✓								3	
3		BH 2002		07:45	GW		✓	✓								3	
4		BH 3001C		08:00	GW		✓	✓								3	
5		BH 3002A		08:30	GW		✓	✓								3	
6		BH 2003		09:00	GW		✓	✓								3	
7		BH 3003B		09:30	GW		✓	✓								3	
8		BH 3001A		10:00	GW		✓	✓								3	
9		BH 1942		10:30	GW		✓	✓								3	
10		BH 1941	July 27/23	11:00	GW		✓	✓								3	

mcal-07-1823 C357856

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Laboratory Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
Cody Whittaker	23/07/27	1400	Maryone Lanuse	2023/07/27	1546	Ø	[ ]	10, 12, 12	[x] Yes [ ] No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.
** ALL SAMPLES ARE HELD FOR 60 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

White: Bureau Veritas Yellow: Client
ICE - yes

Bureau Veritas Canada (2019) Inc.

Bureau Veritas
4000 19st N.E. Calgary, Alberta Canada T2E 6P8 Tel (403) 291-3077 Toll-free 800-563-6266 Fax (403) 291-9468 www.bvna.com

CHAIN OF CUSTODY RECORD

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#11243 PARSONS INC.	Company Name:	#31652 PARSONS INC.	Quotation #:	C30805	Bureau Veritas Job #:	Bottle Order #:
Attention:	ACCOUNTS PAYABLE	Attention:	Rebecca Neufeld	P.O. #:	478621.17102	C357956	699821
Address:	2751 JOHN STREET	Address:	Unit 510, 214 - 11th Avenue SW	Project:	10-12832	COC #:	Project Manager:
	MARKHAM ON L3R 2Y8		Calgary AB T2R 0K1	Project Name:	1620 4 ave NW Calgary	C#699821-14-01	Parminder Virk
Tel:	(905) 944-8877 Fax:	Tel:	Fax:	Site #:	9445		
Email:	ParsonsIncAP.Parsons@parsons.com	Email:	rebecca.neufeld@parsons.com,Michelle.Patterson@par	Sampled By:	Cody Whitaker		

Regulatory Criteria:
- [x] ATI
- [ ] CCME
- [ ] Other

Special Instructions: Same Day Sampling

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects
Regular (Standard) TAT: [x]
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details
Job Specific Rush TAT (if applies to entire submission) [ ]
Date Required:
Rush Confirmation Number:
(call lab for #)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	AT1 BTEX and F1-F2 in Water	1,2 Dichloroethane	Routine Water							# of Bottles	Comments
1		BH1980	Jul 27/23	11:30	GW		✓	✓								3	
2		BH1964		12:00	GW		✓	✓								3	
3		BH1961		12:30	GW		✓	✓								3	
4		EB-Bailer-03		13:00	GW		✓	✓								3	
5		EB-Hydra-04		13:30	GW		✓	✓								3	
6		Trip Blank-09	Jul 27/23	1400	GW		✓	✓								3	
7																	
8																	
9																	
10																	

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Laboratory Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
Cody Whitaker	23/07/27	1400	Jayme Cooke	2023/07/27	1546	0	[ ]	10, 12, 12	[x] Yes [ ] No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.
** ALL SAMPLES ARE HELD FOR 60 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

White: Bureau Veritas Yellow: Client

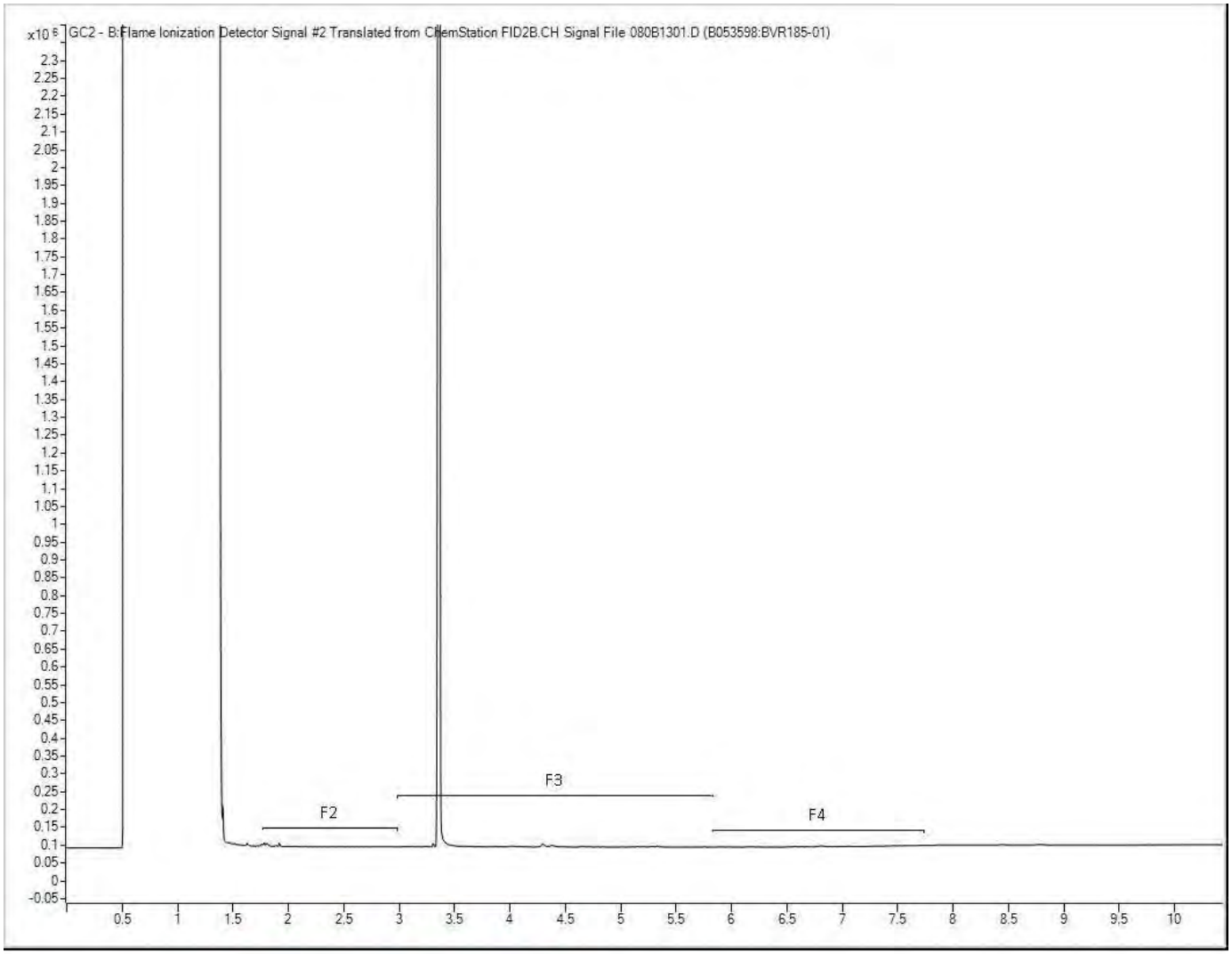
ICE-yes

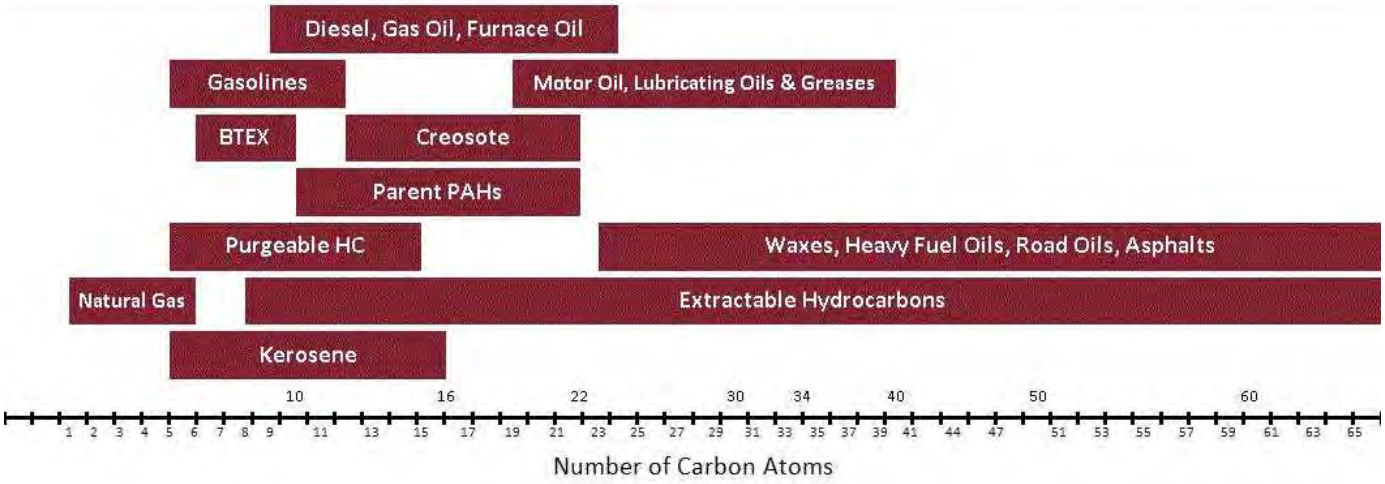
Bureau Veritas Canada (2019) Inc.

Bureau Veritas Job #: C357956
Report Date: 2023/09/29
Bureau Veritas Sample: BVR185

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14AVE NEW CALGARY
Client ID: BH3001B

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





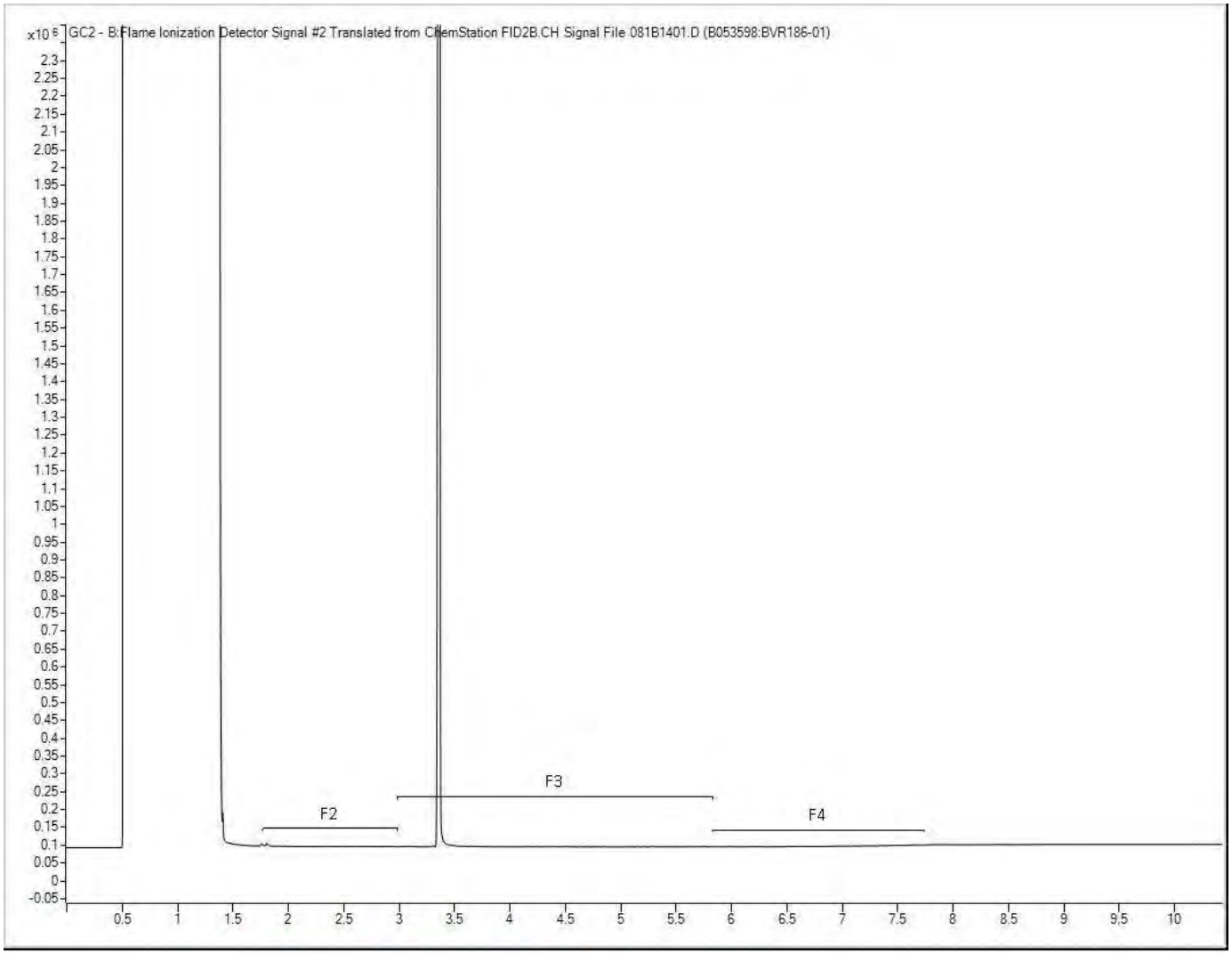
hpchem12\HPchem\1\DATA\2023\08\RUN0805

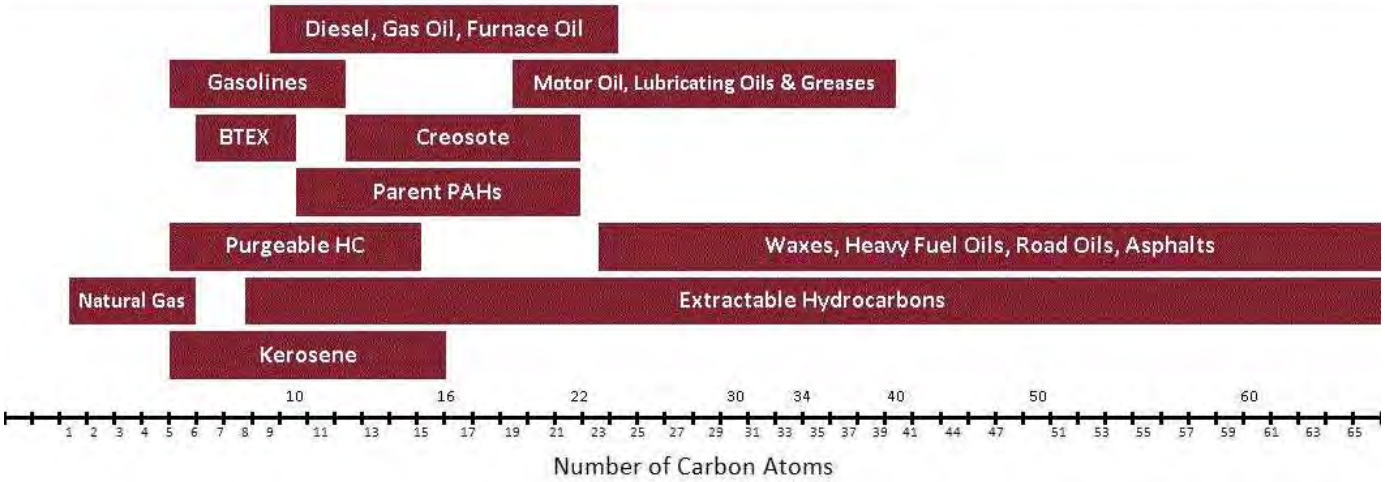
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357956
Report Date: 2023/09/29
Bureau Veritas Sample: BVR186

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14AVE NEW CALGARY
Client ID: BH3002B

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





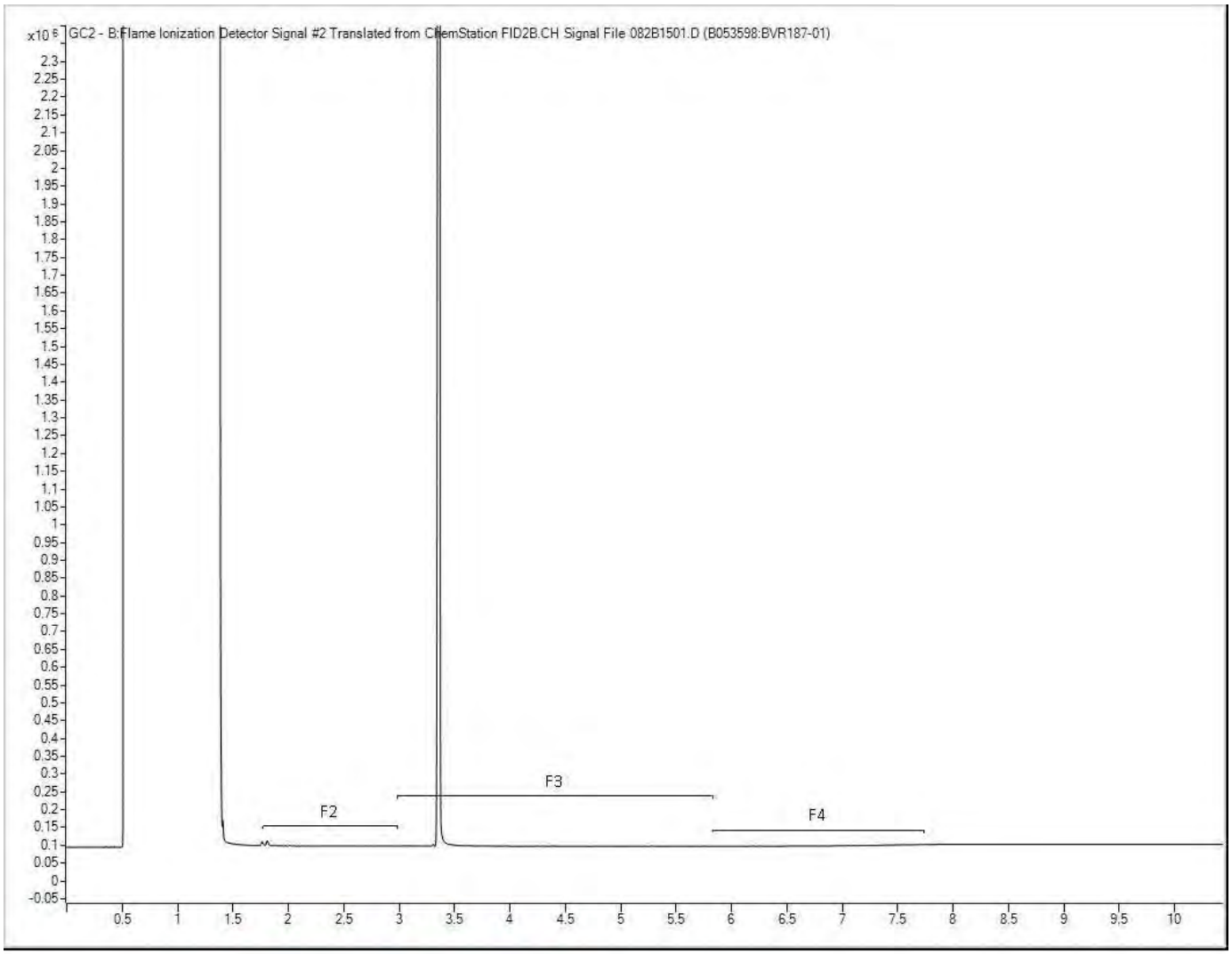
hpchem12\HPchem\1\DATA\2023\08\RUN0805

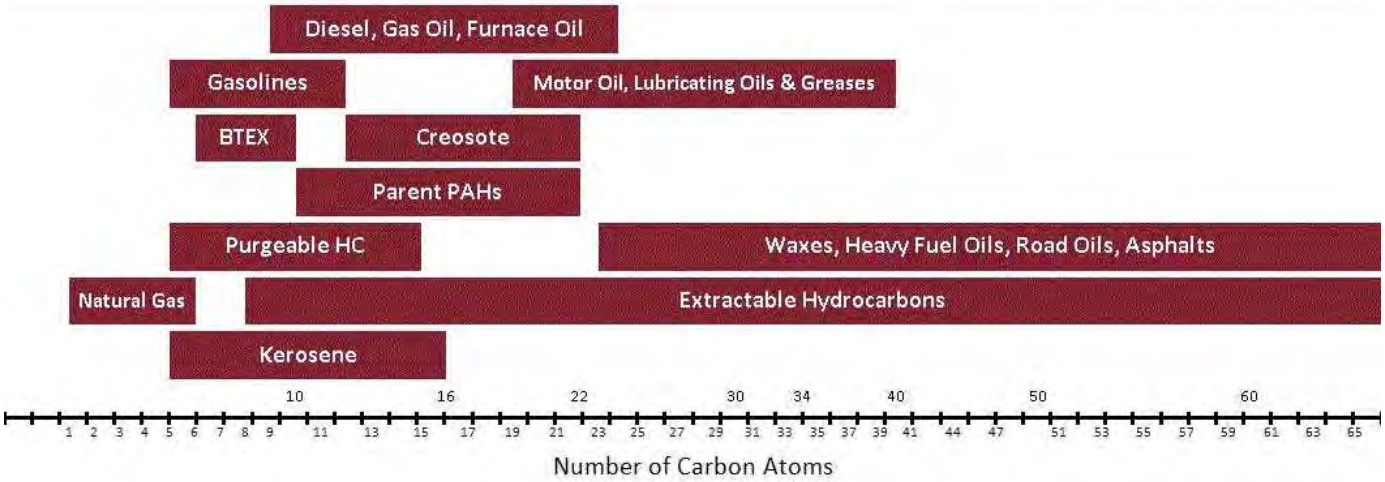
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357956
Report Date: 2023/09/29
Bureau Veritas Sample: BVR187

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14AVE NEW CALGARY
Client ID: BH2002

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





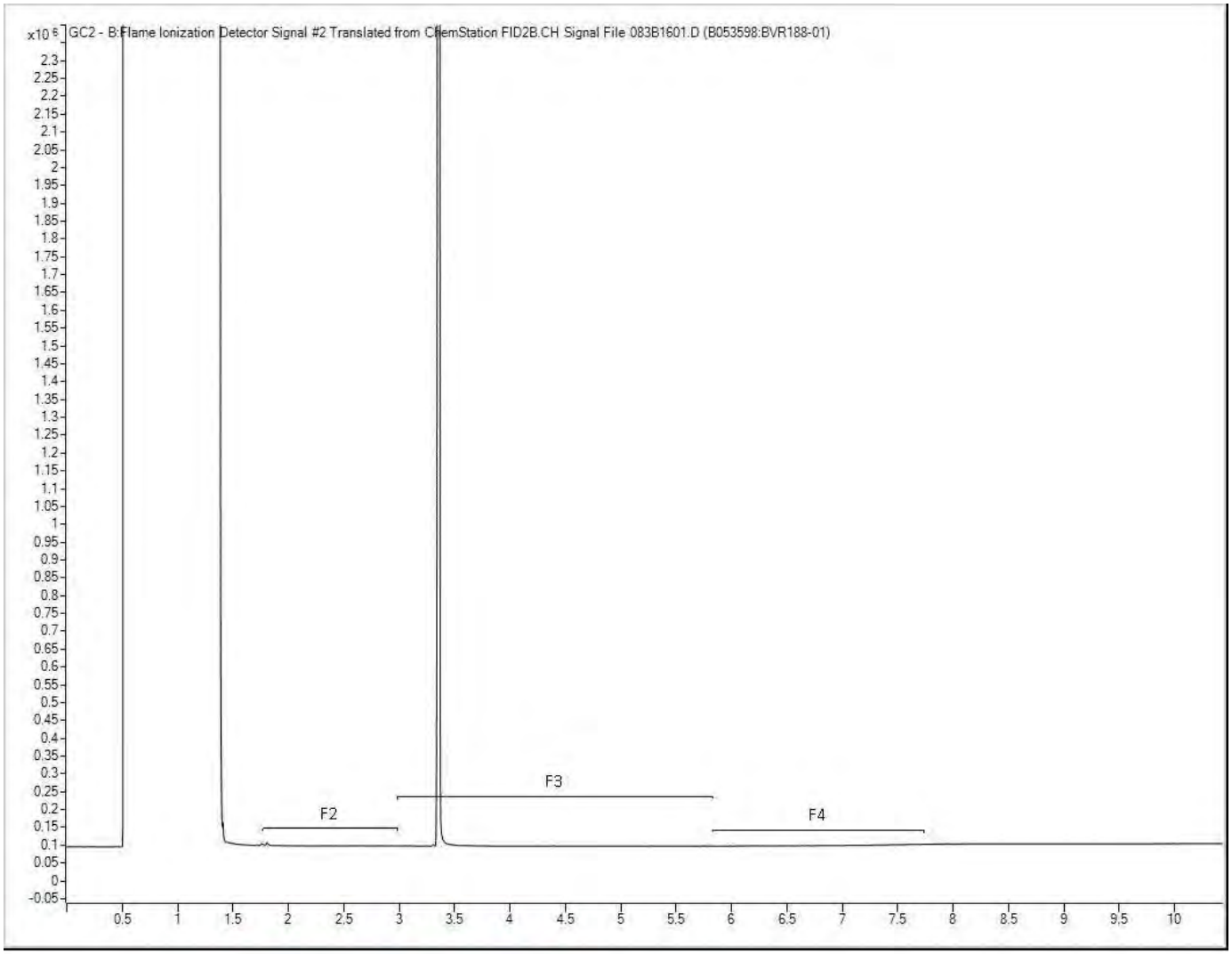
hpchem12\HPchem\1\DATA\2023\08\RUN0805

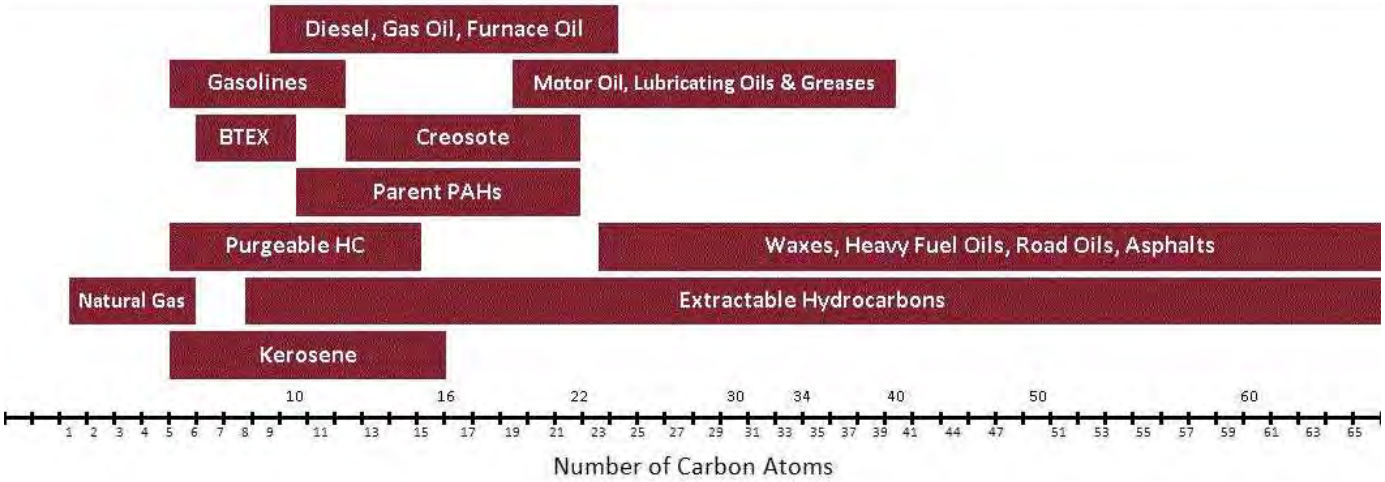
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357956
Report Date: 2023/09/29
Bureau Veritas Sample: BVR188

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14AVE NEW CALGARY
Client ID: BH3001C

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





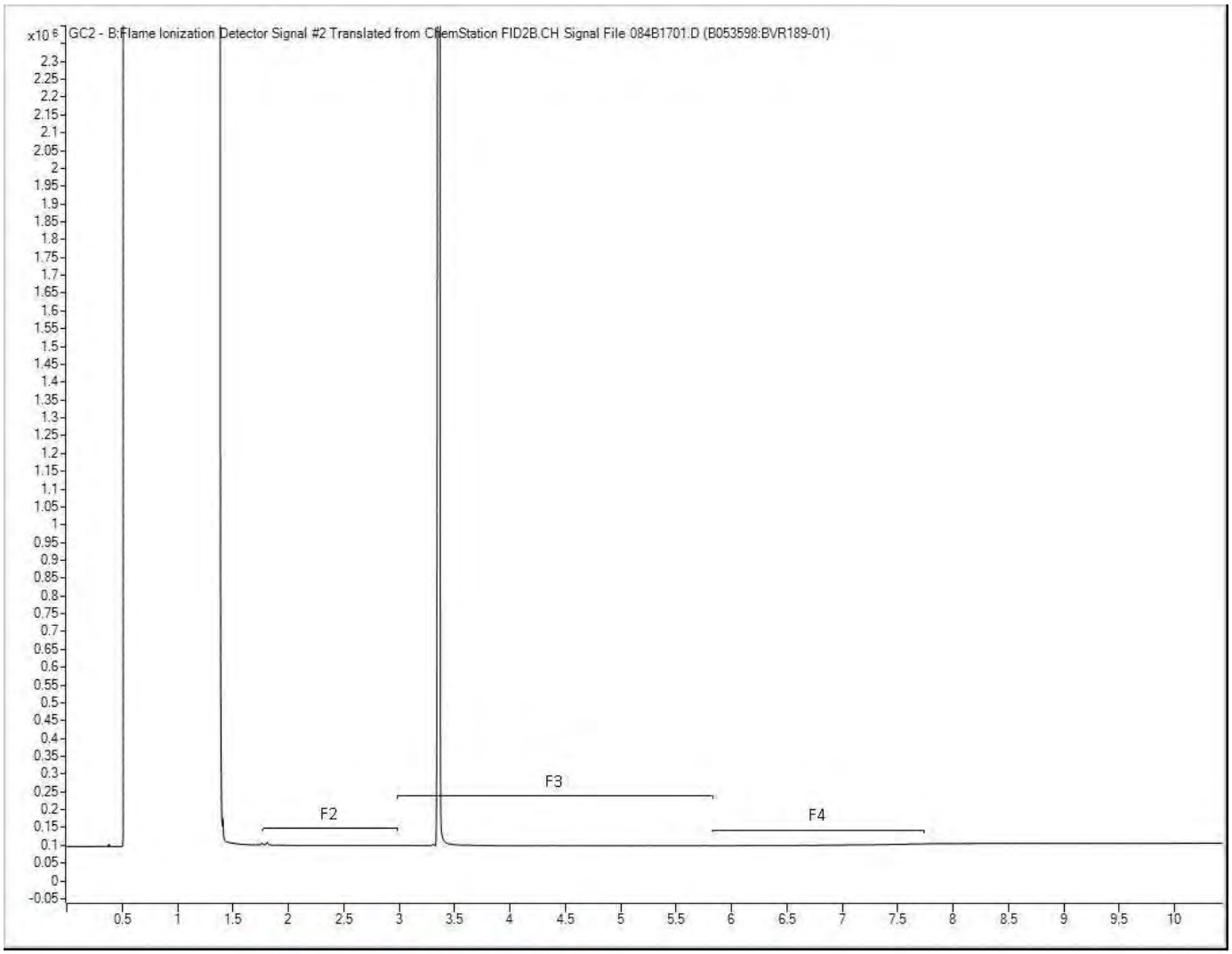
hpchem12\HPchem\1\DATA\2023\08\RUN0805

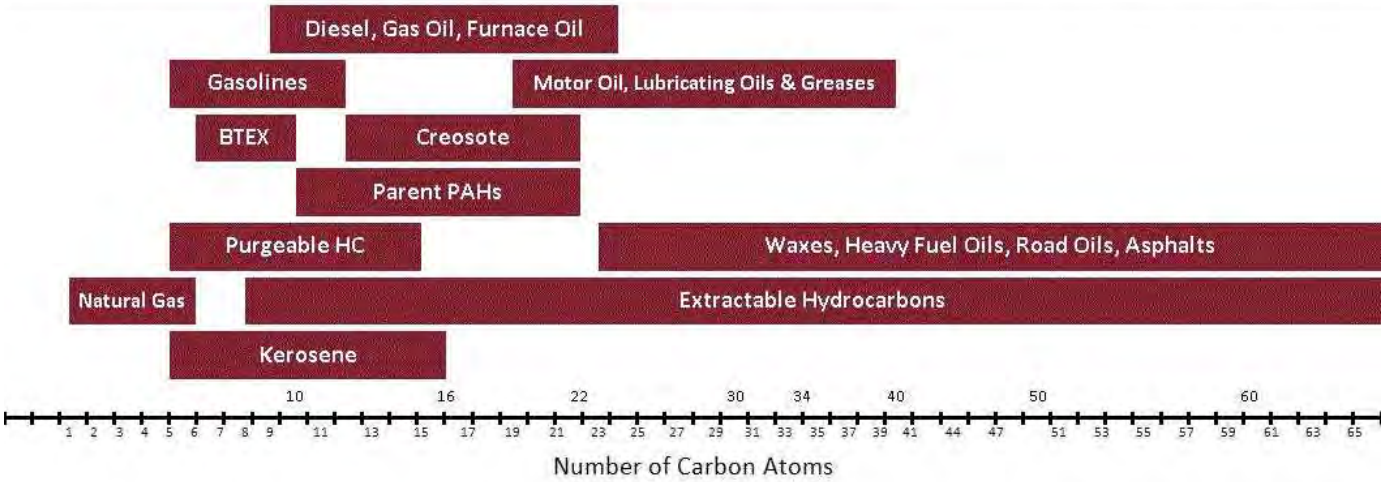
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357956
Report Date: 2023/09/29
Bureau Veritas Sample: BVR189

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14AVE NEW CALGARY
Client ID: BH3002A

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





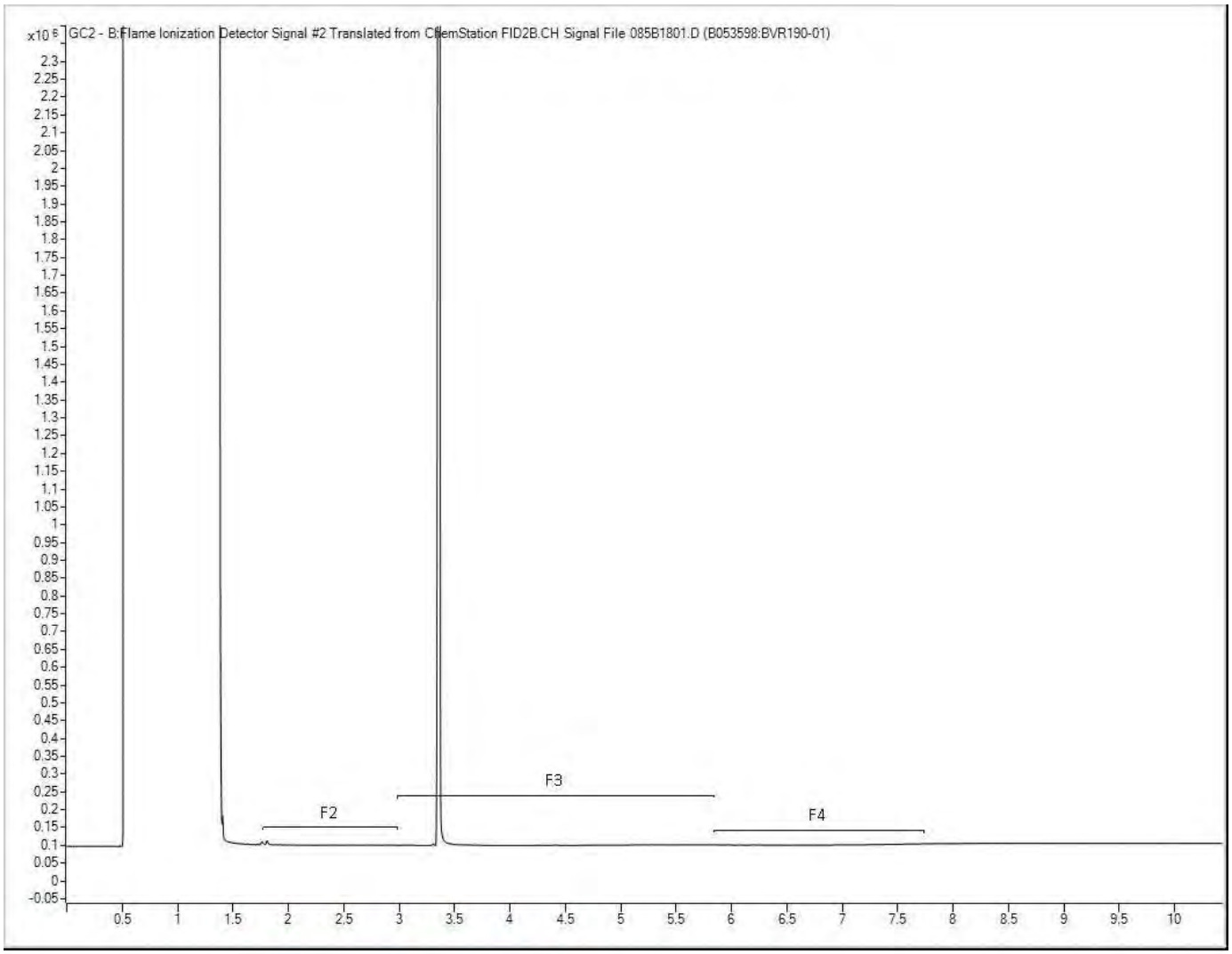
hpchem12\HPchem\1\DATA\2023\08\RUN0805

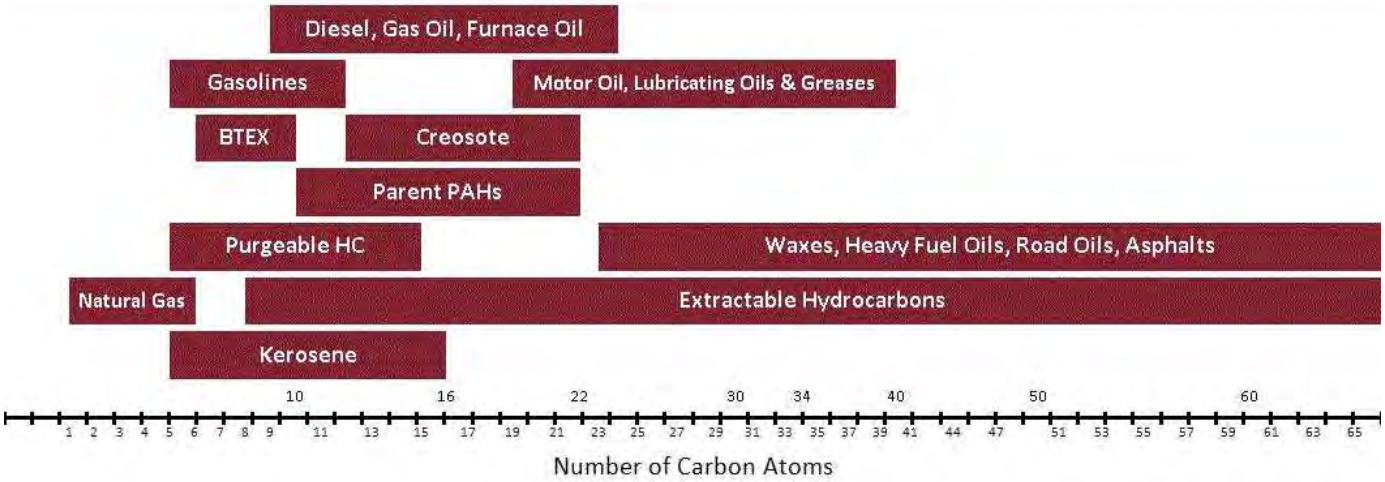
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357956
Report Date: 2023/09/29
Bureau Veritas Sample: BVR190

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14AVE NEW CALGARY
Client ID: BH2003

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





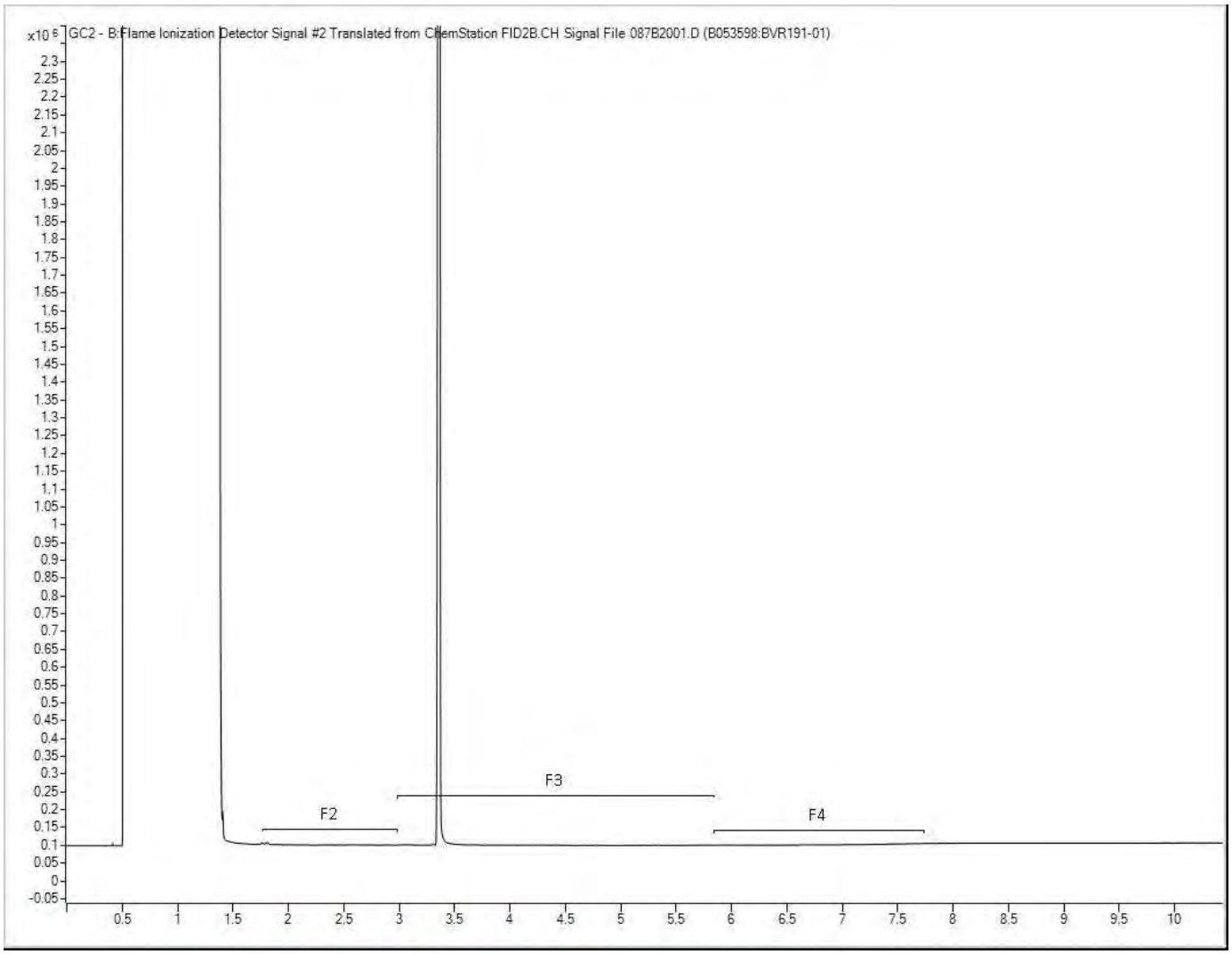
hpchem12\HPchem\1\DATA\2023\08\RUN0805

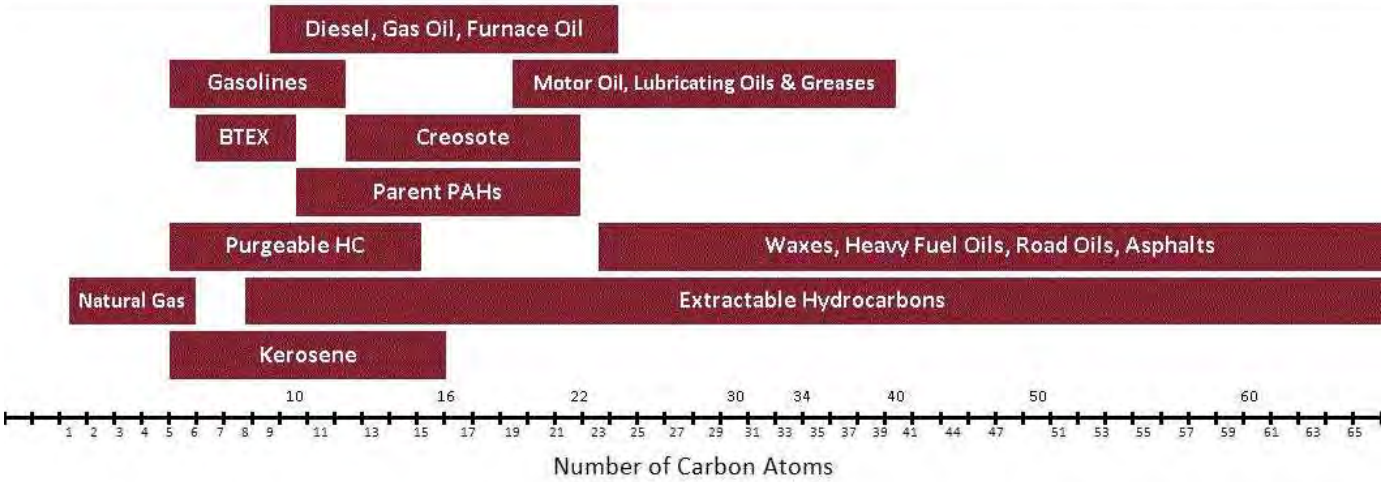
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357956
Report Date: 2023/09/29
Bureau Veritas Sample: BVR191

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14AVE NEW CALGARY
Client ID: BH3003B

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





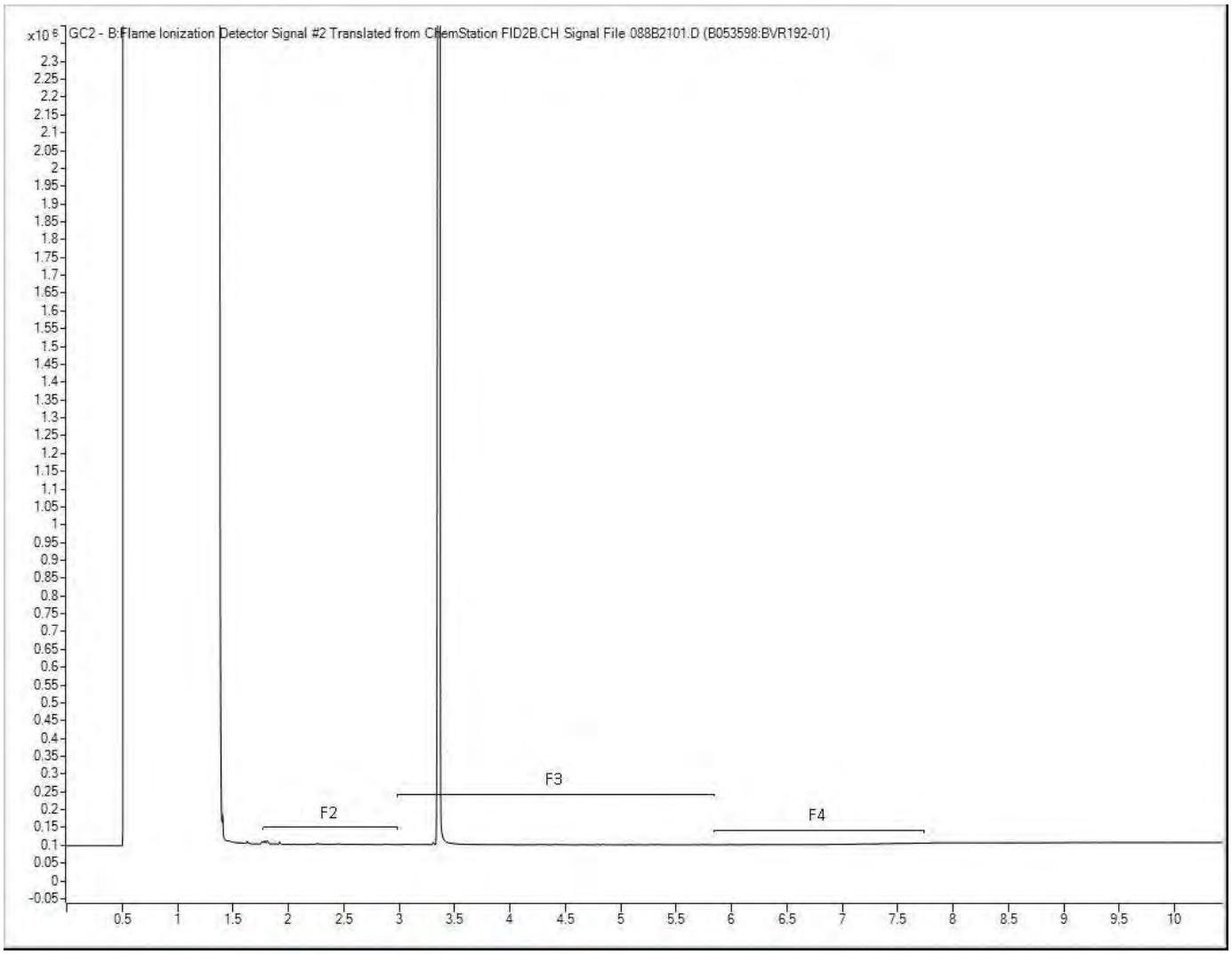
hpchem12\HPchem\1\DATA\2023\08\RUN0805

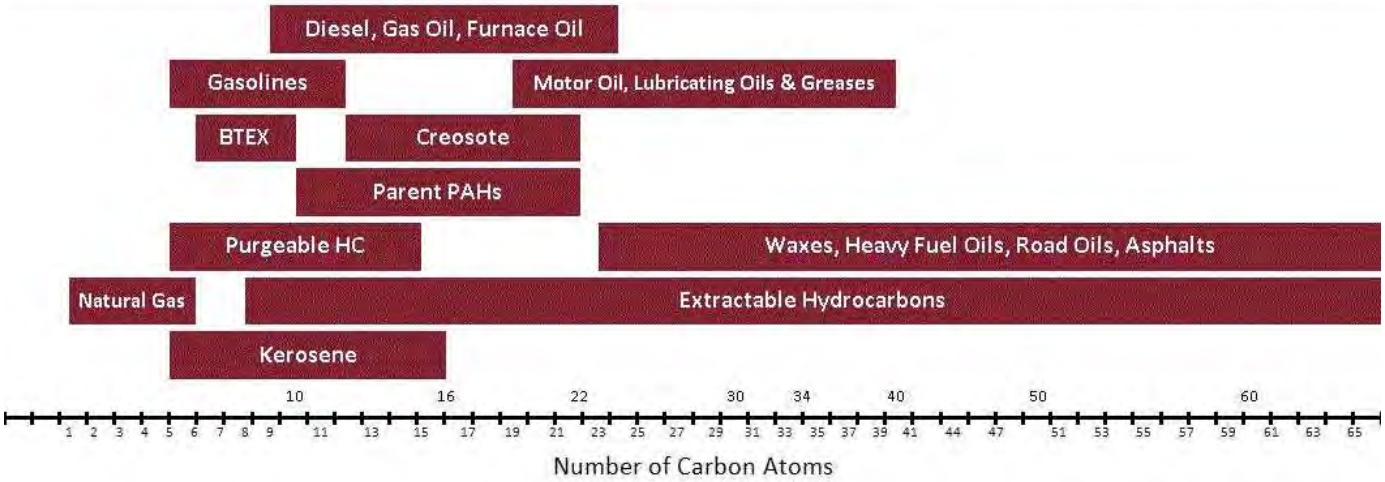
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357956
Report Date: 2023/09/29
Bureau Veritas Sample: BVR192

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14AVE NEW CALGARY
Client ID: BH3001A

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





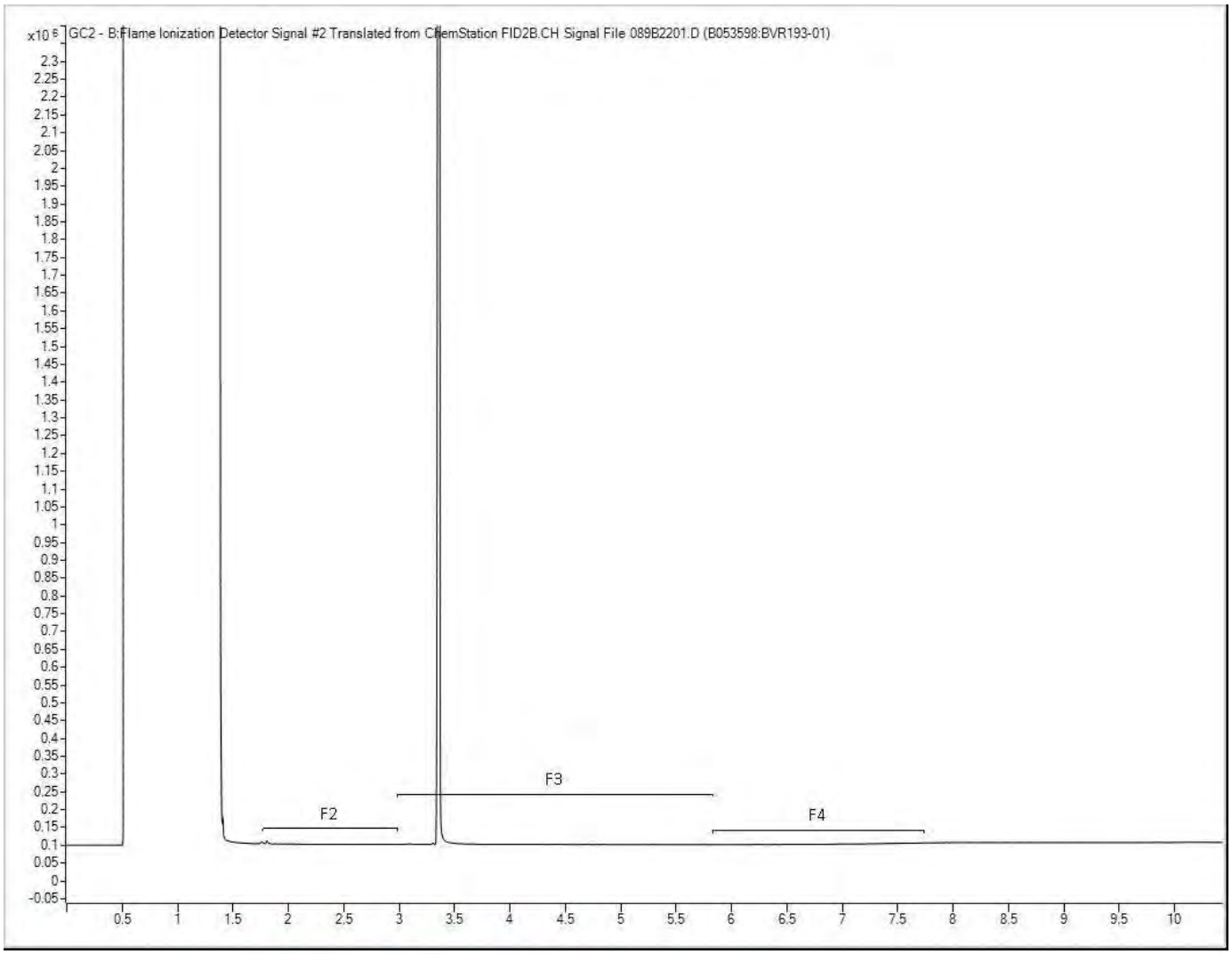
hpchem12\HPchem\1\DATA\2023\08\RUN0805

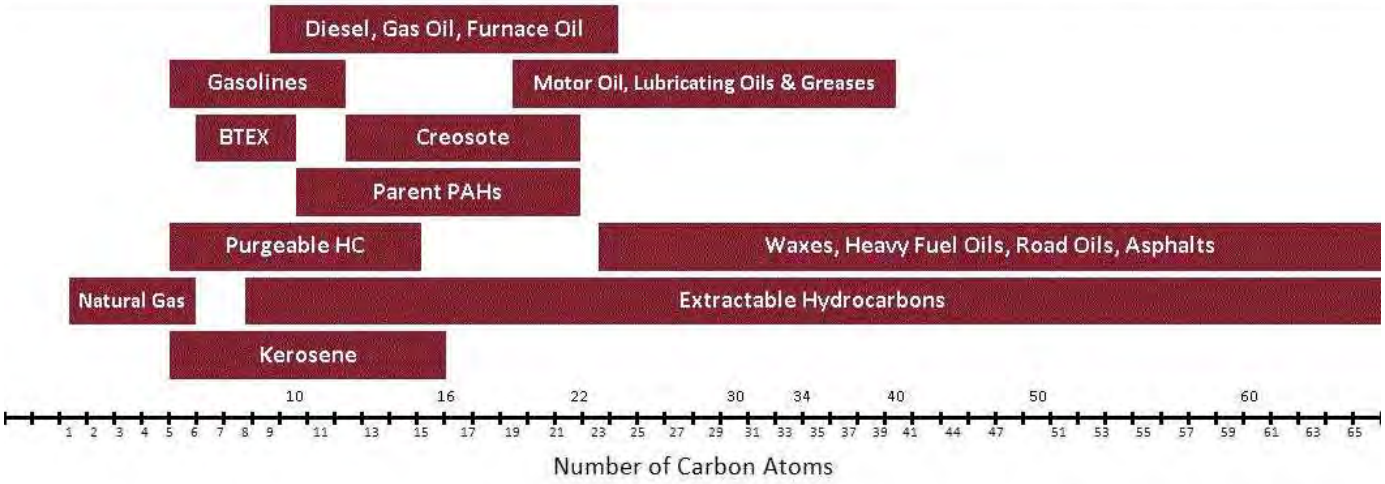
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357956
Report Date: 2023/09/29
Bureau Veritas Sample: BVR193

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14AVE NEW CALGARY
Client ID: BH1942

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





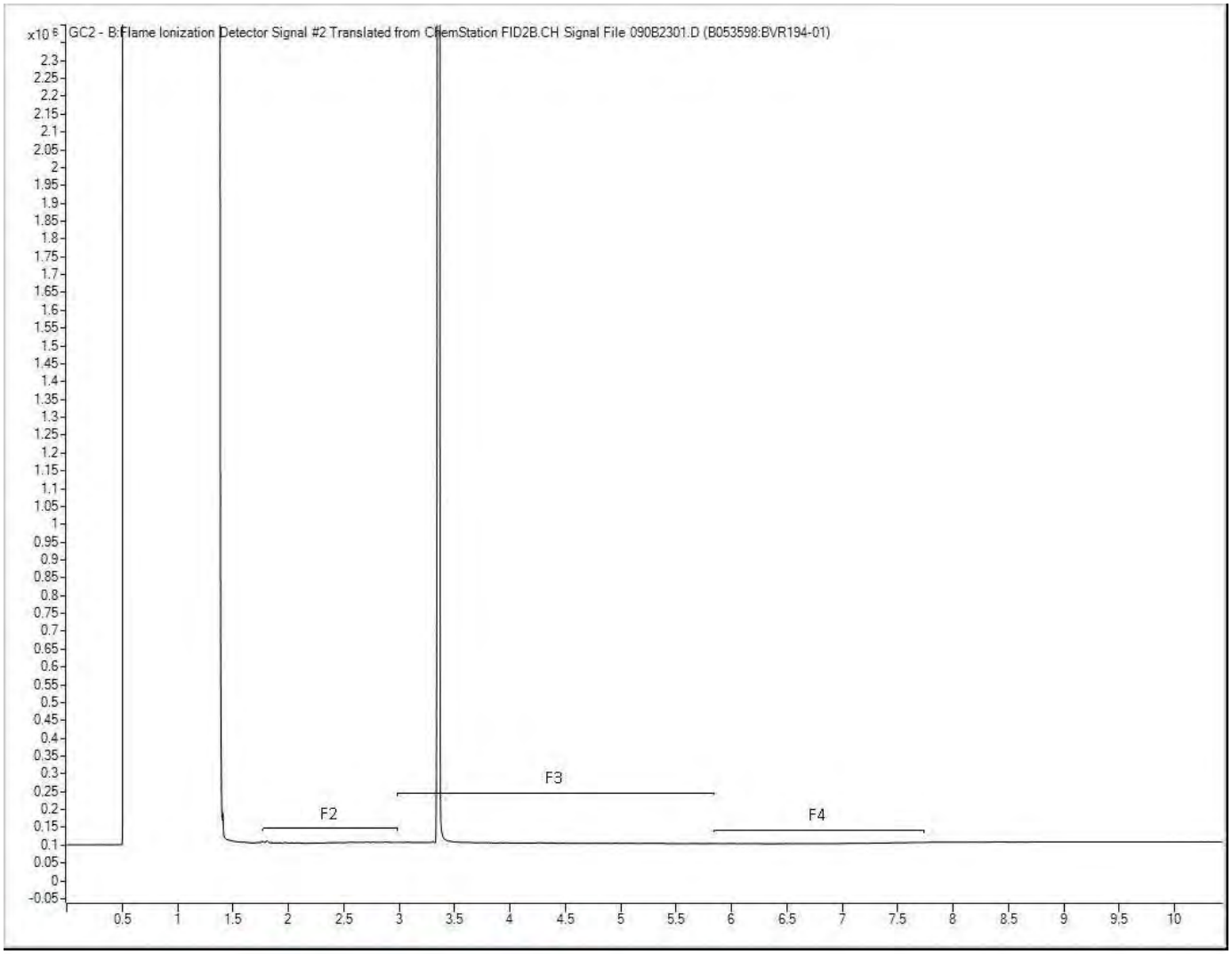
hpchem12\HPchem\1\DATA\2023\08\RUN0805

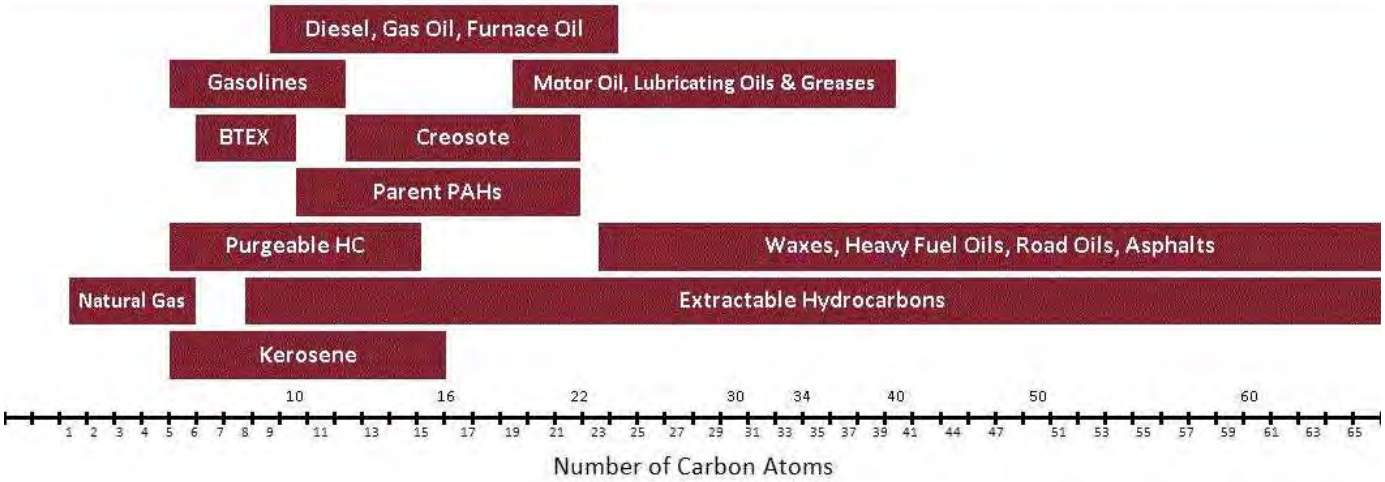
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357956
Report Date: 2023/09/29
Bureau Veritas Sample: BVR194

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14AVE NEW CALGARY
Client ID: BH1941

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





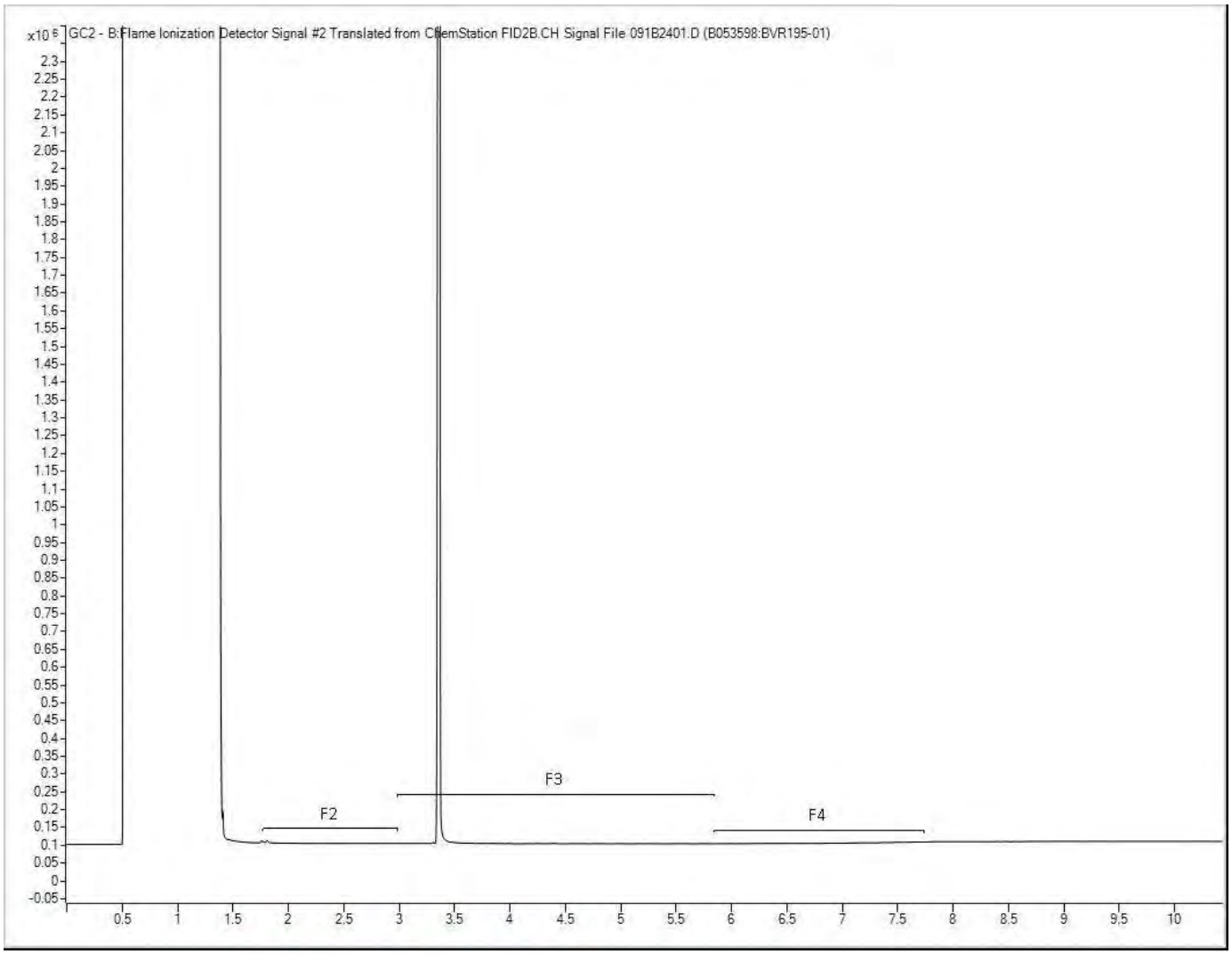
hpchem12\HPchem\1\DATA\2023\08\RUN0805

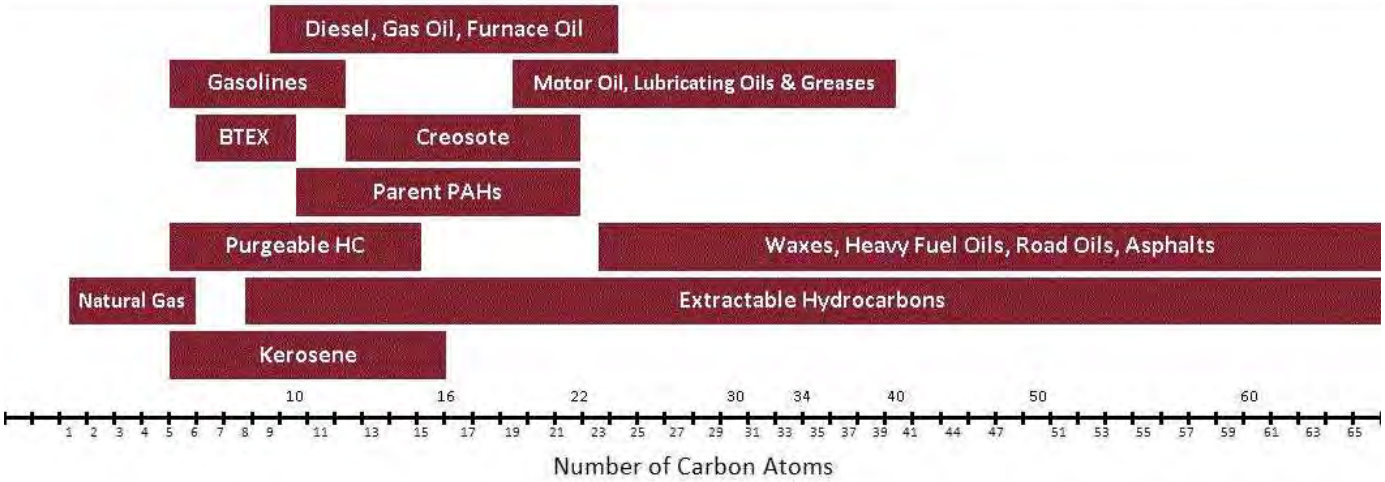
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357956
Report Date: 2023/09/29
Bureau Veritas Sample: BVR195

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14AVE NEW CALGARY
Client ID: BH1980

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





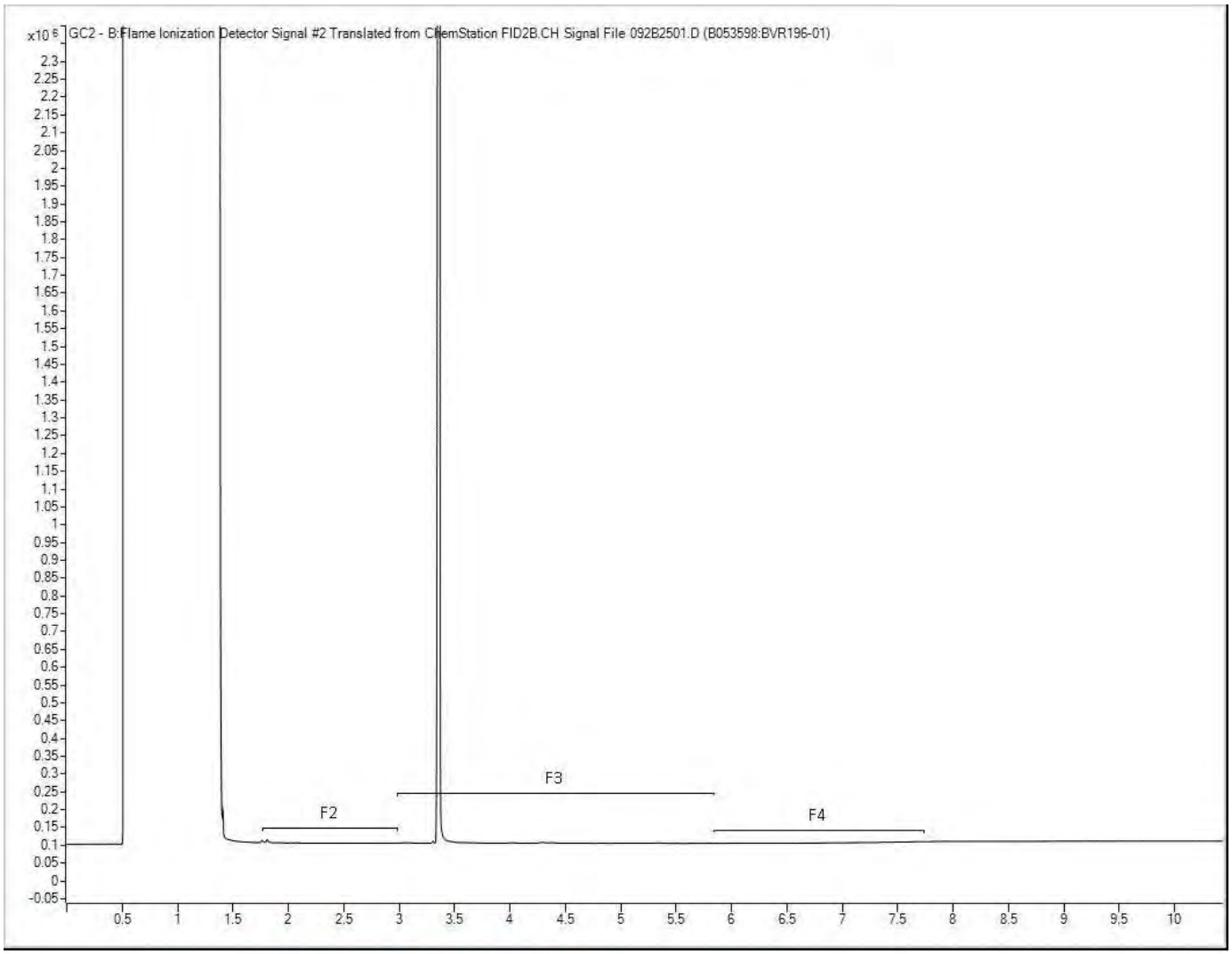
hpchem12\HPchem\1\DATA\2023\08\RUN0805

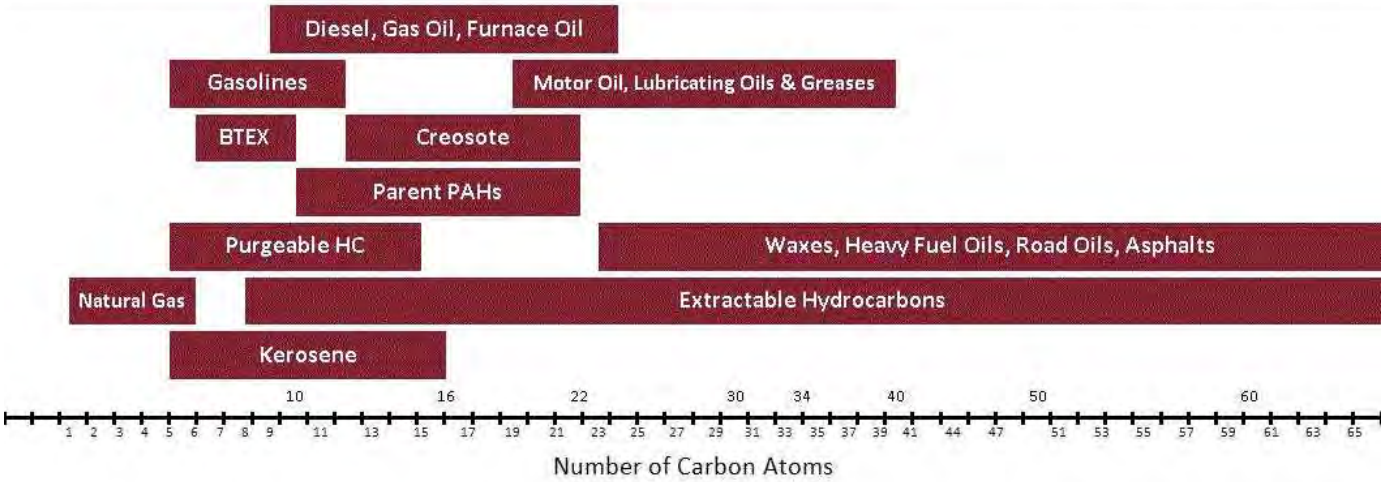
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357956
Report Date: 2023/09/29
Bureau Veritas Sample: BVR196

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14AVE NEW CALGARY
Client ID: BH1964

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





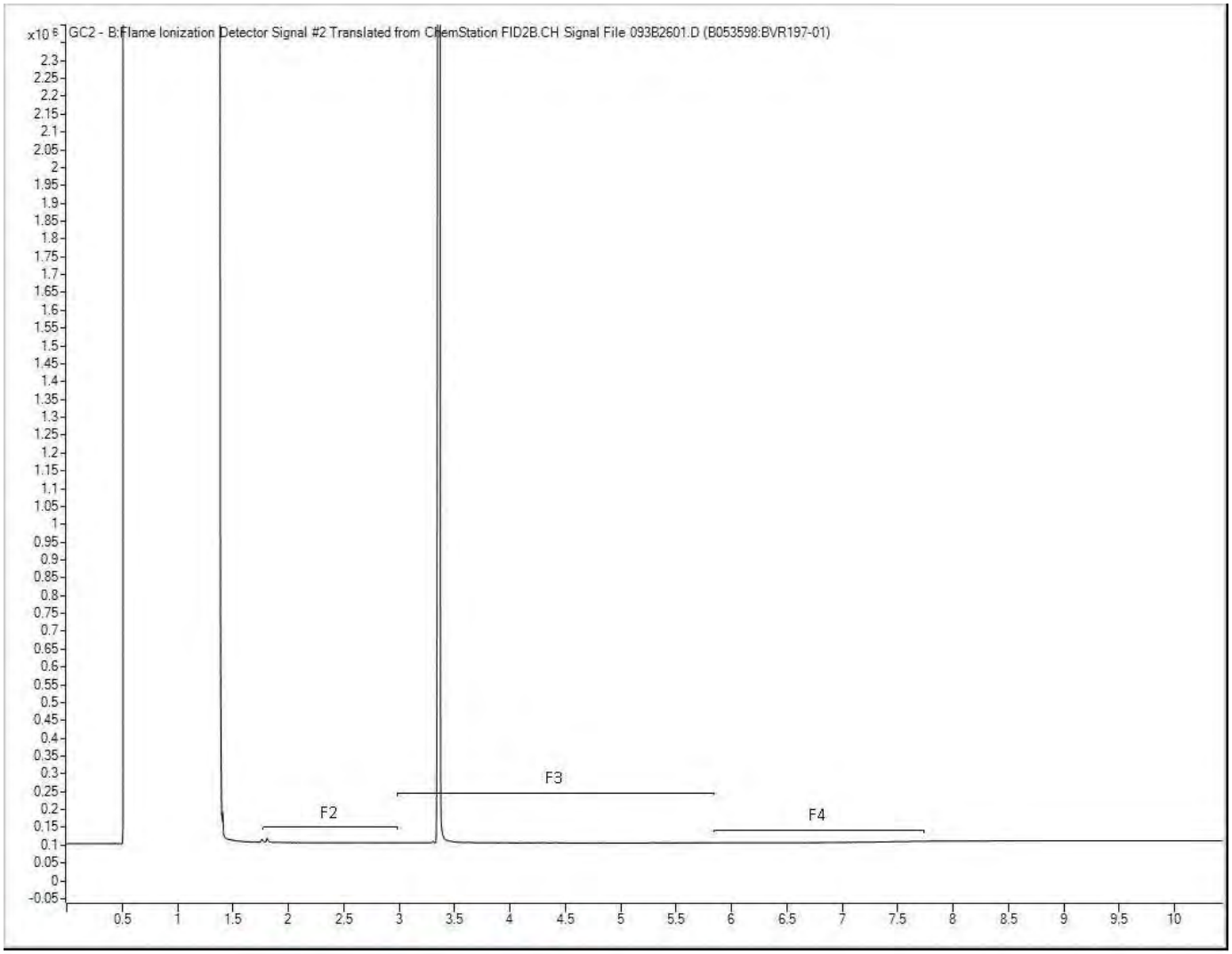
hpchem12\HPchem\1\DATA\2023\08\RUN0805

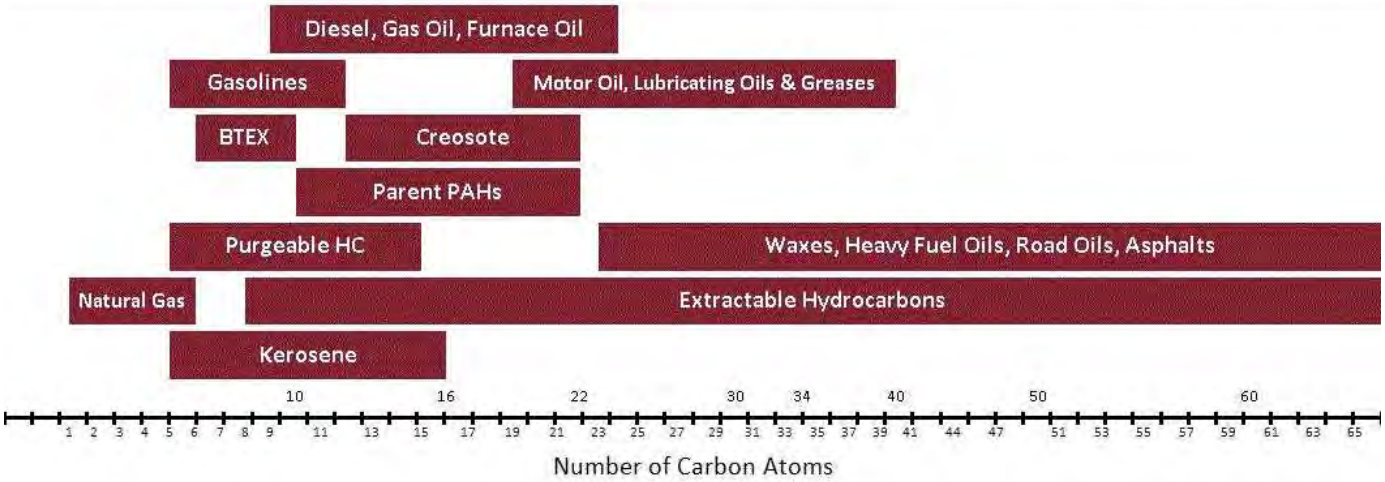
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357956
Report Date: 2023/09/29
Bureau Veritas Sample: BVR197

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14AVE NEW CALGARY
Client ID: BH1961

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





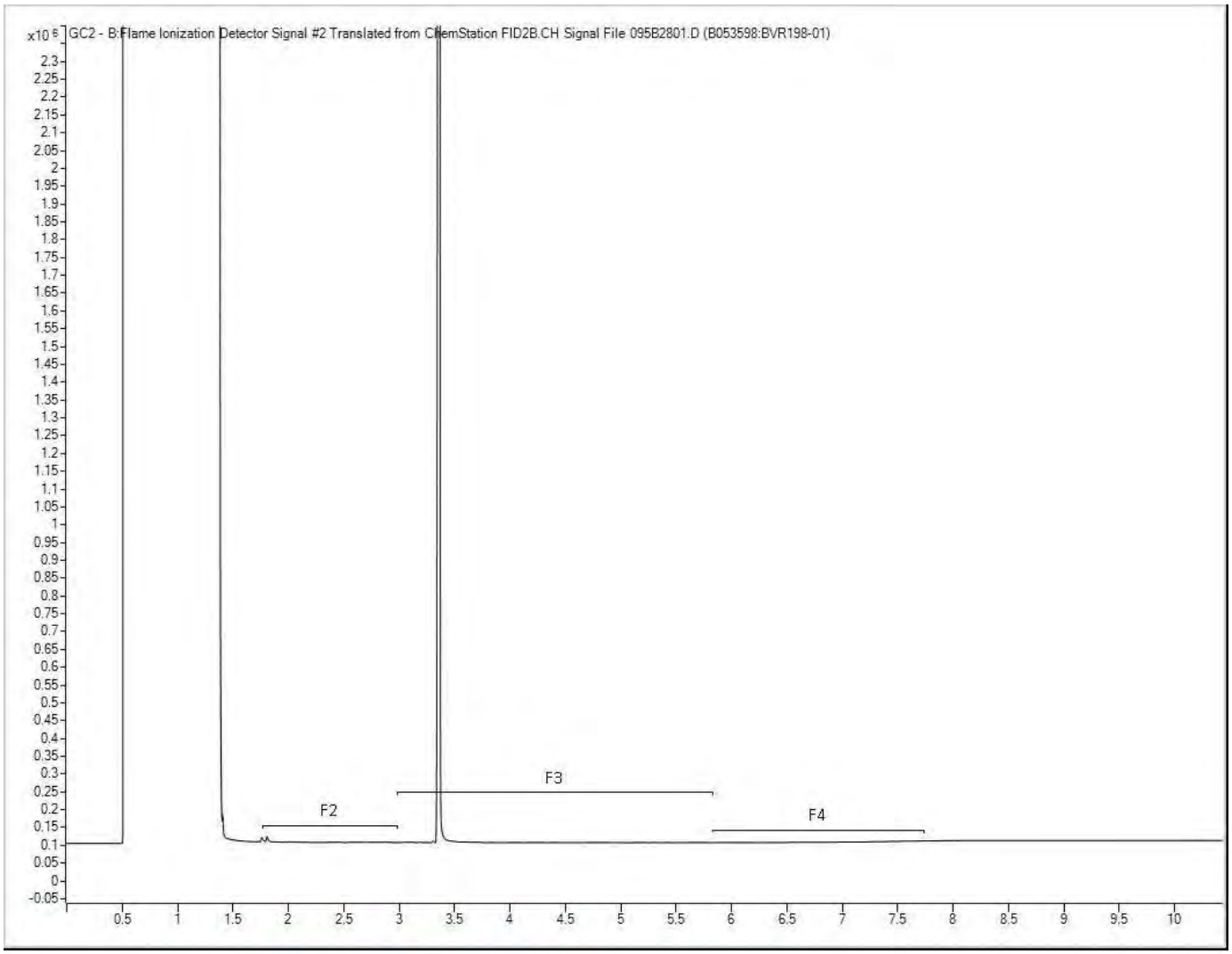
hpchem12\HPchem\1\DATA\2023\08\RUN0805

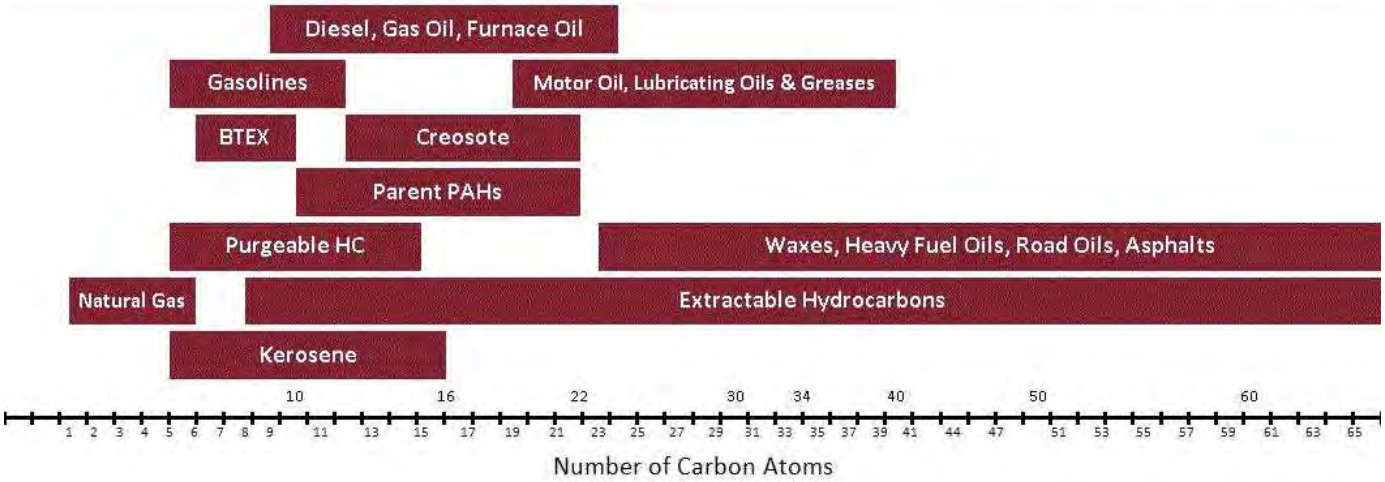
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357956
Report Date: 2023/09/29
Bureau Veritas Sample: BVR198

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14AVE NEW CALGARY
Client ID: EB-BAILER-03

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





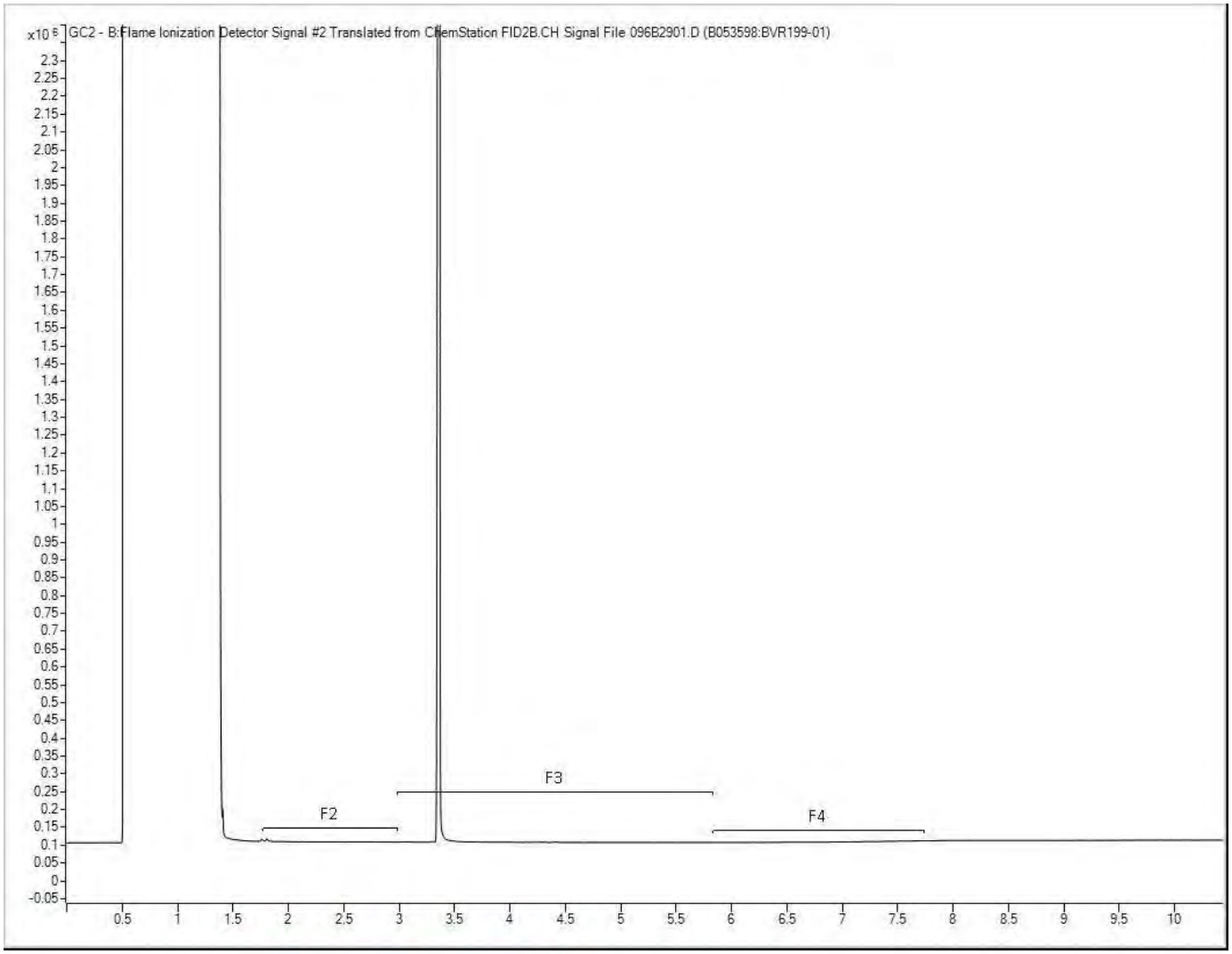
hpchem12\HPchem\1\DATA\2023\08\RUN0805

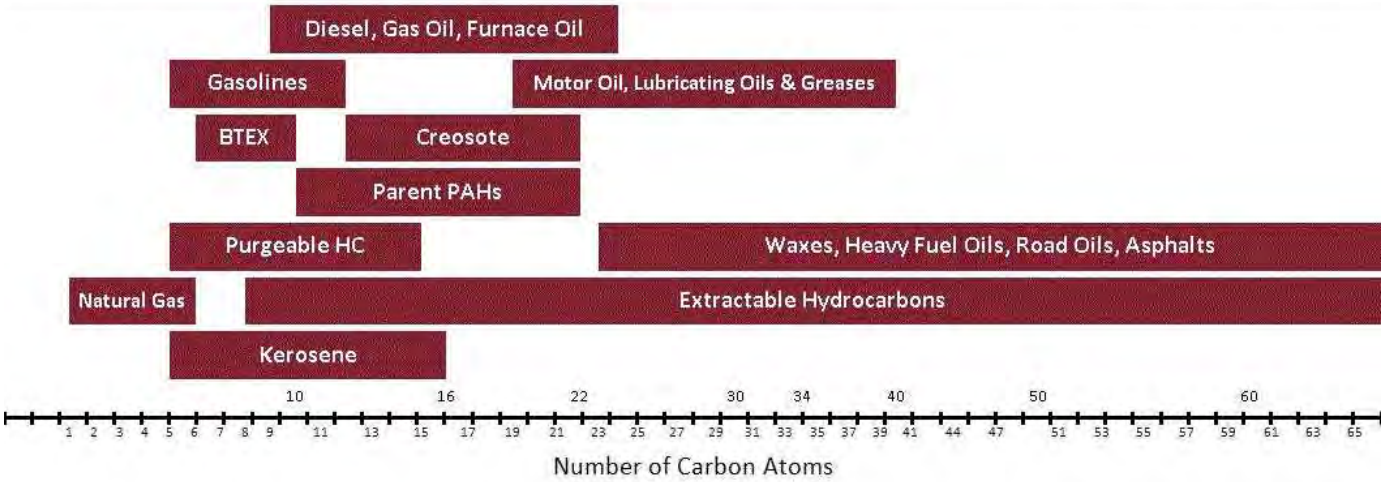
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357956
Report Date: 2023/09/29
Bureau Veritas Sample: BVR199

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14AVE NEW CALGARY
Client ID: EB-HYDRA-04

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





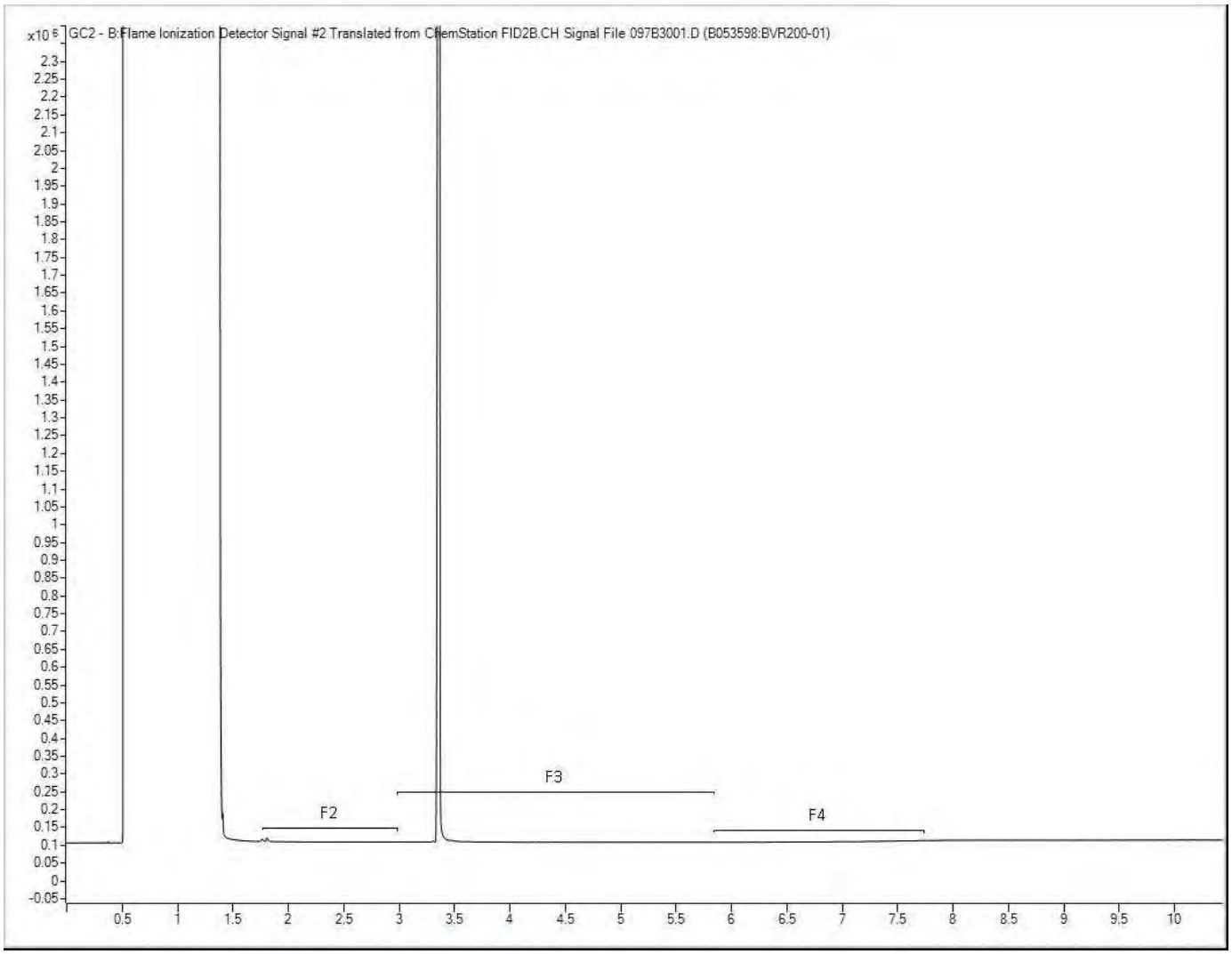
hpchem12\HPchem\1\DATA\2023\08\RUN0805

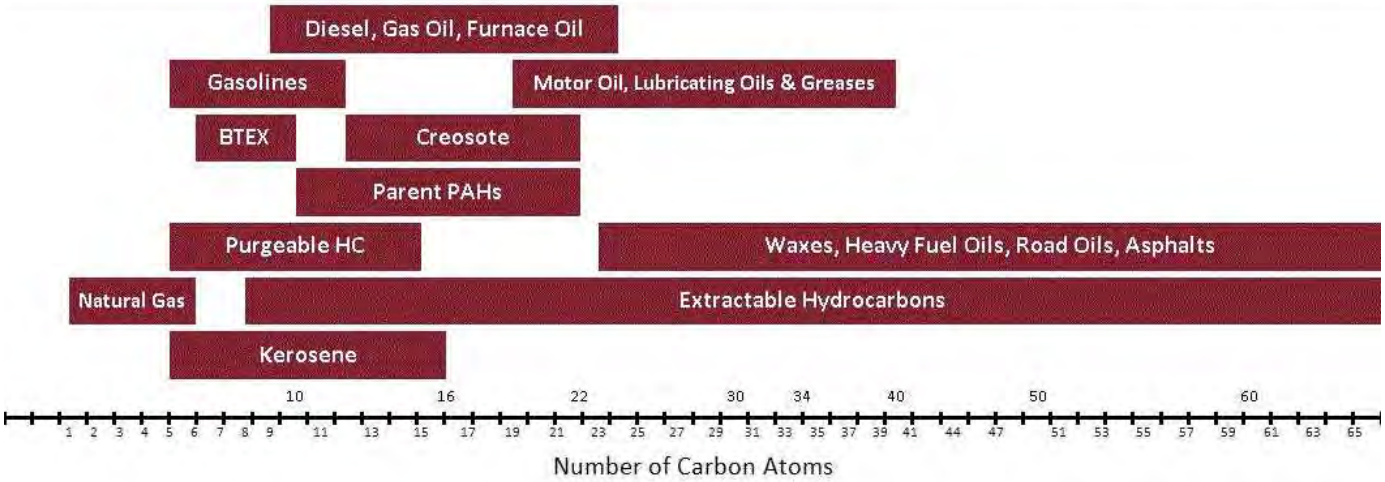
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C357956
Report Date: 2023/09/29
Bureau Veritas Sample: BVR200

PARSONS INC.
Client Project #: 10-12832
Site Reference: 1620 14AVE NEW CALGARY
Client ID: TRIP BLANK-09

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





hpchem12\HPchem\1\DATA\2023\08\RUN0805

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

DATA QUALITY REVIEW CHECKLIST

Consultant: *Parsons Inc.*

Sampling Date: *2023/8/9*

Location: *1620 14 AVE NW, CALGARY*

Laboratory : *Bureau Veritas, Calgary, AB*

Consultant Project Number: *10-12832*

Sample Submission Number: *C361247*

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
Field 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*
Has lab warranted all tests were in statistical control in CoA (Yes/No)?:	*Yes*
Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?:	*Yes*
Were all samples analyzed within hold times (Yes/No)?:	*Yes*
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): *Mackenzie Robart*

Reviewed by (Print): *Michelle Patterson*

Reviewed date: *2023/10/03*

Reviewed by (Signature):

Your P.O. #: 478092.17104
Your Project #: 10-12832
Site Location: 1620 14 AVE NW, CALGARY
WBS # 478092.17104
Outlet Number 9445
Your C.O.C. #: 702869-12-01

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/08/15
Report #: R3380501
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C361247
Received: 2023/08/09, 16:38

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Trihalomethanes Calculation	1	N/A	2023/08/14		Auto Calc
VOCs in Water by HS GC/MS (Std List)	1	N/A	2023/08/11	AB SOP-00056	EPA 5021a/8260d m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
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Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Your P.O. #: 478092.17104
Your Project #: 10-12832
Site Location: 1620 14 AVE NW, CALGARY
WBS # 478092.17104
Outlet Number 9445
Your C.O.C. #: 702869-12-01

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/08/15
Report #: R3380501
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C361247
Received: 2023/08/09, 16:38

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Parminder Virk, Key Account Specialist
Email: Parminder.Virk@bureauveritas.com
Phone# (403)735-2235
==========
This report has been generated and distributed using a secure automated process.
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Scott Cantwell, General Manager responsible for Alberta Environmental laboratory operations.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C361247
Report Date: 2023/08/15

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14 AVE NW, CALGARY
Your P.O. #: 478092.17104
Sampler Initials: RN

VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		BWL565		
Sampling Date		2023/08/09 11:15		
COC Number		702869-12-01		
	UNITS	**BH1963**	**RDL**	**QC Batch**
Volatiles				
Total Trihalomethanes	mg/L	<0.0013	0.0013	B064915
Benzene	mg/L	0.0047	0.00040	B067846
Bromodichloromethane	mg/L	<0.00050	0.00050	B067846
Bromoform	mg/L	<0.00050	0.00050	B067846
Bromomethane	mg/L	<0.0020	0.0020	B067846
Carbon tetrachloride	mg/L	<0.00050	0.00050	B067846
Chlorobenzene	mg/L	<0.00050	0.00050	B067846
Dibromochloromethane	mg/L	<0.0010	0.0010	B067846
Chloroethane	mg/L	<0.0010	0.0010	B067846
Chloroform	mg/L	<0.00050	0.00050	B067846
Chloromethane	mg/L	<0.0020	0.0020	B067846
1,2-dibromoethane	mg/L	<0.00020	0.00020	B067846
1,2-dichlorobenzene	mg/L	<0.00050	0.00050	B067846
1,3-dichlorobenzene	mg/L	<0.00050	0.00050	B067846
1,4-dichlorobenzene	mg/L	<0.00050	0.00050	B067846
1,1-dichloroethane	mg/L	<0.00050	0.00050	B067846
1,2-dichloroethane	mg/L	<0.00050	0.00050	B067846
1,1-dichloroethene	mg/L	<0.00050	0.00050	B067846
cis-1,2-dichloroethene	mg/L	<0.00050	0.00050	B067846
trans-1,2-dichloroethene	mg/L	<0.00050	0.00050	B067846
Dichloromethane	mg/L	<0.0020	0.0020	B067846
1,2-dichloropropane	mg/L	<0.00050	0.00050	B067846
cis-1,3-dichloropropene	mg/L	<0.00050	0.00050	B067846
trans-1,3-dichloropropene	mg/L	<0.00050	0.00050	B067846
Ethylbenzene	mg/L	<0.00040	0.00040	B067846
Methyl methacrylate	mg/L	<0.00050	0.00050	B067846
Methyl-tert-butylether (MTBE)	mg/L	<0.00050	0.00050	B067846
Styrene	mg/L	<0.00050	0.00050	B067846
1,1,1,2-tetrachloroethane	mg/L	<0.0010	0.0010	B067846
1,1,2,2-tetrachloroethane	mg/L	<0.0020	0.0020	B067846
Tetrachloroethene	mg/L	<0.00050	0.00050	B067846
RDL = Reportable Detection Limit				

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C361247
Report Date: 2023/08/15

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14 AVE NW, CALGARY
Your P.O. #: 478092.17104
Sampler Initials: RN

VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		BWL565		
Sampling Date		2023/08/09 11:15		
COC Number		702869-12-01		
	UNITS	**BH1963**	**RDL**	**QC Batch**
Toluene	mg/L	<0.00040	0.00040	B067846
1,2,3-trichlorobenzene	mg/L	<0.0010	0.0010	B067846
1,2,4-trichlorobenzene	mg/L	<0.0010	0.0010	B067846
1,3,5-trichlorobenzene	mg/L	<0.00050	0.00050	B067846
1,1,1-trichloroethane	mg/L	<0.00050	0.00050	B067846
1,1,2-trichloroethane	mg/L	<0.00050	0.00050	B067846
Trichloroethene	mg/L	<0.00020	0.00020	B067846
Trichlorofluoromethane	mg/L	<0.00050	0.00050	B067846
1,2,4-trimethylbenzene	mg/L	<0.00050	0.00050	B067846
1,3,5-trimethylbenzene	mg/L	<0.00050	0.00050	B067846
Vinyl chloride	mg/L	<0.00050	0.00050	B067846
Xylenes (Total)	mg/L	<0.00080	0.00080	B067846
m & p-Xylene	mg/L	<0.00080	0.00080	B067846
o-Xylene	mg/L	<0.00040	0.00040	B067846
Surrogate Recovery (%)				
1,4-Difluorobenzene (sur.)	%	97		B067846
4-Bromofluorobenzene (sur.)	%	97		B067846
D4-1,2-Dichloroethane (sur.)	%	106		B067846
RDL = Reportable Detection Limit				

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Bureau Veritas Job #: C361247
Report Date: 2023/08/15

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14 AVE NW, CALGARY
Your P.O. #: 478092.17104
Sampler Initials: RN

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	20.0°C

Results relate only to the items tested.

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Bureau Veritas Job #: C361247
Report Date: 2023/08/15

QUALITY ASSURANCE REPORT

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14 AVE NW, CALGARY
Your P.O. #: 478092.17104
Sampler Initials: RN

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
B067846	1,4-Difluorobenzene (sur.)	2023/08/11	103	50 - 140	104	50 - 140	96	%		
B067846	4-Bromofluorobenzene (sur.)	2023/08/11	104	50 - 140	106	50 - 140	96	%		
B067846	D4-1,2-Dichloroethane (sur.)	2023/08/11	95	50 - 140	90	50 - 140	109	%		
B067846	1,1,1,2-tetrachloroethane	2023/08/11	85	50 - 140	84	60 - 130	<0.0010	mg/L		
B067846	1,1,1-trichloroethane	2023/08/11	88	50 - 140	87	60 - 130	<0.00050	mg/L		
B067846	1,1,2,2-tetrachloroethane	2023/08/11	87	50 - 140	77	60 - 130	<0.0020	mg/L		
B067846	1,1,2-trichloroethane	2023/08/11	106	50 - 140	83	60 - 130	<0.00050	mg/L		
B067846	1,1-dichloroethane	2023/08/11	101	50 - 140	83	60 - 130	<0.00050	mg/L		
B067846	1,1-dichloroethene	2023/08/11	100	50 - 140	89	60 - 130	<0.00050	mg/L		
B067846	1,2,3-trichlorobenzene	2023/08/11	85	50 - 140	82	60 - 130	<0.0010	mg/L		
B067846	1,2,4-trichlorobenzene	2023/08/11	83	50 - 140	77	60 - 130	<0.0010	mg/L		
B067846	1,2,4-trimethylbenzene	2023/08/11	80	50 - 140	82	60 - 130	<0.00050	mg/L		
B067846	1,2-dibromoethane	2023/08/11	92	50 - 140	85	60 - 130	<0.00020	mg/L		
B067846	1,2-dichlorobenzene	2023/08/11	86	50 - 140	84	60 - 130	<0.00050	mg/L		
B067846	1,2-dichloroethane	2023/08/11	90	50 - 140	86	60 - 130	<0.00050	mg/L	NC	30
B067846	1,2-dichloropropane	2023/08/11	83	50 - 140	81	60 - 130	<0.00050	mg/L		
B067846	1,3,5-trichlorobenzene	2023/08/11	84	50 - 140	78	60 - 130	<0.00050	mg/L		
B067846	1,3,5-trimethylbenzene	2023/08/11	81	50 - 140	84	60 - 130	<0.00050	mg/L		
B067846	1,3-dichlorobenzene	2023/08/11	82	50 - 140	84	60 - 130	<0.00050	mg/L		
B067846	1,4-dichlorobenzene	2023/08/11	86	50 - 140	87	60 - 130	<0.00050	mg/L		
B067846	Benzene	2023/08/11	79	50 - 140	78	60 - 130	<0.00040	mg/L		
B067846	Bromodichloromethane	2023/08/11	118	50 - 140	97	60 - 130	<0.00050	mg/L		
B067846	Bromoform	2023/08/11	98	50 - 140	95	60 - 130	<0.00050	mg/L		
B067846	Bromomethane	2023/08/11	95	50 - 140	85	60 - 130	<0.0020	mg/L		
B067846	Carbon tetrachloride	2023/08/11	88	50 - 140	84	60 - 130	<0.00050	mg/L		
B067846	Chlorobenzene	2023/08/11	84	50 - 140	81	60 - 130	<0.00050	mg/L		
B067846	Chloroethane	2023/08/11	93	50 - 140	79	60 - 130	<0.0010	mg/L		
B067846	Chloroform	2023/08/11	109	50 - 140	95	60 - 130	<0.00050	mg/L		
B067846	Chloromethane	2023/08/11	82	50 - 140	80	60 - 130	<0.0020	mg/L		
B067846	cis-1,2-dichloroethene	2023/08/11	106	50 - 140	91	60 - 130	<0.00050	mg/L		
B067846	cis-1,3-dichloropropene	2023/08/11	81	50 - 140	72	60 - 130	<0.00050	mg/L		

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Bureau Veritas Job #: C361247
Report Date: 2023/08/15

QUALITY ASSURANCE REPORT(CONT'D)

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14 AVE NW, CALGARY
Your P.O. #: 478092.17104
Sampler Initials: RN

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
B067846	Dibromochloromethane	2023/08/11	97	50 - 140	95	60 - 130	<0.0010	mg/L		
B067846	Dichloromethane	2023/08/11	93	50 - 140	78	60 - 130	<0.0020	mg/L		
B067846	Ethylbenzene	2023/08/11	82	50 - 140	78	60 - 130	<0.00040	mg/L		
B067846	m & p-Xylene	2023/08/11	82	50 - 140	79	60 - 130	<0.00080	mg/L		
B067846	Methyl methacrylate	2023/08/11	84	50 - 140	78	60 - 130	<0.00050	mg/L		
B067846	Methyl-tert-butylether (MTBE)	2023/08/11	97	50 - 140	82	60 - 130	<0.00050	mg/L		
B067846	o-Xylene	2023/08/11	83	50 - 140	80	60 - 130	<0.00040	mg/L		
B067846	Styrene	2023/08/11	82	50 - 140	78	60 - 130	<0.00050	mg/L		
B067846	Tetrachloroethene	2023/08/11	76	50 - 140	77	60 - 130	<0.00050	mg/L		
B067846	Toluene	2023/08/11	77	50 - 140	77	60 - 130	<0.00040	mg/L		
B067846	trans-1,2-dichloroethene	2023/08/11	92	50 - 140	85	60 - 130	<0.00050	mg/L		
B067846	trans-1,3-dichloropropene	2023/08/11	72	50 - 140	63	60 - 130	<0.00050	mg/L		
B067846	Trichloroethene	2023/08/11	87	50 - 140	85	60 - 130	<0.00020	mg/L		
B067846	Trichlorofluoromethane	2023/08/11	95	50 - 140	80	60 - 130	<0.00050	mg/L		
B067846	Vinyl chloride	2023/08/11	89	50 - 140	90	60 - 130	<0.00050	mg/L		
B067846	Xylenes (Total)	2023/08/11					<0.00080	mg/L		

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

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

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

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

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

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

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C361247
Report Date: 2023/08/15

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14 AVE NW, CALGARY
Your P.O. #: 478092.17104
Sampler Initials: RN

VALIDATION SIGNATURE PAGE

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

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

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Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas
4000 19at N.E. Calgary, Alberta Canada T2E 6P8 Tel:(403) 291-3077 Toll-free:800-563-6266 Fax:(403) 291-9468 www.bvna.com

CHAIN OF CUSTODY RECORD

Page 1 of 1

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#11243 PARSONS INC.	Company Name:	#31652 PARSONS INC.	Quotation #:	C30805	Bureau Veritas Job #:	Bottle Order #:
Attention:	ACCOUNTS PAYABLE	Attention:	Rebecca Neufeld	P.O. #:	478092.17104	C361247	702869
Address:	2751 JOHN STREET	Address:	Unit 510, 214 - 11th Avenue SW	Project:	10-12832	COC #:	Project Manager:
	MARKHAM ON L3R 2Y8		Calgary AB T2R 0K1	~~Project Name~~ Outlet	9445	C#702869-12-01	Parminder Virk
Tel:	(905) 944-8877 Fax:	Tel:	Fax:	Site #:	1620 14 Ave NW Calgary		
Email:	ParsonsIncAP.Parsons@parsons.com	Email:	rebecca.neufeld@parsons.com,Michelle.Patterson@par	Sampled By:	Rebecca Neufeld		

Regulatory Criteria:
- [x] ATI
- [ ] CCME
- [ ] Other

Special Instructions: Same Day Sampling

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	VOCs in Water by HS GC/MS (Std List)	# of Bottles	Comments
1		BH 1963	Aug 9/23	11:15	GW	N	✓	1	
2									
3									
4									
5									
6									
7									
8									
9									
10									

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT: [x]
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details

Job Specific Rush TAT (if applies to entire submission) [ ]
Date Required: _____
Rush Confirmation Number: _____ *(call lab for #)*

mcal-08-1085

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
Rebecca Neufeld	23/08/09	830	Josh Kenney	2023/08/09	1627	

Laboratory Use Only: Time Sensitive [ ] | Temperature (°C) on Receipt: 10 20 | Custody Seal Intact on Cooler? [ ] Yes [ ] No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.
** ALL SAMPLES ARE HELD FOR 60 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

White: Bureau Veritas Yellow: Client

Bureau Veritas Canada (2019) Inc.

DATA QUALITY REVIEW CHECKLIST

Consultant: *Parsons Inc.*

Sampling Date: *2023/8/9*

Location: *1620 14 AVE NW, CALGARY*

Laboratory : *Bureau Veritas, Calgary, AB*

Consultant Project Number: *10-12832*

Sample Submission Number: *C361248*

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
Field 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*
Has lab warranted all tests were in statistical control in CoA (Yes/No)?:	*Yes*
Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?:	*Yes*
Were all samples analyzed within hold times (Yes/No)?:	*Yes*
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): *Mackenzie Robart*

Reviewed by (Print): *Michelle Patterson*

Reviewed date: *2023/10/03*

Reviewed by (Signature):

Your P.O. #: 478092.17104
Your Project #: 10-12832
Site Location: 1620 14 AVE NW, CALGARY
WBS # 478092.17104
Outlet Number 9445
Your C.O.C. #: 702869-14-01

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/08/15
Report #: R3380503
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C361248
Received: 2023/08/09, 16:38

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Trihalomethanes Calculation	1	N/A	2023/08/14		Auto Calc
VOCs in Water by HS GC/MS (Std List)	1	N/A	2023/08/11	AB SOP-00056	EPA 5021a/8260d m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Your P.O. #: 478092.17104
Your Project #: 10-12832
Site Location: 1620 14 AVE NW, CALGARY
WBS # 478092.17104
Outlet Number 9445
Your C.O.C. #: 702869-14-01

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/08/15
Report #: R3380503
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C361248
Received: 2023/08/09, 16:38

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Parminder Virk, Key Account Specialist
Email: Parminder.Virk@bureauveritas.com
Phone# (403)735-2235
==========
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Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C361248
Report Date: 2023/08/15

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14 AVE NW, CALGARY
Your P.O. #: 478092.17104
Sampler Initials: RN

VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		BWL566		
Sampling Date		2023/08/09 11:45		
COC Number		702869-14-01		
	UNITS	**BH4008A**	**RDL**	**QC Batch**
Volatiles				
Total Trihalomethanes	mg/L	<0.0013	0.0013	B064915
Benzene	mg/L	<0.00040	0.00040	B067846
Bromodichloromethane	mg/L	<0.00050	0.00050	B067846
Bromoform	mg/L	<0.00050	0.00050	B067846
Bromomethane	mg/L	<0.0020	0.0020	B067846
Carbon tetrachloride	mg/L	<0.00050	0.00050	B067846
Chlorobenzene	mg/L	<0.00050	0.00050	B067846
Dibromochloromethane	mg/L	<0.0010	0.0010	B067846
Chloroethane	mg/L	<0.0010	0.0010	B067846
Chloroform	mg/L	<0.00050	0.00050	B067846
Chloromethane	mg/L	<0.0020	0.0020	B067846
1,2-dibromoethane	mg/L	<0.00020	0.00020	B067846
1,2-dichlorobenzene	mg/L	<0.00050	0.00050	B067846
1,3-dichlorobenzene	mg/L	<0.00050	0.00050	B067846
1,4-dichlorobenzene	mg/L	<0.00050	0.00050	B067846
1,1-dichloroethane	mg/L	<0.00050	0.00050	B067846
1,2-dichloroethane	mg/L	<0.00050	0.00050	B067846
1,1-dichloroethene	mg/L	<0.00050	0.00050	B067846
cis-1,2-dichloroethene	mg/L	<0.00050	0.00050	B067846
trans-1,2-dichloroethene	mg/L	<0.00050	0.00050	B067846
Dichloromethane	mg/L	<0.0020	0.0020	B067846
1,2-dichloropropane	mg/L	<0.00050	0.00050	B067846
cis-1,3-dichloropropene	mg/L	<0.00050	0.00050	B067846
trans-1,3-dichloropropene	mg/L	<0.00050	0.00050	B067846
Ethylbenzene	mg/L	<0.00040	0.00040	B067846
Methyl methacrylate	mg/L	<0.00050	0.00050	B067846
Methyl-tert-butylether (MTBE)	mg/L	<0.00050	0.00050	B067846
Styrene	mg/L	<0.00050	0.00050	B067846
1,1,1,2-tetrachloroethane	mg/L	<0.0010	0.0010	B067846
1,1,2,2-tetrachloroethane	mg/L	<0.0020	0.0020	B067846
Tetrachloroethene	mg/L	<0.00050	0.00050	B067846
RDL = Reportable Detection Limit				

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C361248
Report Date: 2023/08/15

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14 AVE NW, CALGARY
Your P.O. #: 478092.17104
Sampler Initials: RN

VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		BWL566		
Sampling Date		2023/08/09 11:45		
COC Number		702869-14-01		
	UNITS	**BH4008A**	**RDL**	**QC Batch**
Toluene	mg/L	<0.00040	0.00040	B067846
1,2,3-trichlorobenzene	mg/L	<0.0010	0.0010	B067846
1,2,4-trichlorobenzene	mg/L	<0.0010	0.0010	B067846
1,3,5-trichlorobenzene	mg/L	<0.00050	0.00050	B067846
1,1,1-trichloroethane	mg/L	<0.00050	0.00050	B067846
1,1,2-trichloroethane	mg/L	<0.00050	0.00050	B067846
Trichloroethene	mg/L	<0.00020	0.00020	B067846
Trichlorofluoromethane	mg/L	<0.00050	0.00050	B067846
1,2,4-trimethylbenzene	mg/L	<0.00050	0.00050	B067846
1,3,5-trimethylbenzene	mg/L	<0.00050	0.00050	B067846
Vinyl chloride	mg/L	<0.00050	0.00050	B067846
Xylenes (Total)	mg/L	<0.00080	0.00080	B067846
m & p-Xylene	mg/L	<0.00080	0.00080	B067846
o-Xylene	mg/L	<0.00040	0.00040	B067846
Surrogate Recovery (%)				
1,4-Difluorobenzene (sur.)	%	96		B067846
4-Bromofluorobenzene (sur.)	%	95		B067846
D4-1,2-Dichloroethane (sur.)	%	107		B067846
RDL = Reportable Detection Limit				

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Bureau Veritas Job #: C361248
Report Date: 2023/08/15

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14 AVE NW, CALGARY
Your P.O. #: 478092.17104
Sampler Initials: RN

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	20.0°C

Results relate only to the items tested.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C361248
Report Date: 2023/08/15

QUALITY ASSURANCE REPORT

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14 AVE NW, CALGARY
Your P.O. #: 478092.17104
Sampler Initials: RN

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
B067846	1,4-Difluorobenzene (sur.)	2023/08/11	103	50 - 140	104	50 - 140	96	%		
B067846	4-Bromofluorobenzene (sur.)	2023/08/11	104	50 - 140	106	50 - 140	96	%		
B067846	D4-1,2-Dichloroethane (sur.)	2023/08/11	95	50 - 140	90	50 - 140	109	%		
B067846	1,1,1,2-tetrachloroethane	2023/08/11	85	50 - 140	84	60 - 130	<0.0010	mg/L		
B067846	1,1,1-trichloroethane	2023/08/11	88	50 - 140	87	60 - 130	<0.00050	mg/L		
B067846	1,1,2,2-tetrachloroethane	2023/08/11	87	50 - 140	77	60 - 130	<0.0020	mg/L		
B067846	1,1,2-trichloroethane	2023/08/11	106	50 - 140	83	60 - 130	<0.00050	mg/L		
B067846	1,1-dichloroethane	2023/08/11	101	50 - 140	83	60 - 130	<0.00050	mg/L		
B067846	1,1-dichloroethene	2023/08/11	100	50 - 140	89	60 - 130	<0.00050	mg/L		
B067846	1,2,3-trichlorobenzene	2023/08/11	85	50 - 140	82	60 - 130	<0.0010	mg/L		
B067846	1,2,4-trichlorobenzene	2023/08/11	83	50 - 140	77	60 - 130	<0.0010	mg/L		
B067846	1,2,4-trimethylbenzene	2023/08/11	80	50 - 140	82	60 - 130	<0.00050	mg/L		
B067846	1,2-dibromoethane	2023/08/11	92	50 - 140	85	60 - 130	<0.00020	mg/L		
B067846	1,2-dichlorobenzene	2023/08/11	86	50 - 140	84	60 - 130	<0.00050	mg/L		
B067846	1,2-dichloroethane	2023/08/11	90	50 - 140	86	60 - 130	<0.00050	mg/L	NC	30
B067846	1,2-dichloropropane	2023/08/11	83	50 - 140	81	60 - 130	<0.00050	mg/L		
B067846	1,3,5-trichlorobenzene	2023/08/11	84	50 - 140	78	60 - 130	<0.00050	mg/L		
B067846	1,3,5-trimethylbenzene	2023/08/11	81	50 - 140	84	60 - 130	<0.00050	mg/L		
B067846	1,3-dichlorobenzene	2023/08/11	82	50 - 140	84	60 - 130	<0.00050	mg/L		
B067846	1,4-dichlorobenzene	2023/08/11	86	50 - 140	87	60 - 130	<0.00050	mg/L		
B067846	Benzene	2023/08/11	79	50 - 140	78	60 - 130	<0.00040	mg/L		
B067846	Bromodichloromethane	2023/08/11	118	50 - 140	97	60 - 130	<0.00050	mg/L		
B067846	Bromoform	2023/08/11	98	50 - 140	95	60 - 130	<0.00050	mg/L		
B067846	Bromomethane	2023/08/11	95	50 - 140	85	60 - 130	<0.0020	mg/L		
B067846	Carbon tetrachloride	2023/08/11	88	50 - 140	84	60 - 130	<0.00050	mg/L		
B067846	Chlorobenzene	2023/08/11	84	50 - 140	81	60 - 130	<0.00050	mg/L		
B067846	Chloroethane	2023/08/11	93	50 - 140	79	60 - 130	<0.0010	mg/L		
B067846	Chloroform	2023/08/11	109	50 - 140	95	60 - 130	<0.00050	mg/L		
B067846	Chloromethane	2023/08/11	82	50 - 140	80	60 - 130	<0.0020	mg/L		
B067846	cis-1,2-dichloroethene	2023/08/11	106	50 - 140	91	60 - 130	<0.00050	mg/L		
B067846	cis-1,3-dichloropropene	2023/08/11	81	50 - 140	72	60 - 130	<0.00050	mg/L		

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Bureau Veritas Job #: C361248
Report Date: 2023/08/15

QUALITY ASSURANCE REPORT(CONT'D)

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14 AVE NW, CALGARY
Your P.O. #: 478092.17104
Sampler Initials: RN

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
B067846	Dibromochloromethane	2023/08/11	97	50 - 140	95	60 - 130	<0.0010	mg/L		
B067846	Dichloromethane	2023/08/11	93	50 - 140	78	60 - 130	<0.0020	mg/L		
B067846	Ethylbenzene	2023/08/11	82	50 - 140	78	60 - 130	<0.00040	mg/L		
B067846	m & p-Xylene	2023/08/11	82	50 - 140	79	60 - 130	<0.00080	mg/L		
B067846	Methyl methacrylate	2023/08/11	84	50 - 140	78	60 - 130	<0.00050	mg/L		
B067846	Methyl-tert-butylether (MTBE)	2023/08/11	97	50 - 140	82	60 - 130	<0.00050	mg/L		
B067846	o-Xylene	2023/08/11	83	50 - 140	80	60 - 130	<0.00040	mg/L		
B067846	Styrene	2023/08/11	82	50 - 140	78	60 - 130	<0.00050	mg/L		
B067846	Tetrachloroethene	2023/08/11	76	50 - 140	77	60 - 130	<0.00050	mg/L		
B067846	Toluene	2023/08/11	77	50 - 140	77	60 - 130	<0.00040	mg/L		
B067846	trans-1,2-dichloroethene	2023/08/11	92	50 - 140	85	60 - 130	<0.00050	mg/L		
B067846	trans-1,3-dichloropropene	2023/08/11	72	50 - 140	63	60 - 130	<0.00050	mg/L		
B067846	Trichloroethene	2023/08/11	87	50 - 140	85	60 - 130	<0.00020	mg/L		
B067846	Trichlorofluoromethane	2023/08/11	95	50 - 140	80	60 - 130	<0.00050	mg/L		
B067846	Vinyl chloride	2023/08/11	89	50 - 140	90	60 - 130	<0.00050	mg/L		
B067846	Xylenes (Total)	2023/08/11					<0.00080	mg/L		

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

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

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

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

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

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

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C361248
Report Date: 2023/08/15

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14 AVE NW, CALGARY
Your P.O. #: 478092.17104
Sampler Initials: RN

VALIDATION SIGNATURE PAGE

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

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

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Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas
4000 19st N.E. Calgary, Alberta Canada T2E 6P8 Tel (403) 291-3077 Toll-free 800-563-6266 Fax (403) 291-9458 www.bvna.com

Page 1 of 1

CHAIN OF CUSTODY RECORD

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#11243 PARSONS INC.	Company Name:	#31652 PARSONS INC.	Quotation #:	C30805	Bureau Veritas Job #: C361248	Bottle Order #: 702869
Attention:	ACCOUNTS PAYABLE	Attention:	Rebecca Neufeld	P.O. #:	478092.17104		
Address:	2751 JOHN STREET MARKHAM ON L3R 2Y8	Address:	Unit 510, 214 - 11th Avenue SW Calgary AB T2R 0K1	Project:	10-12832	COC #: C#702869-14-01	Project Manager: Parminder Virk
Tel:	(905) 944-8877 Fax:	Tel:	Fax:	Project Name: Address	1620 14 Ave NW, Calgary		
Email:	ParsonsIncAP.Parsons@parsons.com	Email:	rebecca.neufeld@parsons.com,Michelle.Patterson@par	Project Number: Other	9445		
				Sampled By:	Rebecca Neufeld		

Regulatory Criteria:
- [x] ATI
- [ ] CCME
- [ ] Other

Special Instructions: Same Day Sampling

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT: [x]
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details

Job Specific Rush TAT (If applies to entire submission) [ ]
Date Required:
Rush Confirmation Number: (call lab for #)

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	VOCs in Water by HS GC/MS (Std List)									# of Bottles	Comments
1		BH400BA	Aug 9/23	11:45	GW	N	✓									1	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Laboratory Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal intact on Cooler?
Rebecca Neufeld	23/08/09	1230	[illegible]	2023/08/09	1038		[ ]	19, 20, 2	[ ] Yes [ ] No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** ALL SAMPLES ARE HELD FOR 60 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

White: Bureau Veritas Yellow: Client

Bureau Veritas Canada (2019) Inc.

DATA QUALITY REVIEW CHECKLIST

Consultant: *Parsons Inc.*

Sampling Date: *2023/8/9*

Location: *1620 14 AVE NW, CALGARY*

Laboratory : *Bureau Veritas, Calgary, AB*

Consultant Project Number: *10-12832*

Sample Submission Number: *C361249*

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
Field 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*
Has lab warranted all tests were in statistical control in CoA (Yes/No)?:	*Yes*
Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?:	*Yes*
Were all samples analyzed within hold times (Yes/No)?:	*Yes*
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): *Mackenzie Robart*

Reviewed by (Print): *Michelle Patterson*

Reviewed date: *2023/10/03*

Reviewed by (Signature):

Your P.O. #: 478092.17104
Your Project #: 10-12832
Site Location: 1620 14 AVE NW, CALGARY
WBS # 478092.17104
Outlet Number 9445
Your C.O.C. #: 702869-13-01

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/08/15
Report #: R3380505
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C361249
Received: 2023/08/09, 16:38

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Total Trihalomethanes Calculation	2	N/A	2023/08/14		Auto Calc
VOCs in Water by HS GC/MS (Std List)	2	N/A	2023/08/11	AB SOP-00056	EPA 5021a/8260d m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

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Your P.O. #: 478092.17104
Your Project #: 10-12832
Site Location: 1620 14 AVE NW, CALGARY
WBS # 478092.17104
Outlet Number 9445
Your C.O.C. #: 702869-13-01

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/08/15
Report #: R3380505
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C361249
Received: 2023/08/09, 16:38

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Parminder Virk, Key Account Specialist
Email: Parminder.Virk@bureauveritas.com
Phone# (403)735-2235
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Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C361249
Report Date: 2023/08/15

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14 AVE NW, CALGARY
Your P.O. #: 478092.17104
Sampler Initials: RN

VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		BWL567	BWL568		
Sampling Date		2023/08/09 10:15	2023/08/09 10:45		
COC Number		702869-13-01	702869-13-01		
	UNITS	**BH1906**	**BH1917**	**RDL**	**QC Batch**
Volatiles					
Total Trihalomethanes	mg/L	<0.0013	<0.0013	0.0013	B064915
Benzene	mg/L	0.41	<0.00040	0.00040	B067846
Bromodichloromethane	mg/L	<0.00050	<0.00050	0.00050	B067846
Bromoform	mg/L	<0.00050	<0.00050	0.00050	B067846
Bromomethane	mg/L	<0.0020	<0.0020	0.0020	B067846
Carbon tetrachloride	mg/L	<0.00050	<0.00050	0.00050	B067846
Chlorobenzene	mg/L	<0.00050	<0.00050	0.00050	B067846
Dibromochloromethane	mg/L	<0.0010	<0.0010	0.0010	B067846
Chloroethane	mg/L	<0.0010	<0.0010	0.0010	B067846
Chloroform	mg/L	<0.00050	<0.00050	0.00050	B067846
Chloromethane	mg/L	<0.0020	<0.0020	0.0020	B067846
1,2-dibromoethane	mg/L	<0.00020	<0.00020	0.00020	B067846
1,2-dichlorobenzene	mg/L	<0.00050	<0.00050	0.00050	B067846
1,3-dichlorobenzene	mg/L	<0.00050	<0.00050	0.00050	B067846
1,4-dichlorobenzene	mg/L	<0.00050	<0.00050	0.00050	B067846
1,1-dichloroethane	mg/L	<0.00050	<0.00050	0.00050	B067846
1,2-dichloroethane	mg/L	0.032	<0.00050	0.00050	B067846
1,1-dichloroethene	mg/L	<0.00050	<0.00050	0.00050	B067846
cis-1,2-dichloroethene	mg/L	<0.00050	<0.00050	0.00050	B067846
trans-1,2-dichloroethene	mg/L	<0.00050	<0.00050	0.00050	B067846
Dichloromethane	mg/L	<0.0020	<0.0020	0.0020	B067846
1,2-dichloropropane	mg/L	<0.00050	<0.00050	0.00050	B067846
cis-1,3-dichloropropene	mg/L	<0.00050	<0.00050	0.00050	B067846
trans-1,3-dichloropropene	mg/L	<0.00050	<0.00050	0.00050	B067846
Ethylbenzene	mg/L	<0.00040	<0.00040	0.00040	B067846
Methyl methacrylate	mg/L	<0.00050	<0.00050	0.00050	B067846
Methyl-tert-butylether (MTBE)	mg/L	<0.00050	<0.00050	0.00050	B067846
Styrene	mg/L	<0.00050	<0.00050	0.00050	B067846
1,1,1,2-tetrachloroethane	mg/L	<0.0010	<0.0010	0.0010	B067846
1,1,2,2-tetrachloroethane	mg/L	<0.0020	<0.0020	0.0020	B067846
Tetrachloroethene	mg/L	<0.00050	<0.00050	0.00050	B067846
RDL = Reportable Detection Limit					

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C361249
Report Date: 2023/08/15

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14 AVE NW, CALGARY
Your P.O. #: 478092.17104
Sampler Initials: RN

VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		BWL567	BWL568		
Sampling Date		2023/08/09 10:15	2023/08/09 10:45		
COC Number		702869-13-01	702869-13-01		
	UNITS	**BH1906**	**BH1917**	**RDL**	**QC Batch**
Toluene	mg/L	<0.00040	<0.00040	0.00040	B067846
1,2,3-trichlorobenzene	mg/L	<0.0010	<0.0010	0.0010	B067846
1,2,4-trichlorobenzene	mg/L	<0.0010	<0.0010	0.0010	B067846
1,3,5-trichlorobenzene	mg/L	<0.00050	<0.00050	0.00050	B067846
1,1,1-trichloroethane	mg/L	<0.00050	<0.00050	0.00050	B067846
1,1,2-trichloroethane	mg/L	<0.00050	<0.00050	0.00050	B067846
Trichloroethene	mg/L	<0.00020	<0.00020	0.00020	B067846
Trichlorofluoromethane	mg/L	<0.00050	<0.00050	0.00050	B067846
1,2,4-trimethylbenzene	mg/L	<0.00050	<0.00050	0.00050	B067846
1,3,5-trimethylbenzene	mg/L	<0.00050	<0.00050	0.00050	B067846
Vinyl chloride	mg/L	<0.00050	<0.00050	0.00050	B067846
Xylenes (Total)	mg/L	<0.00080	<0.00080	0.00080	B067846
m & p-Xylene	mg/L	<0.00080	<0.00080	0.00080	B067846
o-Xylene	mg/L	0.00042	<0.00040	0.00040	B067846
Surrogate Recovery (%)					
1,4-Difluorobenzene (sur.)	%	101	97		B067846
4-Bromofluorobenzene (sur.)	%	96	97		B067846
D4-1,2-Dichloroethane (sur.)	%	123	107		B067846
RDL = Reportable Detection Limit					

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C361249
Report Date: 2023/08/15

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14 AVE NW, CALGARY
Your P.O. #: 478092.17104
Sampler Initials: RN

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	20.0°C

Results relate only to the items tested.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C361249
Report Date: 2023/08/15

QUALITY ASSURANCE REPORT

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14 AVE NW, CALGARY
Your P.O. #: 478092.17104
Sampler Initials: RN

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
B067846	1,4-Difluorobenzene (sur.)	2023/08/11	103	50 - 140	104	50 - 140	96	%		
B067846	4-Bromofluorobenzene (sur.)	2023/08/11	104	50 - 140	106	50 - 140	96	%		
B067846	D4-1,2-Dichloroethane (sur.)	2023/08/11	95	50 - 140	90	50 - 140	109	%		
B067846	1,1,1,2-tetrachloroethane	2023/08/11	85	50 - 140	84	60 - 130	<0.0010	mg/L		
B067846	1,1,1-trichloroethane	2023/08/11	88	50 - 140	87	60 - 130	<0.00050	mg/L		
B067846	1,1,2,2-tetrachloroethane	2023/08/11	87	50 - 140	77	60 - 130	<0.0020	mg/L		
B067846	1,1,2-trichloroethane	2023/08/11	106	50 - 140	83	60 - 130	<0.00050	mg/L		
B067846	1,1-dichloroethane	2023/08/11	101	50 - 140	83	60 - 130	<0.00050	mg/L		
B067846	1,1-dichloroethene	2023/08/11	100	50 - 140	89	60 - 130	<0.00050	mg/L		
B067846	1,2,3-trichlorobenzene	2023/08/11	85	50 - 140	82	60 - 130	<0.0010	mg/L		
B067846	1,2,4-trichlorobenzene	2023/08/11	83	50 - 140	77	60 - 130	<0.0010	mg/L		
B067846	1,2,4-trimethylbenzene	2023/08/11	80	50 - 140	82	60 - 130	<0.00050	mg/L		
B067846	1,2-dibromoethane	2023/08/11	92	50 - 140	85	60 - 130	<0.00020	mg/L		
B067846	1,2-dichlorobenzene	2023/08/11	86	50 - 140	84	60 - 130	<0.00050	mg/L		
B067846	1,2-dichloroethane	2023/08/11	90	50 - 140	86	60 - 130	<0.00050	mg/L	NC	30
B067846	1,2-dichloropropane	2023/08/11	83	50 - 140	81	60 - 130	<0.00050	mg/L		
B067846	1,3,5-trichlorobenzene	2023/08/11	84	50 - 140	78	60 - 130	<0.00050	mg/L		
B067846	1,3,5-trimethylbenzene	2023/08/11	81	50 - 140	84	60 - 130	<0.00050	mg/L		
B067846	1,3-dichlorobenzene	2023/08/11	82	50 - 140	84	60 - 130	<0.00050	mg/L		
B067846	1,4-dichlorobenzene	2023/08/11	86	50 - 140	87	60 - 130	<0.00050	mg/L		
B067846	Benzene	2023/08/11	79	50 - 140	78	60 - 130	<0.00040	mg/L		
B067846	Bromodichloromethane	2023/08/11	118	50 - 140	97	60 - 130	<0.00050	mg/L		
B067846	Bromoform	2023/08/11	98	50 - 140	95	60 - 130	<0.00050	mg/L		
B067846	Bromomethane	2023/08/11	95	50 - 140	85	60 - 130	<0.0020	mg/L		
B067846	Carbon tetrachloride	2023/08/11	88	50 - 140	84	60 - 130	<0.00050	mg/L		
B067846	Chlorobenzene	2023/08/11	84	50 - 140	81	60 - 130	<0.00050	mg/L		
B067846	Chloroethane	2023/08/11	93	50 - 140	79	60 - 130	<0.0010	mg/L		
B067846	Chloroform	2023/08/11	109	50 - 140	95	60 - 130	<0.00050	mg/L		
B067846	Chloromethane	2023/08/11	82	50 - 140	80	60 - 130	<0.0020	mg/L		
B067846	cis-1,2-dichloroethene	2023/08/11	106	50 - 140	91	60 - 130	<0.00050	mg/L		
B067846	cis-1,3-dichloropropene	2023/08/11	81	50 - 140	72	60 - 130	<0.00050	mg/L		

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Bureau Veritas Job #: C361249
Report Date: 2023/08/15

QUALITY ASSURANCE REPORT(CONT'D)

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14 AVE NW, CALGARY
Your P.O. #: 478092.17104
Sampler Initials: RN

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
B067846	Dibromochloromethane	2023/08/11	97	50 - 140	95	60 - 130	<0.0010	mg/L		
B067846	Dichloromethane	2023/08/11	93	50 - 140	78	60 - 130	<0.0020	mg/L		
B067846	Ethylbenzene	2023/08/11	82	50 - 140	78	60 - 130	<0.00040	mg/L		
B067846	m & p-Xylene	2023/08/11	82	50 - 140	79	60 - 130	<0.00080	mg/L		
B067846	Methyl methacrylate	2023/08/11	84	50 - 140	78	60 - 130	<0.00050	mg/L		
B067846	Methyl-tert-butylether (MTBE)	2023/08/11	97	50 - 140	82	60 - 130	<0.00050	mg/L		
B067846	o-Xylene	2023/08/11	83	50 - 140	80	60 - 130	<0.00040	mg/L		
B067846	Styrene	2023/08/11	82	50 - 140	78	60 - 130	<0.00050	mg/L		
B067846	Tetrachloroethene	2023/08/11	76	50 - 140	77	60 - 130	<0.00050	mg/L		
B067846	Toluene	2023/08/11	77	50 - 140	77	60 - 130	<0.00040	mg/L		
B067846	trans-1,2-dichloroethene	2023/08/11	92	50 - 140	85	60 - 130	<0.00050	mg/L		
B067846	trans-1,3-dichloropropene	2023/08/11	72	50 - 140	63	60 - 130	<0.00050	mg/L		
B067846	Trichloroethene	2023/08/11	87	50 - 140	85	60 - 130	<0.00020	mg/L		
B067846	Trichlorofluoromethane	2023/08/11	95	50 - 140	80	60 - 130	<0.00050	mg/L		
B067846	Vinyl chloride	2023/08/11	89	50 - 140	90	60 - 130	<0.00050	mg/L		
B067846	Xylenes (Total)	2023/08/11					<0.00080	mg/L		

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

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

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

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

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

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

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C361249
Report Date: 2023/08/15

PARSONS INC.
Client Project #: 10-12832
Site Location: 1620 14 AVE NW, CALGARY
Your P.O. #: 478092.17104
Sampler Initials: RN

VALIDATION SIGNATURE PAGE

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

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by {0}, {1} responsible for {2} {3} laboratory operations.

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4000 19st N.E. Calgary, Alberta Canada T2E 6P8 Tel (403) 291-3077 Toll-free 800-563-6266 Fax (403) 291-9468 www.bvna.com

Page 1 of 1

CHAIN OF CUSTODY RECORD

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#11243 PARSONS INC.	Company Name:	#31652 PARSONS INC.	Quotation #:	C30805	Bureau Veritas Job #: 6361249	Bottle Order #: 702869
Attention:	ACCOUNTS PAYABLE	Attention:	Rebecca Neufeld	P.O. #:	478092.17104		
Address:	2751 JOHN STREET	Address:	Unit 510, 214 - 11th Avenue SW	Project:	10-12832		
	MARKHAM ON L3R 2Y8		Calgary AB T2R 0K1	~~Project Name~~ Other	9445	COC #: C#702869-13-01	Project Manager: Parminder Virk
Tel:	(905) 944-8877 Fax:	Tel:	Fax:	Site #	1620-14 ave NW Calgary		
Email:	ParsonsIncAP.Parsons@parsons.com	Email:	rebecca.neufeld@parsons.com,Michelle.Patterson@par	Sampled By:	Rebecca Neufeld		

Regulatory Criteria:
- [x] ATI
- [ ] CCME
- [ ] Other

Special Instructions: Same Day Sampling

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	VOCs in Water by HS GC/MS (Std List)	# of Bottles	Comments
1		BH 1906	Aug 9/23	10:15	GW	N	✓	1	
2		BH 1917	Aug 9/23	10:45	GW	N	✓	1	
3									
4									
5									
6									
7									
8									
9									
10									

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT: ✓
(will be applied if Rush TAT is not specified)
Standard TAT = 5-7 Working days for most tests.
Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details

Job Specific Rush TAT (if applies to entire submission)
Date Required: _____
Rush Confirmation Number: _____ *(call lab for #)*

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Laboratory Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
Rebecca Neufeld	23/08/09	12:30	Sidd Kungeny	2023/08/09	1:65		☐	15, 20, 2	☐ Yes ☐ No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.
** ALL SAMPLES ARE HELD FOR 90 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

White: Bureau Veritas Yellow: Client

Bureau Veritas Canada (2019) Inc.

DATA QUALITY REVIEW CHECKLIST

Consultant: *Parsons Inc.*

Sampling Date: *2023/10/04*

Location: *1620 14 AVE NW, CALGARY*

Laboratory : *Bureau Veritas, Calgary, AB*

Consultant Project Number: *10-12832*

Sample Submission Number: *C380435*

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
Field 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*
Has lab warranted all tests were in statistical control in CoA (Yes/No)?:	*Yes*
Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?:	*Yes*
Were all samples analyzed within hold times (Yes/No)?:	*Yes*
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): *Mackenzie Robart*

Reviewed by (Print): *Michelle Patterson*

Reviewed date: *2023/10/17*

Reviewed by (Signature):

Your P.O. #: 478621.17112
Your Project #: 10-12832
Site#: 9445
WBS # 478621.17112
Outlet Number 9445
Your C.O.C. #: 1/1

Attention: Michelle Patterson

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/10/10
Report #: R3407764
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C380435
Received: 2023/10/04, 14:23

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/F1 in Water by HS GC/MS/FID	2	N/A	2023/10/09	AB SOP-00039	CCME CWS/EPA 8260d m
F1-BTEX	2	N/A	2023/10/09		Auto Calc
CCME Hydrocarbons in Water (F2; C10-C16) (1)	2	2023/10/07	2023/10/08	AB SOP-00037 AB SOP-00040	CCME PHC-CWS m
VOCs in Water by HS GC/MS (Std List)	2	N/A	2023/10/06	AB SOP-00056	EPA 5021a/8260d m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Silica gel clean up employed.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Your P.O. #: 478621.17112
Your Project #: 10-12832
Site#: 9445
WBS # 478621.17112
Outlet Number 9445
Your C.O.C. #: 1/1

Attention: Michelle Patterson

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/10/10
Report #: R3407764
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C380435
Received: 2023/10/04, 14:23

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Parminder Virk, Key Account Specialist
Email: Parminder.Virk@bureauveritas.com
Phone# (403)735-2235
==========
This report has been generated and distributed using a secure automated process.
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Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C380435
Report Date: 2023/10/10

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17112

AT1 BTEX AND F1-F2 IN WATER (WATER)

Bureau Veritas ID		CBC948	CBC949		
Sampling Date		2023/10/04 12:40	2023/10/04 13:30		
COC Number		1/1	1/1		
	UNITS	**BH4003A**	**BH4003B**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon					
F2 (C10-C16 Hydrocarbons)	mg/L	0.12	<0.10	0.10	B140182
Volatiles					
Benzene	mg/L	0.69	0.021	0.00040	B142241
Toluene	mg/L	0.0016	<0.00040	0.00040	B142241
Ethylbenzene	mg/L	<0.00040	<0.00040	0.00040	B142241
m & p-Xylene	mg/L	<0.00080	<0.00080	0.00080	B142241
o-Xylene	mg/L	0.053	<0.00040	0.00040	B142241
Xylenes (Total)	mg/L	0.053	<0.00089	0.00089	B140935
F1 (C6-C10) - BTEX	mg/L	<0.10	<0.10	0.10	B140935
F1 (C6-C10)	mg/L	0.74	<0.10	0.10	B142241
Surrogate Recovery (%)					
1,4-Difluorobenzene (sur.)	%	95	93		B142241
4-Bromofluorobenzene (sur.)	%	101	98		B142241
D4-1,2-Dichloroethane (sur.)	%	94	89		B142241
O-TERPHENYL (sur.)	%	101	103		B140182
RDL = Reportable Detection Limit					

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C380435
Report Date: 2023/10/10

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17112

VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		CBC948	CBC949		
Sampling Date		2023/10/04 12:40	2023/10/04 13:30		
COC Number		1/1	1/1		
	UNITS	**BH4003A**	**BH4003B**	**RDL**	**QC Batch**
Volatiles					
1,2-dichloroethane	mg/L	0.11	0.00095	0.00050	B142259
Surrogate Recovery (%)					
1,4-Difluorobenzene (sur.)	%	101	98		B142259
4-Bromofluorobenzene (sur.)	%	95	98		B142259
D4-1,2-Dichloroethane (sur.)	%	110	120		B142259
RDL = Reportable Detection Limit					

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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	4.7°C
Package 2	5.0°C
Package 3	4.7°C

Results relate only to the items tested.

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Bureau Veritas Job #: C380435
Report Date: 2023/10/10

QUALITY ASSURANCE REPORT

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17112

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
B140182	O-TERPHENYL (sur.)	2023/10/07	95	60 - 140	96	60 - 140	93	%		
B142241	1,4-Difluorobenzene (sur.)	2023/10/09	96	50 - 140	93	50 - 140	95	%		
B142241	4-Bromofluorobenzene (sur.)	2023/10/09	102	50 - 140	103	50 - 140	99	%		
B142241	D4-1,2-Dichloroethane (sur.)	2023/10/09	96	50 - 140	86	50 - 140	89	%		
B142259	1,4-Difluorobenzene (sur.)	2023/10/06	100	50 - 140	103	50 - 140	96	%		
B142259	4-Bromofluorobenzene (sur.)	2023/10/06	105	50 - 140	107	50 - 140	97	%		
B142259	D4-1,2-Dichloroethane (sur.)	2023/10/06	84	50 - 140	86	50 - 140	107	%		
B140182	F2 (C10-C16 Hydrocarbons)	2023/10/07	104	60 - 140	103	60 - 140	<0.10	mg/L	NC	30
B142241	Benzene	2023/10/09	NC	50 - 140	90	60 - 130	<0.00040	mg/L	NC	30
B142241	Ethylbenzene	2023/10/09	87	50 - 140	91	60 - 130	<0.00040	mg/L	NC	30
B142241	F1 (C6-C10)	2023/10/09	98	60 - 140	95	60 - 140	<0.10	mg/L	NC	30
B142241	m & p-Xylene	2023/10/09	91	50 - 140	94	60 - 130	<0.00080	mg/L	NC	30
B142241	o-Xylene	2023/10/09	89	50 - 140	91	60 - 130	<0.00040	mg/L	NC	30
B142241	Toluene	2023/10/09	88	50 - 140	89	60 - 130	<0.00040	mg/L	NC	30
B142259	1,2-dichloroethane	2023/10/06	82	50 - 140	82	60 - 130	<0.00050	mg/L	NC	30

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

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

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

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

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

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

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Bureau Veritas Job #: C380435
Report Date: 2023/10/10

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17112

VALIDATION SIGNATURE PAGE

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

Elizabeth Chacko

Elizabeth Chacko, Senior Analyst, Organics

Veronica Falk

Veronica Falk, B.Sc., P.Chem., QP, Scientific Specialist, Organics

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

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas
4000 19st N.E, Calgary, Alberta Canada T2E 6P8 Tel:(403) 291-3077 Toll-free:800-563-6266 Fax:(403) 291-9468 www.bvna.com

CHAIN OF CUSTODY RECORD

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#11243 PARSONS INC.	Company Name:	#31652 PARSONS INC.	Quotation #:	C30805	Bureau Veritas Job #:	Bottle Order #:
Attention:	ACCOUNTS PAYABLE	Attention:	Rebecca neufeld	P.O. #:	478621.17112		707948
Address:	2751 JOHN STREET	Address:	Unit 510, 214 - 11th Avenue SW	Project:	10-12832		
	MARKHAM ON L3R 2Y8		Calgary AB T2R 0K1	Project Name:		COC #:	Project Manager:
Tel:	(905) 944-8877 Fax:	Tel:	Fax:	Site #:	Outlet ~~85490~~ 9445	C#707948-02-01	Parminder Virk
Email:	ParsonsIncAP.Parsons@parsons.com	Email:	rebecca.neufeld@parsons.com;michelle.patterson@par	Sampled By:	Gavin Clarke		

Regulatory Criteria:
- [x] ATI
- [ ] CCME
- [ ] Other

Special Instructions: Activity Code: A2

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	AT1 BTEX and F1-F2 in Water	AT1 Regulated PAHs in Water	VOCs in Water by HS GC/MS (Std List)	1,2 Dichloroethane						# of Bottles	Comments
1		BH 4003 A	23/10/04	12:40	Water		X			X						3	
2		BH 4003 B	23/10/04	13:30	Water		X			X						3	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT: [x]
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests..
Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details

Job Specific Rush TAT (if applies to entire submission) [ ]
Date Required:
Rush Confirmation Number: *(call lab for #)*

mcal-10-284

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Laboratory Use Only: Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
Gavin Clarke / Gavin Clarke	23/10/04	14:00	Jess Nugar	23/10/04	14:23	Ø	[ ]	5/4/5	[x] Yes [ ] No

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.
** ALL SAMPLES ARE HELD FOR 60 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

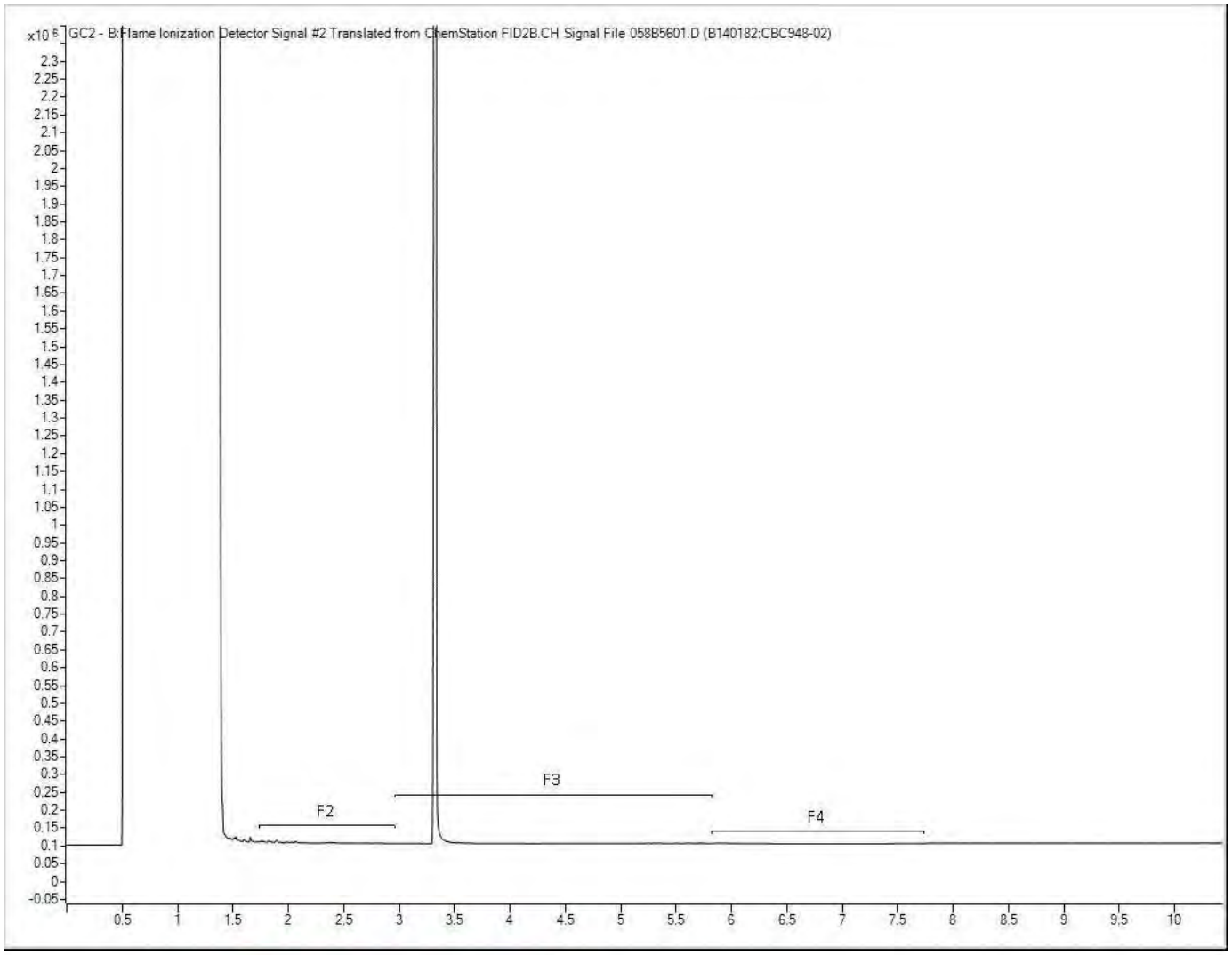
White: Bureau Veritas Yellow: Client

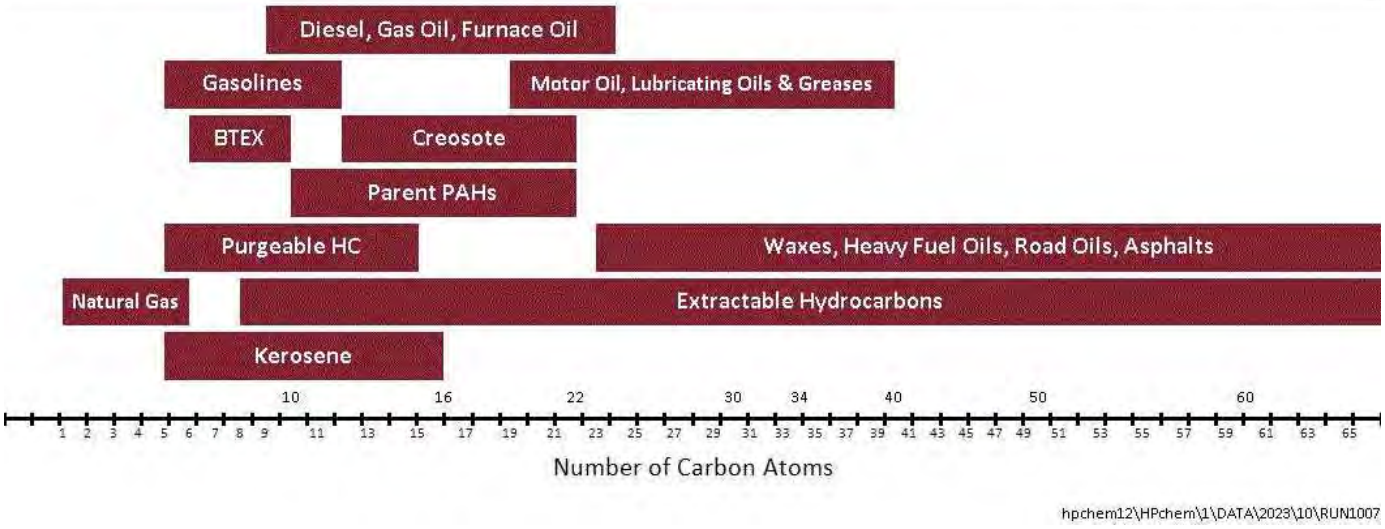
6/5/4
ice-yes
4/4/3

Bureau Veritas Job #: C380435
Report Date: 2023/10/10
Bureau Veritas Sample: CBC948

PARSONS INC.
Client Project #: 10-12832
Client ID: BH4003A

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





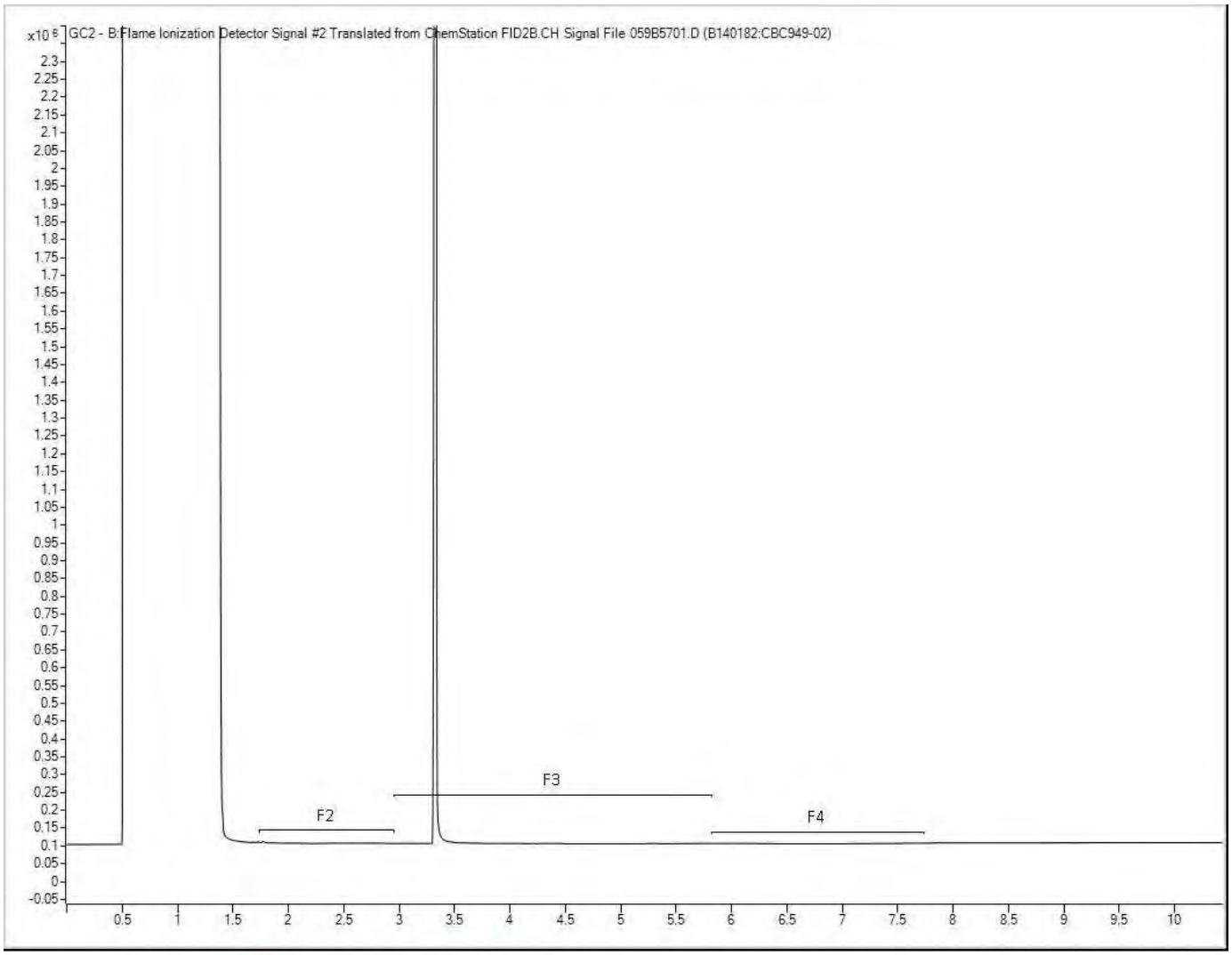
hpchem12\HPchem\1\DATA\2023\10\RUN1007

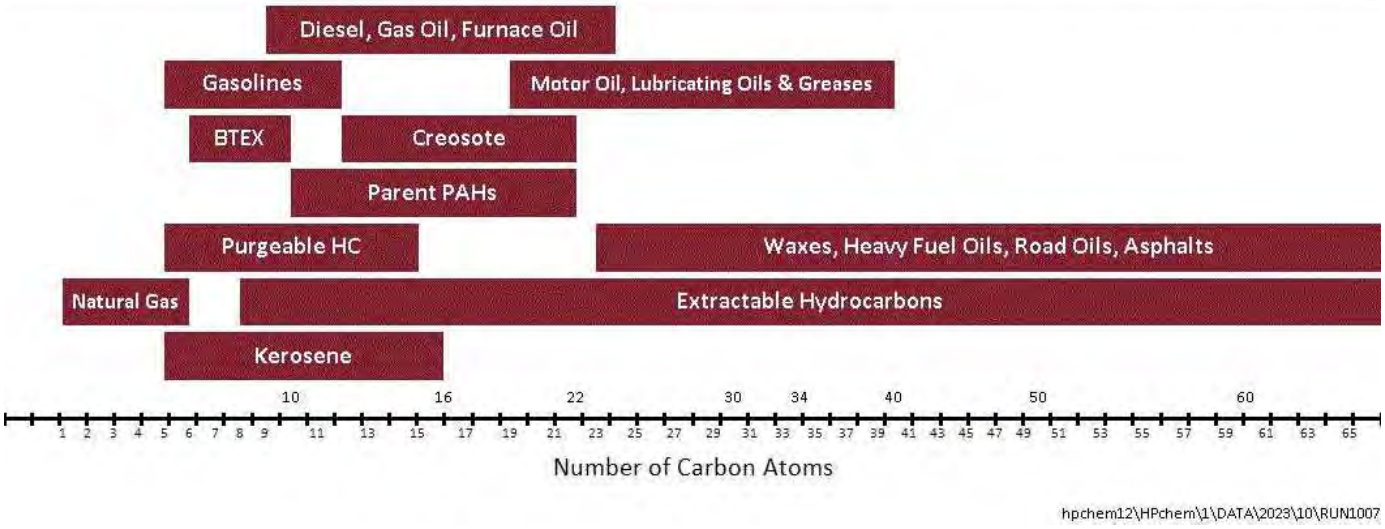
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C380435
Report Date: 2023/10/10
Bureau Veritas Sample: CBC949

PARSONS INC.
Client Project #: 10-12832
Client ID: BH4003B

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





hpchem12\HPchem\1\DATA\2023\10\RUN1007

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

DATA QUALITY REVIEW CHECKLIST

Consultant: *Parsons Inc.*

Sampling Date: *2023/10/04*

Location: *1620 14 AVE NW, CALGARY*

Laboratory : *Bureau Veritas, Calgary, AB*

Consultant Project Number: *10-12832*

Sample Submission Number: *C380452*

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
Field 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*
Has lab warranted all tests were in statistical control in CoA (Yes/No)?:	*Yes*
Has lab warranted all tests were analyzed following SOP's in CoA (Yes, No or N/A)?:	*Yes*
Were all samples analyzed within hold times (Yes/No)?:	*Yes*
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): *Mackenzie Robart*

Reviewed by (Print): *Michelle Patterson*

Reviewed date: *2023/10/03*

Reviewed by (Signature):

Your P.O. #: 478621.17112
Your Project #: 10-12832
Site#: 9445
WBS # 478621.17112
Outlet Number 9445
Your C.O.C. #: 1/2, 2/2

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/10/16
Report #: R3410677
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C380452
Received: 2023/10/04, 14:23

Sample Matrix: Water
Samples Received: 12

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
BTEX/F1 in Water by HS GC/MS/FID	12	N/A	2023/10/14	AB SOP-00039	CCME CWS/EPA 8260d m
F1-BTEX	12	N/A	2023/10/16		Auto Calc
CCME Hydrocarbons in Water (F2; C10-C16) (1)	2	2023/10/07	2023/10/08	AB SOP-00037 AB SOP-00040	CCME PHC-CWS m
CCME Hydrocarbons in Water (F2; C10-C16) (1)	5	2023/10/08	2023/10/08	AB SOP-00037 AB SOP-00040	CCME PHC-CWS m
CCME Hydrocarbons in Water (F2; C10-C16) (1)	5	2023/10/09	2023/10/09	AB SOP-00037 AB SOP-00040	CCME PHC-CWS m
VOCs in Water by HS GC/MS (Std List)	11	N/A	2023/10/11	AB SOP-00056	EPA 5021a/8260d m
VOCs in Water by HS GC/MS (Std List)	1	N/A	2023/10/12	AB SOP-00056	EPA 5021a/8260d m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, MELCC, EPA, APHA.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Silica gel clean up employed.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Your P.O. #: 478621.17112
Your Project #: 10-12832
Site#: 9445
WBS # 478621.17112
Outlet Number 9445
Your C.O.C. #: 1/2, 2/2

Attention: Rebecca neufeld

PARSONS INC.
Unit 510, 214 - 11th Avenue SW
Calgary, AB
Canada T2R 0K1

Report Date: 2023/10/16
Report #: R3410677
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C380452
Received: 2023/10/04, 14:23

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Parminder Virk, Key Account Specialist
Email: Parminder.Virk@bureauveritas.com
Phone# (403)735-2235
==========
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Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C380452
Report Date: 2023/10/16

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17112
Sampler Initials: GC

AT1 BTEX AND F1-F2 IN WATER (WATER)

Bureau Veritas ID		CBC994		CBC995			CBC996		
Sampling Date		2023/10/04 09:30		2023/10/04 09:51			2023/10/04 10:20		
COC Number		1/2		1/2			1/2		
	UNITS	**BH1980**	**RDL**	**BH1954**	**RDL**	**QC Batch**	**BH2001**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	0.10	<0.10	0.10	B140182	<0.10	0.10	B141900
Volatiles									
Benzene	mg/L	<0.00040	0.00040	<0.00040	0.00040	B142379	<0.00040	0.00040	B142379
Toluene	mg/L	<0.00040	0.00040	<0.00040	0.00040	B142379	<0.00040	0.00040	B142379
Ethylbenzene	mg/L	<0.00050 (1)	0.00050	<0.00040	0.00040	B142379	<0.00040	0.00040	B142379
m & p-Xylene	mg/L	<0.0030 (1)	0.0030	<0.0012 (1)	0.0012	B142379	<0.0011 (1)	0.0011	B142379
o-Xylene	mg/L	<0.00040	0.00040	<0.00040	0.00040	B142379	<0.00040	0.00040	B142379
Xylenes (Total)	mg/L	<0.0030	0.0030	<0.0013	0.0013	B141138	<0.0012	0.0012	B141138
F1 (C6-C10) - BTEX	mg/L	<0.10	0.10	<0.10	0.10	B141138	<0.10	0.10	B141138
F1 (C6-C10)	mg/L	<0.10	0.10	<0.10	0.10	B142379	<0.10	0.10	B142379
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	104		105		B142379	104		B142379
4-Bromofluorobenzene (sur.)	%	99		98		B142379	98		B142379
D4-1,2-Dichloroethane (sur.)	%	108		118		B142379	108		B142379
O-TERPHENYL (sur.)	%	101		100		B140182	97		B141900

RDL = Reportable Detection Limit
(1) Detection limit raised due to interferent.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C380452
Report Date: 2023/10/16

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17112
Sampler Initials: GC

AT1 BTEX AND F1-F2 IN WATER (WATER)

Bureau Veritas ID		CBC997	CBC998	CBC999	CBD000		CBD001		
Sampling Date		2023/10/04 10:58	2023/10/04 11:15	2023/10/04 11:15	2023/10/04 12:05		2023/10/04 12:05		
COC Number		1/2	1/2	1/2	1/2		1/2		
	UNITS	**BH3001A**	**BH3001B**	**DUP-01**	**BH1963**	**QC Batch**	**DUP-02**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon									
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	<0.10	<0.10	<0.10	B141900	<0.10	0.10	B141947
Volatiles									
Benzene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	B142379	<0.00040	0.00040	B142379
Toluene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	B142379	<0.00040	0.00040	B142379
Ethylbenzene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	B142379	<0.00040	0.00040	B142379
m & p-Xylene	mg/L	<0.00080	<0.00080	<0.00080	<0.00080	B142379	<0.00080	0.00080	B142379
o-Xylene	mg/L	<0.00040	<0.00040	<0.00040	<0.00040	B142379	<0.00040	0.00040	B142379
Xylenes (Total)	mg/L	<0.00089	<0.00089	<0.00089	<0.00089	B141138	<0.00089	0.00089	B141138
F1 (C6-C10) - BTEX	mg/L	<0.10	<0.10	<0.10	<0.10	B141138	<0.10	0.10	B141138
F1 (C6-C10)	mg/L	<0.10	<0.10	<0.10	<0.10	B142379	<0.10	0.10	B142379
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	100	113	104	105	B142379	103		B142379
4-Bromofluorobenzene (sur.)	%	100	100	103	102	B142379	101		B142379
D4-1,2-Dichloroethane (sur.)	%	105	119	106	108	B142379	108		B142379
O-TERPHENYL (sur.)	%	97	99	95	98	B141900	92		B141947
RDL = Reportable Detection Limit									

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C380452
Report Date: 2023/10/16

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17112
Sampler Initials: GC

AT1 BTEX AND F1-F2 IN WATER (WATER)

Bureau Veritas ID		CBD002		CBD003		CBD004		CBD005		
Sampling Date		2023/10/04 12:20		2023/10/04 12:50		2023/10/04 13:00		2023/10/04 13:15		
COC Number		1/2		1/2		2/2		2/2		
	UNITS	**BH2005**	**RDL**	**BH6003**	**RDL**	**BH1943**	**RDL**	**BH1979**	**RDL**	**QC Batch**
Ext. Pet. Hydrocarbon										
F2 (C10-C16 Hydrocarbons)	mg/L	<0.10	0.10	1.9	0.10	<0.10	0.10	<0.10	0.10	B141947
Volatiles										
Benzene	mg/L	<0.00040	0.00040	0.013	0.00040	0.031	0.00040	1.6	0.0040	B142379
Toluene	mg/L	<0.00040	0.00040	0.61	0.00040	<0.00040	0.00040	<0.00040	0.00040	B142379
Ethylbenzene	mg/L	<0.00040	0.00040	0.20	0.00040	<0.00040	0.00040	<0.00040	0.00040	B142379
m & p-Xylene	mg/L	<0.00080	0.00080	4.4	0.0080	<0.0025 (1)	0.0025	<0.0012 (1)	0.0012	B142379
o-Xylene	mg/L	<0.00040	0.00040	0.72	0.00040	<0.00050 (1)	0.00050	<0.00040	0.00040	B142379
Xylenes (Total)	mg/L	<0.00089	0.00089	5.1	0.0080	<0.0026	0.0026	<0.0013	0.0013	B141138
F1 (C6-C10) - BTEX	mg/L	<0.10	0.10	1.5	0.10	<0.10	0.10	<0.10	0.10	B141138
F1 (C6-C10)	mg/L	<0.10	0.10	7.5	0.10	<0.10	0.10	1.2	0.10	B142379
Surrogate Recovery (%)										
1,4-Difluorobenzene (sur.)	%	102		103		101		102		B142379
4-Bromofluorobenzene (sur.)	%	99		102		100		99		B142379
D4-1,2-Dichloroethane (sur.)	%	108		104		103		111		B142379
O-TERPHENYL (sur.)	%	90		91		92		93		B141947

RDL = Reportable Detection Limit
(1) Detection limit raised due to interferent.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C380452
Report Date: 2023/10/16

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17112
Sampler Initials: GC

VOLATILE ORGANICS BY GC-MS (WATER)

Bureau Veritas ID		CBC994	CBC995	CBC996	CBC997	CBC998	CBC999		
Sampling Date		2023/10/04 09:30	2023/10/04 09:51	2023/10/04 10:20	2023/10/04 10:58	2023/10/04 11:15	2023/10/04 11:15		
COC Number		1/2	1/2	1/2	1/2	1/2	1/2		
	UNITS	**BH1980**	**BH1954**	**BH2001**	**BH3001A**	**BH3001B**	**DUP-01**	**RDL**	**QC Batch**
Volatiles									
1,2-dichloroethane	mg/L	<0.00050	0.012	0.0023	<0.00050	<0.00050	<0.00050	0.00050	B142423
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	94	95	94	100	102	101		B142423
4-Bromofluorobenzene (sur.)	%	104	104	103	103	96	95		B142423
D4-1,2-Dichloroethane (sur.)	%	98	95	94	91	94	92		B142423
RDL = Reportable Detection Limit									

Bureau Veritas ID		CBD000	CBD001	CBD002	CBD003	CBD004	CBD005		
Sampling Date		2023/10/04 12:05	2023/10/04 12:05	2023/10/04 12:20	2023/10/04 12:50	2023/10/04 13:00	2023/10/04 13:15		
COC Number		1/2	1/2	1/2	1/2	2/2	2/2		
	UNITS	**BH1963**	**DUP-02**	**BH2005**	**BH6003**	**BH1943**	**BH1979**	**RDL**	**QC Batch**
Volatiles									
1,2-dichloroethane	mg/L	<0.00050	0.00061	0.0046	0.011	0.011	0.015	0.00050	B142423
Surrogate Recovery (%)									
1,4-Difluorobenzene (sur.)	%	102	101	104	100	105	100		B142423
4-Bromofluorobenzene (sur.)	%	96	96	96	98	97	95		B142423
D4-1,2-Dichloroethane (sur.)	%	99	99	103	107	106	104		B142423
RDL = Reportable Detection Limit									

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Bureau Veritas Job #: C380452
Report Date: 2023/10/16

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17112
Sampler Initials: GC

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	4.7°C
Package 2	5.0°C
Package 3	3.7°C

Results relate only to the items tested.

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C380452
Report Date: 2023/10/16

QUALITY ASSURANCE REPORT

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17112
Sampler Initials: GC

			Matrix Spike		Spiked Blank		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
B140182	O-TERPHENYL (sur.)	2023/10/07	95	60 - 140	96	60 - 140	93	%		
B141900	O-TERPHENYL (sur.)	2023/10/08			110	60 - 140	112	%		
B141947	O-TERPHENYL (sur.)	2023/10/09			92	60 - 140	103	%		
B142379	1,4-Difluorobenzene (sur.)	2023/10/13	103	50 - 140	100	50 - 140	106	%		
B142379	4-Bromofluorobenzene (sur.)	2023/10/13	101	50 - 140	96	50 - 140	104	%		
B142379	D4-1,2-Dichloroethane (sur.)	2023/10/13	114	50 - 140	110	50 - 140	117	%		
B142423	1,4-Difluorobenzene (sur.)	2023/10/10	99	50 - 140	110	50 - 140	94	%		
B142423	4-Bromofluorobenzene (sur.)	2023/10/10	112	50 - 140	101	50 - 140	102	%		
B142423	D4-1,2-Dichloroethane (sur.)	2023/10/10	86	50 - 140	90	50 - 140	95	%		
B140182	F2 (C10-C16 Hydrocarbons)	2023/10/07	104	60 - 140	103	60 - 140	<0.10	mg/L	NC	30
B141900	F2 (C10-C16 Hydrocarbons)	2023/10/08			115	60 - 140	<0.10	mg/L		
B141947	F2 (C10-C16 Hydrocarbons)	2023/10/09			102	60 - 140	<0.10	mg/L		
B142379	Benzene	2023/10/14	88	50 - 140	87	60 - 130	<0.00040	mg/L	4.1	30
B142379	Ethylbenzene	2023/10/14	92	50 - 140	89	60 - 130	<0.00040	mg/L	1.4	30
B142379	F1 (C6-C10)	2023/10/14	70	60 - 140	78	60 - 140	<0.10	mg/L	3.3	30
B142379	m & p-Xylene	2023/10/14	92	50 - 140	88	60 - 130	<0.00080	mg/L	7.0	30
B142379	o-Xylene	2023/10/14	92	50 - 140	89	60 - 130	<0.00040	mg/L	8.5	30
B142379	Toluene	2023/10/14	88	50 - 140	84	60 - 130	<0.00040	mg/L	4.9	30
B142423	1,2-dichloroethane	2023/10/10	82	50 - 140	87	60 - 130	<0.00050	mg/L	NC	30

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

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

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

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

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

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

Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas Job #: C380452
Report Date: 2023/10/16

PARSONS INC.
Client Project #: 10-12832
Your P.O. #: 478621.17112
Sampler Initials: GC

VALIDATION SIGNATURE PAGE

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

Elizabeth Chacko

Elizabeth Chacko, Senior Analyst, Organics

Junzhi Gao

Janet Gao, B.Sc., QP, Supervisor, Organics

Jared Wiseman, B.Sc., P.Chem., QP, Senior Analyst, Organics

L Shymushovska

Luba Shymushovska, B.Sc., QP, Senior Analyst, Organics

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Bureau Veritas Calgary: 2021 - 41st Avenue N.E. T2E 6P2 Telephone (403) 291-3077 Fax (403) 291-9468

Bureau Veritas
4000 19st N.E, Calgary, Alberta Canada T2E 6P8 Tel:(403) 291-3077 Toll-free:800-563-6266 Fax:(403) 291-9468 www.bvna.com

CHAIN OF CUSTODY RECORD

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#11243 PARSONS INC.	Company Name:	#31652 PARSONS INC.	Quotation #:	C30805	Bureau Veritas Job #:	Bottle Order #:
Attention:	ACCOUNTS PAYABLE	Attention:	Rebecca neufeld	P.O. #:	478621.17112		707946
Address:	2751 JOHN STREET	Address:	Unit 510, 214 - 11th Avenue SW	Project:	10-12832		
	MARKHAM ON L3R 2Y8		Calgary AB T2R 0K1	Project Name:		COC #:	Project Manager:
Tel:	(905) 944-8877 Fax:	Tel:	Fax:	Site #:	Outlet ~~85480~~ 9445	C#707946-01-01	Parminder Virk
Email:	ParsonsIncAP.Parsons@parsons.com	Email:	rebecca.neufeld@parsons.com;michelle.patterson@par	Sampled By:	Gavin Clarke		

Regulatory Criteria:
- [x] ATI
- [ ] CCME
- [ ] Other

Special Instructions: Activity Code: A2

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	AT1 BTEX and F1-F2 in Water	AT1 Regulated PAHs in Water	VOCs in Water by HS GC/MS (Std List)	1,2 Dichloroethane	# of Bottles	Comments
1		BH1980	23/10/04	09:30	Water		X			X	3	
2		BH1954		09:50			X			X	3	
3		BH2001		10:20			X			X	3	
4		BH3001A		10:58			X			X	3	
5		BH3001B		11:15			X			X	3	
6		DUP-01		11:15			X			X	3	mcal-10-283
7		BH1963		12:05			X			X	3	
8		DUP-02		12:05			X			X	3	
9		BH2005		12:20			X			X	3	
10		BH6003		12:50			X			X	3	

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects
- Regular (Standard) TAT: [x]
  (will be applied if Rush TAT is not specified):
  Standard TAT = 5-7 Working days for most tests..
  Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details
- Job Specific Rush TAT (if applies to entire submission) [ ]
  Date Required:
  Rush Confirmation Number: (call lab for #)

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
Gavin Clarke / Gavin Clarke	23/10/04	14:00	Jess Meyer	23/10/04	14:23	0	[ ]	5/4/5 6/5/4 4/4/3	[x] Yes [ ] No

Laboratory Use Only: Ice-yes

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.
** ALL SAMPLES ARE HELD FOR 60 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

White: Bureau Veritas Yellow: Client

Bureau Veritas Canada (2019) Inc.

Bureau Veritas
4000 19st N.E, Calgary, Alberta Canada T2E 6P8 Tel:(403) 291-3077 Toll-free:800-563-6266 Fax:(403) 291-9468 www.bvna.com

CHAIN OF CUSTODY RECORD

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Laboratory Use Only:	
Company Name:	#11243 PARSONS INC.	Company Name:	#31652 PARSONS INC.	Quotation #:	C30805	Bureau Veritas Job #:	Bottle Order #:
Attention:	ACCOUNTS PAYABLE	Attention:	Rebecca neufeld	P.O. #:	478621.17112		707948
Address:	2751 JOHN STREET	Address:	Unit 510, 214 - 11th Avenue SW	Project:	10-12832		
	MARKHAM ON L3R 2Y8		Calgary AB T2R 0K1	Project Name:		COC #:	Project Manager:
Tel:	(905) 944-8877 Fax:	Tel:	Fax:	Site #:	Outlet ~~23400~~ 9445	C#707948-02-01	Parminder Virk
Email:	ParsonsIncAP.Parsons@parsons.com	Email:	rebecca.neufeld@parsons.com;michelle.patterson@par	Sampled By:	Gavin Clarke		

Regulatory Criteria:
- [x] AT1
- [ ] CCME
- [ ] Other

Special Instructions: Activity Code: A2

SAMPLES MUST BE KEPT COOL (< 10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Metals Field Filtered ? (Y / N)	AT1 BTEX and F1-F2 in Water	AT1 Regulated PAHs in Water	VOCs in Water by HS GC/MS (Std List)	1,2 Dichloroethane						# of Bottles	Comments
1		BH1943	23/10/04	13:00	Water		X			X						3	
2		BH1979	23/10/04	13:15	Water		X			X						3	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects
- Regular (Standard) TAT: [x]
  (will be applied if Rush TAT is not specified):
  Standard TAT = 5-7 Working days for most tests..
  Please note: Standard TAT for certain tests are > 5 days - contact your Project Manager for details
- Job Specific Rush TAT (if applies to entire submission) [ ]
  Date Required:
  Rush Confirmation Number: (call lab for #)

RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted	Time Sensitive	Temperature (°C) on Receipt	Custody Seal Intact on Cooler?
Gavin Clarke / Gavin Clarke	23/10/04	14:01	Jess Major	23/10/04	14:23	Ø	[ ]	5/4/5	[x] Yes [ ] No

Laboratory Use Only

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.
* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.
** ALL SAMPLES ARE HELD FOR 60 DAYS AFTER SAMPLE RECEIPT, FOR SPECIAL REQUESTS CONTACT YOUR PROJECT MANAGER

White: Bureau Veritas Yellow: Client

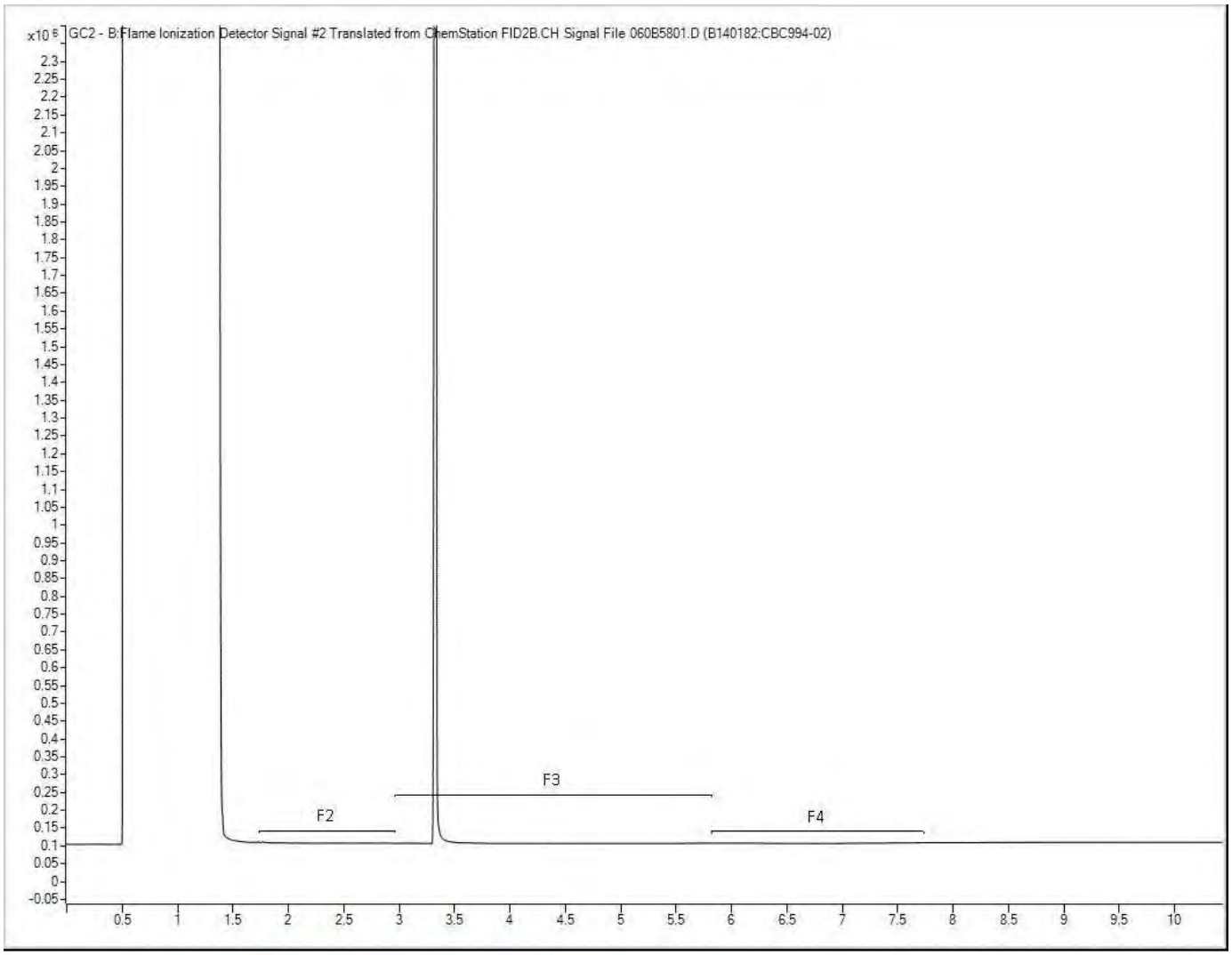
6/5/4
ice-yes
4/4/3

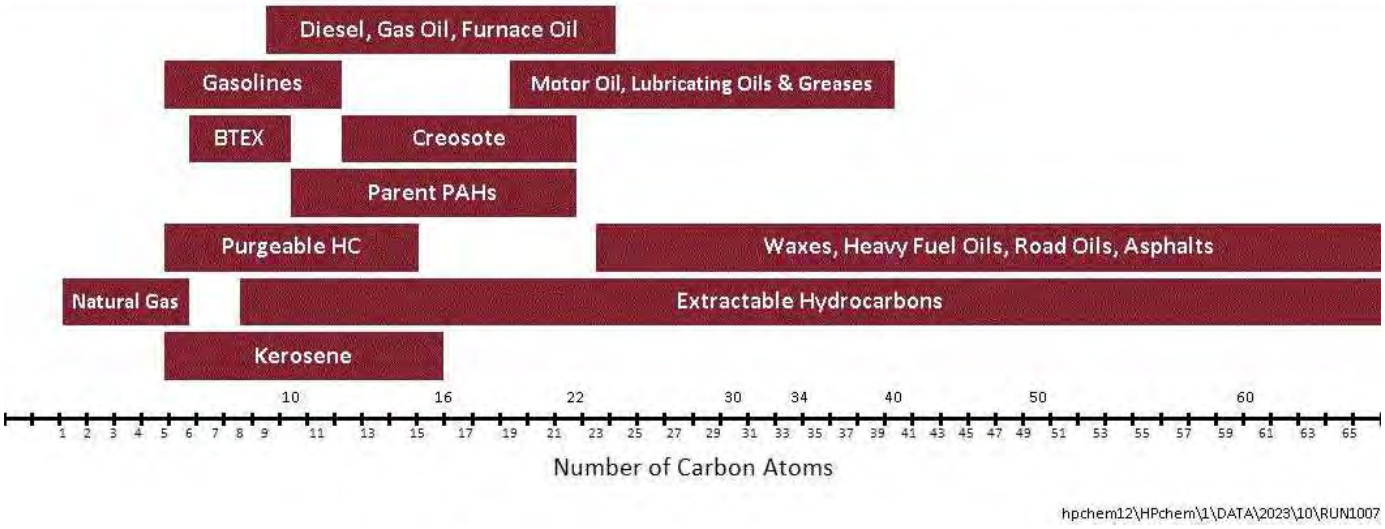
Bureau Veritas Canada (2019) Inc.

Bureau Veritas Job #: C380452
Report Date: 2023/10/16
Bureau Veritas Sample: CBC994

PARSONS INC.
Client Project #: 10-12832
Client ID: BH1980

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





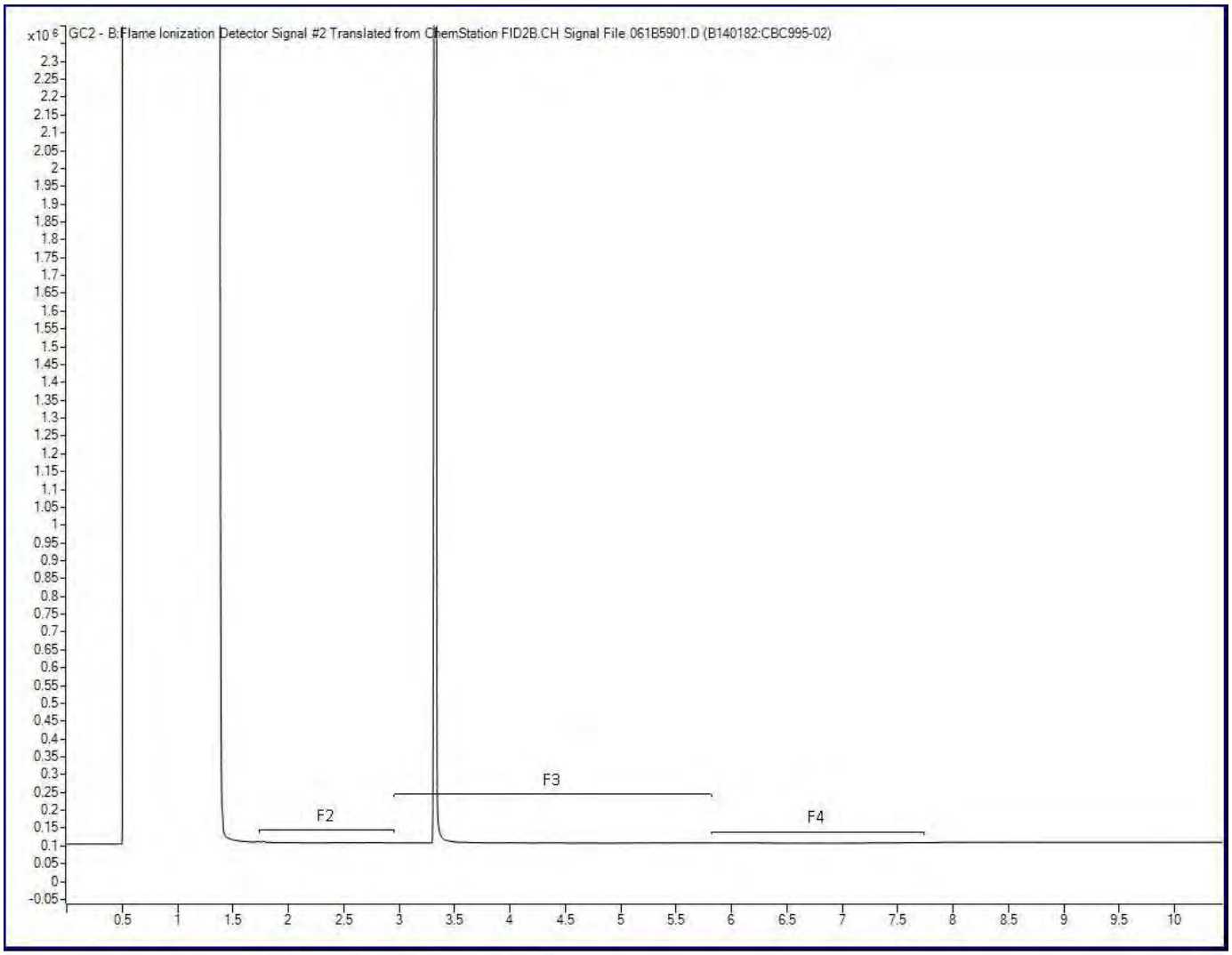
hpchem12\HPchem\1\DATA\2023\10\RUN1007

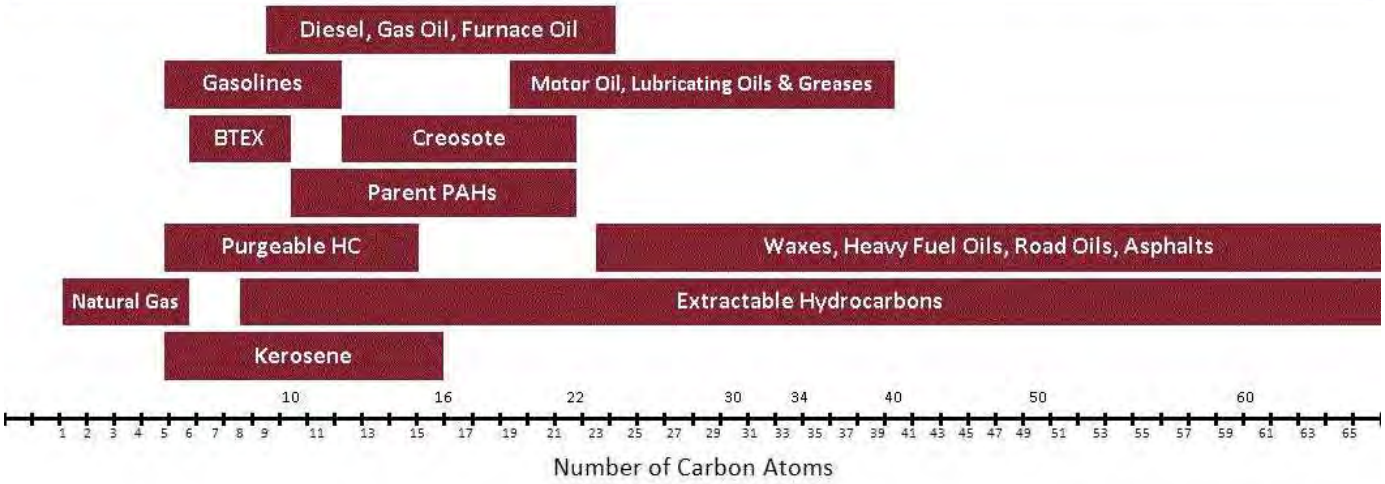
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C380452
Report Date: 2023/10/16
Bureau Veritas Sample: CBC995

PARSONS INC.
Client Project #: 10-12832
Client ID: BH1954

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





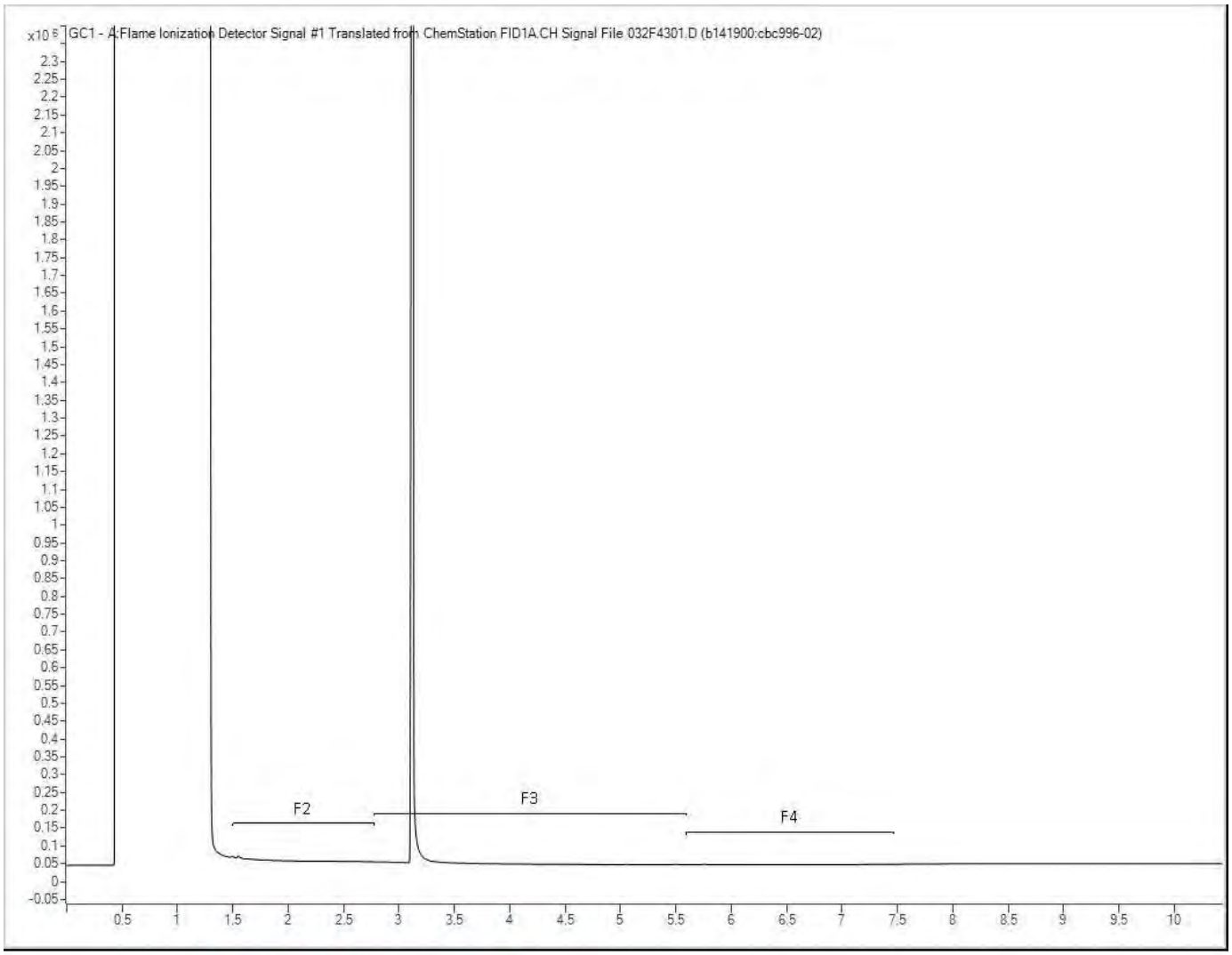
hpchem12\HPchem\1\DATA\2023\10\RUN1007

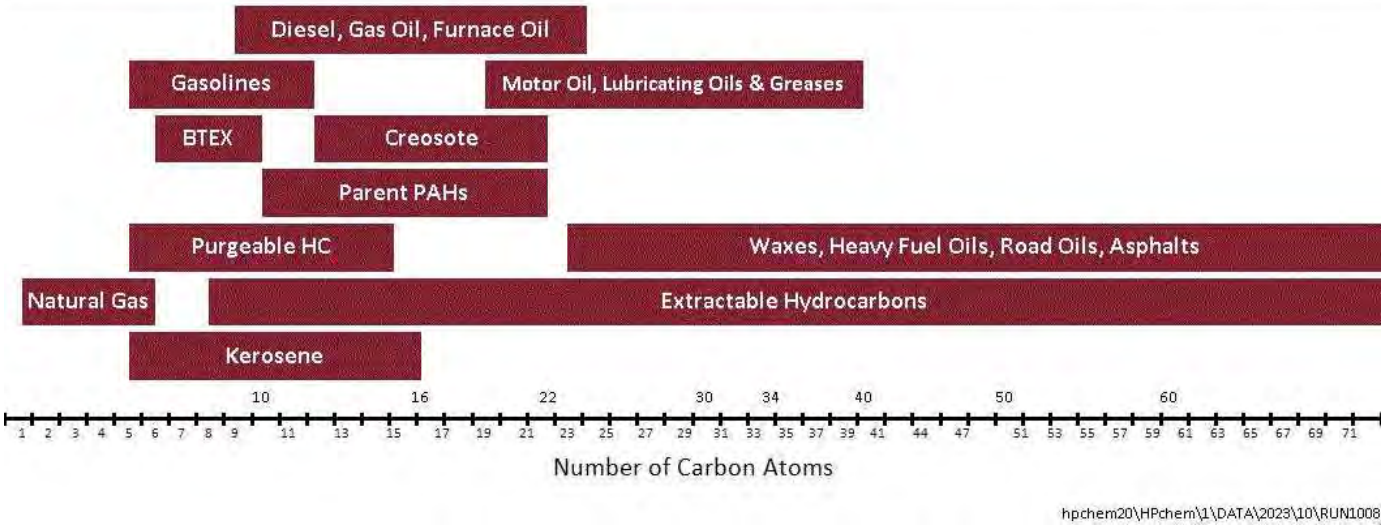
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C380452
Report Date: 2023/10/16
Bureau Veritas Sample: CBC996

PARSONS INC.
Client Project #: 10-12832
Client ID: BH2001

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





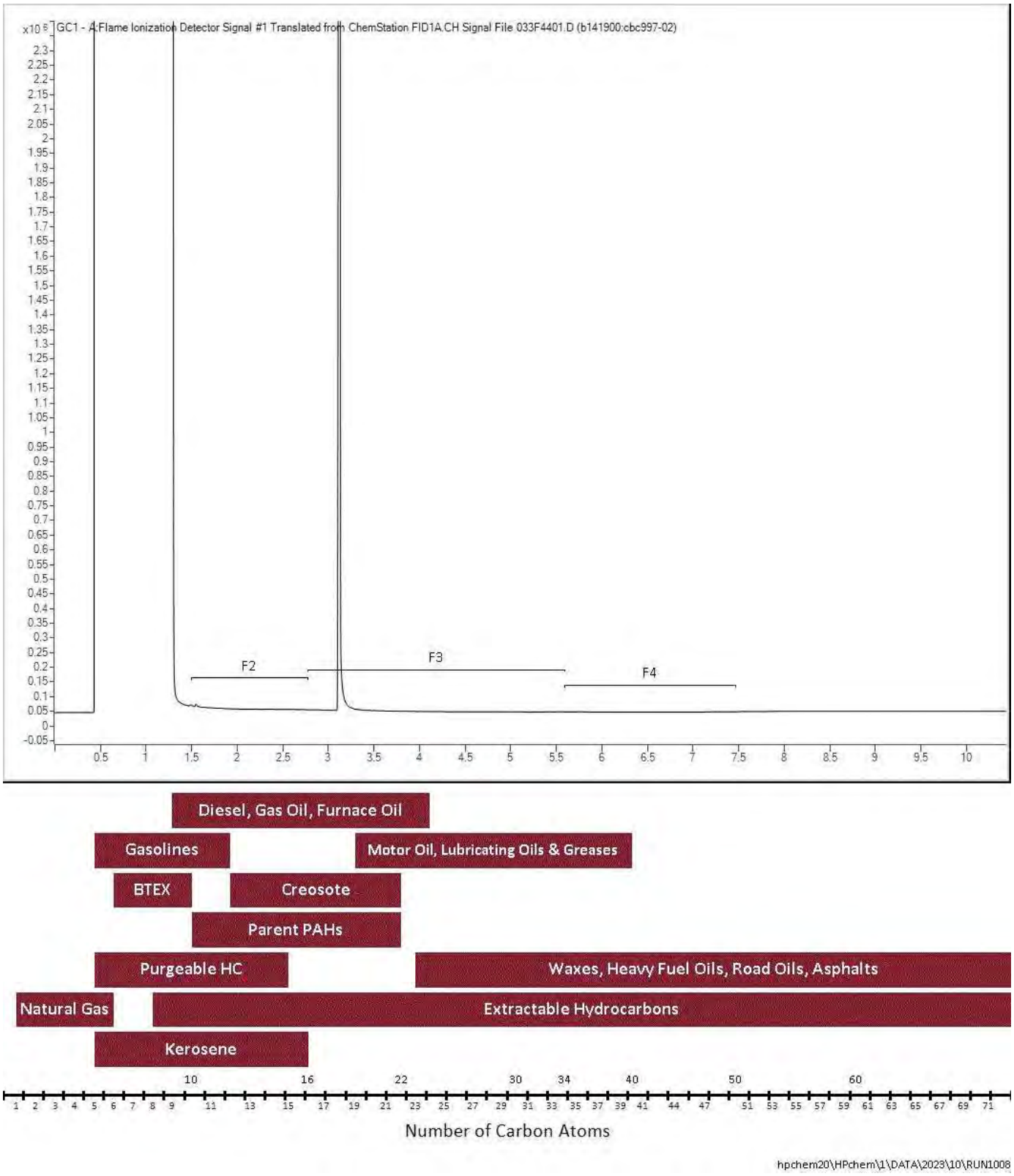
hpchem20\HPchem\1\DATA\2023\10\RUN1008

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C380452
Report Date: 2023/10/16
Bureau Veritas Sample: CBC997

PARSONS INC.
Client Project #: 10-12832
Client ID: BH3001A

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram

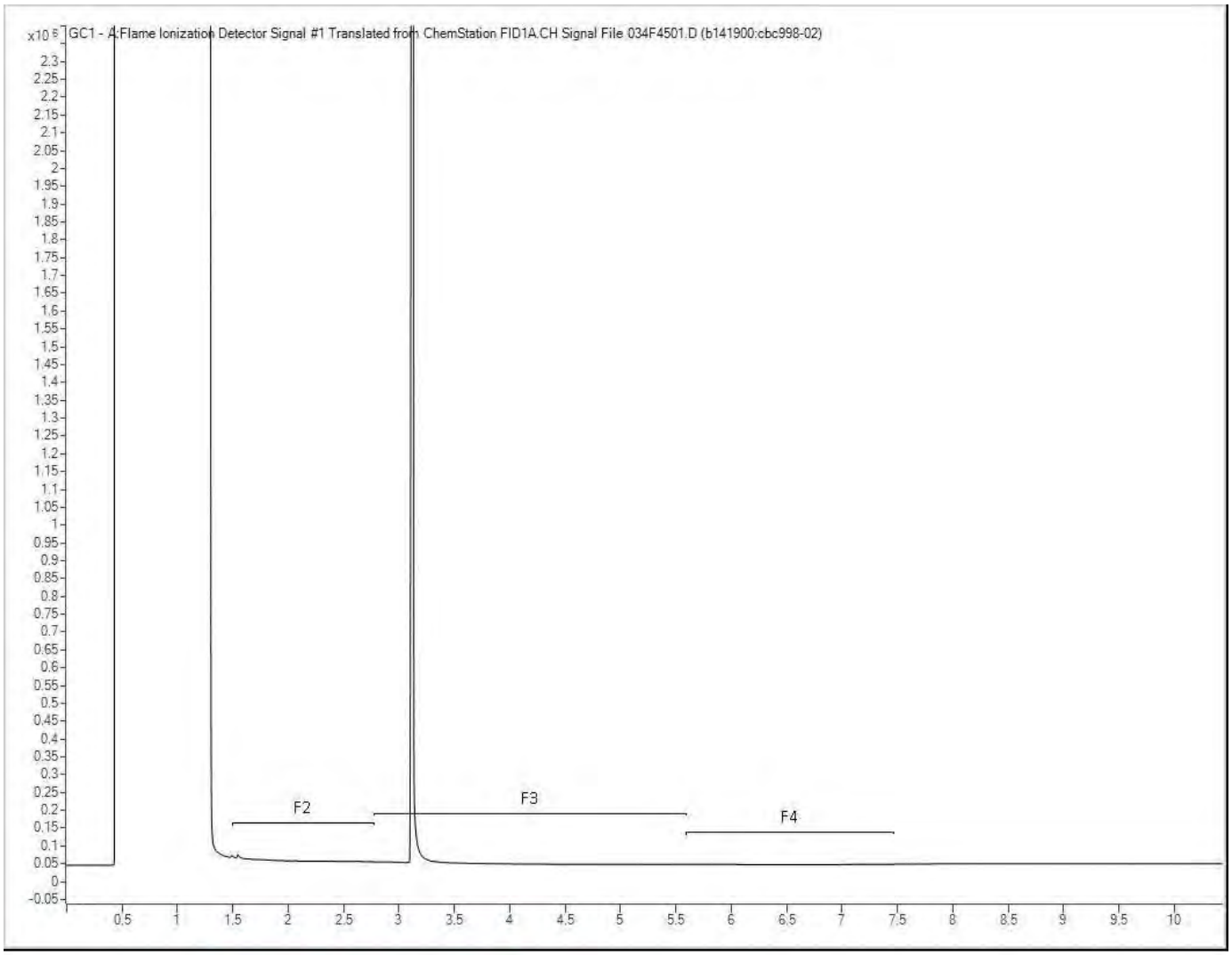


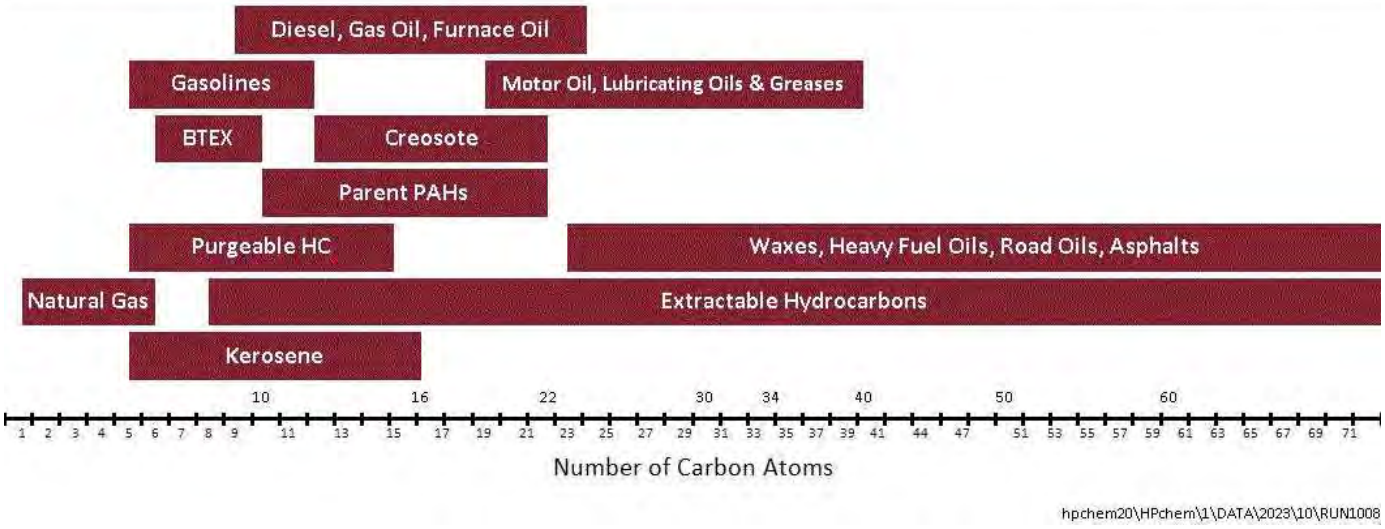
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C380452
Report Date: 2023/10/16
Bureau Veritas Sample: CBC998

PARSONS INC.
Client Project #: 10-12832
Client ID: BH3001B

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





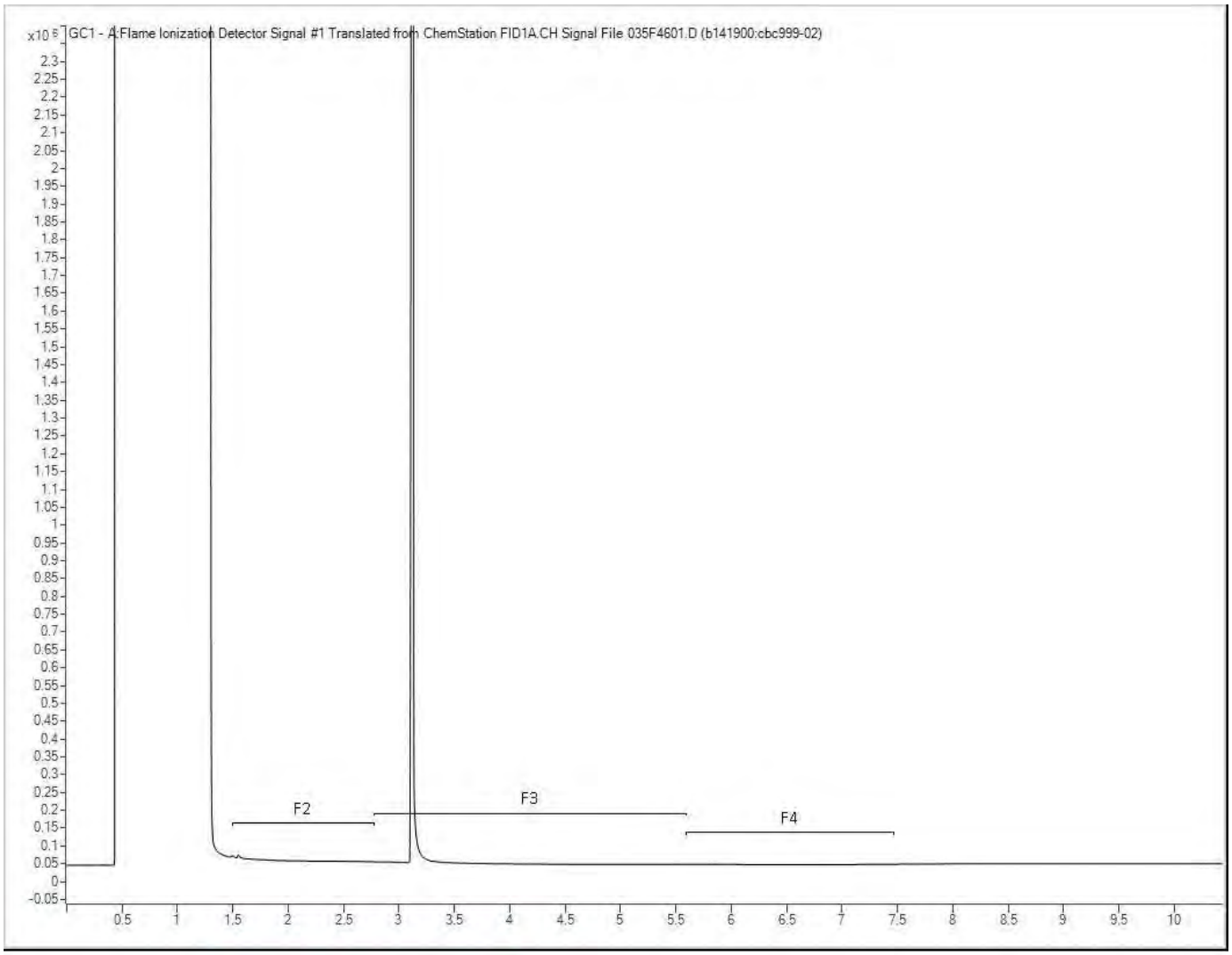
hpchem20\HPchem\1\DATA\2023\10\RUN1008

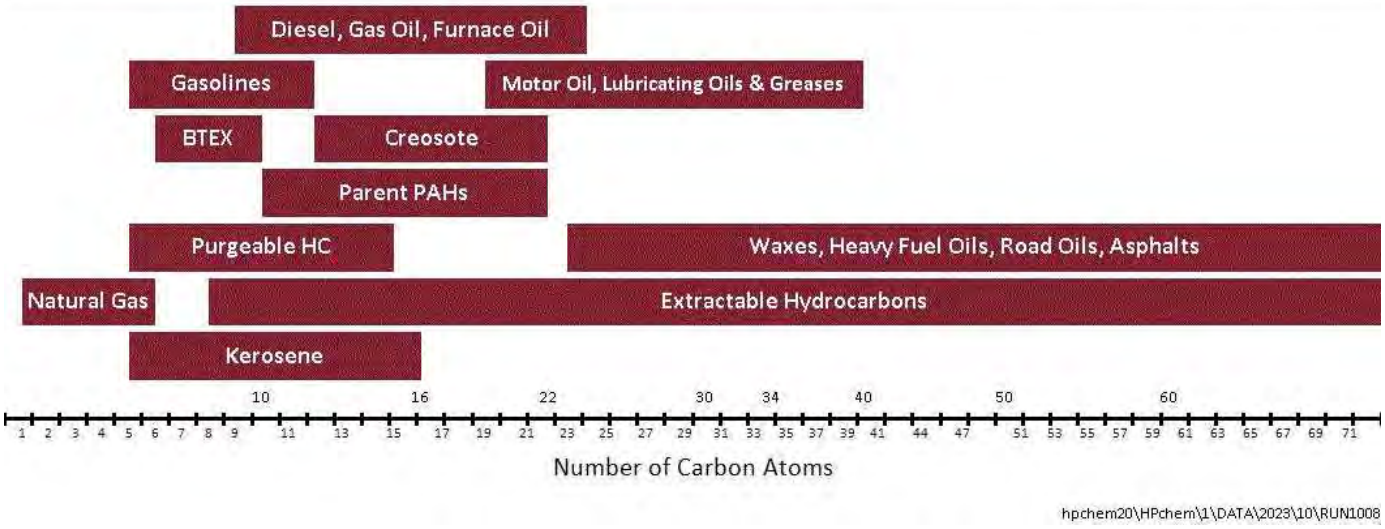
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C380452
Report Date: 2023/10/16
Bureau Veritas Sample: CBC999

PARSONS INC.
Client Project #: 10-12832
Client ID: DUP-01

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





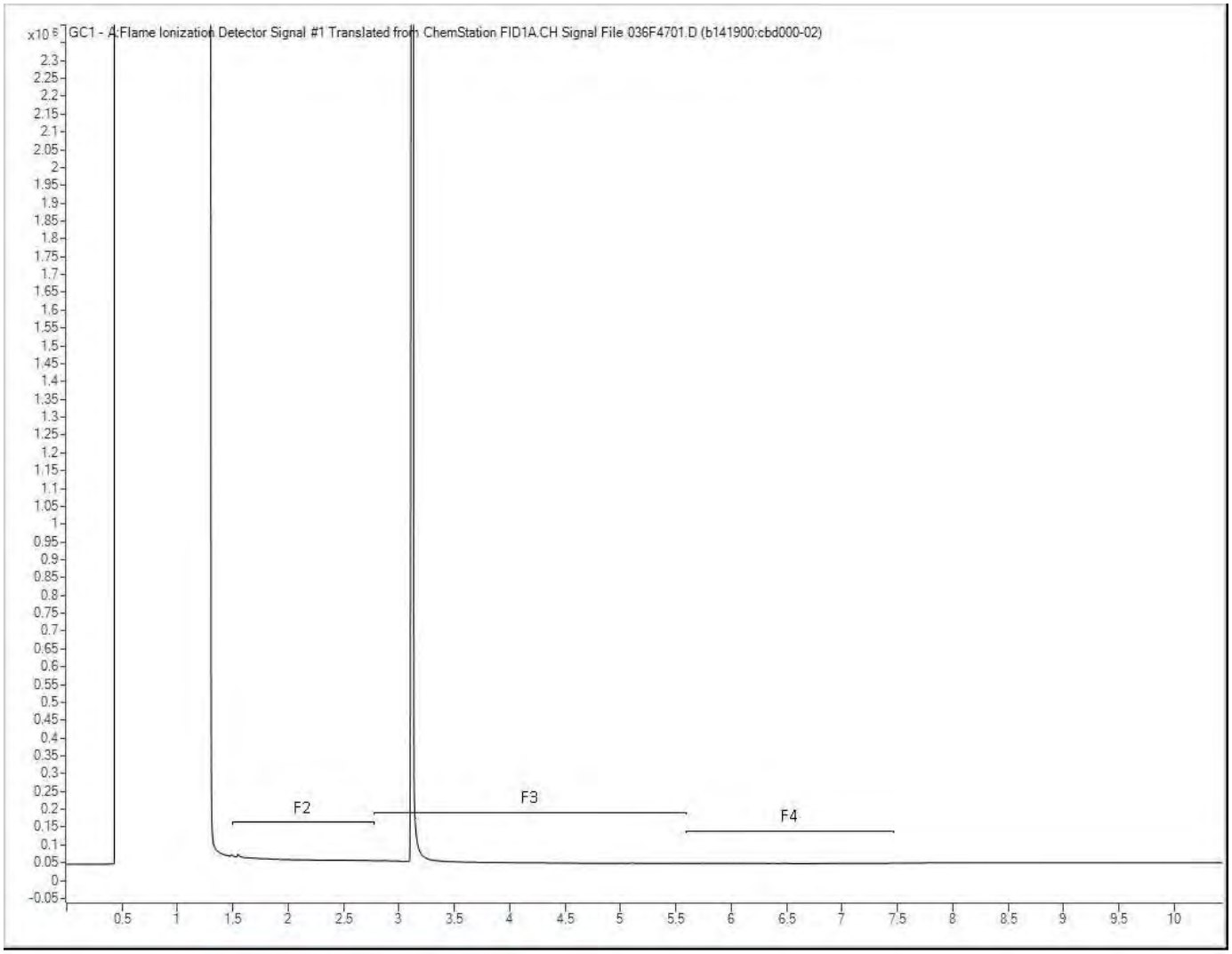
hpchem20\HPchem\1\DATA\2023\10\RUN1008

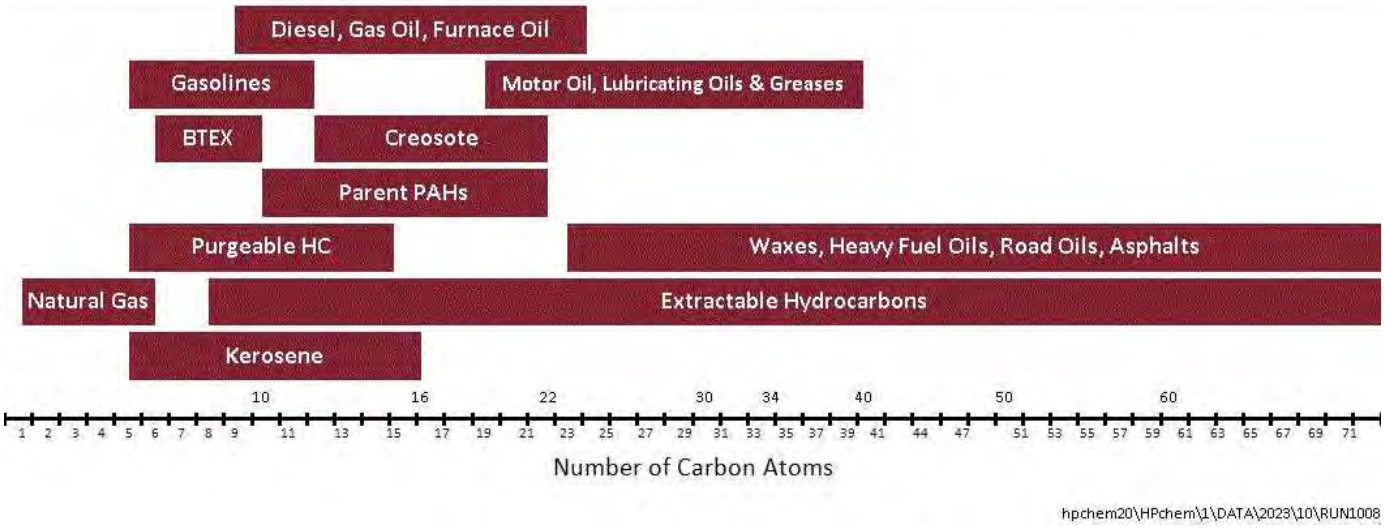
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C380452
Report Date: 2023/10/16
Bureau Veritas Sample: CBD000

PARSONS INC.
Client Project #: 10-12832
Client ID: BH1963

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





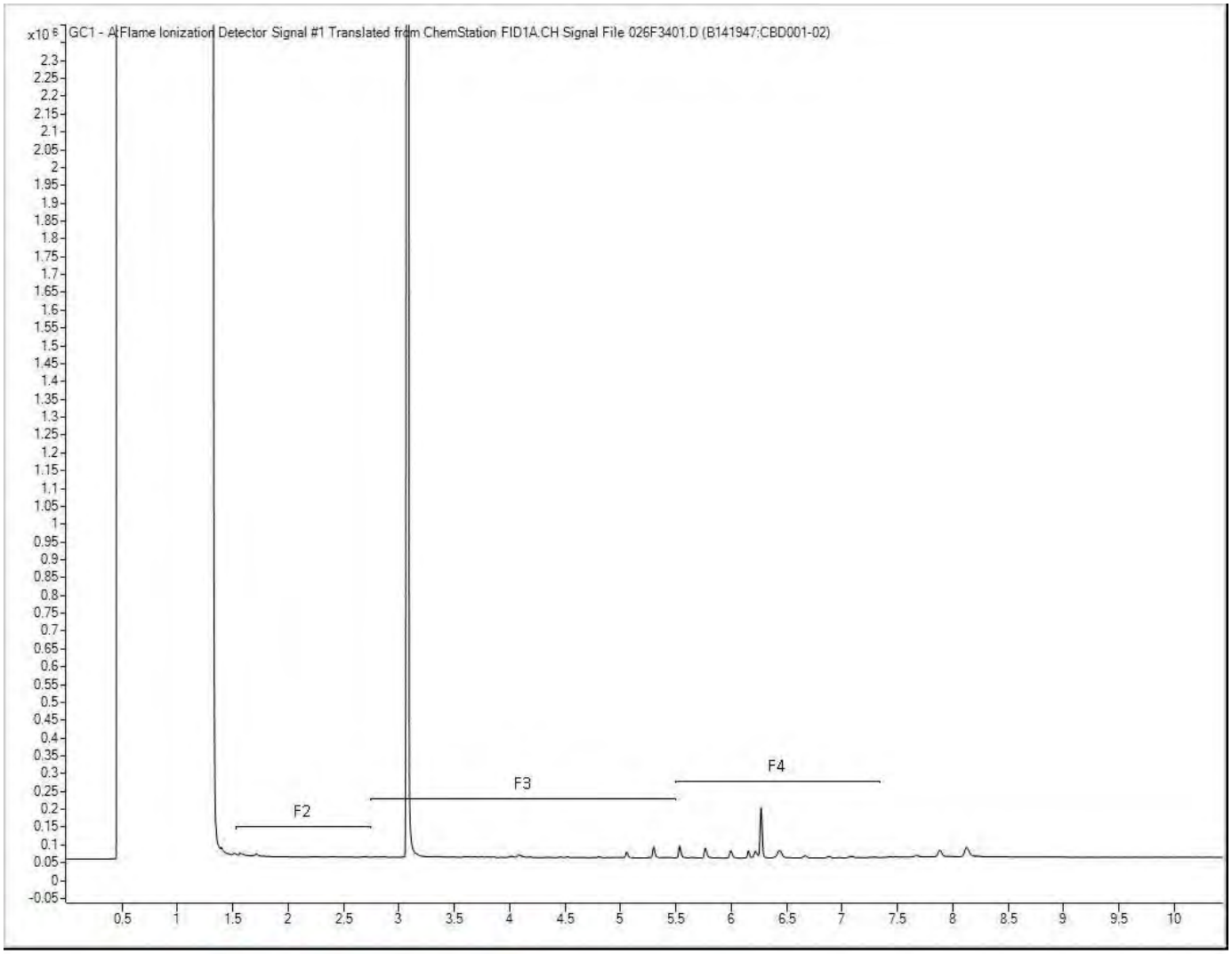
hpchem20\HPchem\1\DATA\2023\10\RUN1008

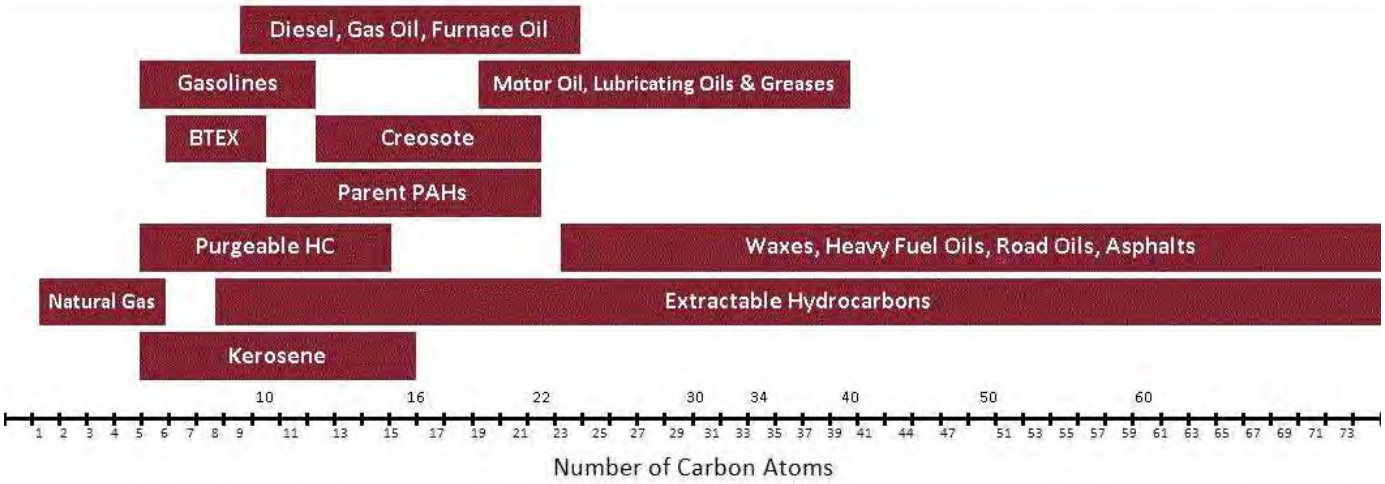
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C380452
Report Date: 2023/10/16
Bureau Veritas Sample: CBD001

PARSONS INC.
Client Project #: 10-12832
Client ID: DUP-02

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





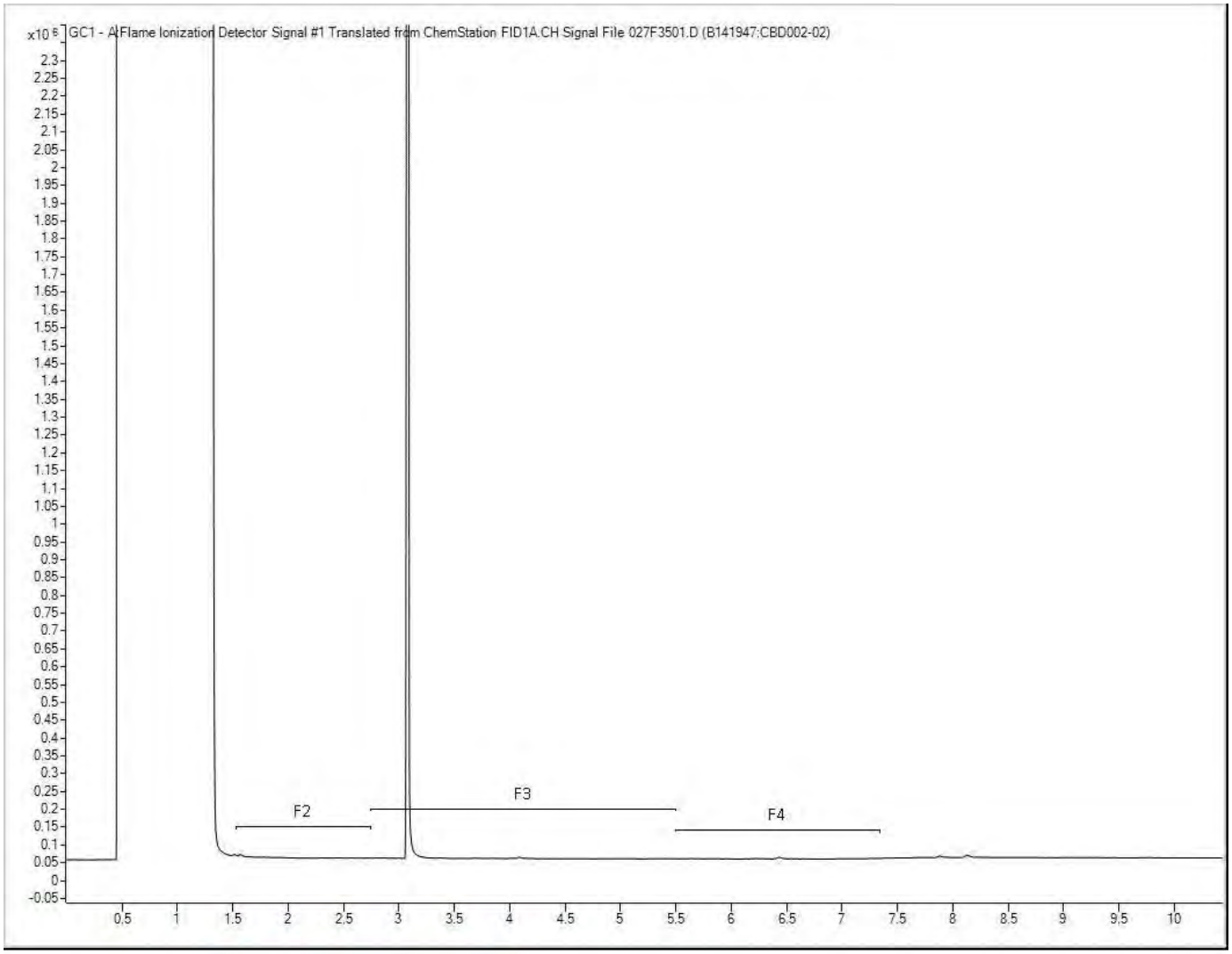
hpchem6\HPchem\1\DATA\2023\10\RUN1009

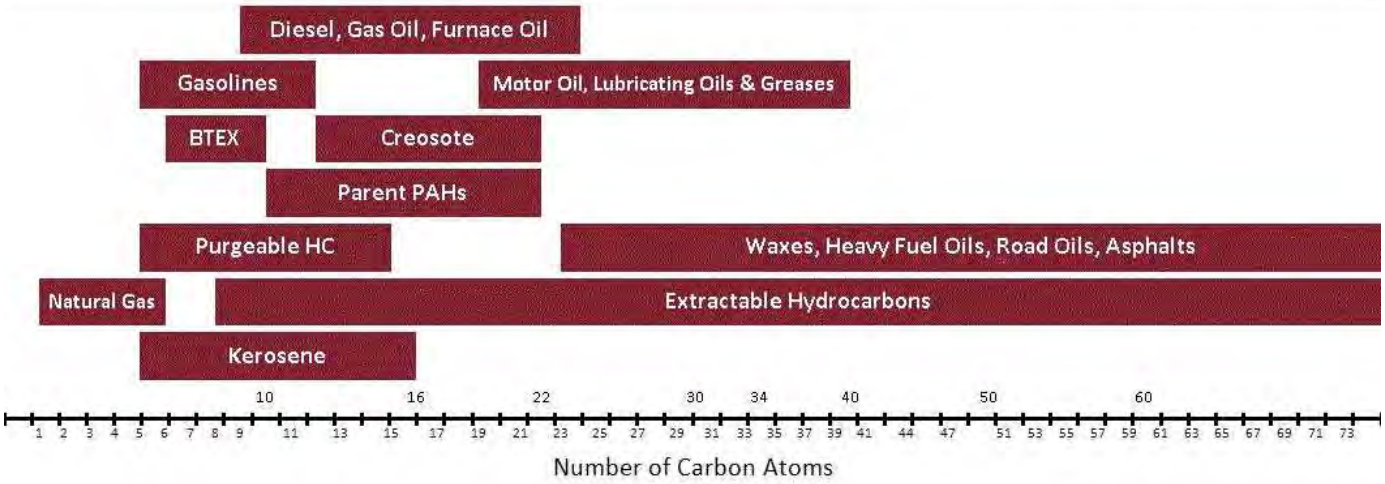
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C380452
Report Date: 2023/10/16
Bureau Veritas Sample: CBD002

PARSONS INC.
Client Project #: 10-12832
Client ID: BH2005

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





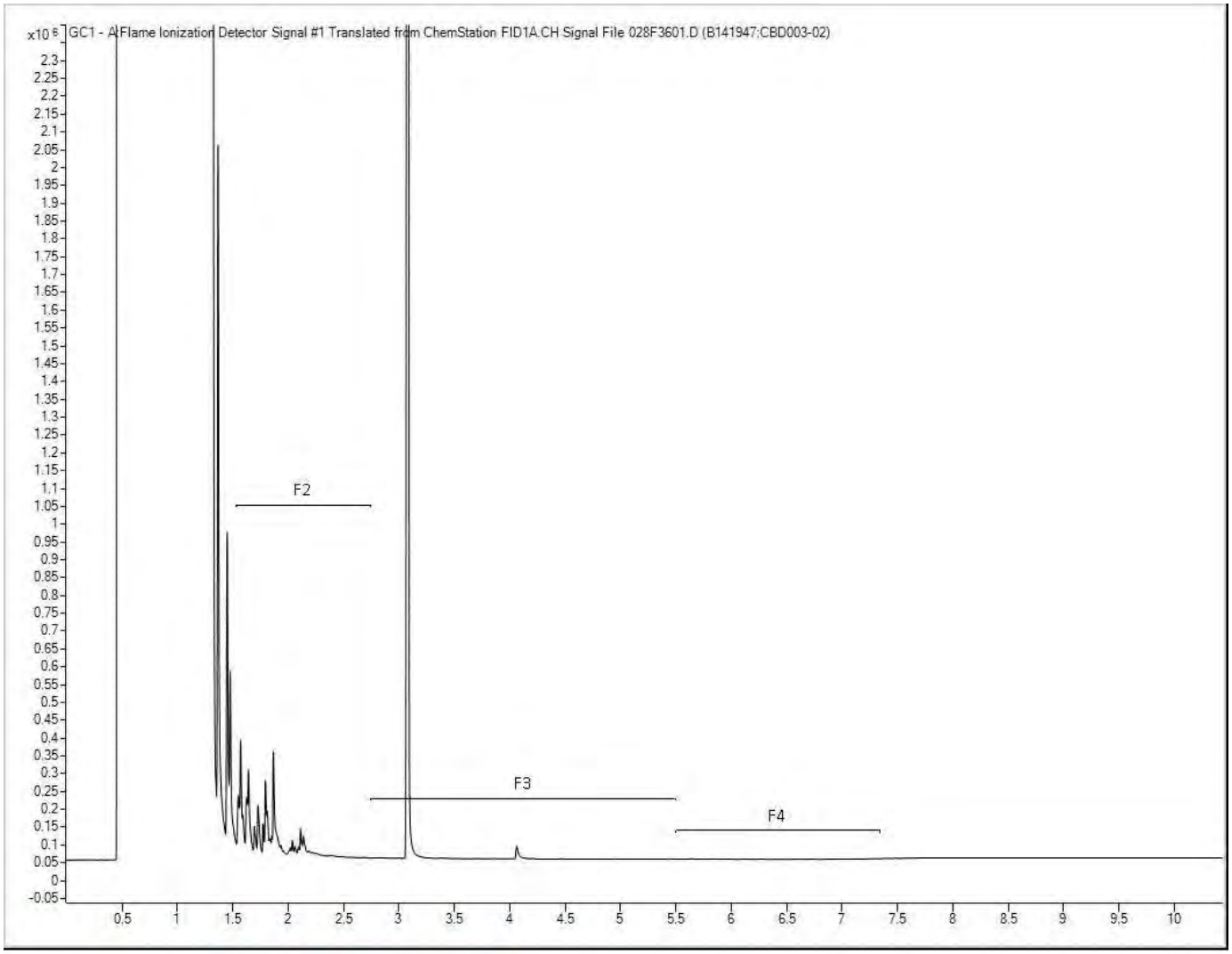
hpchem6\HPchem\1\DATA\2023\10\RUN1009

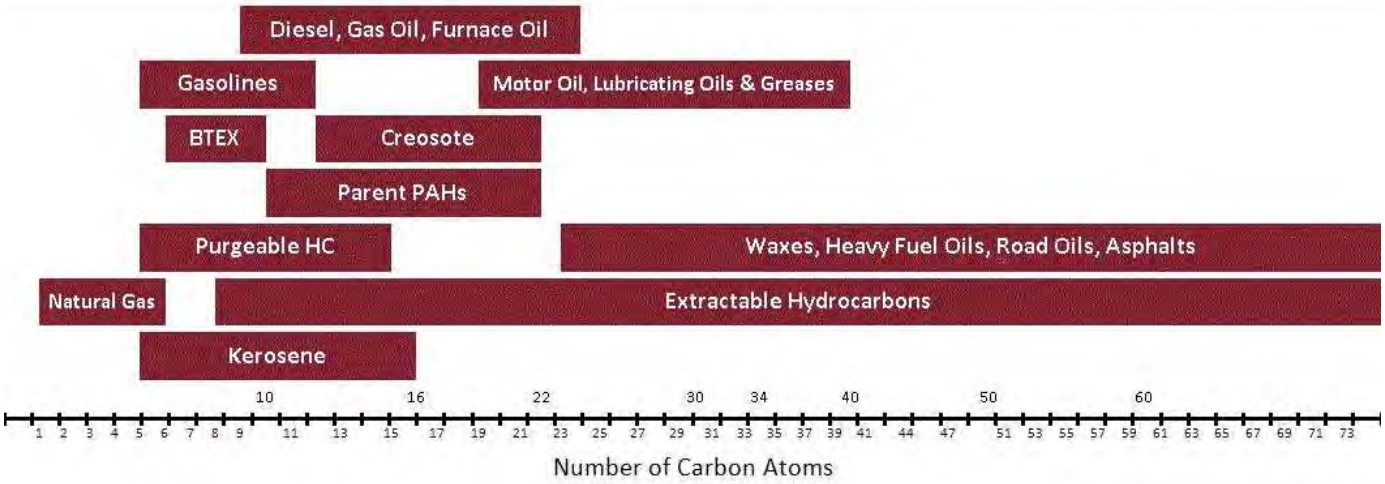
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C380452
Report Date: 2023/10/16
Bureau Veritas Sample: CBD003

PARSONS INC.
Client Project #: 10-12832
Client ID: BH6003

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





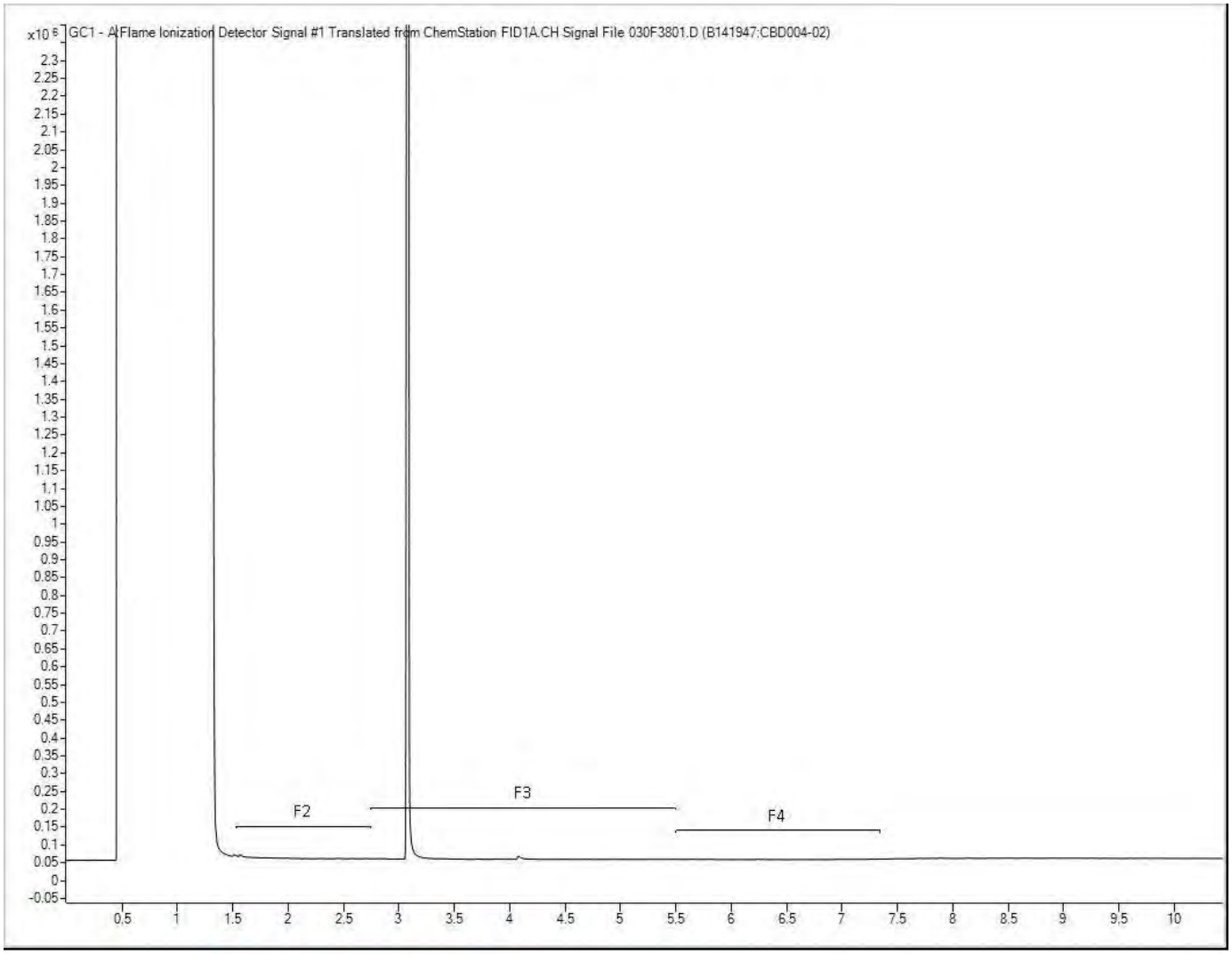
hpchem6\HPchem\1\DATA\2023\10\RUN1009

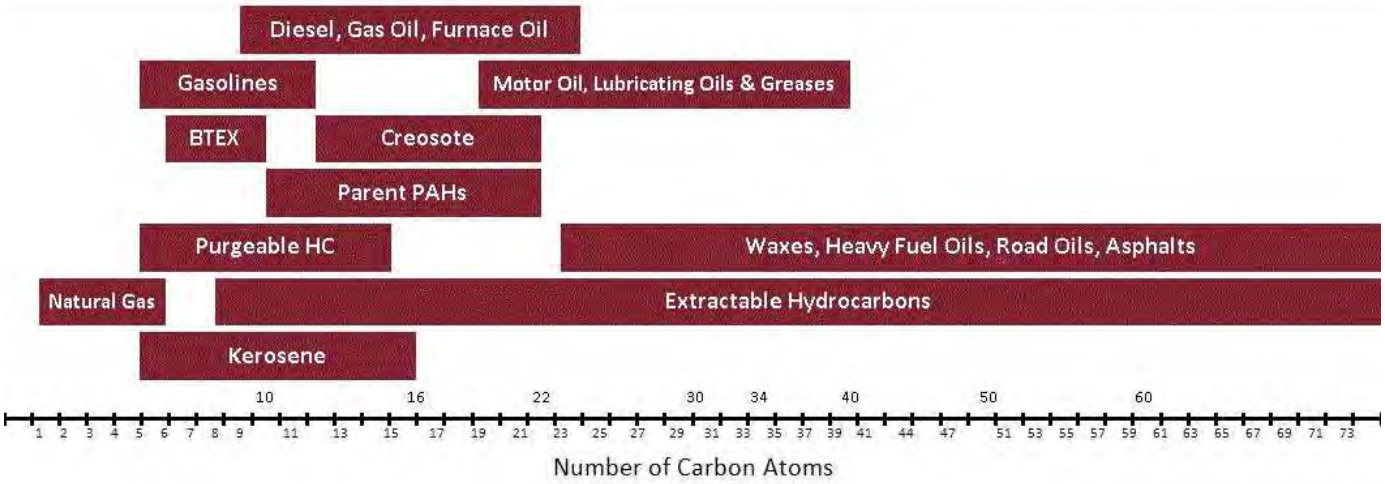
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C380452
Report Date: 2023/10/16
Bureau Veritas Sample: CBD004

PARSONS INC.
Client Project #: 10-12832
Client ID: BH1943

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





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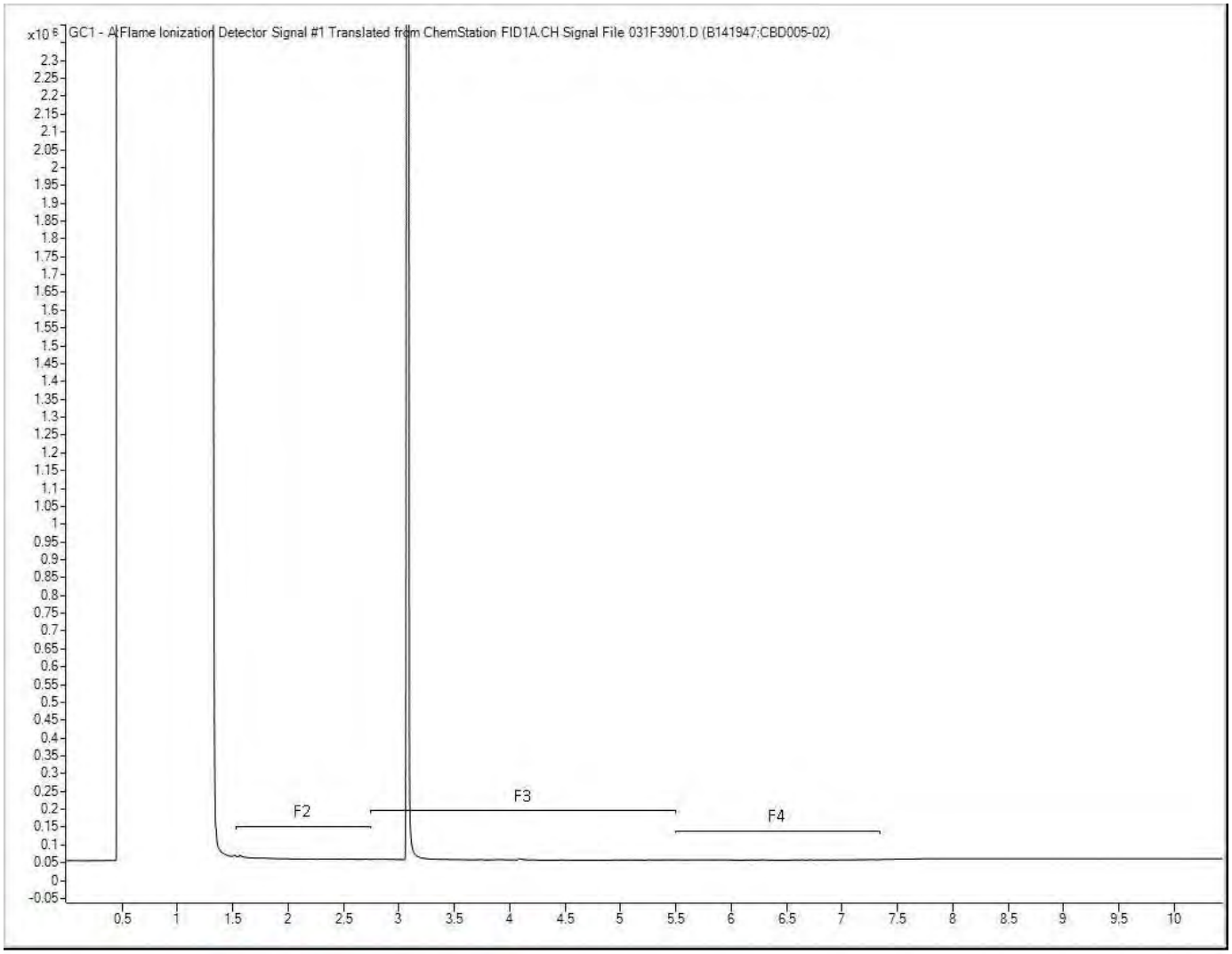
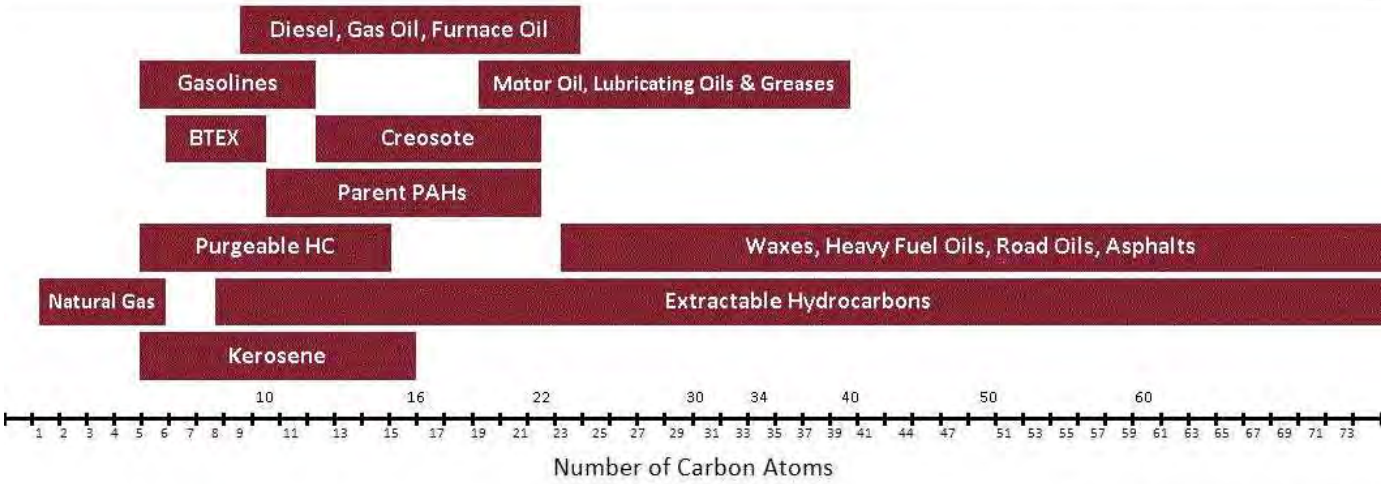
Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C380452
Report Date: 2023/10/16
Bureau Veritas Sample: CBD005

PARSONS INC.
Client Project #: 10-12832
Client ID: BH1979

CCME Hydrocarbons in Water (F2; C10-C16) Chromatogram





hpchem6\HPchem\1\DATA\2023\10\RUN1009

Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.