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Report on the 2020 Perimeter Monitoring Program and Perimeter Extraction System

Parkland Burnaby Refinery

Parkland Refining (B.C.) Ltd.

Project number: 60626755

June 17, 2021

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AECOM: 2015-04-13

Executive Summary

On behalf of Parkland Refining (B.C.) Ltd. (Parkland), AECOM Canada Ltd. (AECOM) completed monitoring and sampling as part of the Perimeter Monitoring Program (PMP) and performed operations, maintenance and monitoring of the Perimeter Extraction System (PES), at the Burnaby Refinery (Refinery) throughout 2020. The PMP and PES are performed under the oversight of the British Columbia Ministry of Environment and Climate Change Strategy (ENV). This report summarizes the activities associated with the 2020 PMP and PES programs.

The Refinery is composed of three areas which are collectively known as the "Site":

1. Area 1: Located at the northern terminus of Willingdon Avenue, this area functions primarily as a tank farm and blending facility
2. Area 2: Located near the end of Penzance Drive, this area contains the refining process units
3. Area 3: Located north of Area 1, this area is leased from the Port, and contains the wharf and some rail loading facilities

Perimeter Monitoring Program

The purpose of the PMP is to monitor groundwater environmental conditions along the down gradient boundary of the Refinery. The PMP is executed once in the wet season (high groundwater table) and once in the dry season (low groundwater table). The two events in 2020 were completed over the following periods:

- Wet Season Event – March 17 to April 14, 2020
- Dry Season Event – August 10 to 27, 2020

The results of the PMP groundwater samples are compared to the Contaminated Sites Regulation (CSR) standards for the "protection of marine aquatic life" (AW) (CSR standards) and the Site-Specific Screening Levels (SSSLs). Site-Specific Screening Levels (SSSLs) for select parameters were developed to evaluate potential risks to Burrard Inlet resulting from impacted Site groundwater. The CSR Standards and SSSLs are used as trigger concentrations which indicate the need for further focused investigation/evaluation or remedial action.

Areas 1 and 3 Perimeter Monitoring Program Summary

The sampling program and results for the Areas 1 and 3 PMP for 2020 are summarized in the table below.

Total number of monitoring wells included in the PMP for Areas 1 and 3:	32
Total number of monitoring wells sampled during the wet event:	31*
Total number of monitoring wells sampled during the dry event:	31*
Total number of monitoring wells characterized by groundwater sample concentrations below CSR AW standards for petroleum hydrocarbons (PHCs[1]) and/or polycyclic aromatic hydrocarbons (PAHs) parameters for both events	27
Total number of monitoring wells characterized by groundwater sample concentrations below SSSLs, but above the CSR AW standards for PHCs and/or PAHs for either one or both events	3
Total number of monitoring wells characterized by groundwater sample concentrations above SSSLs for PHCs and/or PAHs parameters for either one or both events	1

[1] PHCs including one or more of light and heavy extractable petroleum hydrocarbons in water (LEPHw/HEPHw), extractable petroleum hydrocarbons in water ($EPHw_{C10-C19}$/$EPHw_{C19-C32}$), volatile petroleum hydrocarbons in water (VPHw), and/or benzene/toluene/ethylbenzene/xylenes (BTEX),

** - discrepancies in number of monitoring wells sampled are due to dry monitoring wells; see report for details*

The samples collected from a single well in Area 3 (U07-10S) contained reported concentrations of both PHCs and PAHs above the SSSLs and CSR standards in both events. U07-10S represents a previously investigated area of isolated contamination where PHC and PAH concentrations have exceeded the SSSLs. Nearby monitoring wells continue to demonstrate vertical and horizontal delineation is maintained.

Three monitoring wells in Area 3 (A3MW02-07, A3MW02-08, and A3MW03-02) contained concentrations of PHCs and/or PAHs above the CSR AW standards, but below the SSSLs. These concentrations were generally consistent with historical concentrations reported in samples from these locations.

In October 2015, the air sparge system located in Area 3 was temporarily turned off to assess whether further active remediation in the area was required. Concentration trends of evaluated PAH parameters in A3MW02-07 and A3MW02-08 appear to increase between 2015 and 2018, when concentrations stabilized. The increasing concentration trends prior to 2019 may be attributed to rebound following the dormancy of the Area 3 AS system. In 2020 concentrations of evaluated PAH parameters and total PAHs in A3MW02-07 and A3MW02-08 were generally stable or slightly decreasing since 2018. The AS system remained on permanent standby throughout 2020.

Although A3MW03-02 and U07-10S are also within the influence of the air sparge system, the effect of the system is less evident. At these locations fluctuations in concentrations appear to correlate more closely with changes in groundwater elevation. The tidal influence present in this area will affect both gradient and groundwater elevation which may contribute to variability in sample results at these locations.

The concentrations of contaminants of concern in samples collected as part of the 2020 PMP for Areas 1 and 3 do not indicate an immediate need for additional investigation or remediation. Ongoing monitoring of Area 3 will continue without the influence of the AS system. The Area 1 and 3 PMP will therefore continue in 2021 with a similar scope of work as completed in 2020.

Area 2 Perimeter Monitoring Program Summary

The sampling program and results for the Area 2 PMP for 2019 are summarized in the table below.

Total number of monitoring wells included in the PMP for Area 2:	39
Total number of monitoring wells sampled during the wet event:	32*
Total number of monitoring wells sampled during the dry event:	17*
Total number of monitoring wells characterized by groundwater sample concentrations below CSR AW standards for PHCs, PAHs, and/or dissolved metal parameters for both events	29
Total number of monitoring wells characterized by groundwater sample concentrations below SSSLs but above the CSR AW standards for PHCs, PAHs and/or dissolved metals for either one or both events	2
Total number of monitoring wells characterized by groundwater sample concentrations above SSSLs for PHCs, PAHs and/or dissolved metals for either one or both events	1

** - discrepancies in the number of monitoring well sampled are typically due to dry wells; see report for details*

The single SSSL exceedance was associated with the reported xylenes concentration in one well (A2MW09-11) located down gradient of the central section of the PES. Samples from this well have historically contained elevated concentrations of xylenes above the SSSL but have generally demonstrated a decreasing trend since the PES was commissioned. Due to insufficient water in this well, sampling of this well is typically only possible during the wet season event.

The other two sample locations with reported concentrations above the CSR were MW11-4S and G2-3B for dissolved copper and pyrene, respectively. The reported concentrations were within historical ranges for these parameters.

The results of the 2020 PMP for Area 2 do not indicate an immediate need for additional investigation or remediation other than the continued operation of the PES and continued monitoring of MW11-4S and G2-3B for on-going trend development. The Area 2 PMP will therefore continue in 2021 with a similar scope of work as completed in 2020.

Area 2 Perimeter Extraction System

The PES is a line of closely spaced extraction wells along the Area 2 northern fence line of the Refinery. The pumps in the PES wells extract total fluids to depress the groundwater table and preclude the off-site migration of light non-aqueous phase liquid (LNAPL) and dissolved phase petroleum hydrocarbons (PHCs) in groundwater that originate from Area 2.

Throughout 2020, a water column in the extraction wells measuring one meter above the pump intake during pump operation was used as a pump performance indicator and a trigger for troubleshooting and/or replacement of a groundwater extraction pump. If the pump did not function following troubleshooting or demonstrated poor reliability, then it was removed and replaced with a working pump from the spare pump inventory.

An annual average water column of less than one meter was sustained at 33 of the 40 extractions wells, indicating satisfactory performance. Of the seven extraction wells with average water columns greater than one meter, six were located in the eastern section of the PES and one was located in the western section of the PES. In all instances, these wells are outside of the known LNAPL plume in Area 2.

In 2020, the PES collected a total fluid volume of 32,269 cubic meters. Of that volume, 211 litres are estimated to represent LNAPL.

In 2020, the PES effectively controlled potential off-site migration of LNAPL and dissolved phase PHCs based on:

- reliable hydraulic drawdown in extraction wells across the entire PES;
- comparison of groundwater elevations in monitoring wells near the PES against reference static groundwater elevations collected prior to the PES operation;
- groundwater contouring (including particle path evaluations) performed on a quarterly basis; and,
- general stability of the groundwater quality down gradient of the PES.

It is recommended that the PES continue to be operated in 2021 in a similar manner as 2020.

Quality information

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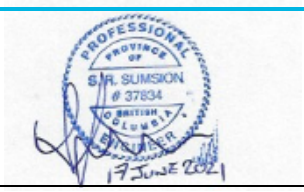

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1. INTRODUCTION

The objective of this report is to document the following information to the British Columbia (BC) Ministry of Environment and Climate Change Strategy (ENV):

- 2020 groundwater results from the Refinery Perimeter Monitoring Program (PMP) (wet and dry season events), and
- 2020 performance of the Refinery Area 2 Perimeter Extraction System (PES) located along the downgradient perimeter of the Parkland (formerly Chevron) Burnaby Refinery (Refinery).

AECOM Canada Ltd. (AECOM) has prepared this report on behalf of Parkland Refining (B.C.) Ltd.

The Site is located on the south side of Burrard Inlet. The Refinery is composed of three areas which are collectively known as the "Site" (**Figure 1**).

1. Area 1: Located at the northern terminus of Willingdon Avenue, this area functions primarily as a tank farm and blending facility (**Figure 2**).
2. Area 2: Located near the end of Penzance Drive, this area contains the refining process units (**Figure 3** and **Figure 4**).
3. Area 3: Located north of Area 1, this area contains the wharf and some rail loading facilities (**Figure 2**). This area is leased from the Port of Vancouver and is further divided into two portions:
    a. Land reclaimed from Burrard Inlet, and
    b. Burrard Inlet water lot, including the wharf.

2. GEOLOGY AND HYDROGEOLOGY OVERVIEW

The surficial geology of the Site is generally characterized by varying depths of Pleistocene age glacial till overlying Tertiary bedrock composed of mudstone with minor interbeds of fine-grained sandstone. Soil conditions encountered during drilling programs conducted by AECOM over the years are generally consistent with published surficial geology maps (Holocene sediments) (URS 2012). Fill materials are also encountered in some locations above the glacially consolidated materials. Soil that is close to the foreshore contains marine type sediments with entrained shells.

In Area 2, the topography consists of a flat central portion where most of the Refinery infrastructure is located. To the north, there is a short slope down to a benched area where the water storage ponds are located. This first bench is called the Upper Bench and is bounded to the north by the Area 2 fence line. Just beyond the fence line there is another drop in elevation to a second narrow bench at the Refinery property line, referred to as the Lower Bench. The elevation continues to drop to the Canadian Pacific Railway (CPR) right-of-way (ROW) and afterwards, to the foreshore of Burrard Inlet.

Consistent with the steep northward slope of the ground surface, groundwater flows northward from the central upland areas of the Refinery towards Burrard Inlet. Low permeability soil and bedrock restrict groundwater flow and contaminant migration.

Monitoring wells on-site have a total depth ranging between 1.3 meters (m) and 26.7 m below the top of monitoring well casing. Groundwater depths vary with land surface elevation. In general, the depth to groundwater is shallower near the Foreshore and deeper in upland areas (URS 2012).

The hydraulic conductivities for the PES area range from 5×10^{-6} meters per second (m/s) to 1×10^{-10} m/s (URS 2013a). The estimated time required for groundwater to travel from the PES to the Parkland

property boundary under non-pumping conditions is six months (URS 2013b). This was calculated using the following assumptions.

- Hydraulic conductivity of 1.1 x 10^{-6} m/s. This represents the highest measured conductivity from the central section of the PES where most of the light non-aqueous phase liquid (LNAPL) is encountered. This conductivity was measured at well MW10-2D that is screened entirely within the till.
- Calculated groundwater velocity of 30.5 meters/year (m/yr.) under non-pumping conditions.
- The distance from the PES extraction wells on the Upper Bench to the Refinery property line is approximately 15 m.

The groundwater table in Area 3, like the topography, is relatively flat with a gentle slope northward to Burrard Inlet. Groundwater flows northward from Area 1 towards Area 3 and Burrard Inlet. Groundwater elevations near the shoreline are tidally influenced. Siltstone and sandstone bedrock in Area 1 has a hydraulic conductivity of less than 10^{-6} m/s and yields less than 1 litre/minute (Morrow, 2001).

3. BACKGROUND

3.1 Perimeter Monitoring Program Background

The purpose of the PMP is to monitor groundwater environmental conditions along the down gradient boundary of the Refinery. The following bullets are intended to provide relevant program background since the initiation of the PMP in 2004.

- The scope of the original semi-annual groundwater monitoring and sampling program was outlined to the British Columbia (BC) Ministry of Environment (ENV) by Chevron Canada Limited (CCL) in their letter entitled, *Chevron Refinery Well Monitoring Program*, dated October 31, 2003.
- Sentry wells are monitoring wells typically located outside of known Areas of Environmental Concern (AECs).
- Monitoring wells located in the AECs are monitored as part of separate investigation, mitigation, and/or remediation programs. Several of the Area 2 Sentry wells are within the influence of remedial activities.
- Following the 2016 PMP, monitoring and sampling of the methyl tert-butyl ether (MTBE) AEC was reduced from 22 monitoring wells to five monitoring wells in 2017. Based on evaluation of the groundwater quality in the Report on the 2015 and 2016 PMP and PES, the remediation in the MTBE AEC is considered complete. The system status was changed to dormant and the area is no longer considered an AEC (AECOM, 2017).
- Consistent with the intent of the PMP, AECOM monitored 71 sentry monitoring wells at the Refinery perimeter in 2020.

3.2 Perimeter Extraction System Background

The purpose of the PES is to provide a hydraulic barrier to intercept and preclude the off-site migration of LNAPL and dissolved phase petroleum hydrocarbons (PHCs) in groundwater originating from the Area 2 LNAPL plume.

The following bullets are intended to provide relevant system background since the initiation of the PES in 2010.

- In the summer of 2010, the initial portion of the PES was installed along the northern perimeter of Area 2 consisting of 10 total fluid pumps and associated extraction wells. This installation is currently

referred to as the central section (**Figure 4**). Since 2010, all these extraction wells have been replaced with deeper extraction wells to improve the hydraulic capture in this area.

- In the summer of 2011, the PES was expanded to the east to include the Flare Stack Area. The expansion included the installation of an additional 17 pumping locations and associated infrastructure. This installation is currently referred to as the eastern section (**Figure 4**).
- In the summer of 2012, the PES was expanded to the west to the edge of the ponds area. The expansion included the installation of an additional 13 pumping locations and associated infrastructure. This installation is currently referred to as the western section (**Figure 4**).
- In 2015, the common header of the eastern section of the PES was enlarged.
- In 2016, the common header of the western and central sections of the PES were enlarged.
- In 2017, the PES process was expanded to include an effluent oil water separator (OWS), including a LNAPL storage tank, and a sequestering agent dosing system.

3.3 Air Sparge and MTBE Systems Summary

To improve the reliability of perimeter compliance, groundwater extraction and treatment systems have been installed and operated at the Refinery at various times in the past. **Table 1** summarizes these systems and their current status.

Table 1 Summary of Air Sparge and MTBE Systems

System Name	Location	Status	Figure Reference
Area 3 Air Sparge System	Area 3	Standby since 2015	Figure 2
Area 2 Air Sparge System	Area 2	Standby since 2012	Figure 3
Area 2 MTBE Extraction System	Area 2	Standby since 2014 Dormant since 2015	NA*

NA - Not applicable

** Figures and additional evaluation of the MTBE Extraction system are provided in the Report on the 2015 and 2016 PMP and PES (AECOM, 2017).*

4. REGULATORY CONTEXT

The *Environmental Management Act* (EMA) was brought into force on July 8, 2004. The applicable regulation under the EMA is the Contaminated Sites Regulation (CSR). The CSR came into effect April 1, 1997 and provides a framework to investigate, assess, and remediate contaminated sites in BC. thirteen amendments to the CSR have been completed since 1997, with the most recent being Stage 13, which came into effect on February 1, 2021.

Federal environmental legislation applicable to Burrard Inlet adjacent to the Site includes the *Canada Fisheries Act*. A summary of the applicable regulatory context is provided in **Appendix B**.

4.1 Groundwater Site-Specific Screening Levels

Site-Specific Screening Levels (SSSLs) for select parameters were developed by SLR Consulting Canada Ltd. (SLR), with the support of Parkland and AECOM, to evaluate potential risks to Burrard Inlet resulting from impacted Site groundwater. The SSSLs were based on the CSR Stage 10 Omnibus Amendments in addition to the Updated Screening Levels (USLs) and Risk-Based Management Targets (RBMTs) developed for application along the Foreshore downslope of Area 2 of the Refinery. Upon the

release of subsequent housekeeping amendments, these SSSLs were verified and no updates were warranted.

The SSSLs are listed in **Table 2** below, and the basis for their development is presented in **Appendix B**. The SSSLs were first introduced in the *Report on the 2015 and 2016 Perimeter Monitoring Program and Perimeter Extraction System, Chevron Burnaby Refinery, Burnaby British Columbia* (AECOM 2017).

Table 2 Site-Specific Screening Levels

PHCs	
PCOC	**SSSL (µg/L)**
LEPHw	3000
VPHw	15000
Benzene	21000
Ethylbenzene	3200
Toluene	7700
Xylenes	3300

PAHs	
PCOC	**SSSL (µg/L)**
Acridine	30
Anthracene	40
Benzo(a)pyrene	2.8
Fluoranthene	40
Naphthalene	440
Pyrene	40

Metals	
PCOC	**SSSL (µg/L)**
Cadmium	90
Chromium	500
Cobalt	1100
Copper	62
Lead	1400
Nickel	750
Uranium	1000
Zinc	900

Notes:
PHC – Petroleum Hydrocarbon Concentrations
PAH – Polycyclic Aromatic Hydrocarbons
PCOC – Potential Contaminants of Concern
µg/L – micrograms per litre

In December 2020, ENV provided comment by e-mail that recognized that Parkland had prepared SSSLs as “threshold” concentration for evaluation but re-enforced that they do not replace the CSR standards unless formally approved by ENV. Parkland is using the SSSLs as an extra layer of assessment to identify areas of greater environmental concern. The SSSLs are being used to target investigation and monitoring activities on the site. They are used in conjunction with the applicable CSR standards.

4.2 Applicable Standards and Screening Levels

The Site is zoned for heavy industrial use. The nearest surface water downgradient of the Site is Burrard Inlet, located approximately 10 m to the north of portions of Area 1, and 40 m north of Area 2. Area 3 borders Burrard Inlet and includes a water lot within the inlet. This results in the application of the CSR standards for the protection of marine aquatic life (AW) based on the assessment of the Site’s hydrogeology and potential pathways using available data from numerous soil and groundwater investigations[2]. In addition to Burrard Inlet, Rainbow Creek is located within close vicinity to MW17-04 resulting in the application of the freshwater (FW) aquatic life standards to groundwater samples collected from this sample location.

The results of the PMP groundwater samples were compared to the CSR AW standards and SSSLs. Exceedances of either the CSR AW or SSSLs indicates the need for further assessment/evaluation or remedial action, if warranted.

Under ENV guidance, drinking water (DW) standards are applicable at all sites unless they can be removed using Protocol 21 (ENV 2017), or an exemption is granted by the ENV. Drinking water is not applicable at the Site for the following reasons.

- A drinking water exemption was provided by ENV for Area 2 on May 15, 2017. A copy of the letter is included in **Appendix B**.

[2] Protocol#21_2017 (gov.bc.ca)

- Completed CSR Protocol 21 drinking water flowcharts (Figures 1 and 4 in Protocol 21) for Areas 1 and 3 indicate the drinking water standard is not applicable; therefore, direct approval from ENV is not required. The completed flow charts are included in **Appendix B**.

5. SCOPE OF WORK

The 2020 scope of work included:

- Updating and following the Refinery-wide AECOM Health and Safety Plan (HASP).
- Completion of the 2020 PMP in accordance with the work plan submitted to ENV on October 31, 2003 and AECOM's work plan dated March 29, 2004. In general, this work included:
    - Completion of two groundwater monitoring and sampling events per year, one during the wet season (high water table) and the other during the dry season (low water table),
    - Submission of groundwater samples for laboratory chemical analysis of petroleum hydrocarbon (PHC) related parameters (refer to section 6.1 and section 7.1), polycyclic aromatic hydrocarbons (PAHs), and dissolved metals, and
    - Comparison of the analytical results to applicable standards.
- Operating, monitoring, and maintaining the PES in accordance with the PES Operations, Monitoring and Maintenance Plan (AECOM 2016), which consisted of monitoring pump operation twice a month and quarterly pump performance testing (i.e. drum tests).

The 2020 monitoring programs were completed by Mr. Justin Becker, E.I.T, Mr. Aaron Rysdale, B.Sc., Ms. Rebecca McGovern, M.Sc., G.I.T., and Mr. Carny Wong, B.Sc. The report was led by Mr. Stephen Sumsion, P.Eng with contributions by Mr. Justin Becker, E.I.T and Mr. Aaron Rysdale, B.Sc. Senior review was conducted by Lesley Reid, M.Eng., P.Eng., CSAP.

6. AREAS 1 AND 3 PERIMETER MONITORING RESULTS

In 2020, PMP groundwater monitoring and sampling events for Areas 1 and 3 of the Refinery were completed over the following two periods.

- Wet Season – March 17 – 25, 2020
- Dry Season – August 17 – 27, 2020

The monitoring wells included in the 2020 PMP for Areas 1 and 3 are provided in **Table 3** and their locations are shown on **Figure 2**.

Table 3 Areas 1 and 3 Monitoring Wells Included in the 2020 PMP

A1-12C	A3MW02-08	G1-1A	G1-7B
A1-12D	A3MW03-01	G1-1B	G1-8
A1-12S	A3MW03-02	G1-1C	NDM97-2
A1-3D	A3MW03-03	G1-2A	NDM97-3
A1-3S[1]	A3MW03-04	G1-2B	U07-10D
A3MW02-05	MW03-07	G1-5	U07-10I
A3MW02-06	U6	G1-6	U07-10S
A3MW02-07	U7	G1-7A	MW17-04

Notes:

1. Well could not be sampled during the both the Wet and Dry Seasons Sampling Events due to insufficient groundwater.

The Area 1 and Area 3 PMP includes the monitoring and sampling (when sufficient water is present) of 32 groundwater monitoring wells. Each well is monitored and sampled in accordance with the field program methods (**Appendix C**). An overview of the completed program for each semi-annual event is summarized in **Table 4**.

Table 4 Summary of 2020 PMP Sampling Program for Area 1 and 3

Total number of monitoring wells included in the PMP for Area 1 and 3:	32
Wet Season Event - Total number of monitoring wells sampled during the wet event: - Total number of dry monitoring wells monitored during the wet event: - Total number of monitoring wells not sampled due to other reasons:	 31 1 0
Dry Season Event - Total number of monitoring wells sampled during the dry event: - Total number of dry monitoring wells monitored during the dry event: - Total number of monitoring wells that were not sampled due to other reasons:	 31 1 0

During the 2020 PMP, 1 well (A1-3S) was not sampled during the both the wet and dry season event due to insufficient groundwater.

A summary of the 2020 monitoring data along with historical monitoring data for the Area 1 and 3 PMP locations are provided in **Table 1-1**.

6.1 Groundwater Analytical Results

Groundwater samples collected as part of the 2020 PMP were analyzed for one or more of the following parameters of concern:

- Petroleum hydrocarbons (PHCs) including one or more of light and heavy extractable petroleum hydrocarbons in water (LEPHw/HEPHw) and/or extractable petroleum hydrocarbons in water ($EPHw_{C10-C19}$/$EPHw_{C19-C32}$),
- Volatile hydrocarbons in water (VHw_{C6-C10}),
- Volatile petroleum hydrocarbons in water (VPHw),

- Benzene/toluene/ethylbenzene/xylenes (BTEX),
- Styrene, and
- Polycyclic aromatic hydrocarbons (PAHs).

The current and historical reported analytical results for groundwater samples from these monitoring wells are presented in **Table 1-2** and **Table 1-3**. The laboratory Certificates of Analysis for the 2020 PMP data are provided in **Appendix D**. A summary of the quality assurance and quality control (QA/QC) evaluation performed on the data set, which determined that the data could be relied on, is provided in **Appendix E.**

The completed 2020 PMP analytical program for Areas 1 and 3 is summarized in **Table 5**.

Table 5 Areas 1 and 3 PMP Analytical Program Summary

	Number of Monitoring Wells Sampled	
Parameter	**Wet Event**	**Dry Event**
LEPHw / HEPHw	14	15
EPHw	31	31
BTEX/VPHw/Styrene	31	31
PAHs	14	15

The analytical results of the PMP groundwater samples are compared to the applicable CSR Standards as well as the SSSLs. Reported concentrations above these limits indicate the need for further assessment/evaluation or remedial action. An overview of the reported sample concentrations against the reported detection limits, CSR Standards, and SSSLs, by parameter are summarized in **Table 6** and on **Figure 2**.

Table 6 Overview of Areas 1 and 3 Groundwater Results

Parameter	Wet Event				Dry Event			
	Result Below RDL	**Detectable Result Below CSR AW**	**Results Above CSR AW and Below SSSLs**	**Result Above SSSLs**	**Result Below RDL**	**Detectable Result Below CSR AW**	**Results Above CSR AW and Below SSSLs**	**Result Above SSSLs**
LEPHw	12	0	1	1	12	1	1	1
EPHw (C10-<C19)	29	1	0	1	28	1	1	1
PAHs	2	10	1	1	0	12	2	1
BTEX	29	2	0	0	27	4	0	0
VHw (C6-C10)	28	3	0	0	27	4	0	0
VPHw	28	3	0	0	27	4	0	0
Styrene	31	0	0	0	31	0	0	0

Note:
RDL= Reported Detection Limit

The overview of the groundwater results in **Table 6** indicate that the reported groundwater sample concentrations at 27 of the 31 sample locations are below the CSR standards with many of them also below the reported detection limit. Reported concentrations for groundwater samples above the CSR AW and SSSLs are summarized, by monitoring well, in **Table 7**.

Table 7 Summary of Area 1 Samples with Concentrations above the Site Standards

Monitoring Well ID	Parameter Greater Than the CSR AW Standards but Below the SSSLs	Parameters Greater Than the SSSLs and the CSR AW Standards
U07-10S	Acridine (wet season sample), Benzo(a)pyrene (wet season sample), fluoranthene (wet season sample), pyrene (wet season sample)	LEPHw, EPHw(C10 – C19), acenaphthene, anthracene (dry season sample), benz(a)anthracene, benzo(a)pyrene *(dry season sample)*, chrysene, fluoranthene *(dry season sample)*, fluorene, naphthalene, phenanthrene, pyrene *(dry season sample)*
A3MW02-07	Pyrene	-
A3MW02-08	Pyrene	-
A3MW03-02	LEPHw	-

Reported concentrations above the applicable CSR standards and the SSSLs were from the samples collected from a single monitoring well (U07-10S) in Area 3. Additional evaluation for this sample location is summarized below.

- Reported concentrations of petroleum hydrocarbons and PAHs in U07-10S varied by an order of magnitude between the two 2020 PMP sampling events but in both instances were within the historical ranges reported for samples from this location.
- The wet season results were similar to the concentrations observed in samples collected between 2017 to 2019.
- The dry season results, where some analyte concentrations were an order of magnitude higher than the wet season event, were similar to concentrations observed in 2016.
- A subset of analytes are plotted with groundwater elevation in **Graph 1** to illustrate concentration trends for samples collected from U07-10S. The parameters on **Graph 1** include LEPHw, acridine, acenaphthene, benzo(a)pyrene.
- In this tidally influence area of the refinery, groundwater samples are collected on an ebb tide when groundwater is more likely to be dominant in the wells. The tidal influence will affect both gradient and groundwater elevation which may contribute to variability in sample results at this location. As a result, at ebb tide changes to groundwater quality in the surrounding wells as well as sustained peak concentrations in samples from U07-10S would be more indicative of a change to groundwater quality in the vicinity of U07-10S.
- U07-10S is part of a nested installation near the wharf approach in Area 3 of the Refinery. The two other nested monitoring wells in this cluster (U07-10I and U07-10D) are screened at deeper intervals. The concentrations of parameters exceeding CSR AW standards (and SSSL) in samples from U07-10S are below the CSR AW standards in samples collected from U07-10I and U07-10D, providing vertical delineation. PHC and PAH results for U07-10I and U07-10D from the dry season event were similar to previous years and they remain below the CSR standards for both wells.
- Samples collected from monitoring wells (A3MW03-01, A3MW03-03 and A3MW02-05) located adjacent and downgradient to U07-10S all contained concentrations below the CSR AW standards providing horizontal delineation between U07-10S and waters of Burrard Inlet.

Samples collected from three additional monitoring wells (A3MW02-07, A3MW02-08, and A3MW03-02) contained concentrations of PHCs and/or PAHs above the CSR AW standards but below the SSSLs. For reference, the Area 3 AS system commissioning (October 2010) and system standby (August 2015) dates have been represented as vertical black lines in the pertinent graphs. An evaluation, by monitoring well, is provided in the bullets below.

- The time series graph (**Graph 2**) illustrates acenaphthene, anthracene, naphthalene, and pyrene concentrations for samples collected from A2MW02-07. In 2020, the reported concentrations were below the CSR AW standards with the exception of pyrene which had a concentration above the CSR AW standard for both the dry and wet season sampling events. Historically, these parameters have followed an increasing trend following the cessation of the AS system in 2015, with results peaking in September 2018. Since 2018 concentrations have been decreasing or stabilizing for all parameters.
- The time series graph (**Graph 3**) illustrates pyrene concentrations for samples collected from A2MW02-08. In 2020, the reported pyrene concentration was above the CSR AW standard in the dry season sampling event and below the CSR standards in the wet season event. The results of both sampling events were within the historical range of concentrations reported for this monitoring well. Based on the observed concentrations from 2017 to present, the pyrene concentration in A3MW02-08 does not appear to fluctuate with water level as observed prior to 2017.
- The time series graph (**Graph 4**) illustrates LEPHw and pyrene concentrations for samples collected from A3MW03-02. The variation of LEPHw concentrations in samples from this well appear to correlate better with fluctuations in the groundwater, rather than the influence of the AS system. The LEPHw concentrations continue to remain above the CSR AW while staying below the SSSLs and are within the historical range for this monitoring well. The reported pyrene concentration in the 2019 wet season sampling event exceeded the CSR AW standard. Based on field notes taken during sampling, it was documented that the sample may have contained entrained sediment. This has the potential to elevate the reported concentration in this sample. Samples collected during both 2020 events were below the detection limit for pyrene.

Based on the above evaluation, the increasing concentration trends of evaluated PAH parameters in A3MW02-07 and A3MW02-08 from 2015 to 2018 may be attributed to rebound following the cessation of the Area 3 AS system. However, when the 2019 and 2020 PAH sample concentrations are added to the dataset, concentrations appear to be decreasing or stabilizing at these locations without the Air Sparge system in operation.

The influence of the Area 3 AS system is less evident in the trend evaluation for U07-10S and A3MW03-02. At these locations the fluctuations in the concentrations appear to correlate better with changes in groundwater elevation.

6.2 Area 1 and 3 PMP Summary

The semi-annual PMP was successfully completed in Area 1 and 3 of the Parkland Burnaby, Refinery. All reported concentrations were below the SSSLs, except for PHCs and PAHs exceedances identified in one well (U07-10S) during both the wet and dry season sample events. Concentrations in this well will continue to be monitored in 2021. Concentrations of select parameters above the CSR AW standards, were reported for samples collected from four monitoring wells (U07-10S, A3MW02-07, A3MW02-08, and A3MW03-02). All of these monitoring well locations are within the footprint of the Air Sparge System remedial footprint.

Based on comparison of analytical results collected during the 2020 PMP to recent historical data, the Site perimeter groundwater quality conditions are generally similar to historical concentrations. The results of the 2020 PMP for Area 1 and 3 do not indicate an immediate need for additional investigation or remediation. It is recommended that the Air Sparge System remain off throughout 2021 to continue to monitor developing trends.

7. AREA 2 PERIMETER MONITORING RESULTS

In 2020, the groundwater monitoring and sampling events for Area 2 of the Refinery were completed over the following periods.

- Wet Season – March 25 – April 14, 2020
- Dry Season – August 10 – 17, 2020

The monitoring wells included in the 2020 PMP for Area 2 are included in **Table 8** and their locations are shown on **Figure 3**.

Table 8 Area 2 Monitoring Wells Included in the 2020 PMP

G2-3B	PW03-1A[2]	PW03-6[1,2]	MW02-04[2]	A2MW09-11[2]	MW11-3D
G2-3C	PW03-1B[2]	U8[2]	MW03-02[2]	A2MW09-12[2]	MW11-4S
G2-9A	PW03-2A[2]	U9[2]	MW03-03[1,2]	A2MW09-13[1,2]	MW11-4I
G2-9B	PW03-2B[2]	WS2-D	A2MW09-05I	A2MW09-14[1,2]	MW11-4D
G2-10	PW03-3[2]	WS2-D2	A2MW09-06I	A2MW09-15[1,2]	
G2-11A	PW03-4[2]	MW02-02[2]	A2MW09-06S[1,2]	MW11-3S	
G2-11B	PW03-5[2]	MW02-03[2]	A2MW09-10[1,2]	MW11-3I	

Notes:

1. Well could not be sampled during the Wet Sampling Event (March/April) due to insufficient groundwater.

2. Well could not be sampled during the Dry Sampling Event (August) due to insufficient groundwater.

The Area 2 PMP includes the monitoring and sampling (when sufficient water was present) of 39 groundwater monitoring wells. Each well is monitored and sampled in accordance with the field program methods for this program (**Appendix C**). An overview of the completed program for each semi-annual event is summarized in **Table 9**.

Table 9 Summary of PMP Sampling Program for Area 2

Total number of monitoring wells included in the PMP for Area 2:	39
Wet Season Event - Total number of monitoring wells sampled during the wet event: - Total number of dry monitoring wells monitored during the wet event: - Total number of monitoring wells not sampled due to other reasons:	 32 7 0
Dry Season Event - Total number of monitoring wells sampled during the dry event: - Total number of dry monitoring wells monitored during the dry event: - Total number of monitoring wells that were not sampled due to other reasons:	 17 22 0

Seven wells were not sampled during the 2020 PMP program in Area 2 due to insufficient water present during both the wet and dry season sampling events. These wells (PW03-6, MW03-03, A2MW09-06S, A2MW09-10, A2MW09-13, A2MW09-14, A2MW09-15) are located downgradient of the PES and within the drawdown cone.

A summary of the 2020 monitoring data along with the historical monitoring data for the Area 2 PMP locations are provided in **Table 2-1**.

7.1 Groundwater Analytical Results

Groundwater samples collected as part of the 2020 PMP were analyzed for one or more of the following parameters of concern:

- Petroleum hydrocarbons (PHCs) including one or more of light and heavy extractable petroleum hydrocarbons in water (LEPHw/HEPHw) and extractable petroleum hydrocarbons in water ($EPHw_{C10-C19}$/$EPHw_{C19-C32}$),
- Volatile hydrocarbons in water (VHwC6-C10),
- Volatile petroleum hydrocarbons in water (VPHw),
- Benzene/toluene/ethylbenzene/xylenes (BTEX),
- Styrene,
- Methyl tert-butyl ether (MTBE),
- Polycyclic aromatic hydrocarbons (PAHs), and,
- Dissolved metals (MW11-4S only).

The current and historical reported analytical results for groundwater samples from these monitoring wells are presented in **Table 2-2** through **Table 2-4**. For reference, the 2020 laboratory Certificates of Analysis for the 2020 PMP data is provided in **Appendix D**. A summary of the QA/QC evaluation performed on the data set, which determined that the data could be relied on, is provided in **Appendix E.**

The completed 2020 PMP analytical program for Area 2 is summarized in **Table 10**.

Table 10 Area 2 PMP Analytical Program Summary

	Number of Monitoring Wells Sampled	
Parameter	**Wet Event**	**Dry Event**
LEPHw/HEPHw	32	17
PAHs	32	17
BTEX/VPHw/Styrene	32	17
MTBE	7	7
Dissolved Metals	1	1

The analytical results of the PMP groundwater samples are compared to the applicable CSR Standards as well as the SSSLs. Reported concentrations above these limits indicate the need for further assessment/evaluation or remedial action. An overview of the reported sample concentrations against the reported detection limits, CSR Standards, and SSSLs, by parameter are summarized in **Table 11** and on **Figure 3**.

Table 11 Overview of Area 2 Groundwater Results

Parameter	Wet Event				Dry Event			
	Result Below RDL	Detectable Results below CSR AW	Result Above CSR AW and Below SSSLs	Result Above SSSLs	Result Below RDL	Detectable Results below CSR AW	Result Above CSR AW and Below SSSLs	Result Above SSSLs
LEPHw	30	1	1	0	17	0	0	0
EPHw (C10-C19)	30	2	0	0	17	0	0	0
PAHs	6	24	2	0	5	11	1	0
BTEX	29	2	0	1	29	3	0	0
VHw (C6-C10)	30	2	0	0	16	1	0	0
VPHw	30	1	1	0	16	1	0	0
Styrene	32	0	0	0	17	0	0	0
MTBE	2	5	0	0	1	6	0	0
Dissolved Metals	0	0	1	0	0	1	0	0

Note:
RDL= Reported Detection Limit

The overview of the groundwater results in **Table 11** indicate that the reported groundwater sample concentrations at 29 of the 32 sample locations are below the CSR standards with many of them also below the reported detection limit. Reported concentrations for groundwater samples above the CSR AW and SSSLs are summarized, by monitoring well, in **Table 12**.

Table 12 Summary of Area 2 Samples with Concentrations above the Site Standards

Monitoring Well ID	Parameter Greater Than the CSR AW Standards but Below the SSSLs	Parameters Greater Than the SSSLs and the CSR AW Standards
A2MW09-11	LEPHw, VPHw and Naphthalene	Xylenes
G2-3B	Pyrene	-
MW11-4S	Copper	-

All reported concentrations were below the SSSLs established for the Refinery except for the reported concentration of xylenes in the sample collected from A2MW09-11 during the wet season sampling event (April 2020). No dry season sample was able to be taken in this location.

Concentrations of select parameters, above the CSR AW standards, were reported for samples collected from three monitoring wells (A2MW09-11, G2-3B, and MW11-4S). Of the three monitoring wells, one monitoring well (A2MW09-11) is located down gradient of the PES. The other two locations are not within the capture of the PES. Additional evaluation for these locations is provided below.

- The time series graph (**Graph 5**) illustrates LEPHw, VPHw, xylenes, and naphthalene concentrations for samples collected from A2MW09-11 as well as groundwater and historical LNAPL elevations. LNAPL was consistently detected in this well until 2012 when the PES was commissioned. LNAPL was then detected sporadically until May 2015.
- The single Area 2 SSSL exceedance in 2020 was the reported xylenes concentration (3,360 µg/L) in the sample collected from A2MW09-11 during the wet season event. The reported concentrations of LEPHw, VPHw, and naphthalene were above the CSR AW standards, but below the SSSLs in the same sample. A2MW09-11 could not be sampled during the dry season sampling event due to insufficient water in the well. The 2020 result for xylenes, LEPHw, VPHw and naphthalene were within the historical ranges and generally stable when compared to prior sampling events. This well is located down gradient of the central section of the PES in the vicinity of UEIB-46.
- The time series graph (**Graph 6**) illustrates pyrene concentrations for samples collected from G2-3B. In 2020, G2-3B was sampled during both events with resulting pyrene concentrations above the CSR AW standard of 0.2 µg/L with values of 0.358 and 0.283 µg/L for the wet and dry events respectively. These concentrations remain two orders of magnitude below the SSSL. All other parameters were below the CSR AW standards. Reported concentrations of pyrene from both events were consistent with historical concentrations reported for this location. G2-3B is located west of the PES and outside of its capture.
- The time series graph (**Graph 7**) illustrates dissolved copper concentrations for samples collected from MW11-4S. In 2020, MW11-4S was sampled during both events with a concentration of dissolved copper above the CSR AW standard reported for just the wet season sample event. Except for dissolved copper, all other reported concentrations of dissolved metals were below the CSR AW standards. The reported concentration of dissolved copper (25.2 µg/L) in the April 1, 2020 sample exceeded the CSR AW standard where the 2020 dry season sample results of 19.8 µg/L was below the CSR AW standard of 20 µg/L. Both results are within the historical ranges observed from this well. MW11-4S is in the Flare Zone East of the PES.

7.2 Area 2 PMP Summary

The semi-annual PMP was successfully completed in Area 2 of the Parkland Burnaby Refinery. All reported concentrations were below the SSSLs, except for a single exceedance of xylenes in one well (A2MW09-11) during the wet season sampling event. The concentration of xylenes in this well will continue to be monitored in 2021. Concentrations of select parameters above the applicable CSR AW standards, were reported for samples collected from three monitoring wells (A2MW09-11, G2-3B, and MW11-4S). In the last few years, the reported concentrations in samples collected from G2-3B and MW11-4S, located outside of the PES capture, fluctuated above and below the CSR standard.

Based on comparison of analytical results collected during the 2020 PMP to recent historical data, the Site perimeter groundwater quality conditions are generally similar to historical concentrations. The results of the 2020 PMP for Area 2 do not indicate an immediate need for additional investigation or remediation other than the continued operation of the PES. Monitoring locations with reported CSR exceedances outside of the PES capture will continue to be sampled and evaluated for developing trends.

8. PES OPERATIONS AND PERFORMANCE

8.1 Overview

The Perimeter Extraction System (PES) is a line of closely spaced extraction wells along the Area 2 northern fence line of the Refinery. The pumps located in PES wells extract total fluids with the intent to depress the groundwater table and preclude the off-site migration of LNAPL and dissolved phase PHCs in groundwater that originate from the Area 2 LNAPL plume. The total fluids are collected by a network of top loading pneumatic pumps to ensure that LNAPL is preferentially collected and removed from each extraction well. The PES and monitoring wells containing measurable LNAPL in 2020, are shown on **Figure 4**.

The PES consists of pneumatic pumps each equipped with an internal float which provides on-demand extraction of total fluids from the well. Compressed air is supplied to the PES pumps by a dedicated air compressor equipped with a dryer unit. The discharge of each pump is connected to a common discharge header by flexible nylon tubing. Each pump cycle is recorded by a cycle counter affixed to the pump-dedicated air supply. The discharge header drains to a centralized oil water separator (OWS) and eventually to the Refinery process water treatment system. To control biofoul accumulation, the PES includes a chemical dosing system which delivers a sequestering agent to each pump intake through pressure compensating drippers. A list of major PES components is provided in **Appendix A**.

8.2 Summary of Operation and Monitoring Data

In 2020, the system was operated in accordance with the PES Operation Maintenance and Monitoring (OM&M) Plan (AECOM, 2016). This included the completion of:

- Semi-monthly system monitoring
- Quarterly performance assessments
- Quarterly groundwater monitoring
- Quarterly effluent characterization
- Pump replacement and performance troubleshooting (in place of the semi-annual maintenance event)
- Coordination of the preventative maintenance program

Quarterly drawdown data measured along the upper bench is illustrated in cross-sections on **Figures 5 through 8**. Groundwater contouring based on groundwater elevations measured in nearby monitoring wells is illustrated on **Figures 9 through 12**.

In addition to the requirements of the OM&M Plan, effluent samples were collected from each of the active PES wells in February 2020 and monthly effluent samples were collected from the oil water separator (OWS). The OWS effluent samples characterize the blended flows from all active PES wells after LNAPL is removed. A summary of the observations and activities are provided in the following sections.

8.2.1 Semi Monthly Extraction Pump Monitoring

Semi-monthly monitoring was completed throughout 2020, except for February when there were disruptions to the program resulting from the annual refinery-wide maintenance event. In February, the monitoring event at the beginning of the month was skipped due to reduced refinery access. During the mid-month event the portion of the PES in the vicinity of the Flare could not be accessed as a result of permit restriction in the Flare Area during start-up.

On a semi-monthly basis, the depth to pump intake and the depth to water were monitored at each active extraction well to monitor drawdown in the well as the key indicator of PES performance and reliability. Since 2018, a water column greater than one meter above any pump intake was the trigger for troubleshooting and / or replacement, prior to 2018 the trigger was 3 m. The trigger was adjusted in 2018 to improve field response to underperforming pumps and therefore improve the PES performance.

If the pump does not function following troubleshooting it is removed and replaced with a working pump from the spare pump inventory. If the pump functions following troubleshooting but subsequent monitoring demonstrated poor reliability, the pump was also replaced with a functioning spare pump. As an indicator of PES reliability, the average water column above a pump's intake was evaluated over each quarter and on an annual basis in **Table 13** below.

Table 13 Summary of Average Water Column Above Active Extraction Pumps

	Number of Extraction Wells*				
Average Water Column Above Pump Intake	**January - March (Q1)**	**April - June (Q2)**	**July-September (Q3)**	**October to December (Q4)**	**January - December (Annual Average)**
>3m	5	3	1	1	3
<3m to >1m	2	3	3	6	4
<1m	33	34	36	33	33

* Indicates the number of PES extraction wells with the average water column height calculated over the period indicated

Despite instances throughout each quarter where an average water column of greater than three meters was observed due to reduced pump performance, the pump replacement approach was effective at maintaining the average annual water column less than 3m above the pump at 37 of the 40 extraction wells throughout 2020.

The three extraction wells where the average annual water column was greater than 3 meters above the pump intake were UEIB-27, UEIB-55 and UEIB-56. All three of these locations are within the eastern section of the PES and outside of the known LNAPL plume in Area 2. Additional information is provided for each of these wells, below.

UEIB-27
- A water column of >3m was measured five times in 2020. This resulted in the average water column being >3m.
- The average water column in the extraction wells on either side of UEIB-27 was <1m above the pump intake.

UEIB-55
- This pump is stuck in the well and could not be removed for maintenance since October 2019.
- The well is the eastern-most extraction location and a replacement for the original well (UEIB-31) which was decommissioned after a pump was stuck in this well.
- The adjacent well (UEIB-30) had an average water column of <1m above the pump intake.
- Parkland intends to remove this well from the PES as part of future operation monitoring and maintenance plan update.

UEIB-56
- A water column of >3m was measured 11 times in 2020. This resulted in the average water column >3m. During five of these events the pump was operating reliably but unable to maintain drawdown. During subsequent monitoring events drawdown was observed.

- The extraction wells on either side had an average drawdown of between 1 to 3 m above the top of the pump intake.

Although these locations had an annual water column greater than three meters, sustained drawdown was observed for large portions of 2020 at two of the three locations and reliable drawdown was observed in the adjacent extraction wells in all cases.

The reliability of the entire PES is further demonstrated by an average annual water column above the pump intake of less than 1 meter at 33 of the 40 extraction wells. The four locations with an average annual water column between 1-3 m above the pump intake include UEIB-15, UEIB-19, UEIB-21, and UEIB-43. Three locations are in the eastern section of the PES and one location (UEIB-43) is in the western section of the PES. In all instances these wells are outside of the known LNAPL plume in Area 2.

Underperforming pumps located in extraction wells within the LNAPL plume will be immediately replaced with a refurbished spare pump when underperforming. Underperforming pumps located in extraction wells located outside of the LNAPL plume are candidates for field troubleshooting / repair if the AECOM field technician is able to identify a likely cause for the reduced pump performance. This may result in increased instances of submerged pump intakes while pump reliability is being assessed.

Based on troubleshooting activities, reduced reliability is generally attributed to a combination of factors including insufficient compressed air supply, biofouling, and pump wear and tear. Ongoing troubleshooting efforts and maintenance activities are summarized in Section 9.3.

8.2.2 Quarterly Monitoring

Groundwater levels in monitoring wells near active PES wells were monitored quarterly throughout 2020. The water level measurements along with semi-monthly extraction well data were used to evaluate the influence of the hydraulic barrier along the northern perimeter of the Refinery. The quarterly monitoring events were completed in February, May, August, and November 2020. Extraction pump data is also measured during quarterly events to monitor individual PES pump extraction rates. At this time effluent collected at each active PES well is qualitatively evaluated for the presence of hydrocarbons (i.e. sheen, globules). See section 9.2.3 for additional details on effluent extraction rates.

The quarterly monitoring data and extraction pump data measured along the upper bench is illustrated on **Figures 5** through **8**. Groundwater contouring based on groundwater elevations measured in nearby monitoring wells is illustrated on **Figure 9** through **Figure 12**.

The following bullets summarize key groundwater level observations and include relevant comparison to PES operational performance or modifications.

- In 2020, groundwater elevations along the Upper and Lower Benches remained generally below the 2012 baseline elevations across the entire PES, which indicates that the limited periods of individual pump underperformance summarized in **Table 13** are not anticipated to have a widespread affect on the PES performance.
- It is typical during wet periods of the year (e.g. first and fourth quarters) to see a perched water table in the overlying alluvium / colluvium while underlying wells screened in the till are more stable throughout the year. In both instances the contouring and particle path analyses indicate hydraulic capture is generally maintained across the PES.
- Of the seven extraction wells which were identified as having an average annual water column greater than one meter, none had downgradient PMP monitoring wells where the sample concentrations exceeded the CSR AW standards (e.g. MW02-04, MW02-02, PW03-4).

8.2.3 Total Fluid and Effluent Extraction Rates

The PES collected an estimated 32,269 cubic meters (m^3) of total fluid in 2020.

As described previously, extraction rates and volume of effluent extracted at each active PES well is determined during each quarterly event. This is completed by monitoring the volume of effluent collected in a drum of known volume for each PES well. Quarterly effluent characterization was performed to estimate the total fluid extracted by the PES as well as the total volume of LNAPL collected. The estimated extraction rates are summarized in **Table 2-5**. The method used to estimate total fluid and calculate effluent extraction rates is provided in **Appendix A**.

In addition to verifying the volume, the surface of the water in each drum is visually inspected for the presence of LNAPL or sheen. In 2020, measurable levels of LNAPL were not observed; however, sheen or small globules of LNAPL were routinely observed on the water surface in the drum at two extraction wells (UEIB-45 and UEIB-54). On a quarter-by-quarter basis, additional extraction wells (UEIB-33, UEIB-44, UEIB-46, UEIB-47, UEIB-52, and UEIB-53) were identified as LNAPL contributors based on periodic observation of sheen, available analytical, and olfactory hydrocarbon identification.

To support LNAPL collection estimation, it was assumed that the presence of sheen or globules in a drum test represents 0.01% LNAPL, by volume, of total fluids collected by that pump over the quarter (AECOM 2016). Note that prior to November 22, 2012, this observation was estimated to represent 0.1% NAPL. A summary of the total fluids and LNAPL removed by the PES, by year, is listed in **Table 14**.

Table 14 Summary of Total Fluids and LNAPL Removed by the PES

Year	Total Fluids Collected	Estimated NAPL Collected
2020	32,269 m^3	~ 211L^2
2019	40,544 m^3	~ 167L^2
2018	32,402 m^3	~ 190 L^2
2017	38,642 m^3	~ 210 L^2
2016[1]	33,369 m^3	~ 200 L^2
2015[1]	43,218 m^3	~ 240 L^2
2014[1]	54,213 m^3	~ 500 L^2
2013[1]	48,491 m^3	~ 300 L^2
2012[1]	40,159m^3	~ 500 L^2
2011	12,900 m^3	~21,700 L^3

Notes:

[1] - Historically reported volumes have been corrected in this report to include only the total fluids collected by the PES. Previous totals also include total fluids collected by pumps located in EX-1 to EX-4, and U2-4.

[2] - NAPL Extracted = 0.01% x the total volume of water collected from an extraction well during a quarter where NAPL or sheen was observed during the drum test for that extraction well.(AECOM 2016)

[3] - NAPL Extracted = 0.1% x the total volume of water collected from an extraction well during a quarter where NAPL or sheen was observed during the drum test for that extraction well.

Estimated flow rates and LNAPL collection rates for all active extraction wells since 2012 are provided in **Table 2-5** at the back of the report.

8.3 Maintenance

Pump maintenance was reduced from semi-annual to annual maintenance program in 2018. In place of the spring preventative maintenance program, a standard operating procedure (SOP) for pump removal was developed and a spare pump inventory was maintained. The SOP permitted the removal of the pumps by AECOM field representatives rather than coordinating with a pump maintenance sub-contractor. This reduced the period of time underperforming pumps remained in service, thereby improving PES effectiveness while reducing maintenance labour costs. Once removed, the pumps were sent off site for refurbishment and returned to the Refinery to replenish the spare pump inventory. Pump refurbishment typically includes the inspection and cleaning of the pneumatic pump and replacement of worn parts as needed to maintain reliable pump operation. Based on pump maintenance records that indicate poor pump reliability, one pump will be removed from service permanently. In 2020, this pump was located in UEIB-15 and UEIB-56 and contributed to periods of poor drawdown at these locations. A new pump was purchased in 2021 to maintain a spare pump inventory of 10%.

In addition to pump maintenance, the extraction wells are redeveloped and the header line flushed on an annual schedule. The extraction wells are flushed by introducing clean water from a nearby hydrant into the top of the well casing while simultaneously removing water from the bottom of the well to collect sediment and sludge that may accumulate in the well and sand annulus. This is completed to maintain good hydraulic communication between the extraction well and surrounding subsurface. The header line is flushed with potable water and drained to the Refinery's water treatment system.

A summary of the major maintenance and notable troubleshooting activities performed in 2020 is provided in the bulleted list below.

- In Q1, cleaning of the OWS and coalescing media was completed to improve the flow regime within the OWS.
- On April 28, 2020, AECOM performed maintenance on the chemical dosing pump. Maintenance included the replacement of the pump diaphragm as well as four bolts that connected the cartridge valve to the pump body.
- During Q2 2020, AECOM installed a pressure reducing valve on the inlet side of the water supply tote to reduce the supply pressure to the float valve.
- A total of six pumps were removed during 2020 and replaced with refurbished spare pumps apart from the annual maintenance program completed in November 2020.
- During Q3, routine maintenance and cleaning of the OWS included cleaning of the coalescing media.
- In October, 2020, AECOM completed the annual flush of the PES header line. Following this header flush maintenance event, the header line was inspected with a borescope to evaluate the buildup of biofoul and scaling. The inspection identified the accumulation of scale/build-up but not enough to merit additional de-scaling/flushing over and above current procedures.
- Annual well redevelopment of the PES extraction wells was completed during November of 2020.
- In November 2020, the annual pump maintenance program was performed on all pumps except those located in extraction wells UEIB-27 and UEIB-55. These pumps could not be removed for maintenance. The pump located in UEIB-27 has since been recovered from the well in January 2021 and maintenance was performed. The pump located in well UEIB-55 cannot be removed for maintenance. This pump has been stuck in the well since 2019, despite numerous attempts to remove it. This well is located at the east end of the PES, where LNAPL has never been observed.

8.4 Performance Assessment

The performance of the PES is evaluated on a quarterly basis using the data collected from the semi-monthly system monitoring events, quarterly groundwater monitoring program, effluent characterization activities, and system maintenance. Part of the performance evaluation includes the preparation of

groundwater contour drawings and particle flow paths. These contours are developed using Surfer 13 by Golden Software. The groundwater data and contour maps are then reviewed to assess the performance of the PES in conjunction with the PES pump operating data over that quarter. The groundwater contour drawings prepared following each quarterly monitoring program are provided as **Figure 9** through **Figure 12**.

The following notes provide justification of the contours, data selection, and flow path interpretation.

- Information resolution is based on the available monitoring points. In some areas, there is a denser well network than others. Overall, the monitoring well locations are generally sufficient to interpret flow and capture.
- a steady-state constant head boundary of 28.8 m (Parkland Datum) has been added to the contour to represent Burrard Inlet. As Burrard Inlet is tidally influenced the steady state elevation represents a mid-tide constant head boundary within the intertidal shoreline. (*Note Parkland Datum = Geodetic Datum + 27.895m*)
- Monitoring wells that are suspected to be seasonally dry (less than 0.1m water column) have been removed from the contour.
- In areas with a dense well network, preference is given to monitoring wells screened in the till layer during the winter months. The monitoring wells screened in the till layer will be less susceptible to the presence of a seasonal perched water table than the overlying material. The till represents the stratigraphic layer where LNAPL has been historically encountered.
- The groundwater flow paths are initiated from approximately 35 m upgradient of the PES and generally orthogonal to the groundwater potentiometric contours. In some instances, the flow paths were smoothed based on the interpretation of an AECOM engineer/hydrogeologist.

Using a combination of contouring, particle flow path analysis, and the review of drawdown in both extraction wells and nearby monitoring wells, the PES performance is summarized on a quarterly basis, below.

First Quarter (Q1) **Figures 5 and 9**	Due to the annual refinery wide maintenance event, the eastern end of the PES as well as up-gradient monitoring wells, could not be accessed and monitored. This limited the area of the contouring and particle path analyses to the western section of the PES. Although particle flow path analysis could not be performed for the central and eastern sections, the extraction wells were accessed during the subsequent semi-monthly monitoring event. Monitoring indicated that all of the previously inaccessible extraction wells had a water column less than 3m with the exception of UEIB-55. Based on prior system operation and performance evaluation, this is considered acceptable operation and additional monitoring and evaluation was not deemed necessary in advance of the scheduled second quarter program.
Second Quarter (Q2) **Figures 6 and 10**	Contouring and particle path analysis demonstrated that hydraulic control was maintained. During this quarter, target drawdown was not achieved at six extraction well locations (UEIB-15, UEIB-21, UEIB-27, UEIB-43, UEIB-55, UEIB-56).Groundwater extraction from the remaining system and adjacent monitoring wells appears to have maintained good capture based on the particle path evaluation and drawdown observed in nearby monitoring wells.
Third Quarter (Q3) **Figures 7 and 11**	Contouring and particle path analysis demonstrated hydraulic control was maintained. During this quarter, target drawdown was not achieved at four extraction well locations (UEIB-15, UEIB-24, UEIB-55, UEIB-56) but groundwater extraction from the remaining system and adjacent monitoring wells appears to have maintained good capture based on the

	particle path evaluation and drawdown observed in nearby monitoring wells.
Fourth Quarter (Q4) **Figures 8 and 12**	Contouring and particle path analyses demonstrated hydraulic control was maintained across the length of the PES. During this quarter target drawdown was not achieved at seven extraction wells (UEIB-19, UEIB-21, UEIB-26, UEIB-27, UEIB-43, UEIB-52, and UEIB-55) but groundwater extraction from the remaining system and adjacent monitoring wells appears to have maintained good capture based on the particle path evaluation and drawdown observed in nearby monitoring wells.

Despite the documented instances where drawdown was not maintained at a single extraction well, the preparation and review of the quarterly figures suggests that the PES precluded any off-site migration of LNAPL from the refinery. This is likely a result of:

- Where drawdown in select wells were flagged during system monitoring, the pumps were promptly removed for inspection and replaced to minimize the duration of reduced drawdown. Pump failure reoccurrences may be linked to the prevalence of scale development (UEIB-43) and biofouling (UEIB-27, UEIB-56, UEIB-55) at select locations despite routine maintenance activities.
- The wells with an average annual drawdown greater than 1m were outside of the known LNAPL plume.
- Reliable performance of adjacent extraction wells and the PES overall.

For evaluation purposes, the calculated average annual drawdown at UEIB-27 greater than 3m was a result of five monitoring events were the water column above the pump intake was greater than 3m and one additional event where it was between one and three meters. For the remainder of the year (15 events) the water column above the pump intake was less than 1m. Although identified as one of the three locations with non-ideal drawdown, pump performance at UEIB-27 was reliable throughout the majority of the year and did not represent a concern to the performance of the PES.

Using UEIB-27 as an example, the 33 locations with an average drawdown of less than 1m, and additional four locations with an average drawdown between one to three meters, would have required consistent drawdown to achieve these averages and therefore indicate reliable PES pump performance was achieved throughout 2020.

Based on the annual and quarterly performance assessments conducted throughout 2020 the PES continues to operate as designed despite the few instance where target drawdown wasn't maintained.

8.5 Capture Assessment

The capture zone assessment is based on:

- data collected during the quarterly monitoring programs in 2020;
- groundwater contouring/flow paths presented in **Figure 9** through **Figure 12**; and,
- groundwater sampling and analysis down-gradient of the PES.

Hydraulic conductivities for the PES area range from 5 x 10^{-6} meters per second (m/s) to 1 x 10^{-10} m/s (URS 2013a). Based on this information, the estimated time required for groundwater to travel from the PES to the Parkland property boundary under non-pumping conditions was six months (URS 2013b).

Groundwater quality downgradient of the PES provides secondary information on the PES long-term effectiveness. However, the presence of residual contamination downgradient of the PES and other industrial activities (e.g. active railway) prevents direct correlation of the PES performance with downgradient water quality. For example, an anomalous spike of a PHC related parameter observed in a groundwater sample collected from a well within the influence of the PES could be unrelated to the

performance of the PES. Instead, such a spike could be attributed to the mobilization of residual PHC contamination resulting from the fluctuating groundwater level or infiltration of precipitation.

Although there is uncertainty inherent in the following evaluation for the reasons previously stated, the following water quality discussion provides a secondary line of evidence on PES performance in 2020.

Western PES Section

The PMP groundwater elevations measured in wells down-gradient of the western section of the PES generally indicated that hydraulic control was maintained across this section throughout 2020. Available laboratory analytical results indicated no CSR exceedances in groundwater samples collected from downgradient wells for parameters analyzed.

Down gradient wells PW03-A1, PW03-B1, PW03-2A, PW03-2B, PW03-3, PW03-4, PW03-5, PW03-06, and A2MW09-06S remained under the drawdown influence of the PES as indicated by limited water for sampling purposes, particularly during the dry season sampling event. During the wet season sampling event, multiple visits were required in some instances before sufficient water was present for sampling. When samples were collected, no samples below the western section of the PES exceeded the CSR AW standards in 2020.

UEIB-43 was the only active PES well with an annual average water column greater than 1m in the western section of the PES. Despite having an average annual water column greater than 1m, the reported concentrations in the sample collected from the closest down-gradient well (PW03-4) were below the applicable CSR standards.

Central PES Section

The lack of water for sampling purposes downgradient of the central section of the PES suggests that hydraulic control was maintained across this section throughout 2020.

A2MW09-11 was the only PMP monitoring well, below the central section of the PES, that had sample concentrations of hydrocarbon parameters greater than the CSR AW in 2020. At this location the concentration of xylenes was also greater than the SSSLs but stable when compared to prior sampling events (**Graph 5**). Extraction well UEIB-46 is located upgradient of A2MW09-11 and operated efficiently without issue throughout 2020. Although hydrocarbon related parameters remain elevated in this well, they are within historical ranges.

Eastern PES Section

The lack of water for sampling purposes down-gradient of the eastern section of the PES suggest that hydraulic control was maintained across this section throughout 2020 in down gradient wells. Available laboratory analytical results indicated no CSR exceedances in groundwater samples collected from downgradient wells for parameters analyzed.

Historically, biofouling has been more prevalent in the eastern section of the PES. The accumulation of biofoul on the internal pump controls results in reduced pump performance and reliability in the eastern section of the PES when compared to the other sections. This continues to be the trend with six of the seven wells that had an average water column greater than 1m, located in the eastern section. Despite the instances of above target drawdown, the reported concentrations of hydrocarbon parameters in samples from these wells were below the CSR standards.

Due to the depression of the groundwater water caused by PES, only three groundwater samples (MW02-02, MW02-03, and MW02-04) could be collected from monitoring wells downgradient of the eastern PES during 2020. All three samples were collected during the wet sampling event. Analytical results were below the CSR AW standard and are consistent with historical data. The continued presences of dry wells downgradient of the PES across this section are attributed to the maintained PES reliability and sustained drawdown across this section of the PES despite several active PES wells underperforming throughout 2020.

8.6 Summary

Based on groundwater monitoring data and system operational data, the PES continued to intercept and prevent the off-site migration of LNAPL and dissolved phase hydrocarbons despite the instances where target drawdown was not sustained at individual wells for portions of 2020.

The one location (A2MW09-11) downgradient of the PES with reported concentrations greater than the applicable CSR standards is demonstrating stable to decreasing concentration trends and is located in the zone of historical PHC contamination present prior to the installation of the PES.

Except for UEIB-55, where the pump can not be removed for service, underperforming pumps were removed from service and normal operation was typically restored within 2-3 monitoring events. In the instance of UEIB-55, available down-gradient groundwater monitoring data does not indicate the replacement of the extraction well is necessary at this time to maintain hydraulic control.

9. AIR SPARGE and MTBE SYSTEMS

A brief status of other remedial systems at the Refinery is summarized in the following subsections.

9.1 Area 3 Air Sparge System

In October 2015, the AS system was temporarily turned off to assess the need for further remediation in the area. Based on the assessment provided in the 2015 and 2016 Perimeter Monitoring Program and Perimeter Extraction System Report (AECOM, 2017), the AS system remained on permanent standby throughout 2020 to facilitate ongoing monitoring of Area 3 without the influence of the AS system.

The Area 3 AS system will remain off but on standby through 2021 to allow continued monitoring of groundwater trends without the influence of the AS system. The location of the Area 3 AS is shown on **Figure 2**.

9.2 Area 2 Air Sparge System

Due to the up-gradient influence of the PES system, the Area 2 AS system in no longer required and will be decommissioned. The location of the Area 2 AS is shown on **Figure 3**.

9.3 Area 2 MTBE Remediation Area

The remediation of MTBE in Area 2 north of the Remote Impoundment Basin is considered complete (AECOM, 2017). In 2017, sampling activities in the vicinity of this dormant system were reduced to five groundwater monitoring wells (G2-9A, G2-9B, G2-10, WS2-D, and WS2-D2). Ongoing sampling of the five wells continue to support MTBE (and PHC) monitoring of the area. An additional two wells (G2-3B and G2-3C), were added as part of the 2018 PMP, included MTBE analysis due to their proximity to the remediated MTBE area. The concentrations of MTBE reported in samples collected during the 2020 PMP were generally consistent with concentrations reported in 2017, 2018, and 2019 samples. None of the MTBE reported concentrations were greater than the CSR AW standard in 2020. The Area 2 MTBE remediation was in the approximate location of well WS2-D shown on **Figure 3**.

10. CONCLUSIONS and RECOMMENDATIONS

Perimeter Monitoring Program

Areas 1 and 3

The semi-annual PMP was successfully completed in Areas 1 and 3 of the Parkland Burnaby Refinery in 2020. All but one of the 32 monitoring wells (U07-10S), had reported concentrations below the SSSLs established for the Refinery. The LEPHw, EPHw (C10-C19) and various PAH concentrations above the SSSLs at U07-10S had been previously detected in this well, although the 2020 concentrations were higher than in previous years. Further monitoring of these parameters at this well will continue in 2021. Results from nearby monitoring wells have continued to demonstrate that this contamination is highly localized and is vertically and horizontally delineated.

Two monitoring wells (A3MW02-07 and A3MW02-08) located within the historical influence of the Area 3 AS system, contained concentrations of pyrene above the CSR AW standards, but below the SSSLs in 2020. In October 2015, the AS system located in Area 3 was temporarily turned off to assess whether further active remediation in the area was required. Concentrations trends of evaluated PAH parameters in A3MW02-07 and A3MW02-08 subsequently increased until September 2018, when concentrations stabilized. The increasing concentration trends up until September 2018 is attributed to rebound following shut down of the Area 3 AS system. Although concentrations of PAHs are elevated, they remain orders of magnitude below the SSSL. The AS system remained on permanent standby throughout 2020.

One additional sample location (A3MW03-02) contained reported concentrations of LEPHw greater than the applicable CSR standards but within the historical range observed at this location. Although within the influence of the AS system, historical trends indicate the fluctuation of LEPHw in samples from this well are more closely linked to the tidally fluctuating water table than AS system operation.

Based on the 2020 PMP results for Areas 1 and 3 there is no immediate need for additional investigation or remediation.

AECOM recommends that the AS system remain off (but on standby) through 2021 and monitoring of Area 3 continue without the influence of the AS system. The Area 1 and 3 PMP should continue in 2021 with a similar scope of work as completed in 2020.

Area 2

Thirty-nine monitoring wells were monitored as part of the 2020 Area 2 PMP. During the wet season, 32 monitoring wells were sampled; during the dry season, 17 monitoring wells were sampled. Three wells (A2MW09-11, G2-3B, and MW11-4S) have exceedances of the CSR AW standards. A2MW09-11 exceeded the LEPHw, VPHw, and naphthalene limit, G2-3B exceeded the pyrene limit, and MW11-4S exceeded the dissolved copper limit. 2020 concentrations were within historical ranges at these wells.

The reported concentrations of parameters of concern were below SSSLs established for the Site in samples collected from all monitoring wells except for the sample collected from A2MW09-11.

The single SSSL exceedance was associated with the reported xylenes concentration in one well (A2MW09-11) located down gradient of the central section of the PES. Samples from this well have historically contained elevated concentrations of xylenes above the SSSL but have generally demonstrated a decreasing trend. Due to insufficient water in this well, sampling of this well is typically only possible during the wet season event. Therefore, the xylenes concentration detected in the wet season sampling event could not be verified during the subsequent dry season sampling event.

The results of the 2020 PMP for Area 2 do not indicate an immediate need for additional investigation or remediation other than the continued operation of the PES and ongoing monitoring for developing trends.

AECOM recommends that the Area 2 PMP continue in 2021 with a similar scope of work as completed in 2020.

Perimeter Extraction System (PES) Operation

To evaluate the influence of the PES hydraulic barrier along the northern perimeter of the Refinery semi-monthly and quarterly system monitoring activities were completed for 2020 including:

a) verify consistent groundwater drawdown in active extraction wells,

b) collect groundwater extraction data,

c) collect surrounding groundwater elevation data.

Throughout 2020 the PES was operated similar to 2019 where a water column measuring one meter above the pump intake during pump operation was used as a trigger for trouble shooting and / or replacement of a groundwater extraction pump. If a pump did not function following troubleshooting, or demonstrated poor reliability, then it was removed and replaced with a working pump from the spare pump inventory.

An annual average water column of less than one meter was sustained at 33 of the 40 extractions wells, indicating satisfactory performance. Of the seven extraction wells with average water columns greater than one meter, four demonstrated an average annual water column greater than one meter but less than three meters and three demonstrated an average annual water column greater than three meters. Six of these seven wells (including the three wells with an average annual water column greater than three meters) are located in the eastern PES section with the final well located in the western PES section as the western most extraction. In all instances, these wells are outside of the known LNAPL plume in Area 2.

In 2020, the PES operated within acceptable limits for controlling the off-site migration of LNAPL and dissolved phase PHC concentrations based on:

- adequate water table drawdown compared to reference elevations collected prior to the PES operation;
- the groundwater contouring (including particle path evaluations) performed on a quarterly basis; and,
- general stability of the groundwater quality down gradient of the PES.

AECOM recommends that the PES continues to be operated in 2021 in a similar manner to 2020.

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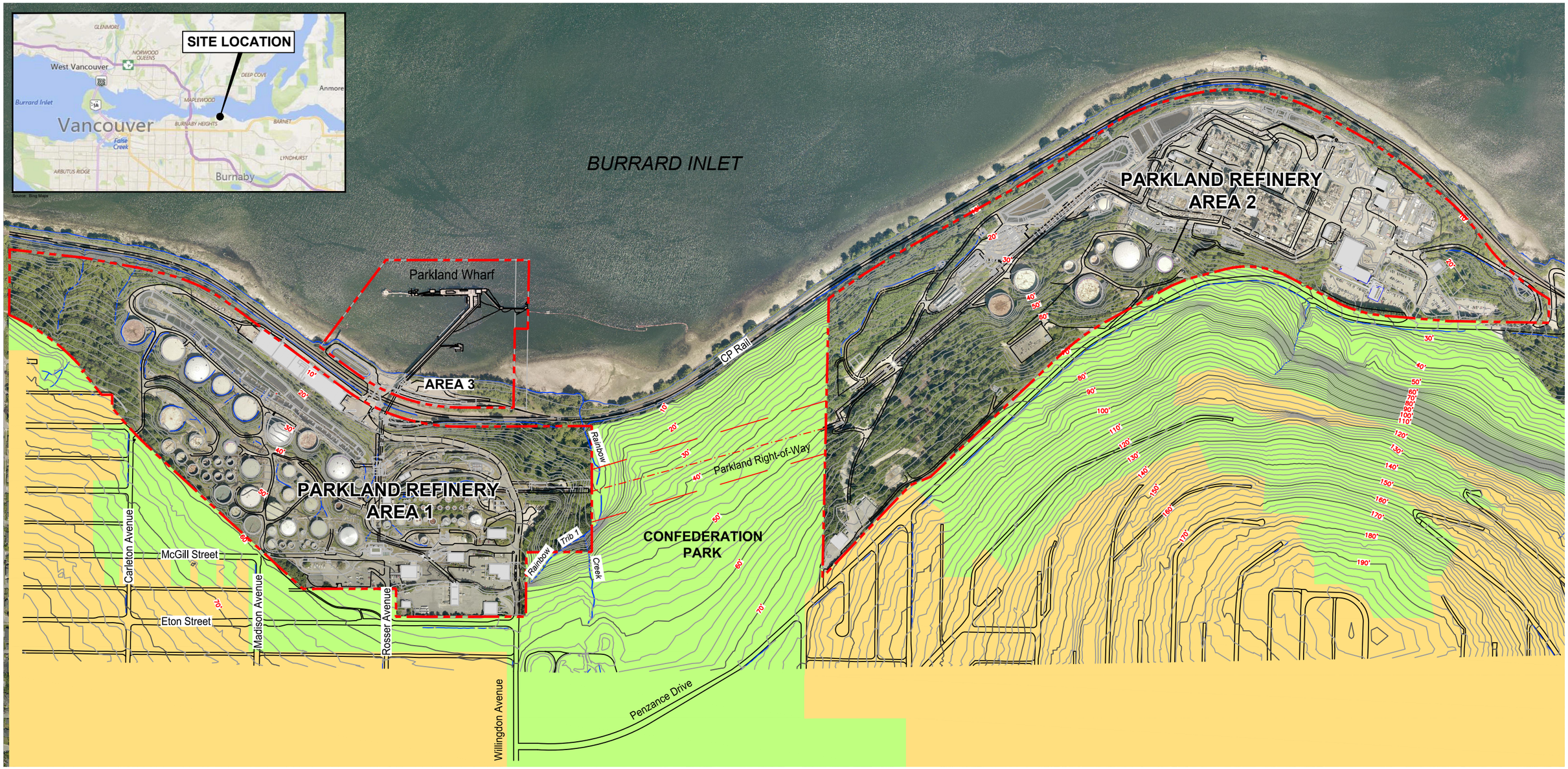
FIGURES



LEGEND:

- Property Line
- Contour Line (contour interval 2 feet) — 50'
- Zoning Boundary
- Approximate Location of Parkland Pipeline
- Park and Public Use District
- Residential District
- Industrial

NOTE: Zoning information taken from City of Burnaby website, BurnabyMap. (February 28, 2018)

N W E S

metres 0 150 300

AECOM

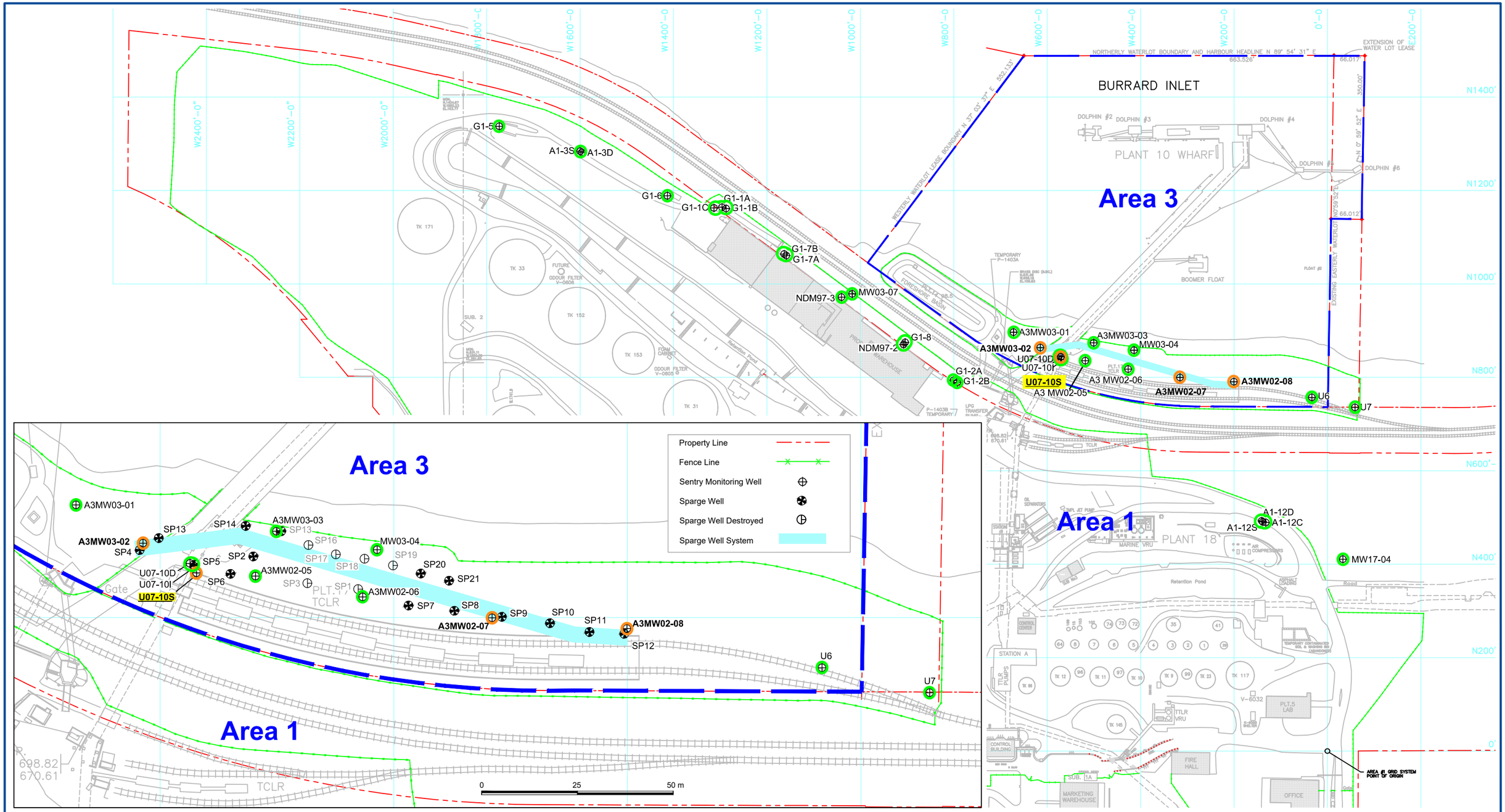
REFINERY SITE PLAN AND LOCATION MAP AREAS 1, 2 AND 3

Report on the 2020 Perimeter Monitoring Program and Perimeter Extraction System

PARKLAND REFINING (B.C.) LTD.

DATE:	PROJECT NO.:	DRAWN BY:	REVISION NO.:	DRAWING NO.:
March 2021	60601146		0	FIGURE 1

FILE NAME: \\CABNY1FP001\prod\1686\Projects\URS-CHEVRON\60601146 2019 Perimeter Monitoring\400-Technical\2019 Annual PMP Report\Figures\FIG01 - Site Plan - 20200310 - 60601146 Parkland Ref.dwg



LEGEND:

- Property Line
- Fence Line
- Sentry Monitoring Well
- Sparge Well System
- Concentration exceeding Applicable CSR Standards — A3MW03-02
- Concentration exceeding SSSL — U07-10S
- Concentration below the Applicable CSR Standards

ABBREVIATIONS:

CSR	Contaminated Sites Regulation
AW	Aquatic Life
SSSL	Site-Specific Screening Level

GRID NORTH

0 50 100 m

AREAS 1 AND 3 SENTRY WELLS

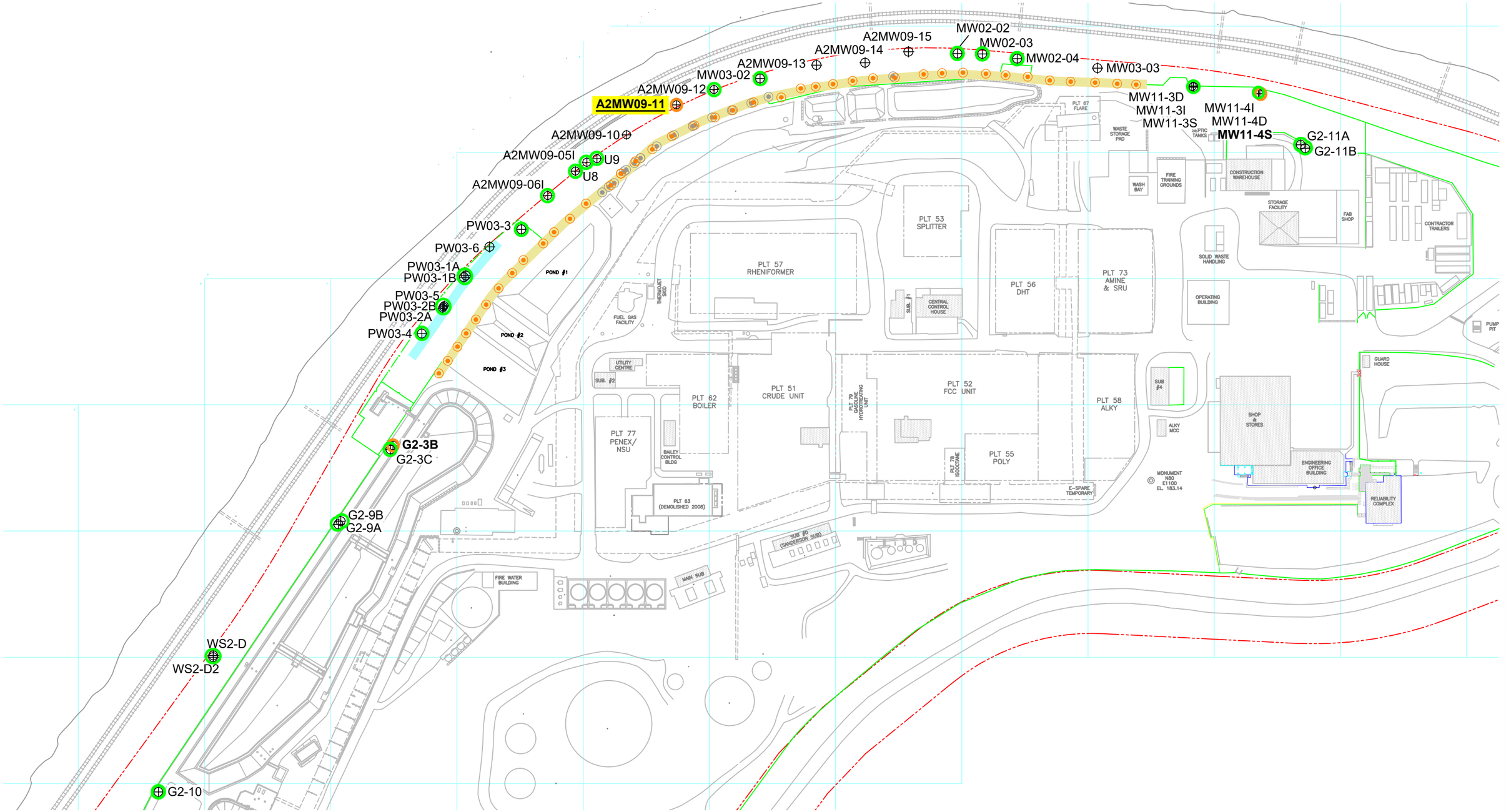
The 2020 Perimeter Monitoring Program and Perimeter Extraction System
Parkland Burnaby Refinery, Burnaby, BC

PARKLAND REFINING (B.C.) LTD.

DATE:	PROJECT NO.:	DRAWN BY:	REVISION NO.:	DRAWING NO.:
March 2021	60626755	NT	0	FIGURE 2

AECOM

FILE NAME: \\CABNY1FP001\prod\1686\Projects\URS-CHEVRON\60601146 2019 Perimeter Monitoring\400-Technical\2019 Annual PMP Report\Figures\FIG02 - Area 1 and 3 Sentry Wells - 20200310 - 60601146 Parkland Ref.dwg



LEGEND:

- Property Line
- Fence Line
- Sentry Monitoring Well
- Inactive Extraction Well
- Active Extraction Well
- Perimeter Extraction Well System
- Sparge Well System
- Concentration Exceeding Applicable CSR Standards: G2-3B
- Concentration Exceeding SSSL: A2MW09-11
- Concentration Below Applicable CSR Standards

ABBREVIATIONS:

CSR	Contaminated Sites Regulation
AW	Aquatic Life
SSSL	Site -Specific Screening Level
PMP	Perimeter Monitoring Program

GRID NORTH

N W E S

metres: 0 50 100

AECOM

AREA 2
SENTRY WELLS

The 2020 Perimeter Monitoring Program and Perimeter Extraction System
Parkland Burnaby Refinery, Burnaby, BC

PARKLAND REFINING (B.C.) LTD.

DATE:	PROJECT NO.:	DRAWN BY:	REVISION NO.:	DRAWING NO.:
March 2021	60626755	NT	0	FIGURE 3

FILE NAME: \\CABNY1FP001\prod\1686\Projects\URS-CHEVRON\60601146 2019 Perimeter Monitoring\400-Technical\2019 Annual PMP Report\Figures\FIG03 - Area 2 Sentry Wells - 20200310 - 60601146 Parkland Ref.dwg

AREA 2 PERIMETER EXTRACTION SYSTEM

The 2020 Perimeter Monitoring Program and Perimeter Extraction System
Parkland Burnaby Refinery, Burnaby, BC

PARKLAND REFINING (B.C.) LTD.

DATE:	PROJECT NO.:	DRAWN BY:	REVISION NO.:	DRAWING NO.:
March 2021	60626755	NT	0	FIGURE 4

LEGEND:

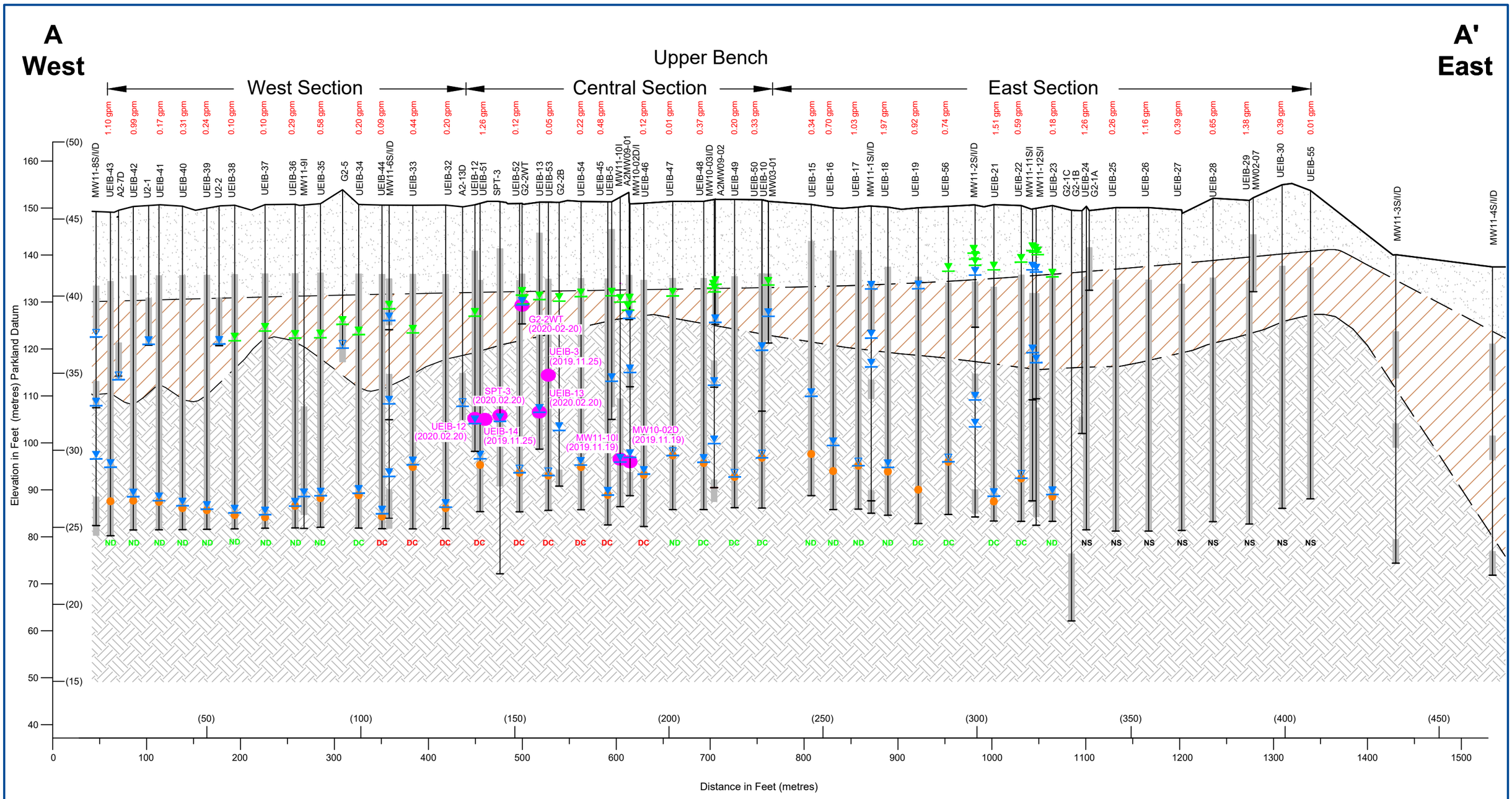
- Property Line
- Fence Line
- Perimeter Well Extraction System
- Foreshore Passive Treatment System
- Monitoring Well
- Inactive Extraction Well
- Active Extraction Well
- Destroyed Monitoring Well Location
- NAPL Plume Extents 2020

GRID NORTH

metres 0 20 40

AECOM

FILE NAME: \\cabny1fp001\prod\1686\Projects\URS-CHEVRON\60601146 2019 Perimeter Monitoring\400-Technical\2019 Annual PMP Report\Figures\FIG04 - Area 2 Perimeter Extraction System - 20210308 - 60601146 - Parkland Ref.dwg



LEGEND:

Fill

Alluvium/colluvium

Till

Extraction Well

Well Screen

Static Groundwater Elevation, January 23, 2012

Pumping Groundwater Elevation, February 18, 20, 2020

Dry

Extraction Pump

Fluid Extraction Rate Average 0.17 gpm

NS = No Sample Collected in February 2020

ND = February 2020 Reported Concentrations of EPH10-19, EPH19-32, and VPH below Reported Detection Limits

DC = February 2020 Reported Concentrations of EPH10-19, EPH19-32, or VPH Detected below the applicable CSR Standards for LEPH or VPH

DC = February 2020 Reported Concentrations of EPH10-19, EPH19-32, or VPH Detected above the applicable CSR Standards for LEPH or VPH

NAPL Detected in 2019/2020 (most recent date) Well ID

ABBREVIATIONS:
gpm US gallons per minute

NOTE:
1. NAPL not shown on the UEIB well was detected in the nearby monitoring well as indicated.
2. Monitoring and drum testing of wells inside the flare zone could not be completed due to the flare zone access restrictions
3. Average fluid extraction rates for flare zone wells was determined by taking the average extraction rate of the well over the entire quarter

Horizontal Scale
feet: 0, 50, 100
metres: 0, 20, 40

Vertical Scale
feet: 0, 10, 20
metres: 0, 5, 10

AECOM

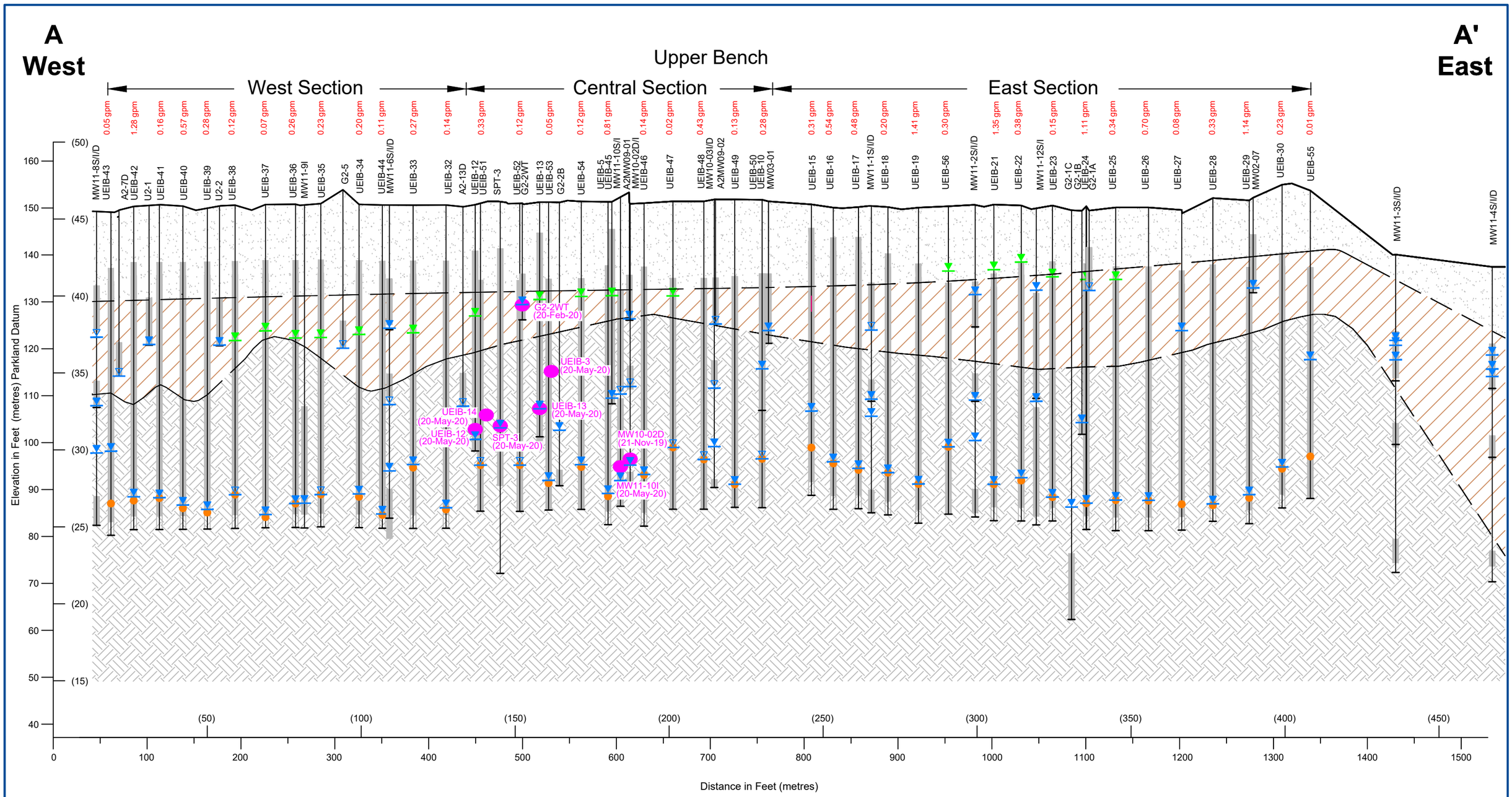
UPPER BENCH EXTRACTION WELL AND MONITORING WELL GROUNDWATER ELEVATIONS FOR FEBRUARY 2020

Perimeter Extraction System - First Quarter 2020 Performance Assessment
Area 2 - Parkland Refinery, Burnaby, BC

PARKLAND REFINING (B.C.) LTD.

DATE:	PROJECT NO.:	DRAWN BY:	REVISION NO.:	DRAWING NO.:
November 2020	60626457	NT	0	FIGURE 5

FILE NAME: \\cabny1fp001\prod\1686\Projects\URS-CHEVRON\60626457 2020 OM&M and NAPL\400-Technical\Q1 - Update\Figures\FIG_C-1 - Q1_Monitoring-Extraction Wells Location & GW Elevation February 2019 -20200422-60624657-Parkland Ref.dwg



LEGEND:

Fill

Alluvium/colluvium

Till

Extraction Well

Well Screen

Static Groundwater Elevation, January 23, 2012

Pumping Groundwater Elevation, May 19 and 20, 2020

Dry

Extraction Pump

Fluid Extraction Rate Average 0.17 gpm

NAPL Detected in 2019/2020 (most recent date)

Well ID

ABBREVIATIONS:
gpm US gallons per minute

NOTE: NAPL not shown on the UEIB well was detected in the nearby monitoring well as indicated.

Horizontal Scale
feet: 0 50 100
metres: 0 20 40

Vertical Scale
feet: 0 10 20
metres: 0 5 10

AECOM

UPPER BENCH EXTRACTION WELL AND MONITORING WELL GROUNDWATER ELEVATIONS FOR MAY 2020

Perimeter Extraction System - Second Quarter 2020 Performance Assessment
Area 2 - Parkland Refinery, Burnaby, BC

PARKLAND REFINING (B.C.) LTD.

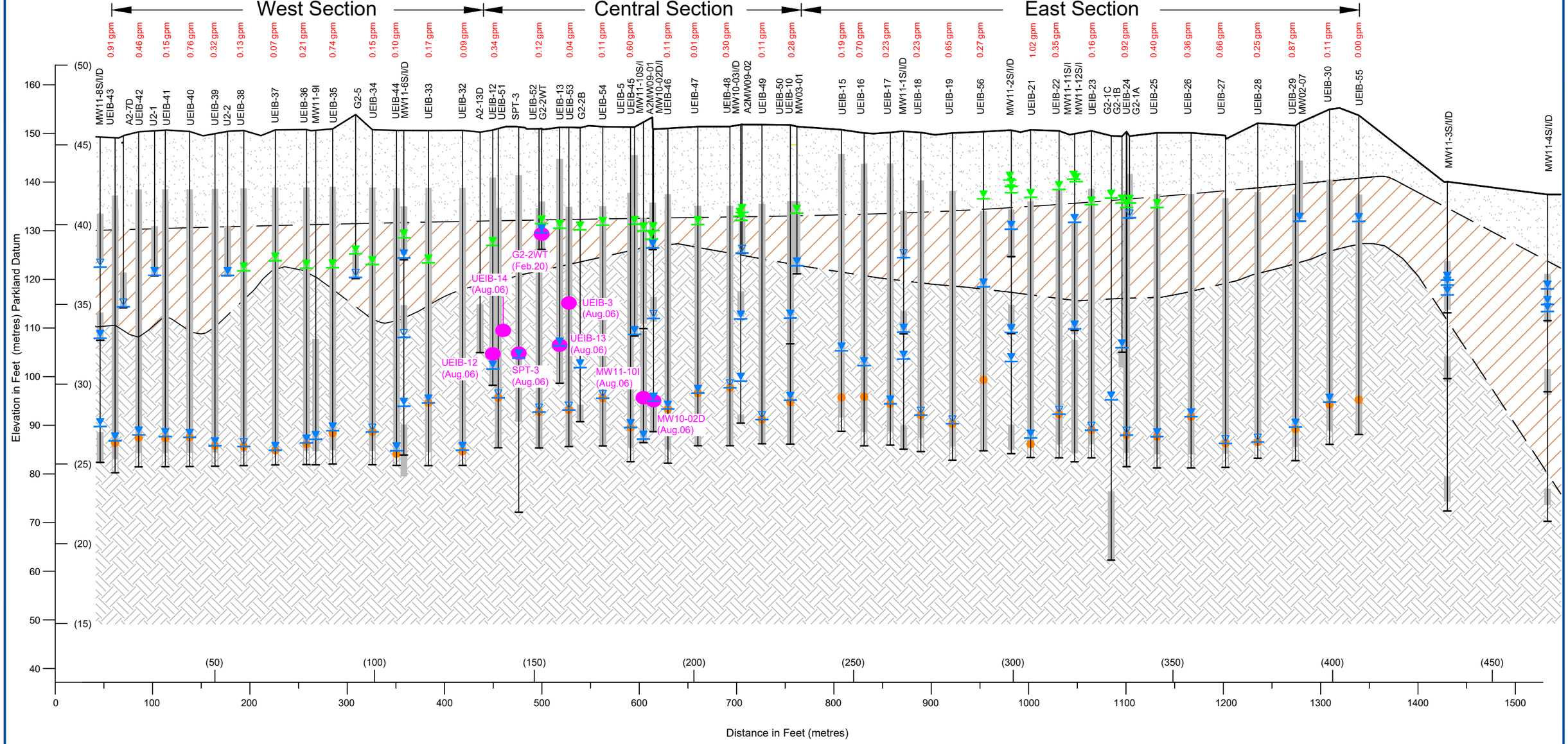
DATE:	PROJECT NO.:	DRAWN BY:	REVISION NO.:	DRAWING NO.:
January 2021	60626457	GS	0	FIGURE 6

FILE NAME: C:\Users\georgiana.stegariu\AECOM Directory\Parkland Burnaby Refinery - CAD Support - General\2020 PMP Report\Figure C-2\Save Final Product (CAD and PDF) Here\FIG_C-2-Q2_Ex Wells Loc & GW Elv MAY2020 -20210315-60626457-Parkland Ref.dwg

A West — A' East

Upper Bench

West Section | Central Section | East Section



LEGEND:

- Fill
- Alluvium/colluvium
- Till
- Extraction Well
- Well Screen
- Static Groundwater Elevation, January 23, 2012
- Pumping Groundwater Elevation, August 6, 10 and 11, 2020
- Dry
- Extraction Pump
- Fluid Extraction Rate Average — 0.17 gpm
- NAPL Detected in 2020 (most recent date)

ABBREVIATIONS:
gpm US gallons per minute

NOTE: NAPL not shown on the UEIB well was detected in the nearby monitoring well as indicated.

Elevations are based on the Parkland bench mark of geodetic + 27.895m

Horizontal Scale
feet: 0 — 50 — 100
metres: 0 — 20 — 40

Vertical Scale
feet: 0 — 10 — 20
metres: 0 — 5 — 10

AECOM

UPPER BENCH EXTRACTION WELL AND MONITORING WELL LOCATIONS AND GROUNDWATER ELEVATIONS AUGUST 2020

Perimeter Extraction System - Third Quarter 2020 Performance Assessment
Area 2 - Parkland Refinery, Burnaby, BC

PARKLAND REFINING (B.C.) LTD.

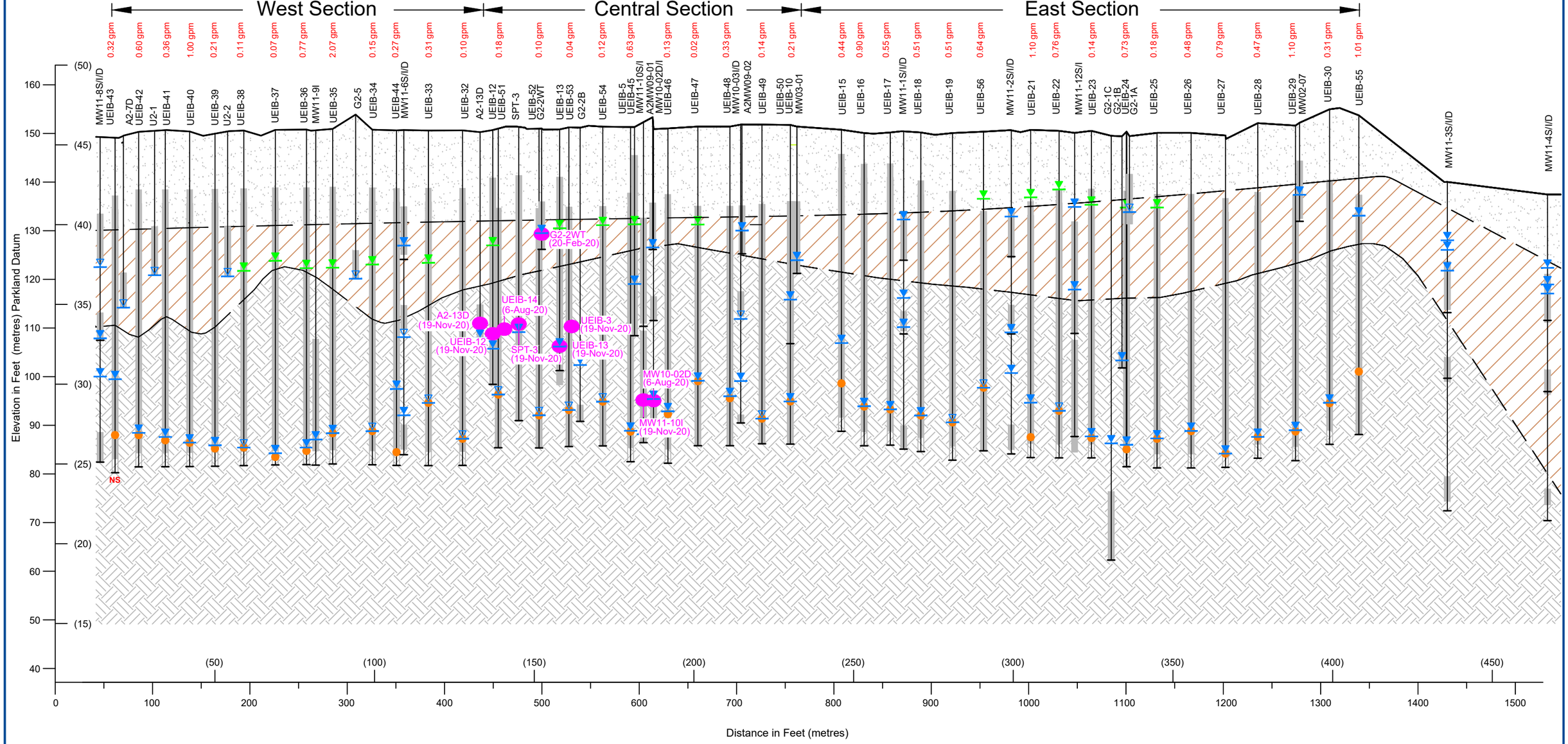
DATE:	PROJECT NO.:	DRAWN BY:	REVISION NO.:	DRAWING NO.:
January 2021	60626457	NT	0	FIGURE 7

FILE NAME: C:\Users\georgiana.stegariu\AECOM Directory\Parkland Burnaby Refinery - CAD Support - General\Perimeter Extraction System - 60626457\Q3 - Update\Figures\FIG_C-1-Q3_Mon Ext Wells Loc & GW Elv AUG2020 -20210125-60626457-Parkland Ref.dwg

A West — A' East

Upper Bench

West Section | Central Section | East Section



LEGEND:

- Fill
- Alluvium/colluvium
- Till
- Extraction Well
- Well Screen
- Static Groundwater Elevation, January 23, 2012
- Pumping Groundwater Elevation, Nov 16, 17, 18 and 19, 2020
- Dry
- Extraction Pump
- Fluid Extraction Rate Average — 0.17 gpm
- NAPL Detected in 2020 (most recent date)
- Well ID

ABBREVIATIONS:
gpm US gallons per minute

NOTE: NAPL not shown on the UEIB well was detected in the nearby monitoring well as indicated.

Elevations are based the Parkland bench mark: geodetic +27.895m.

Horizontal Scale
feet: 0 50 100
metres: 0 20 40

Vertical Scale
feet: 0 10 20
metres: 0 5 10

AECOM

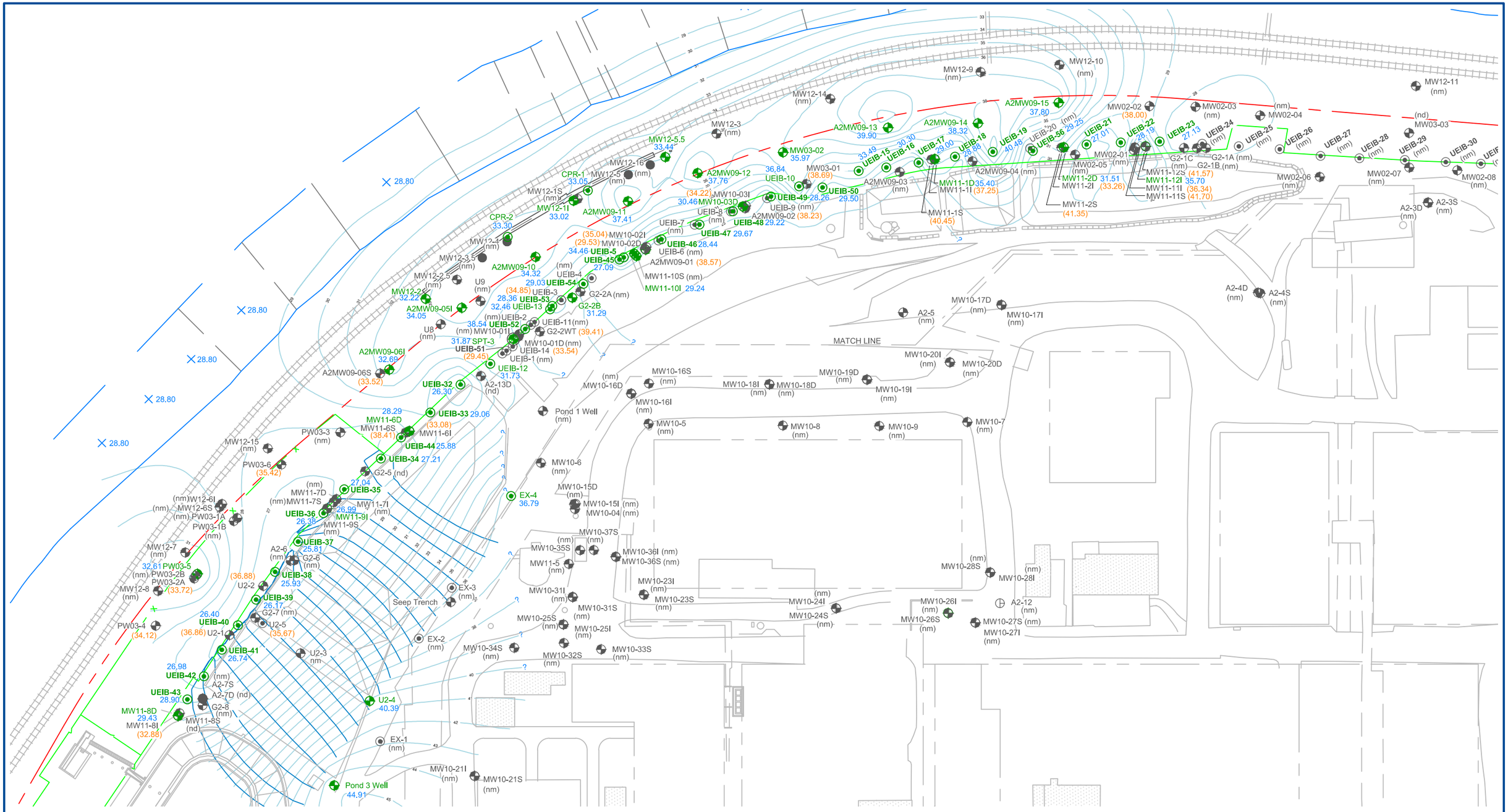
UPPER BENCH EXTRACTION WELL AND MONITORING WELL GROUNDWATER ELEVATIONS FOR NOVEMBER 2020

Perimeter Extraction System - Fourth Quarter 2020 Performance Assessment
Area 2 - Parkland Refinery, Burnaby, BC

PARKLAND REFINING (B.C.) LTD.

DATE:	PROJECT NO.:	DRAWN BY:	REVISION NO.:	DRAWING NO.:
January 2021	60626457	GS	0	FIGURE 8

FILE NAME: C:\Users\georgiana.stegariu\AECOM Directory\Parkland Burnaby Refinery - CAD Support - General\2020 PMP Report\Figure C-4\Save Final Products (CAD and PDF) Here\FIG_C-4-Q4_Ex Wells Loc & GW Elv NOV2020 -20210315-60626457-Parkland Ref.dwg



LEGEND:

- Property Line
- Fence Line
- Foreshore Sampling Transect
- Monitoring Well
- Extraction Well
- Groundwater Flow
- Groundwater Contour (m) (Interval 1.0 metres)
- Groundwater Elevation (m) February 2020 used to extrapolate contours — 32.49
- Groundwater Elevation (m) not used to extrapolate contours — (40.14)
- Mean Tide Elevation Point
- Well used in Groundwater Contouring

ABBREVIATIONS:

na	not available
nd	non-detect (dry well)
nm	not measured/not in program

NOTE:

1. Due to Refinery turnaround, areas of the upper bench and north road could not be accessed at the time of the quarterly program execution. Contours have been edited to remove areas where AECOM has low confidence in the accuracy of the contours and does not indicate poor PES performance. The routine monitoring events conducted on either side of this event indicated normal PES operation was maintained.

GRID NORTH

N / W / E / S

metres: 0 — 20 — 40

AECOM

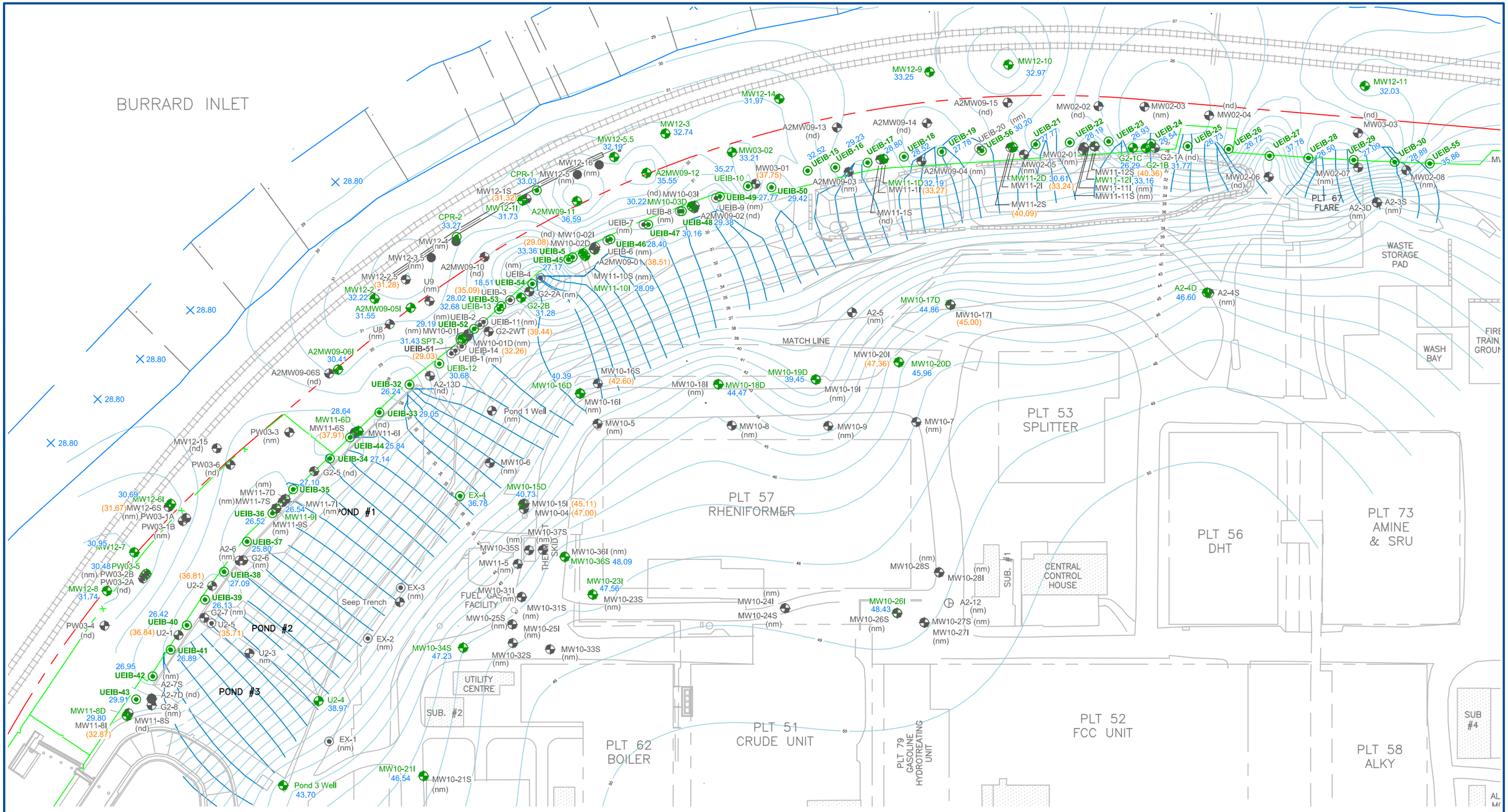
PERIMETER EXTRACTION SYSTEM GROUNDWATER ELEVATIONS AND CONTOURS - FEBRUARY 2020

Perimeter Extraction System - First Quarter 2020 Performance Assessment
Area 2 - Parkland Refinery, Burnaby, BC

PARKLAND REFINING (B.C.) LTD.

DATE:	PROJECT NO.:	DRAWN BY:	REVISION NO.:	DRAWING NO.:
November 2020	60626457	NT	0	FIGURE 9

FILE NAME: \\cabny1fp001\prod\1686\Projects\URS-CHEVRON\60626457 2020 OM&M and NAPL\400-Technical\Q1 - Update\Figures\2020-04-21_FIG05 TILL LAYER_Q1_Parkland-60626457_JVB_v2.dwg



LEGEND:

- Property Line
- Fence Line
- Foreshore Sampling Transect
- Monitoring Well
- Extraction Well
- Groundwater Flow
- Groundwater Contour (m) (Interval 1.0 metres)
- Groundwater Elevation (m) May 2020 used to extrapolate contours — 32.49
- Groundwater Elevation (m) not used to extrapolate contours — (40.14)
- Mean Tide Elevation Point
- Well used in Groundwater Contouring

ABBREVIATIONS:

na	not available
nd	non-detect (dry well)
nm	not measured/not in program

NOTE: Elevations are based on an Parkland benchmark of geodetic + 27.895m.

PERIMETER EXTRACTION SYSTEM GROUNDWATER ELEVATIONS AND CONTOURS - MAY 2020

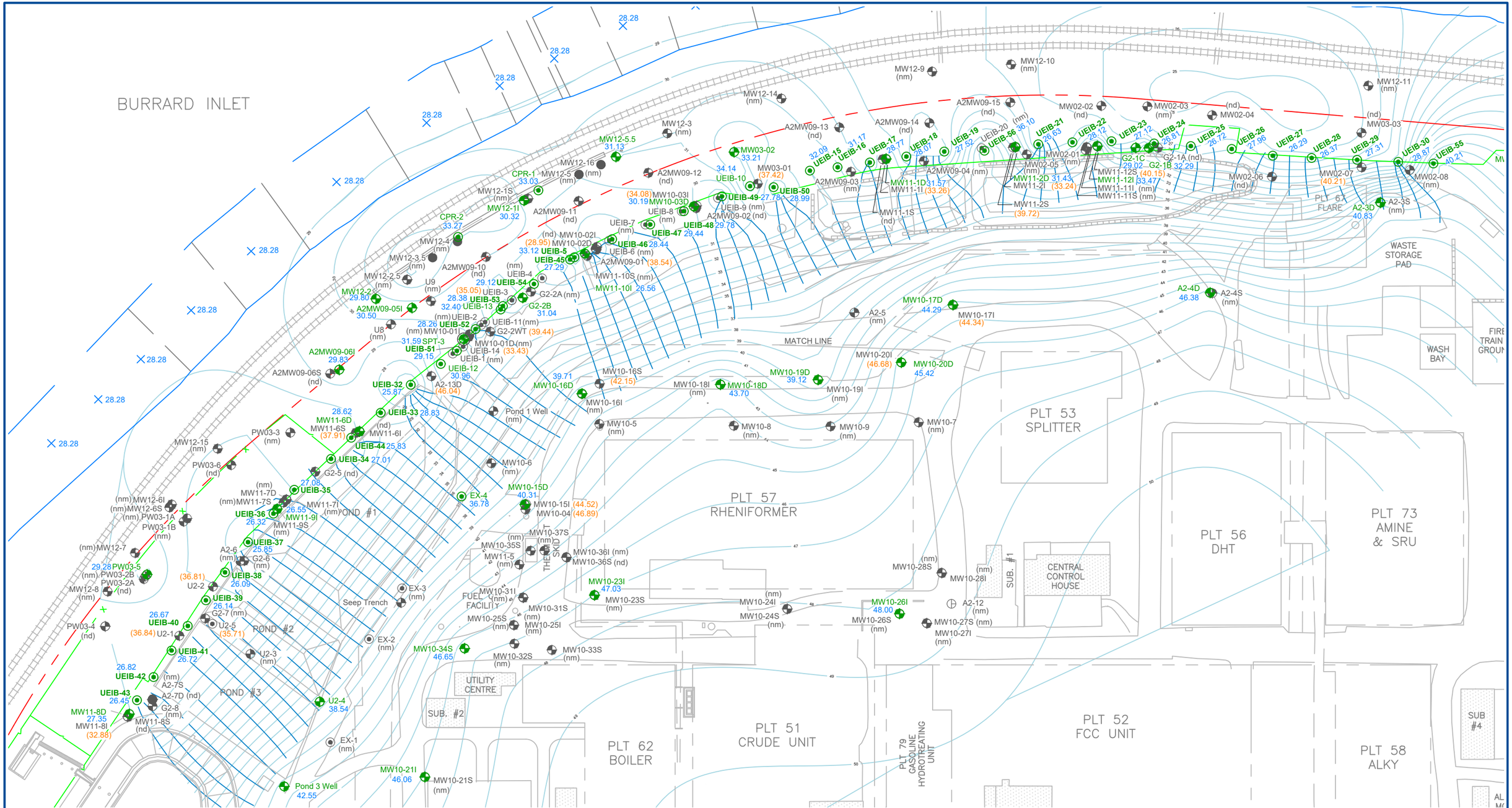
Perimeter Extraction System - Second Quarter 2020 Performance Assessment
Area 2 - Parkland Refinery, Burnaby, BC

PARKLAND REFINING (B.C.) LTD.

DATE:	PROJECT NO.:	DRAWN BY:	REVISION NO.:	DRAWING NO.:
July 2020	60626457	NT	0	FIGURE 10

AECOM

FILE NAME: \\cabny1fp001\prod\1686\Projects\URS-CHEVRON\60626457 2020 OM&M and NAPL\400-Technical\Q2 - Update\Figures\2020-07-20_FIG05 TILL LAYER_Q2_Parkland-60626457_V1b_JVB.dwg



PERIMETER EXTRACTION SYSTEM GROUNDWATER ELEVATIONS AND CONTOURS - AUGUST 2020

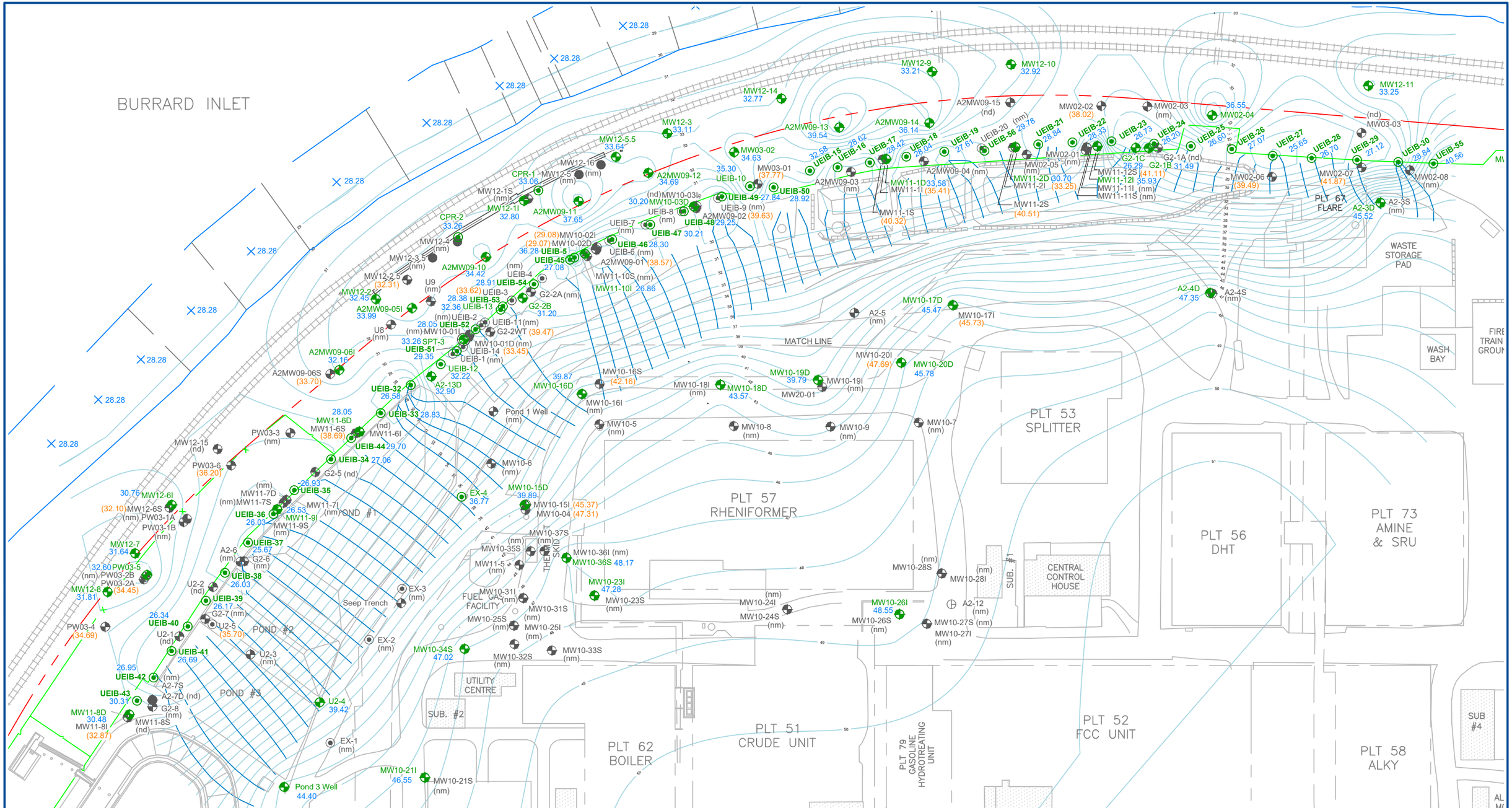
Perimeter Extraction System - Third Quarter 2020 Performance Assessment
Area 2 - Parkland Refinery, Burnaby, BC

PARKLAND REFINING (B.C.) LTD.

DATE:	PROJECT NO.:	DRAWN BY:	REVISION NO.:	DRAWING NO.:
January 2021	60626457	NT	0	FIGURE 11

AECOM

FILE NAME: C:\Users\georgiana.stegariu\AECOM Directory\Parkland Burnaby Refinery - CAD Support - General\Perimeter Extraction System - 60626457\Q3 - Update\Figures\2021-01-25_2020 FIG05 TILL LAYER_Q3_Parkland-60626457.dwg



LEGEND:

- Property Line
- Fence Line
- Foreshore Sampling Transect
- Monitoring Well
- Extraction Well
- Groundwater Flow
- Groundwater Contour (m) (Interval 1.0 metres)
- Groundwater Elevation (m) Nov 2020 used to extrapolate contours — 32.49
- Groundwater Elevation (m) not used to extrapolate contours — (40.14)
- Mean Tide Elevation Point
- Well used in Groundwater Contouring

ABBREVIATIONS:

na	not available
nd	non-detect (dry well)
nm	not measured/not in program

NOTE: Elevations are based on Parkland bench mark of geodetic + 27.895m.

GRID NORTH

N W E S

metres: 0 — 20 — 40

PERIMETER EXTRACTION SYSTEM GROUNDWATER ELEVATIONS AND CONTOURS - NOVEMBER 2020

Perimeter Extraction System - Fourth Quarter 2020 Performance Assessment
Area 2 - Parkland Refinery, Burnaby, BC

PARKLAND REFINING (B.C.) LTD.

DATE:	PROJECT NO.:	DRAWN BY:	REVISION NO.:	DRAWING NO.:
January 2021	60626457	NT	0	FIGURE 12

AECOM

FILE NAME: C:\Users\georgiana.stegariu\AECOM Directory\Parkland Burnaby Refinery - CAD Support - General\Perimeter Extraction System - 60626457\Q4 - Update\Figures\2021-01-15_FIG05 TILL LAYER_Q4_Parkland-60626457_R4.dwg

TABLES

TABLE 1-1
AREAS 1 AND 3 GROUNDWATER MONITORING DATA
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY

Well ID	Sample ID	Screened Interval (mbgs)	Date Monitored	Total Depth of Well (m from TOC)	Ground Elevation (mASL)[1]	Top of Casing Elevation (TOC, mASL)1	Headspace Vapour Concentration (ppmv)	Depth to Product (m from TOC)	Apparent Product Thickness (mm)	Depth to Water (DTW, m from TOC)	Groundwater Elevation (mASL) [1]	Dissolved Oxygen (mg/L)	pH	Temperature (°C)	Electrical Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	ORP (mV)	Observations
A1-12C	A1-12C	5.2-6.7	6-May-04	6.520	55.453	55.346	60	nd	na	3.46	51.886	nm	6.43	12.1	332.	nm	nm	nm	---
A1-12C	A1-12C	5.2-6.7	19-Oct-04	6.550	55.453	55.346	100	nd	na	3.387	51.959	nm	6.57	14.4	459.	nm	0.	nm	---
A1-12C	A1-12C	5.2-6.7	19-Apr-05	6.530	55.453	55.346	550	nd	na	3.29	52.056	nm	6.61	12.3	450.	nm	nm	nm	---
A1-12C	A1-12C	5.2-6.7	14-Sep-05	6.550	55.453	55.346	25	nd	na	3.68	51.666	nm	6.77	14.	454.	nm	nm	nm	Sampled on Sept.14
A1-12C	A1-12C	5.2-6.7	29-Mar-06	6.600	55.453	55.346	60	nd	na	3.31	52.036	1.57	6.35	12.2	51.6	nm	nm	nm	---
A1-12C	A1-12C	5.2-6.7	5-Sep-06	6.600	55.453	55.346	40	nd	na	3.74	51.606	nm	6.67	19.7	48.	nm	nm	nm	DUP14
A1-12C	A1-12C	5.2-6.7	2-Apr-07	6.550	55.453	55.346	nm	nd	na	3.332	52.014	0.38	6.61	11.1	474.	nm	nm	nm	---
A1-12C	A1-12C	5.2-6.7	28-Aug-07	6.600	55.453	55.346	50	nd	na	3.62	51.726	0.2	6.53	15.9	481.	nm	nm	nm	---
A1-12C	A1-12C	5.2-6.7	8-Apr-08	6.570	55.453	55.346	15	nd	na	3.329	52.017	2.09	6.57	10.2	600.	nm	nm	nm	---
A1-12C	A1-12C	5.2-6.7	26-Aug-08	6.595	55.453	55.346	80	nd	na	3.453	51.893	0.4	6.71	13.9	568.	nm	nm	nm	---
A1-12C	A1-12C	5.2-6.7	21-Apr-09	6.592	55.453	55.346	60	nd	na	3.351	51.995	2.3	6.36	11.5	225.	nm	nm	nm	Clear
A1-12C	A1-12C	5.2-6.7	25-Aug-09	6.600	55.453	55.346	15	nd	na	3.62	51.726	0.2	6.31	13.6	695.	nm	nm	nm	Clear
A1-12C	A1-12C	5.2-6.7	6-Apr-10	6.600	55.453	55.346	nd	nd	na	3.32	52.026	1.29	6.66	10.7	860.	nm	nm	nm	Low turbid and low sediment
A1-12C	A1-12C	5.2-6.7	7-Sep-10	6.595	55.453	55.346	nd	nd	na	3.525	51.821	0.15	6.38	14.3	778.	nm	nm	nm	Clear
A1-12C	A1-12C	5.2-6.7	26-Apr-11	6.594	55.453	55.346	65	nd	na	3.445	51.901	0.22	6.15	10.9	723.	nm	nm	nm	Clear; on main road
A1-12C	A1-12C	5.2-6.7	20-Sep-11	6.590	55.453	55.346	10	nd	na	3.705	51.641	0.67	6.27	12.42	610.	nm	nm	nm	Clear; DUP-31
A1-12C	A1-12C	5.2-6.7	18-May-12	6.600	55.453	55.346	nd	nd	na	3.6	51.746	0.16	6.66	11.18	549.	nm	nm	nm	Clear
A1-12C	A1-12C	5.2-6.7	23-Aug-12	6.600	55.453	55.346	nd	nd	na	3.56	51.786	0.31	5.9	13.67	517.	nm	nm	nm	Clear
A1-12C	A1-12C	5.2-6.7	16-Apr-13	6.590	55.453	55.346	5	nd	na	3.41	51.936	1.72	6.41	10.72	480.	nm	nm	nm	Clear
A1-12C	A1-12C	5.2-6.7	3-Sep-13	6.595	55.453	55.346	nd	nd	na	3.63	51.716	0.99	5.77	13.98	448.	nm	nm	nm	Clear
A1-12C	A1-12C	5.2-6.7	23-May-14	6.590	55.453	55.346	nm	nd	na	3.505	51.841	0.26	6.01	11.6	625.	0.546	0.42	37.4	Well cap punctured on arrival
A1-12C	A1-12C	5.2-6.7	2-Sep-14	6.600	55.453	55.346	nm	nd	na	3.67	51.676	0.32	6.1	12.9	574.	0.485	0.37	-32.9	Clear
A1-12C	A1-12C	5.2-6.7	1-Apr-15	6.590	55.453	55.346	100	nd	na	3.3	52.046	0.92	6.08	11.81	545.	0.474	0.36	-5.8	Clear
A1-12C	A1-12C	5.2-6.7	1-Sep-15	6.585	55.453	55.346	nd	nd	na	3.48	51.866	0.27	6.32	15.14	511.	0.409	0.31	13.9	Clear
A1-12C	A1-12C	5.2-6.7	16-Mar-16	6.580	55.453	55.346	75	nd	na	3.34	52.006	1.09	6.43	11.96	437.	0.378	0.28	61.7	Clear; DUP-7
A1-12C	A1-12C	5.2-6.7	4-Oct-16	6.620	55.453	55.346	85	nd	na	3.63	51.716	0.5	6.41	14.43	418.	0.34	0.25	11.7	Clear
A1-12C	A1-12C	5.2-6.7	27-Apr-17	6.570	55.453	55.346	nd	nd	na	3.24	52.106	6.89	6.04	11.43	687.	0.602	0.46	142	J-plug missing
A1-12C	A1-12C	5.2-6.7	14-Sep-17	6.570	55.453	55.346	nd	nd	na	3.65	51.696	1.08	6.13	14.62	594.	0.481	0.36	0.5	Clear
A1-12C	A1-12C	5.2-6.7	9-Apr-18	3.952	55.453	55.346	110	nd	na	0.979	54.367	1.14	6.23	11.44	726.	0.637	0.49	87.4	Clear
A1-12C	A1-12C	5.2-6.7	30-Aug-18	6.543	55.453	55.346	5	nd	na	3.684	51.662	0.33	6.18	14.73	729.	0.589	0.45	-290.1	Clear; sampled
A1-12C	A1-12C	5.2-6.7	27-Mar-19	6.550	55.453	55.346	110	nd	na	3.48	51.866	1.64	6.25	12.73	1053.	0.893	0.7	100.3	Cloudy
A1-12C	A1-12C	5.2-6.7	24-Sep-19	6.561	55.453	55.346	5	nd	na	3.373	51.973	0.08	6.19	14.7	708.	0.572	0.44	5.9	Clear
A1-12C	A1-12C	5.2-6.7	17-Mar-20	6.531	55.453	55.346	nd	nd	na	3.294	52.052	1.48	6.23	12.38	1412.	1.209	0.95	4.8	Clear, well cap off on arrival
A1-12C	A1-12C	5.2-6.7	27-Aug-20	6.586	55.453	55.346	nd	nd	na	3.559	51.787	0.51	6.14	14.31	761.	0.62	0.47	18.8	Clear
A1-12D	A1-12D	1.7-3.2	6-May-04	3.980	55.143	55.029	25	nd	na	1.6	53.429	nm	6.28	12.2	268.	nm	nm	nm	---
A1-12D	A1-12D	1.7-3.2	19-Oct-04	3.737	55.143	55.029	180	nd	na	0.946	54.083	nm	6.37	14.8	297.	nm	0.	nm	---
A1-12D	A1-12D	1.7-3.2	19-Apr-05	3.990	55.143	55.029	200	nd	na	0.995	54.034	nm	6.58	10.7	373.	nm	nm	nm	---
A1-12D	A1-12D	1.7-3.2	14-Sep-05	3.740	55.143	55.029	nm	nd	na	1.83	53.199	nm	6.51	16.3	381.	nm	nm	nm	Sampled on Sept.14
A1-12D	A1-12D	1.7-3.2	29-Mar-06	3.980	55.143	55.029	30	nd	na	1.11	53.919	1.27	6.34	11.2	39.5	nm	nm	nm	---
A1-12D	A1-12D	1.7-3.2	5-Sep-06	3.990	55.143	55.029	60	nd	na	1.93	53.099	nm	6.5	19.	47.3	nm	nm	nm	DUP15
A1-12D	A1-12D	1.7-3.2	2-Apr-07	3.737	55.143	55.029	nm	nd	na	1.42	53.609	0.13	6.24	11.8	373.	nm	nm	nm	---
A1-12D	A1-12D	1.7-3.2	28-Aug-07	4.000	55.143	55.029	30	nd	na	1.64	53.389	0.52	6.42	17.9	425.	nm	nm	nm	---
A1-12D	A1-12D	1.7-3.2	8-Apr-08	3.974	55.143	55.029	30	nd	na	1.082	53.947	0.33	6.35	9.3	400.	nm	nm	nm	---
A1-12D	A1-12D	1.7-3.2	26-Aug-08	3.980	55.143	55.029	40	nd	na	1.277	53.752	0.5	6.19	15.8	475.	nm	nm	nm	---
A1-12D	A1-12D	1.7-3.2	21-Apr-09	3.972	55.143	55.029	75	nd	na	1.331	53.698	0.5	6.25	11.	205.	nm	nm	nm	Clear, orange suspended debris
A1-12D	A1-12D	1.7-3.2	25-Aug-09	3.950	55.143	55.029	nd	nd	na	1.6	53.429	0.2	6.22	17.5	770.	nm	nm	nm	Clear
A1-12D	A1-12D	1.7-3.2	6-Apr-10	3.950	55.143	55.029	nm	nd	na	1.06	53.969	0.06	6.23	9.4	680.	nm	nm	nm	Clear, minimal sediment
A1-12D	A1-12D	1.7-3.2	7-Sep-10	3.930	55.143	55.029	20	nd	na	1.41	53.619	0.09	6.35	17.3	732.	nm	nm	nm	Clear, QA/QC duplicate: DUP-5
A1-12D	A1-12D	1.7-3.2	26-Apr-11	3.940	55.143	55.029	30	nd	na	1.345	53.684	0.33	6.11	10.1	687.	nm	nm	nm	Clear, DUP-19; on main road
A1-12D	A1-12D	1.7-3.2	20-Sep-11	3.945	55.143	55.029	35	nd	na	1.485	53.544	0.27	6.44	14.58	606.	nm	nm	nm	Clear
A1-12D	A1-12D	1.7-3.2	18-May-12	3.950	55.143	55.029	nd	nd	na	1.4	53.629	0.16	6.66	11.64	516.	nm	nm	nm	Clear
A1-12D	A1-12D	1.7-3.2	23-Aug-12	3.930	55.143	55.029	50	nd	na	1.21	53.819	0.27	5.86	15.96	556.	nm	nm	nm	Clear; DUP-18
A1-12D	A1-12D	1.7-3.2	16-Apr-13	3.940	55.143	55.029	50	nd	na	1.14	53.889	0.77	6.3	9.92	464.	nm	nm	nm	Clear; DUP-24
A1-12D	A1-12D	1.7-3.2	3-Sep-13	3.950	55.143	55.029	40	nd	na	1.375	53.654	1.57	5.85	16.9	508.	nm	nm	nm	Clear; DUP-21
A1-12D	A1-12D	1.7-3.2	23-May-14	3.940	55.143	55.029	70	nd	na	1.3	53.729	0.49	5.9	12.72	680.	0.577	0.44	-101.3	Clear, DUP-24
A1-12D	A1-12D	1.7-3.2	2-Sep-14	3.950	55.143	55.029	60	nd	na	1.42	53.609	0.57	5.74	17.17	644.	0.492	0.37	-105.2	Clear, DUP-20
A1-12D	A1-12D	1.7-3.2	1-Apr-15	3.950	55.143	55.029	260	nd	na	1.	54.029	0.4	5.98	10.98	564.	0.501	0.38	-74.2	DUP-6
A1-12D	A1-12D	1.7-3.2	1-Sep-15	3.940	55.143	55.029	100	nd	na	1.15	53.879	0.11	6.26	18.17	516.	0.386	0.29	8.6	Silt on probe; DUP-10
A1-12D	A1-12D	1.7-3.2	16-Mar-16	3.960	55.143	55.029	35	nd	na	1.03	53.999	0.18	6.44	10.4	465.	0.42	0.32	32	Clear
A1-12D	A1-12D	1.7-3.2	4-Oct-16	3.960	55.143	55.029	45	nd	na	1.31	53.719	0.29	6.34	15.98	428.	0.336	0.25	5.9	Clear; DUP-10
A1-12D	A1-12D	1.7-3.2	27-Apr-17	3.950	55.143	55.029	130	nd	na	1.25	53.779	0.26	6.28	11.34	659.	0.596	0.45	13.6	Clear; DUP-15
A1-12D	A1-12D	1.7-3.2	14-Sep-17	3.970	55.143	55.029	45	nd	na	1.4	53.629	0.93	6.05	17.07	577.	0.436	0.33	-24.7	Clear
A1-12D	A1-12D	1.7-3.2	9-Apr-18	6.549	55.143	55.029	35	nd	na	3.243	51.786	1.38	4.6	9.94	582.	0.531	0.4	109.1	Clear; DUP-2
A1-12D	A1-12D	1.7-3.2	28-Aug-18	3.951	55.143	55.029	45	nd	na	1.485	53.544	0.18	6.11	19.27	1118.	0.816	0.63	-31.3	Clear; sampled
A1-12D	A1-12D	1.7-3.2	27-Mar-19	3.952	55.143	55.029	60	nd	na	1.382	53.647	0.22	6.13	10.99	909.	0.807	0.62	6.8	slightly silty (brown); DUP-07
A1-12D	A1-12D	1.7-3.2	24-Sep-19	3.960	55.143	55.029	65	nd	na	1.07	53.959	0.29	7.24	16.72	1018.	0.786	0.61	-64.1	Clear
A1-12D	A1-12D	1.7-3.2	17-Mar-20	3.941	55.143	55.029	20	nd	na	1.282	53.747	0.39	5.81	10.1	726.	0.659	0.5	32.2	Clear sample, minor orange biofoul on probe
A1-12D	A1-12D	1.7-3.2	27-Aug-20	3.962	55.143	55.029	nd	nd	na	1.439	53.59	0.43	6.14	17.67	930.	0.699	0.53	-4.8	Clear
A1-12S	A1-12S	0.98-2.48	6-May-04	2.340	55.225	55.141	175	nd	na	1.57	53.571	nm	5.72	13.7	1071.	nm	nm	nm	---
A1-12S	A1-12S	0.98-2.48	19-Oct-04	1.250	55.225	55.141	225	nd	na	0.922	54.219	nm	6.4	14.4	239.	nm	0.	nm	---
A1-12S	A1-12S	0.98-2.48	20-Apr-05	1.660	55.225	55.141	475	nd	na	1.11	54.031	nm	6.14	10.6	1411.	nm	nm	nm	---
A1-12S	A1-12S	0.98-2.48	14-Sep-05	1.250	55.225	55.141	nm	nd	na	0.88	54.261	nm	5.88	17.5	1766.	nm	nm	nm	Sampled on Sept.14
A1-12S	A1-12S	0.98-2.48	29-Mar-06	2.330	55.225	55.141	75	nd	na	1.1	54.041	5.36	5.93	12.6	140.5	nm	nm	nm	---
A1-12S	A1-12S	0.98-2.48	5-Sep-06	2.300	55.225	55.141	40	nd	na	2.02	53.121	nm	6.69	21.7	311.	nm	nm	nm	---
A1-12S	A1-12S	0.98-2.48	2-Apr-07	2.390	55.225	55.141	nm	nd	na	1.36	53.781	4.47	6.26	10.	600.	nm	nm	nm	---
A1-12S	A1-12S	0.98-2.48	28-Aug-07	2.350	55.225	55.141	100	nd	na	1.7	53.441	0.33	5.9	20.6	748.	nm	nm	nm	---
A1-12S	A1-12S	0.98-2.48	8-Apr-08	2.360	55.225	55.141	25	nd	na	1.033	54.108	4.42	5.63	8.9	2200.	nm	nm	nm	---
A1-12S	A1-12S	0.98-2.48	2-Sep-08	2.390	55.225	55.141	nm	nd	na	1.145	53.996	1.6	5.83	17.2	983.	nm	nm	nm	Had to break slip-cap to remove it
A1-12S	A1-12S	0.98-2.48	21-Apr-09	2.348	55.225	55.141	75	nd	na	1.288	53.853	5.7	5.24	11.9	11240.	nm	nm	nm	Clear
A1-12S	A1-12S	0.98-2.48	25-Aug-09	2.360	55.225	55.141	50	nd	na	1.688	53.453	0.8	5.23	19.6	6690.	nm	nm	nm	Clear
A1-12S	A1-12S	0.98-2.48	6-Apr-10	2.365	55.225	55.141	nd	nd	na	1.035	54.106	5.54	5.81	9.8	1075.	nm	nm	nm	---
A1-12S	A1-12S	0.98-2.48	7-Sep-10	2.350	55.225	55.141	100	nd	na	1.38	53.761	0.81	5.93	19.8	951.	nm	nm	nm	Clear
A1-12S	A1-12S	0.98-2.48	26-Apr-11	2.350	55.225	55.141	120	nd	na	1.291	53.85	5.74	5.73	10.2	1320.	nm	nm	nm	Clear; On main road
A1-12S	A1-12S	0.98-2.48	20-Sep-11	2.355	55.225	55.141	40	nd	na	1.545	53.596	1.27	5.56	16.93	1439.	nm	nm	nm	Clear
A1-12S	A1-12S	0.98-2.48	18-May-12	2.360	55.225	55.141	100	nd	na	1.45	53.691	6.56	6.21	13.38	675.	nm	nm	nm	Clear
A1-12S	A1-12S	0.98-2.48	23-Aug-12	2.360	55.225	55.141	170	nd	na	1.13	54.011	1.52	5.68	20.43	555.	nm	nm	nm	Clear
A1-12S	A1-12S	0.98-2.48	16-Apr-13	2.350	55.225	55.141	70	nd	na	1.08	54.061	6.37	5.79	10.4	735.	nm	nm	nm	Clear
A1-12S	A1-12S	0.98-2.48	3-Sep-13	2.360	55.225	55.141	130	nd	na	1.26	53.881	2.68	5.57	19.25	696.	nm	nm	nm	Clear
A1-12S	A1-12S	0.98-2.48	23-May-14	2.355	55.225	55.141	nd	nd	na	1.215	53.926	3.21	5.34	14.69	951.	0.774	0.6	165.3	Clear
A1-12S	A1-12S	0.98-2.48	2-Sep-14	2.355	55.225	55.141	150	nd	na	1.39	53.751	1.4	4.88	19.79	808.	0.554	0.44	29.8	Clear
A1-12S	A1-12S	0.98-2.48	1-Apr-15	2.370	55.225	55.141	220	nd	na	0.92	54.221	5.13	5.67	11.1	857.	0.758	0.58	170.3	Clear
A1-12S	A1-12S	0.98-2.48	1-Sep-15	2.355	55.225	55.141	220	nd	na	1.04	54.101	1.63	5.55	21.01	1485.	1.045	0.81	13.5	Clear
A1-12S	A1-12S	0.98-2.48	16-Mar-16	2.360	55.225	55.141	100	nd	na	1.04	54.101	5.8	5.77	9.68	556.	0.51	0.39	271.8	Clear
A1-12S	A1-12S	0.98-2.48	4-Oct-16	2.360	55.225	55.141	200	nd	na	1.16	53.981	2.23	5.97	16.49	313.	0.243	0.18	197.3	Clear
A1-12S	A1-12S	0.98-2.48	28-Apr-17	2.360	55.225	55.141	130	nd	na	1.1	54.041	8.18	6.01	11.03	821.	0.723	0.55	113.1	Clear
A1-12S	A1-12S	0.98-2.48	14-Sep-17	2.360	55.225	55.141	170	nd	na	1.29	53.851	3.78	5.43	20.45	644.	0.459	0.35	51.4	Clear
A1-12S	A1-12S	0.98-2.48	9-Apr-18	2.360	55.225	55.141	50	nd	na	0.91	54.231	5.77	5.65	10.77	1241.	1.107	0.87	2450.	Purged dry at 3.5 L; sampled on the following day; clear
A1-12S	A1-12S	0.98-2.48	28-Aug-18	2.360	55.225	55.141	170	nd	na	1.543	53.598	0.42	5.33	21.66	1668.	1.158	0.93	240.1	Clear; sampled; DUP-3
A1-12S	A1-12S	0.98-2.48	27-Mar-19	2.364	55.225	55.141	20	nd	na	1.293	53.848	4.76	6.29	11.45	274.	0.241	0.18	105.4	murky; brown colour, sampled on recharge
A1-12S	A1-12S	0.98-2.48	24-Sep-19	2.360	55.225	55.141	20	nd	na	0.758	54.383	3.08	6.78	17.76	647.	0.499	0.38	<7.8	Clear
A1-12S	A1-12S	0.98-2.48	17-Mar-20	2.347	55.225	55.141	5	nd	na	1.277	53.864	5.32	5.64	8.97	1026.	0.96	0.74	127.4	Clear
A1-12S	A1-12S	0.98-2.48	27-Aug-20	2.372	55.225	55.141	55	nd	na	1.336	53.805	1.8	5.6	20.59	1073.	0.77	0.59	94.8	Clear
A1-3D	A1-3D	10.9-15.5	3-May-04	15.430	46.105	45.948	20	nd	na	8.92	37.028	nm	8.96	11.8	482.	nm	nm	nm	---
A1-3D	A1-3D	10.9-15.5	20-Oct-04	12.118	46.105	45.948	100	nd	na	8.523	37.425	nm	8.88	11.6	349.	nm	0.	nm	---
A1-3D	A1-3D	10.9-15.5	20-Apr-05	11.910	46.105	45.948	25	nd	na	8.01	37.938	nm	9.18	13.1	572.	nm	nm	nm	---
A1-3D	A1-3D	10.9-15.5	22-Sep-05	15.200	46.105	45.948	nm	nd	na	7.755	38.193	nm	8.64	12.8	349.	nm	nm	nm	Sampled on Sept.23
A1-3D	A1-3D	10.9-15.5	3-Apr-06	15.250	46.105	45.948	<5	nd	na	7.28	38.668	2.18	8.54	13.	99.9	nm	nm	nm	---
A1-3D	A1-3D	10.9-15.5	30-Aug-06	14.650	46.105	45.948	5	nd	na	7.83	38.118	6.56	8.48	16.2	528.	nm	nm	nm	---
A1-3D	A1-3D	10.9-15.5	4-Apr-07	13.200	46.105	45.948	10	nd	na	7.04	38.908	0.28	9.13	12.6	674.	nm	nm	nm	---
A1-3D	A1-3D	10.9-15.5	27-Aug-07	14.950	46.105	45.948	50	nd	na	7.94	38.008	0.25	9.26	15.8	483.	nm	nm	nm	---

TABLE 1-1
AREAS 1 AND 3 GROUNDWATER MONITORING DATA
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY

Well ID	Sample ID	Screened Interval (mbgs)	Date Monitored	Total Depth of Well (m from TOC)	Ground Elevation (mASL)[1]	Top of Casing Elevation (TOC, mASL)1	Headspace Vapour Concentration (ppmv)	Depth to Product (m from TOC)	Apparent Product Thickness (mm)	Depth to Water (DTW, m from TOC)	Groundwater Elevation (mASL) [1]	Dissolved Oxygen (mg/L)	pH	Temperature (°C)	Electrical Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	ORP (mV)	Observations
A1-3D	A1-3D	10.9-15.5	10-Apr-08	15.042	46.105	45.948	75	nd	na	7.584	38.364	0.11	8.98	12.	571.	nm	nm	nm	---
A1-3D	A1-3D	10.9-15.5	26-Aug-08	14.995	46.105	45.948	nm	nd	na	8.091	37.857	0.1	8.55	11.7	518.	nm	nm	nm	Silty
A1-3D	A1-3D	10.9-15.5	21-Apr-09	15.197	46.105	45.948	10	nd	na	7.742	38.206	0.5	9.17	11.6	948.	nm	nm	nm	Silty
A1-3D	A1-3D	10.9-15.5	24-Aug-09	13.418	46.105	45.948	nd	nd	na	8.25	37.698	0.6	9.04	14.2	473.	nm	nm	nm	Silty
A1-3D	A1-3D	10.9-15.5	22-Sep-10	15.120	46.105	45.948	nm	nd	na	8.15	37.798	nm	9.11	17.8	570.	nm	nm	nm	Purged dry, well damaged, cannot use bailer
A1-3D	A1-3D	10.9-15.5	3-May-11	15.121	46.105	45.948	45	nd	na	7.349	38.599	0.24	8.35	17.4	2280.	nm	nm	nm	Silty, 1 EPH only
A1-3D	A1-3D	10.9-15.5	19-Sep-11	15.190	46.105	45.948	nd	nd	na	8.945	37.003	7.5	4.01	11.56	436.	nm	nm	nm	Silty; Sample collected on Sept 20 because of silty; 2" bailer won't fit down well
A1-3D	A1-3D	10.9-15.5	15-May-12	15.210	46.105	45.948	nm	nd	na	7.91	38.038	8.6	9.2	15.	677.	nm	nm	nm	Slightly turbid
A1-3D	A1-3D	10.9-15.5	4-Sep-12	15.190	46.105	45.948	15	nd	na	8.41	37.538	5.24	8.7	13.59	511.	nm	nm	nm	Only had enough water for one set of parameters; located 1.4m east of A1-3S
A1-3D	A1-3D	10.9-15.5	3-Apr-13	15.180	46.105	45.948	15	nd	na	8.085	37.863	4.87	8.72	12.45	414.	nm	nm	nm	Clear; DO exposed to air bubbles in flow-through cell
A1-3D	A1-3D	10.9-15.5	27-Aug-13	15.190	46.105	45.948	nd	nd	na	8.61	37.338	4.39	8.41	12.37	420.	nm	nm	nm	Purged dry and silty at 50 L; parameters collected Aug.26; sampled Aug.27; clear; A1-3D slightly silty ambers
A1-3D	A1-3D	10.9-15.5	2-Jun-14	15.190	46.105	45.948	55	nd	na	8.35	37.598	8.2	7.92	12.8	434.	0.366	0.27	-28.7	Purged dry at 42 L; DUP-30
A1-3D	A1-3D	10.9-15.5	22-Sep-14	15.190	46.105	45.948	20	nd	na	8.425	37.523	7.84	8.71	13.12	400.	0.337	0.25	30.4	Purged dry at 25 L on Sept.23; Sampled on Sept.22
A1-3D	A1-3D	10.9-15.5	13-May-15	15.120	46.105	45.948	65	nd	na	8.36	37.588	1.37	9.45	11.87	428.	0.371	0.28	21.8	Slightly turbid
A1-3D	A1-3D	10.9-15.5	23-Sep-15	15.150	46.105	45.948	20	nd	na	7.075	38.873	7.97	10.4	15.18	322.	0.257	0.19	134.2	Silty; J-plug missing
A1-3D	A1-3D	10.9-15.5	4-Apr-16	15.130	46.105	45.948	10	nd	na	6.87	39.078	6.02	8.34	11.31	394.	0.347	0.25	83.4	Purged dry at 35L on Apr.4; Sample collected on Apr.5; Clear
A1-3D	A1-3D	10.9-15.5	22-Sep-16	15.170	46.105	45.948	10	nd	na	7.85	38.098	4.01	9.01	14.72	363.	0.294	0.22	84.4	Clear
A1-3D	A1-3D	10.9-15.5	15-Apr-17	15.100	46.105	45.948	15	nd	na	7.78	38.168	4.25	8.98	11.07	378.	0.333	0.25	62.5	Clear
A1-3D	A1-3D	10.9-15.5	30-Aug-17	15.120	46.105	45.948	5	nd	na	8.46	37.488	3.78	8.01	12.32	347.	0.297	0.22	210.1	Turbid
A1-3D	A1-3D	10.9-15.5	10-Apr-18	12.620	46.105	45.948	10	nd	na	6.002	39.946	10.39	9.22	11.14	696.	0.614	0.48	157.4	Cloudy grey; bailed & waterra
A1-3D	A1-3D	10.9-15.5	3-May-18	15.117	46.105	45.948	10	nd	na	7.327	38.621	6.74	7.64	14.52	590.	0.479	0.36	121.6	Purged dry; waterra; sampled
A1-3D	A1-3D	10.9-15.5	5-Sep-18	15.118	46.105	45.948	10	nd	na	8.75	37.198	6.83	8.78	19.03	554.	0.406	0.3	190.8	Sampled; DUP-5
A1-3D	A1-3D	10.9-15.5	2-Apr-19	15.105	46.105	45.948	5	nd	na	8.484	37.464	7.71	5.67	10.66	567.	0.495	0.37	-0.1	clear with silty particles; sampled on next day, purged + sampled using watera
A1-3D	A1-3D	10.9-15.5	19-Sep-19	15.185	46.105	45.948	15	nd	na	8.583	37.365	6.91	8.98	12.23	494.	0.424	0.32	-20.6	Slightly cloudy (grey); slightly silty
A1-3D	A1-3D	10.9-15.5	19-Mar-20	15.118	46.105	45.948	10	nd	na	8.259	37.689	6.91	8.97	11.63	567.	0.495	0.37	97.7	Purged dry at 36L on 03/18/20, sampled next day on recharge
A1-3D	A1-3D	10.9-15.5	25-Aug-20	15.114	46.105	45.948	nd	nd	na	8.694	37.254	5.94	8.75	14.47	527.	0.429	0.32	51.3	Purged dry at 34L, sampled on recharge on 24/8/20, first sample too cloudy. Sampled following day, slightly cloudy, grey, submitted
A1-3S	ns	1.1-4.1	3-May-04	3.630	46.219	46.121	140	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A1-3S	ns	1.1-4.1	20-Oct-04	3.580	46.219	46.121	200	nd	na	3.16	42.961	nm	nm	nm	nm	nm	nm	nm	Dry at 10:10 and dry at 13:35; Not sampled
A1-3S	ns	1.1-4.1	20-Apr-05	3.530	46.219	46.121	100	nd	na	3.	43.121	nm	nm	nm	nm	nm	nm	nm	Too shallow to sample
A1-3S	ns	1.1-4.1	22-Sep-05	3.630	46.219	46.121	nm	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A1-3S	A1-3S	1.1-4.1	29-Mar-06	3.640	46.219	46.121	100	nd	na	3.13	42.991	1.68	6.21	10.5	158.9	nm	nm	nm	---
A1-3S	ns	1.1-4.1	30-Aug-06	3.640	46.219	46.121	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A1-3S	ns	1.1-4.1	4-Apr-07	3.630	46.219	46.121	110	nd	na	3.47	42.651	nm	nm	nm	nm	nm	nm	nm	Insufficient groundwater to sample.
A1-3S	ns	1.1-4.1	27-Aug-07	3.630	46.219	46.121	55	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A1-3S	ns	1.1-4.1	10-Apr-08	3.630	46.219	46.121	70	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A1-3S	ns	1.1-4.1	25-Aug-08	3.630	46.219	46.121	105	nd	na	3.598	42.523	2.	nm	nm	nm	nm	nm	nm	No sample Dry
A1-3S	A1-3S	1.1-4.1	20-Apr-09	3.621	46.219	46.121	125	nd	na	3.173	42.948	0.8	6.19	9.6	1822.	nm	nm	nm	---
A1-3S	ns	1.1-4.1	24-Aug-09	3.628	46.219	46.121	75	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A1-3S	A1-3S	1.1-4.1	20-Sep-10	3.390	46.219	46.121	35	nd	na	2.73	43.391	7.93	7.01	16.3	318.	nm	nm	nm	Clear
A1-3S	A1-3S	1.1-4.1	3-May-11	3.372	46.219	46.121	140	nd	na	3.251	42.87	0.53	6.21	15.4	2503.	nm	nm	nm	Purged dry at ~240 mL, silty (1 EPH). Road box and well lid missing, PVC/J-plug OK. A1-3S well needs repair, put cone over hole.
A1-3S	A1-3S	1.1-4.1	19-Sep-11	3.380	46.219	46.121	25	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; No well casing cover or road box
A1-3S	ns	1.1-4.1	15-May-12	3.380	46.219	46.121	nm	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A1-3S	ns	1.1-4.1	4-Sep-12	3.380	46.219	46.121	25	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; No sample; No road box; well is buried deeply next to road
A1-3S	ns	1.1-4.1	3-Apr-13	3.375	46.219	46.121	35	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A1-3S	ns	1.1-4.1	26-Aug-13	3.370	46.219	46.121	80	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A1-3S	ns	1.1-4.1	2-Jun-14	3.360	46.219	46.121	30	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A1-3S	ns	1.1-4.1	22-Sep-14	3.355	46.219	46.121	75	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; Biofoul on probe.
A1-3S	ns	1.1-4.1	13-May-15	3.370	46.219	46.121	75	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; Silt on the probe
A1-3S	ns	1.1-4.1	23-Sep-15	3.360	46.219	46.121	90	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; Silt on the probe
A1-3S	ns	1.1-4.1	4-Apr-16	3.360	46.219	46.121	20	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A1-3S	ns	1.1-4.1	22-Sep-16	3.360	46.219	46.121	60	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A1-3S	A1-3S	1.1-4.1	15-Apr-17	3.260	46.219	46.121	35	nd	na	2.76	43.361	0.56	6.38	9.01	1140.	1.052	0.82	110	Clear
A1-3S	ns	1.1-4.1	30-Aug-17	3.380	46.219	46.121	15	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A1-3S	A1-3S	1.1-4.1	10-Apr-18	3.372	46.219	46.121	120	nd	na	2.515	43.606	5.9	6.53	9.15	2709.	2.524	2.06	198	Clear
A1-3S	ns	1.1-4.1	3-May-18	3.373	46.219	46.121	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry, sandy bottom, brown
A1-3S	ns	1.1-4.1	5-Sep-18	3.360	46.219	46.121	60	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A1-3S	A1-3S	1.1-4.1	10-Apr-19	3.365	46.219	46.121	60	nd	na	3.116	43.005	8.93	6.48	9.13	2411.	2.25	1.83	156.7	clear
A1-3S	ns	1.1-4.1	19-Sep-19	3.371	46.219	46.121	35	nd	na	3.343	42.778	nm	nm	nm	nm	nm	nm	nm	Insufficient water column to sample
A1-3S	ns	1.1-4.1	18-Mar-20	3.361	46.219	46.121	80	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry, silt on probe
A1-3S	ns	1.1-4.1	17-Aug-20	3.357	46.219	46.121	20	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A3MW02-05	MW02-05	2.4-6.1	5-May-04	6.000	33.145	33.042	10450	nd	na	3.88	29.162	nm	6.61	11.	266.	nm	nm	nm	---
A3MW02-05	MW02-05	2.4-6.1	25-Oct-04	5.995	33.145	33.042	1650	nd	na	3.253	29.789	nm	6.86	14.6	303.	nm	nm	nm	---
A3MW02-05	MW02-05	2.4-6.1	26-Apr-05	6.000	33.145	33.042	nm	nd	na	3.22	29.822	nm	6.86	11.9	248.	nm	nm	nm	---
A3MW02-05	A3-MW02-05	2.4-6.1	15-Sep-05	6.000	33.145	33.042	nm	nd	na	4.42	28.622	nm	6.75	15.5	416.	nm	nm	nm	Sampled Sept.20
A3MW02-05	A3-MW02-05	2.4-6.1	29-Mar-06	6.050	33.145	33.042	550	nd	na	3.015	30.027	1.83	6.48	10.	512.	nm	nm	nm	---
A3MW02-05	A3-MW02-05	2.4-6.1	31-Aug-06	6.040	33.145	33.042	2090	nd	na	4.48	28.562	0.43	6.04	14.4	485.	nm	nm	nm	---
A3MW02-05	A3-MW02-05	2.4-6.1	2-Apr-07	6.100	33.145	33.042	11000	nd	na	3.27	29.772	0.28	6.54	9.3	223.	nm	nm	nm	---
A3MW02-05	A3-MW02-05	2.4-6.1	28-Aug-07	6.000	33.145	33.042	6600	nd	na	4.4	28.642	0.43	6.53	13.8	332.	nm	nm	nm	---
A3MW02-05	A3-MW02-05	2.4-6.1	9-Apr-08	6.050	33.145	33.042	11000	nd	na	2.798	30.244	0.39	nm	9.	232.	nm	nm	nm	pH collected at lab
A3MW02-05	A3-MW02-05	2.4-6.1	28-Aug-08	6.025	33.145	33.042	>11000	nd	na	5.322	27.72	0.4	6.31	14.	319.	nm	nm	nm	---
A3MW02-05	A3-MW02-05	2.4-6.1	27-Apr-09	6.025	33.145	33.042	>11000	nd	na	3.174	29.868	0.5	6.58	10.5	534.	nm	nm	nm	Clear
A3MW02-05	A3-MW02-05	2.4-6.1	3-Sep-09	6.050	33.145	33.042	20	nd	na	4.271	28.771	0.2	6.71	13.7	362.	nm	nm	nm	Clear
A3MW02-05	A3-MW02-05	2.4-6.1	19-Apr-10	6.050	33.145	33.042	200	nd	na	3.09	29.952	0.08	6.59	10.2	308.	nm	nm	nm	Clear low sediment
A3MW02-05	A3MW02-05	2.4-6.1	20-Sep-10	6.040	33.145	33.042	2200	nd	na	3.466	29.576	0.86	6.81	14.9	391.	nm	nm	nm	Clear; QA/QC duplicate: DUP-15
A3MW02-05	A3MW02-05	2.4-6.1	4-May-11	6.035	33.145	33.042	110	nd	na	2.868	30.174	0.22	5.84	13.5	318.	nm	nm	nm	Clear
A3MW02-05	A3MW02-05	2.4-6.1	27-Sep-11	6.020	33.145	33.042	130	nd	na	3.225	29.817	0.35	6.03	15.92	230.	nm	nm	nm	Clear
A3MW02-05	A3MW02-05	2.4-6.1	15-May-12	6.020	33.145	33.042	120	nd	na	2.84	30.202	0.75	6.58	12.03	213.	nm	nm	nm	Clear
A3MW02-05	A3MW02-05	2.4-6.1	20-Sep-12	6.000	33.145	33.042	85	nd	na	3.04	30.002	0.8	6.42	16.08	235.	nm	nm	nm	Clear
A3MW02-05	A3MW02-05	2.4-6.1	10-Apr-13	6.000	33.145	33.042	85	nd	na	2.39	30.652	0.4	6.39	10.46	1456.	nm	nm	nm	Clear
A3MW02-05	A3MW02-05	2.4-6.1	3-Sep-13	5.960	33.145	33.042	90	nd	na	3.36	29.682	0.34	6.07	15.81	1161.	nm	nm	nm	Clear
A3MW02-05	A3MW02-05	2.4-6.1	28-May-14	6.000	33.145	33.042	260	nd	na	2.75	30.292	0.21	6.02	11.21	664.	0.584	0.45	-8.7	Orange biofouling; DUP-29
A3MW02-05	A3MW02-05	2.4-6.1	27-Aug-14	6.010	33.145	33.042	65	nd	na	3.2	29.842	1.51	6.	14.97	444.	0.357	0.27	82.3	Slight biofoul; DUP-19
A3MW02-05	A3MW02-05	2.4-6.1	9-Apr-15	6.010	33.145	33.042	170	nd	na	2.755	30.287	0.59	6.3	12.53	350.	0.299	0.22	-61.2	Clear; DUP-8
A3MW02-05	A3MW02-05	2.4-6.1	2-Sep-15	5.990	33.145	33.042	310	nd	na	3.5	29.542	0.2	6.31	16.75	667.	0.514	0.39	-14.3	Clear
A3MW02-05	A3MW02-05	2.4-6.1	15-Mar-16	6.020	33.145	33.042	15	nd	na	2.69	30.352	1.23	6.59	12.71	299.	0.254	0.19	-41.6	Minor biofouling on probe
A3MW02-05	A3MW02-05	2.4-6.1	19-Sep-16	6.020	33.145	33.042	nd	nd	na	3.87	29.172	0.03	6.35	16.02	335.	0.263	0.19	-49.1	Clear
A3MW02-05	A3MW02-05	2.4-6.1	25-Apr-17	6.040	33.145	33.042	25	nd	na	1.81	31.232	0.25	6.54	11.47	415.	0.364	0.27	-73.9	Clear
A3MW02-05	A3MW02-05	2.4-6.1	21-Sep-17	6.030	33.145	33.042	400	nd	na	4.52	28.522	0.45	6.11	15.74	529.	0.417	0.4	-26.2	Clear
A3MW02-05	A3MW02-05	2.4-6.1	1-May-18	6.032	33.145	33.042	40	nd	na	1.893	31.149	0.59	6.33	10.09	537.	0.488	0.37	-47.1	Clear
A3MW02-05	A3MW02-05	2.4-6.1	13-Sep-18	6.020	33.145	33.042	250	nd	na	4.468	28.574	0.98	5.87	15.18	1290.	1.01	0.79	141.6	Clear
A3MW02-05	A3MW02-05	2.4-6.1	9-Apr-19	6.033	33.145	33.042	10	nd	na	2.074	30.968	5.79	6.49	9.46	627.	0.58	0.44	74.9	Clear; slightly yellow tinged; minor orange sediment
A3MW02-05	A3MW02-05	2.4-6.1	26-Sep-19	6.040	33.145	33.042	530	nd	na	2.29	30.752	0.26	7.26	15.59	738.	0.585	0.45	-76.2	Clear
A3MW02-05	A3MW02-05	2.4-6.1	23-Mar-20	6.031	33.145	33.042	10	2.299	2	2.301	30.741	1.21	6.53	9.28	678.	0.63	0.48	-44.8	BC: Clear; orange biofoul on probe, minor orange biofoul in sample
A3MW02-05	A3MW02-05	2.4-6.1	19-Aug-20	6.023	33.145	33.042	550	nd	na	3.51	29.532	0.28	6.58	16.82	538.	0.415	0.31	-28.7	Clear, DUP-04
A3MW02-06	MW02-06	3.4-6.4	5-May-04	6.24	33.191	33.121	10450	nd	na	3.28	29.841	nm	6.76	11.3	471.	nm	nm	nm	---
A3MW02-06	MW02-06	3.4-6.4	25-Oct-04	6.214	33.191	33.121	>11000	nd	na	3.028	30.093	nm	6.84	14.9	509.	nm	nm	nm	---

TABLE 1-1
AREAS 1 AND 3 GROUNDWATER MONITORING DATA
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY

Well ID	Sample ID	Screened Interval (mbgs)	Date Monitored	Total Depth of Well (m from TOC)	Ground Elevation (mASL)[1]	Top of Casing Elevation (TOC, mASL)1	Headspace Vapour Concentration (ppmv)	Depth to Product (m from TOC)	Apparent Product Thickness (mm)	Depth to Water (DTW, m from TOC)	Groundwater Elevation (mASL) [1]	Dissolved Oxygen (mg/L)	pH	Temperature (°C)	Electrical Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	ORP (mV)	Observations
A3MW02-06	MW02-06	3.4-6.4	26-Apr-05	6.200	33.191	33.121	>11000	nd	na	3.14	29.981	nm	6.88	11.7	482.	nm	nm	nm	---
A3MW02-06	A3-MW02-06	3.4-6.4	19-Sep-05	6.260	33.191	33.121	nm	nd	na	3.62	29.501	nm	6.87	15.4	516.	nm	nm	nm	Sampled Sept.19
A3MW02-06	A3-MW02-06	3.4-6.4	29-Mar-06	6.220	33.191	33.121	>11000	nd	na	3.05	30.071	1.53	6.59	12.7	239.	nm	nm	nm	---
A3MW02-06	A3-MW02-06	3.4-6.4	31-Aug-06	6.250	33.191	33.121	2060	nd	na	3.65	29.471	0.43	6.31	14.8	512.	nm	nm	nm	---
A3MW02-06	A3-MW02-06	3.4-6.4	2-Apr-07	6.260	33.191	33.121	9900	nd	na	3.08	30.041	0.22	6.58	10.6	479.	nm	nm	nm	---
A3MW02-06	A3-MW02-06	3.4-6.4	28-Aug-07	6.300	33.191	33.121	25	nd	na	3.46	29.661	0.19	6.85	14.9	458.	nm	nm	nm	---
A3MW02-06	A3-MW02-06	3.4-6.4	9-Apr-08	6.270	33.191	33.121	>11000	nd	na	2.926	30.195	0.36	---	9.5	443.	nm	nm	nm	pH collected at lab, DUP
A3MW02-06	A3-MW02-06	3.4-6.4	28-Aug-08	6.269	33.191	33.121	>11000	nd	na	3.092	30.029	1.	6.19	13.5	555.	nm	nm	nm	---
A3MW02-06	A3-MW02-06	3.4-6.4	21-Apr-09	6.257	33.191	33.121	9350	nd	na	2.901	30.22	0.5	6.57	10.6	1243.	nm	nm	nm	Clear
A3MW02-06	A3-MW02-06	3.4-6.4	3-Sep-09	6.260	33.191	33.121	200	nd	na	3.6	29.521	0.3	6.66	15.9	627.	nm	nm	nm	Clear
A3MW02-06	A3-MW02-06	3.4-6.4	19-Apr-10	6.200	33.191	33.121	160	nd	na	2.75	30.371	0.07	6.66	10.9	618.	nm	nm	nm	Observed very turbid green sediment
A3MW02-06	A3MW02-06	3.4-6.4	7-Sep-10	6.080	33.191	33.121	15	nd	na	3.615	29.506	0.08	6.38	14.8	521.	nm	nm	nm	Light brown, slightly turbid
A3MW02-06	A3MW02-06	3.4-6.4	4-May-11	6.230	33.191	33.121	nd	nd	na	2.17	30.951	0.08	6.13	14.8	453.	nm	nm	nm	Slightly silty; DUP-25
A3MW02-06	A3MW02-06	3.4-6.4	27-Sep-11	6.230	33.191	33.121	5	nd	na	2.95	30.171	1.3	6.14	13.22	345.	nm	nm	nm	Slightly silty; DUP-36
A3MW02-06	A3MW02-06	3.4-6.4	15-May-12	6.110	33.191	33.121	nd	nd	na	3.11	30.011	1.28	5.88	12.71	283.	nm	nm	nm	Clear
A3MW02-06	A3MW02-06	3.4-6.4	20-Sep-12	6.110	33.191	33.121	nd	nd	na	3.36	29.761	3.89	5.97	14.98	350.	nm	nm	nm	Turbid
A3MW02-06	A3MW02-06	3.4-6.4	10-Apr-13	6.145	33.191	33.121	100	nd	na	2.115	31.006	0.43	6.54	10.48	425.	nm	nm	nm	Silty
A3MW02-06	A3MW02-06	3.4-6.4	3-Sep-13	6.170	33.191	33.121	45	nd	na	3.31	29.811	0.67	5.64	15.04	411.	nm	nm	nm	Well lid was ajar; Clear
A3MW02-06	A3MW02-06	3.4-6.4	28-May-14	6.130	33.191	33.121	10	nd	na	2.23	30.891	0.31	6.06	11.18	404.	0.357	0.27	-23.7	Slightly turbid
A3MW02-06	A3MW02-06	3.4-6.4	27-Aug-14	6.200	33.191	33.121	5	nd	na	3.88	29.241	0.73	6.17	4.66	528.	0.428	0.32	-40.6	---
A3MW02-06	A3MW02-06	3.4-6.4	9-Apr-15	6.165	33.191	33.121	70	nd	na	2.37	30.751	0.28	5.6	12.97	391.	0.33	0.25	-10.8	---
A3MW02-06	A3MW02-06	3.4-6.4	2-Sep-15	6.180	33.191	33.121	10	nd	na	3.22	29.901	1.03	6.51	16.06	288.	0.226	0.17	4.7	Clear
A3MW02-06	A3MW02-06	3.4-6.4	15-Mar-16	6.220	33.191	33.121	5	nd	na	2.1	31.021	1.08	6.51	13.56	333.	0.288	0.19	-32.8	Slightly turbid; Minor biofoul in flow cell
A3MW02-06	A3MW02-06	3.4-6.4	19-Sep-16	6.250	33.191	33.121	nd	nd	na	3.25	29.871	0.31	6.5	15.98	396.	0.31	0.23	-87.4	Slightly turbid
A3MW02-06	A3MW02-06	3.4-6.4	25-Apr-17	6.260	33.191	33.121	10	nd	na	2.37	30.751	0.73	6.73	10.65	228.	0.205	0.15	20.2	Clear
A3MW02-06	A3MW02-06	3.4-6.4	20-Sep-17	6.200	33.191	33.121	200	nd	na	3.88	29.241	0.11	6.54	16.17	391.	0.305	0.23	-68.9	Clear
A3MW02-06	A3MW02-06	3.4-6.4	17-Apr-18	6.260	33.191	33.121	15	nd	na	2.42	30.701	0.38	6.6	11.71	332.	0.289	0.22	-27.9	Clear
A3MW02-06	A3MW02-06	3.4-6.4	25-Sep-18	6.260	33.191	33.121	30	nd	na	3.15	29.971	0.58	6.67	16.34	451.	0.351	0.26	-289.5	Clear
A3MW02-06	A3MW02-06	3.4-6.4	8-Apr-19	6.250	33.191	33.121	10	nd	na	2.671	30.45	<0.03	6.58	11.91	532.	0.461	0.35	645.6	Cloudy; Yellow tinged; sediments present
A3MW02-06	A3MW02-06	3.4-6.4	26-Sep-19	6.266	33.191	33.121	130	nd	na	2.787	30.334	0.05	6.44	16.5	452.8	0.351	0.26	-48.3	Clear
A3MW02-06	A3MW02-06	3.4-6.4	24-Mar-20	6.256	33.191	33.121	5	nd	na	2.928	30.193	3.48	6.65	11.25	510.	0.45	0.34	-60	Clear
A3MW02-06	A3MW02-06	3.4-6.4	19-Aug-20	6.251	33.191	33.121	nd	nd	na	3.238	29.883	0.7	6.64	16.22	482.	0.376	0.28	-82	Clear
A3MW02-07	MW02-07	3.1-6.2	5-May-04	6.340	33.453	33.371	8800	nd	na	3.22	30.151	nm	6.86	11.2	653.	nm	nm	nm	---
A3MW02-07	MW02-07	3.1-6.2	25-Oct-04	6.300	33.453	33.371	100	nd	na	2.848	30.523	nm	7.04	14.4	515.	nm	0.1	nm	---
A3MW02-07	MW02-07	3.1-6.2	26-Apr-05	6.300	33.453	33.371	>11000	nd	na	2.97	30.401	nm	6.81	11.7	636.	nm	nm	nm	---
A3MW02-07	A3-MW02-07	3.1-6.2	19-Sep-05	6.220	33.453	33.371	nm	nd	na	3.7	29.671	nm	7.03	14.3	746.	nm	nm	nm	Sampled on Sept.19
A3MW02-07	A3-MW02-07	3.1-6.2	29-Mar-06	6.200	33.453	33.371	5500	nd	na	2.838	30.533	1.49	6.56	11.8	333.	nm	nm	nm	---
A3MW02-07	A3-MW02-07	3.1-6.2	31-Aug-06	6.300	33.453	33.371	720	nd	na	3.76	29.611	0.6	6.31	13.79	774.	nm	nm	nm	Could not get vapours as sucked up water
A3MW02-07	A3-MW02-07	3.1-6.2	4-Apr-07	6.300	33.453	33.371	10450	nd	na	2.91	30.461	0.24	6.72	10.4	643.	nm	nm	nm	Could not get vapours as sucked up water
A3MW02-07	A3-MW02-07	3.1-6.2	28-Aug-07	6.300	33.453	33.371	6600	nd	na	3.45	29.921	0.26	6.81	13.2	697.	nm	nm	nm	---
A3MW02-07	A3-MW02-07	3.1-6.2	9-Apr-08	6.295	33.453	33.371	6050	nd	na	2.9	30.471	0.46	7.46	10.7	608.	nm	nm	nm	pH collected at lab
A3MW02-07	A3-MW02-07	3.1-6.2	28-Aug-08	6.288	33.453	33.371	>11000	nd	na	3.23	30.141	0.8	6.6	13.3	611.	nm	nm	nm	Clear
A3MW02-07	A3-MW02-07	3.1-6.2	27-Apr-09	6.295	33.453	33.371	7700	nd	na	2.901	30.47	0.5	6.52	10.9	1554.	nm	nm	nm	Clear
A3MW02-07	A3-MW02-07	3.1-6.2	3-Sep-09	6.310	33.453	33.371	75	nd	na	3.652	29.719	0.1	6.49	13.6	684.	nm	nm	nm	Clear
A3MW02-07	A3-MW02-07	3.1-6.2	19-Apr-10	6.298	33.453	33.371	610	nd	na	2.856	30.515	0.08	6.66	11.4	611.	nm	nm	nm	high turbid low sediment
A3MW02-07	A3MW02-07	3.1-6.2	7-Sep-10	6.300	33.453	33.371	130	nd	na	3.665	29.706	0.22	6.28	14.7	652.	nm	nm	nm	Clear
A3MW02-07	A3MW02-07	3.1-6.2	4-May-11	4.260	33.453	33.371	30	nd	na	2.99	30.381	13.53	7.31	13.	527.	nm	nm	nm	Silty
A3MW02-07	ns	3.1-6.2	27-Sep-11	4.460	33.453	33.371	45	nd	na	3.53	29.841	1.15	6.86	14.45	462.	nm	nm	nm	Purged Dry at 7 L - Silty; Still dry at end of day
A3MW02-07	A3MW02-07	3.1-6.2	15-May-12	5.960	33.453	33.371	nd	nd	na	3.83	29.541	4.34	6.57	12.01	436.	nm	nm	nm	Clear
A3MW02-07	A3MW02-07	3.1-6.2	20-Sep-12	5.930	33.453	33.371	130	nd	na	4.15	29.221	1.11	7.03	14.3	725.	nm	nm	nm	Turbid
A3MW02-07	A3MW02-07	3.1-6.2	10-Apr-13	5.710	33.453	33.371	55	nd	na	2.54	30.831	0.39	6.14	10.27	1277.	nm	nm	nm	Clear
A3MW02-07	A3MW02-07	3.1-6.2	28-Aug-13	5.420	33.453	33.371	15	nd	na	4.5	28.871	2.23	7.38	15.4	993.	nm	nm	nm	Clear; j-plug replaced
A3MW02-07	A3MW02-07	3.1-6.2	28-May-14	5.430	33.453	33.371	nd	nd	na	2.62	30.751	6.31	6.25	12.7	415.	0.322	0.18	-16.4	Clear
A3MW02-07	A3MW02-07	3.1-6.2	27-Aug-14	5.430	33.453	33.371	5	nd	na	3.07	30.301	4.16	6.39	16.67	982.	0.768	0.59	71.7	Clear
A3MW02-07	A3MW02-07	3.1-6.2	9-Apr-15	5.440	33.453	33.371	nd	nd	na	2.25	31.121	2.66	6.29	11.91	679.	0.588	0.45	46.7	Purged dry at 4 L; Clear
A3MW02-07	A3MW02-07	3.1-6.2	2-Sep-15	5.430	33.453	33.371	2090	nd	na	3.33	30.041	0.36	6.53	16.37	854.	0.664	0.51	13.5	Clear
A3MW02-07	A3MW02-07	3.1-6.2	15-Mar-16	5.440	33.453	33.371	100	nd	na	2.14	31.231	1.32	6.69	12.51	270.	0.231	0.17	60.7	Clear
A3MW02-07	A3MW02-07	3.1-6.2	19-Sep-16	5.450	33.453	33.371	nm	nd	na	3.1	30.271	1.21	6.38	15.55	1352.	1.072	0.84	-25.6	---
A3MW02-07	A3MW02-07	3.1-6.2	20-Apr-17	5.440	33.453	33.371	5	nd	na	2.22	31.151	5.48	6.31	11.23	123.	0.108	0.08	167.5	Clear
A3MW02-07	A3MW02-07	3.1-6.2	20-Sep-17	6.250	33.453	33.371	90	nd	na	3.69	29.681	0.77	6.5	15.95	431.	0.341	0.26	-21.3	Clear
A3MW02-07	A3MW02-07	3.1-6.2	17-Apr-18	5.460	33.453	33.371	210	nd	na	2.14	31.231	0.28	6.4	11.64	610.	0.532	0.4	-16	Clear; DUP-6
A3MW02-07	A3MW02-07	3.1-6.2	25-Sep-18	5.455	33.453	33.371	30.000	nd	na	2.855	30.516	1.21	6.55	16.05	683.	0.535	0.411	34.5	Clear
A3MW02-07	A3MW02-07	3.1-6.2	15-Oct-18	5.455	33.453	33.371	30	nd	na	2.855	30.516	1.21	6.55	16.05	683.	0.535	0.411	34.5	Clear; sampled
A3MW02-07	A3MW02-07	3.1-6.2	9-Apr-19	5.450	33.453	33.371	85	nd	na	2.601	30.77	<0.01	6.42	11.73	838.	0.729	0.56	705.3	Clear
A3MW02-07	A3MW02-07	3.1-6.2	26-Sep-19	5.481	33.453	33.371	75	nd	na	2.702	30.669	0.28	7.5	15.24	829.	0.662	0.51	-122.9	Clear
A3MW02-07	A3MW02-07	3.1-6.2	24-Mar-20	5.452	33.453	33.371	10	nd	na	2.54	30.831	0.47	6.65	11.46	665.	0.583	0.44	-36.7	Clear, DUP-04
A3MW02-07	A3MW02-07	3.1-6.2	19-Aug-20	5.463	33.453	33.371	25	nd	na	3.023	30.348	0.31	6.48	15.92	672.	0.529	0.4	-65.9	Clear, DUP-03, trace suspended sediment
A3MW02-08	MW02-08	1.5-5.5	5-May-04	5.30	33.145	33.072	6050	nd	na	2.02	31.052	nm	6.32	10.8	413.	nm	nm	nm	---
A3MW02-08	MW02-08	1.5-5.5	25-Oct-04	5.370	33.145	33.072	>11000	nd	na	1.473	31.599	nm	7.17	12.6	285.	nm	0.	nm	---
A3MW02-08	MW02-08	1.5-5.5	26-Apr-05	5.440	33.145	33.072	>11000	nd	na	1.68	31.392	nm	6.36	11.3	445.	nm	nm	nm	---
A3MW02-08	A3-MW02-08	1.5-5.5	19-Sep-05	5.350	33.145	33.072	nm	nd	na	2.8	30.272	nm	6.52	13.1	501.	nm	nm	nm	Sampled on Sept.19
A3MW02-08	A3-MW02-08	1.5-5.5	29-Mar-06	5.370	33.145	33.072	>11000	nd	na	1.59	31.482	1.51	6.19	11.1	254.	nm	nm	nm	---
A3MW02-08	A3-MW02-08	1.5-5.5	31-Aug-06	5.440	33.145	33.072	660	nd	na	2.91	30.162	0.59	5.96	13.19	661.	nm	nm	nm	---
A3MW02-08	A3-MW02-08	1.5-5.5	4-Apr-07	5.360	33.145	33.072	9680	nd	na	1.6	31.472	0.5	6.36	10.	436.	nm	nm	nm	---
A3MW02-08	A3-MW02-08	1.5-5.5	28-Aug-07	5.430	33.145	33.072	8800	nd	na	2.43	30.642	0.12	6.31	12.7	460.	nm	nm	nm	---
A3MW02-08	A3-MW02-08	1.5-5.5	9-Apr-08	5.414	33.145	33.072	1100	nd	na	1.537	31.535	0.65	7.04	9.9	356.	nm	nm	nm	pH collected at lab
A3MW02-08	A3-MW02-08	1.5-5.5	28-Aug-08	5.429	33.145	33.072	8800	nd	na	1.862	31.21	0.7	6.13	12.3	345.	nm	nm	nm	Clear
A3MW02-08	A3-MW02-08	1.5-5.5	27-Apr-09	5.423	33.145	33.072	>11000	nd	na	1.605	31.467	0.5	6.29	10.7	840.	nm	nm	nm	Clear
A3MW02-08	A3-MW02-08	1.5-5.5	3-Sep-09	5.435	33.145	33.072	6600	nd	na	2.59	30.482	0.3	6.42	12.9	419.	nm	nm	nm	Clear
A3MW02-08	A3-MW02-08	1.5-5.5	19-Apr-10	5.436	33.145	33.072	1320	nd	na	1.618	31.454	0.12	6.32	10.8	410.	nm	nm	nm	Clear
A3MW02-08	A3MW02-08	1.5-5.5	7-Sep-10	5.425	33.145	33.072	420	nd	na	2.21	30.862	0.12	5.87	14.4	413.	nm	nm	nm	Clear
A3MW02-08	A3MW02-08	1.5-5.5	4-May-11	5.430	33.145	33.072	75	nd	na	0.597	32.475	1.17	5.92	12.1	370.	nm	nm	nm	Clear
A3MW02-08	A3MW02-08	1.5-5.5	22-Sep-11	5.450	33.145	33.072	35	nd	na	2.345	30.727	0.48	6.26	12.98	309.	nm	nm	nm	Clear
A3MW02-08	A3MW02-08	1.5-5.5	15-May-12	4.650	33.145	33.072	20	nd	na	1.94	31.132	1.6	6.05	11.17	320.	nm	nm	nm	Very silty
A3MW02-08	A3MW02-08	1.5-5.5	20-Sep-12	4.580	33.145	33.072	20	nd	na	2.62	30.452	0.85	6.15	13.47	302.	nm	nm	nm	Turbid
A3MW02-08	A3MW02-08	1.5-5.5	10-Apr-13	4.610	33.145	33.072	10	nd	na	1.14	31.932	0.36	6.06	10.71	974.	nm	nm	nm	Clear
A3MW02-08	A3MW02-08	1.5-5.5	27-Aug-13	4.380	33.145	33.072	25	nd	na	2.73	30.342	0.81	5.7	16.65	1037.	nm	nm	nm	Pumped a lot of sand out of well; Silty
A3MW02-08	A3MW02-08	1.5-5.5	28-May-14	4.540	33.145	33.072	85	nd	na	1.53	31.542	0.18	6.1	13.6	693.	0.574	0.44	-48.3	Clear
A3MW02-08	A3MW02-08	1.5-5.5	27-Aug-14	4.590	33.145	33.072	25	nd	na	2.28	30.792	0.33	6.37	20.08	808.	0.583	0.44	-36.1	Clear
A3MW02-08	A3MW02-08	1.5-5.5	9-Apr-15	4.620	33.145	33.072	410	nd	na	1.535	31.537	0.39	6.57	14.19	447.	0.368	0.27	-42	Clear
A3MW02-08	A3MW02-08	1.5-5.5	12-Sep-15	4.610	33.145	33.072	>11000	nd	na	1.77	31.302	0.14	6.21	18.08	602.	0.45	0.34	-94.9	Slightly turbid
A3MW02-08	A3MW02-08	1.5-5.5	15-Mar-16	4.780	33.145	33.072	35	nd	na	1.19	31.882	0.13	6.31	13.46	500.	0.416	0.31	-39.2	Turbid
A3MW02-08	A3MW02-08	1.5-5.5	19-Sep-16	4.830	33.145	33.072	nm	nd	na	1.7	31.372	0.53	6.11	16.67	559.	0.431	0.32	-88.7	Clear
A3MW02-08	A3MW02-08	1.5-5.5	20-Apr-17	4.880	33.145	33.072	5	nd	na	1.39	31.682	0.38	5.97	13.92	401.	0.33	0.25	-57.0	Clear
A3MW02-08	A3MW02-08	1.5-5.5	20-Sep-17	5.400	33.145	33.072	530	nd	na	3.89	29.182	0.39	6.19	18.49	469.	0.348	0.26	-33.9	Slightly turbid; DUP-9
A3MW02-08	A3MW02-08	1.5-5.5	17-Apr-18	4.930	33.145	33.072	120	nd	na	1.12	31.952	0.46	6.46	14.83	492.	0.398	0.3	16.2	Turbid; sampled
A3MW02-08	A3MW02-08	1.5-5.5	25-Sep-18	4.965	33.145	33.072	90	nd	na	1.592	31.48	0.27	6.28	18.91	643.	0.473	0.36	-351.6	Clear; sampled
A3MW02-08	A3MW02-08	1.5-5.5	9-Apr-19	4.948	33.145	33.072	45	nd	na	1.215	31.857	0.09	6.38	14.26	608.	0.498	0.38	5.2	silty/cloudy
A3MW02-08	A3MW02-08	1.5-5.5	26-Sep-19	4.990	33.145	33.072	120	nd	na	1.175	31.897	0.4	6.96	18.56	738.	0.547	0.41	-100.2	Clear, DUP-10
A3MW02-08	A3MW02-08	1.5-5.5	24-Mar-20	4.994	33.145	33.072	20	nd	na	1.648	31.424	0.54	6.4	13.45	466.	0.389	0.29	-20.6	slightly turbid, pumping out clear water, minor sediment, sample clear
A3MW02-08	A3MW02-08	1.5-5.5	19-Aug-20	5.022	33.145	33.072	20	nd	na	2.146	30.926	1.92	6.	18.06	649.	0.486	0.37	14.9	Cloudy grey, trace silt
A3MW03-01	MW03-01	1.5-6.1	5-May-04	6.050	32.024	31.896	nm	nd	na	3.92	27.976	nm	7.24	10.7	39.1	nm	nm	nm	---
A3MW03-01	MW03-01	1.5-6.1	25-Oct-04	6.059	32.024	31.896	200	nd	na	3.916	27.98	nm	6.67	13.2	17700.	nm	13.7	nm	---
A3MW03-01	MW03-01	1.5-6.1	26-Apr-05	6.000	32.024	31.896	130	nd	na	3.9	27.996	nm	6.83	12.1	2990.	nm	nm	nm	---
A3MW03-01	A3-MW03-01	1.5-6.1	20-Sep-05	6.060	32.024	31.896	nm	nd	na	3.97	27.926	nm	6.79	14.6	43400.	nm	nm	nm	Sampled Sept.20
A3MW03-01	A3-MW03-01	1.5-6.1	29-Mar-06	6.030	32.024	31.896	50	nd	na	3.91	27.986	5.18	6.51	11.	2140.	nm	nm	nm	---
A3MW03-01	A3-MW03-01	1.5-6.1	31-Aug-06	6.000	32.024	31.896	60	nd	na	4.3	27.596	0.35	6.29	15.19	40146.	nm	nm	nm	---
A3MW03-01	A3-MW03-01	1.5-6.1	4-Apr-07	6.060	32.024	31.896	150	nd	na	4.05	27.846	0.13	6.82	9.7	33400.	nm	nm	nm	---
A3MW03-01	A3-MW03-01	1.5-6.1	28-Aug-07	6.050	32.024	31.896	130	nd	na	3.9	27.996	2.05	6.78	15.9	36300.	nm	nm	nm	---
A3MW03-01	A3-MW03-01	1.5-6.1	3-Apr-08	6.060	32.024	31.896	50	nd	na	3.805	28.091	0.65	6.06	8.4	12920.	nm	nm	nm	---

TABLE 1-1
AREAS 1 AND 3 GROUNDWATER MONITORING DATA
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY

Well ID	Sample ID	Screened Interval (mbgs)	Date Monitored	Total Depth of Well (m from TOC)	Ground Elevation (mASL)[1]	Top of Casing Elevation (TOC, mASL)1	Headspace Vapour Concentration (ppmv)	Depth to Product (m from TOC)	Apparent Product Thickness (mm)	Depth to Water (DTW, m from TOC)	Groundwater Elevation (mASL) [1]	Dissolved Oxygen (mg/L)	pH	Temperature (°C)	Electrical Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	ORP (mV)	Observations
A3MW03-01	A3-MW03-01	1.5-6.1	28-Aug-08	6.048	32.024	31.896	125	nd	na	3.927	27.969	4.8	6.72	14.2	1531.	nm	nm	nm	---
A3MW03-01	A3-MW03-01	1.5-6.1	27-Apr-09	6.050	32.024	31.896	75	nd	na	3.402	28.494	3.4	6.54	10.	90800.	nm	nm	nm	Clear
A3MW03-01	A3-MW03-01	1.5-6.1	3-Sep-09	6.050	32.024	31.896	225	nd	na	3.84	28.056	6.	6.55	15.1	42600.	nm	nm	nm	Clear
A3MW03-01	A3-MW03-01	1.5-6.1	19-Apr-10	6.055	32.024	31.896	nd	nd	na	2.86	29.036	3.	6.74	9.3	39.3	nm	nm	nm	Clear
A3MW03-01	A3MW03-01	1.5-6.1	7-Sep-10	6.050	32.024	31.896	nd	nd	na	3.86	28.036	0.5	6.17	14.9	1630.	nm	nm	nm	Clear
A3MW03-01	A3MW03-01	1.5-6.1	4-May-11	6.050	32.024	31.896	60	nd	na	4.044	27.852	0.53	6.45	12.4	11520.	nm	nm	nm	Clear
A3MW03-01	A3MW03-01	1.5-6.1	28-Sep-11	6.045	32.024	31.896	160	nd	na	3.785	28.111	4.22	6.53	13.1	30287.	nm	nm	nm	Clear
A3MW03-01	A3MW03-01	1.5-6.1	16-May-12	6.060	32.024	31.896	90	nd	na	3.97	27.926	7.95	6.93	12.09	25199.	nm	nm	nm	Clear
A3MW03-01	A3MW03-01	1.5-6.1	18-Sep-12	6.030	32.024	31.896	100	nd	na	2.95	28.946	4.32	6.63	13.65	33275.	nm	nm	nm	Clear
A3MW03-01	A3MW03-01	1.5-6.1	9-Apr-13	5.490	32.024	31.896	25	nd	na	3.82	28.076	1.4	6.43	9.46	21647.	nm	nm	nm	Clear; Well was re-drilled and installed in March
A3MW03-01	A3MW03-01	1.5-6.1	28-Aug-13	5.490	32.024	31.896	170	nd	na	3.44	28.456	4.41	6.84	16.57	34368.	nm	nm	nm	Clear
A3MW03-01	A3MW03-01	1.5-6.1	29-May-14	5.490	32.024	31.896	60	nd	na	3.89	28.006	4.33	6.94	12.35	28500.	24.41	23.8	-68.5	Clear; Heavy biofoul
A3MW03-01	A3MW03-01	1.5-6.1	27-Aug-14	5.500	32.024	31.896	105	nd	na	3.36	28.536	4.99	7.03	16.23	34465.	26.91	26.58	26.7	Clear; DUP-18
A3MW03-01	A3MW03-01	1.5-6.1	10-Apr-15	5.500	32.024	31.896	20	nd	na	3.745	28.151	0.12	6.57	11.34	13240.	11.64	10.04	129.2	Clear
A3MW03-01	A3MW03-01	1.5-6.1	3-Sep-15	5.490	32.024	31.896	170	nd	na	3.03	28.866	3.99	6.94	16.08	33929.	26.59	26.23	26.5	Clear; Brackish
A3MW03-01	A3MW03-01	1.5-6.1	15-Mar-16	5.490	32.024	31.896	10	nd	na	2.72	29.176	0.4	7.64	9.87	8955.	8.2	7.42	76.8	Clear
A3MW03-01	A3MW03-01	1.5-6.1	21-Sep-16	5.480	32.024	31.896	nd	nd	na	2.92	28.976	5.59	7.14	15.31	34071.	27.18	26.87	149.6	Clear
A3MW03-01	A3MW03-01	1.5-6.1	26-Apr-17	5.500	32.024	31.896	5	nd	na	3.41	28.486	0.36	6.87	10.01	20095.	18.29	17.79	-46.7	Clear
A3MW03-01	A3MW03-01	1.5-6.1	21-Sep-17	5.500	32.024	31.896	130	nd	na	3.5	28.396	5.16	7.07	14.62	28298.	22.94	22.27	-35.9	Clear
A3MW03-01	A3MW03-01	1.5-6.1	16-Apr-18	5.500	32.024	31.896	nd	nd	na	4.78	27.116	2.95	6.85	9.74	19805.	18.16	17.13	113.4	Clear
A3MW03-01	A3MW03-01	1.5-6.1	10-Sep-18	5.493	32.024	31.896	15	nd	na	3.521	28.375	1.76	6.98	15.5	22123.	17.44	16.56	-321	Sampled
A3MW03-01	A3MW03-01	1.5-6.1	9-Apr-19	5.479	32.024	31.896	180	nd	na	3.33	28.566	0.34	6.83	10.46	24663.	22.2	21.38	208	Clear, minor sediments
A3MW03-01	A3MW03-01	1.5-6.1	25-Sep-19	5.520	32.024	31.896	45	nd	na	3.95	27.946	1.14	7.06	14.85	37567.	30.29	30.28	-19.6	Clear
A3MW03-01	A3MW03-01	1.5-6.1	23-Mar-20	5.488	32.024	31.896	165	nd	na	3.846	28.05	6.45	7.3	9.6	38600.	35.55	35.9	67.2	Clear
A3MW03-01	A3MW03-01	1.5-6.1	20-Aug-20	5.491	32.024	31.896	110	nd	na	3.662	28.234	3.78	6.94	16.09	39766.	31.14	31.25	101.8	Clear; solid tone at surface, BC: no sheen/globules/NAPL, no odour, no signs of NAPL in purge water
A3MW03-02	MW03-02	2.3-8.3	5-May-04	8.20	33.292	33.185	nm	nd	na	4.83	28.355	nm	7.34	10.1	2430.	nm	nm	nm	---
A3MW03-02	MW03-02	2.3-8.3	25-Oct-04	8.312	33.292	33.185	250	nd	na	4.605	28.58	nm	7.11	12.5	768.	nm	0.1	nm	---
A3MW03-02	MW03-02	2.3-8.3	26-Apr-05	8.250	33.292	33.185	75	nd	na	4.62	28.565	nm	7.14	12.	540.	nm	nm	nm	---
A3MW03-02	A3-MW03-02	2.3-8.3	20-Sep-05	8.200	33.292	33.185	nm	nd	na	5.1	28.085	nm	6.72	14.7	23800.	nm	nm	nm	Sampled Sept.20
A3MW03-02	A3-MW03-02	2.3-8.3	29-Mar-06	8.250	33.292	33.185	50	nd	na	4.5	28.685	7.71	6.69	11.8	345.	nm	nm	nm	---
A3MW03-02	A3-MW03-02	2.3-8.3	31-Aug-06	8.250	33.292	33.185	55	nd	na	5.15	28.035	0.47	6.33	15.2	25720.	nm	nm	nm	DUP 11
A3MW03-02	A3-MW03-02	2.3-8.3	4-Apr-07	8.250	33.292	33.185	40	nd	na	4.98	28.205	0.42	7.17	9.6	566.	nm	nm	nm	---
A3MW03-02	A3-MW03-02	2.3-8.3	28-Aug-07	8.250	33.292	33.185	60	nd	na	4.27	28.915	0.52	7.	13.1	3720.	nm	nm	nm	---
A3MW03-02	A3-MW03-02	2.3-8.3	3-Apr-08	8.250	33.292	33.185	40	nd	na	4.58	28.605	1.61	6.72	9.4	694.	nm	nm	nm	DUP
A3MW03-02	A3-MW03-02	2.3-8.3	28-Aug-08	8.239	33.292	33.185	75	nd	na	4.612	28.573	0.7	6.7	12.9	2490.	nm	nm	nm	---
A3MW03-02	A3-MW03-02	2.3-8.3	27-Apr-09	8.212	33.292	33.185	50	nd	na	4.362	28.823	0.6	6.97	11.3	1873.	nm	nm	nm	Clear with orange suspended debris
A3MW03-02	A3-MW03-02	2.3-8.3	3-Sep-09	8.210	33.292	33.185	125	nd	na	4.78	28.405	0.3	6.68	13.6	2250.	nm	nm	nm	Clear
A3MW03-02	A3-MW03-02	2.3-8.3	19-Apr-10	8.250	33.292	33.185	nd	nd	na	4.25	28.935	0.18	7.03	10.	882.	nm	nm	nm	---
A3MW03-02	A3MW03-02	2.3-8.3	7-Sep-10	8.120	33.292	33.185	nd	nd	na	4.835	28.35	0.18	6.73	13.5	5800.	nm	nm	nm	Clear; QA/QC duplicate: DUP-4
A3MW03-02	A3MW03-02	2.3-8.3	4-May-11	8.110	33.292	33.185	nd	nd	na	4.92	28.265	0.96	6.67	13.	571.	nm	nm	nm	Clear; DUP-26
A3MW03-02	A3MW03-02	2.3-8.3	28-Sep-11	8.115	33.292	33.185	nd	nd	na	4.395	28.79	0.77	6.69	15.35	833.	nm	nm	nm	Clear
A3MW03-02	A3MW03-02	2.3-8.3	16-May-12	8.120	33.292	33.185	5	nd	na	5.07	28.115	0.38	7.27	11.14	765.	nm	nm	nm	Clear
A3MW03-02	A3MW03-02	2.3-8.3	18-Sep-12	8.700	33.292	33.185	10	nd	na	4.1	29.085	1.15	7.37	13.99	1023.	nm	nm	nm	Clear; DUP-24
A3MW03-02	A3MW03-02	2.3-8.3	9-Apr-13	7.910	33.292	33.185	20	nd	na	4.24	28.945	0.28	7.	10.13	1422.	nm	nm	nm	Clear; DUP-18; this well was repaired in March
A3MW03-02	A3MW03-02	2.3-8.3	28-Aug-13	7.910	33.292	33.185	35	nd	na	4.65	28.535	0.61	7.01	14.61	1070.	nm	nm	nm	Clear; DUP-19
A3MW03-02	A3MW03-02	2.3-8.3	29-May-14	7.900	33.292	33.185	5	nd	na	4.58	28.605	0.36	6.57	11.22	695.	0.613	0.47	-70.7	NAPL stained tubing (bottom), Hydrocarbon odour
A3MW03-02	A3MW03-02	2.3-8.3	27-Aug-14	7.930	33.292	33.185	5	nd	na	4.52	28.665	0.2	6.55	13.59	708.	0.588	0.45	-93.2	Clear
A3MW03-02	A3MW03-02	2.3-8.3	10-Apr-15	7.920	33.292	33.185	15	nd	na	4.35	28.835	0.98	6.65	11.51	663.	0.51	0.44	-96.9	Clear; DUP-9
A3MW03-02	A3MW03-02	2.3-8.3	3-Sep-15	7.910	33.292	33.185	15	nd	na	4.5	28.685	0.21	6.86	15.35	3184.	2.537	2.08	-8	Clear
A3MW03-02	A3MW03-02	2.3-8.3	15-Mar-16	7.920	33.292	33.185	20	nd	na	3.68	29.505	0.41	7.02	11.51	635.	0.556	0.42	-73.4	Clear; Minor biofoul
A3MW03-02	A3MW03-02	2.3-8.3	21-Sep-16	7.920	33.292	33.185	nd	nd	na	4.46	28.725	0.02	6.78	14.93	1231.	0.99	0.77	-70	DUP-7
A3MW03-02	A3MW03-02	2.3-8.3	26-Apr-17	7.930	33.292	33.185	30	nd	na	3.78	29.405	0.1	6.98	10.97	654.	0.58	0.44	-121.3	Clear
A3MW03-02	A3MW03-02	2.3-8.3	21-Sep-17	7.930	33.292	33.185	35	nd	na	4.58	28.605	1.33	6.89	14.85	695.	0.56	0.43	-98.1	Clear
A3MW03-02	A3MW03-02	2.3-8.3	12-Apr-18	7.927	33.292	33.185	15	nd	na	4.089	29.096	0.05	7.03	10.77	454.	0.406	0.31	-82.4	Clear; DUP-5
A3MW03-02	A3MW03-02	2.3-8.3	10-Sep-18	7.920	33.292	33.185	60	nd	na	4.918	28.267	0.61	6.18	15.61	3906.	3.112	2.59	-60	Clear; sampled
A3MW03-02	A3MW03-02	2.3-8.3	9-Apr-19	7.906	33.292	33.185	nd	nd	na	4.018	29.167	<0.02	6.88	11.17	856.	0.756	0.58	798.7	slightly cloudy/silty, some suspended particles; globules present when purging; DUP-13
A3MW03-02	A3MW03-02	2.3-8.3	25-Sep-19	7.928	33.292	33.185	15	nd	na	4.635	28.55	0.55	6.69	15.	1026.	0.826	0.64	-69.5	Clear ; DUP-9
A3MW03-02	A3MW03-02	2.3-8.3	24-Mar-20	7.908	33.292	33.185	nd	nd	na	4.313	28.872	0.09	6.91	10.31	785.	0.709	0.54	-61.8	Clear
A3MW03-02	ns	2.3-8.3	20-Aug-20	7.917	33.292	33.185	20	nd	na	4.363	28.822	nm	nm	nm	nm	nm	nm	nm	sample taken but too cloudy, will return to sample next week
A3MW03-02	A3MW03-02	2.3-8.3	25-Aug-20	7.911	33.292	33.185	45	nd	na	4.586	28.599	0.3	6.81	14.11	1338.	1.098	0.86	-81.7	Clear with minor black floating particles; second sampling attempt of 2020 dry season PMP
A3MW03-03	MW03-03	0.8-6.9	5-May-04	6.450	32.972	32.868	nm	nd	na	4.63	28.238	nm	7.19	10.8	685.	nm	nm	nm	---
A3MW03-03	MW03-03	0.8-6.9	25-Oct-04	6.440	32.972	32.868	50	nd	na	5.55	27.318	nm	6.71	14.3	643.	nm	0.1	nm	---
A3MW03-03	MW03-03	0.8-6.9	26-Apr-05	6.530	32.972	32.868	>11000	nd	na	4.36	28.508	nm	7.08	12.3	827.	nm	nm	nm	PMP sampling event
A3MW03-03	A3-MW03-03	0.8-6.9	20-Sep-05	6.500	32.972	32.868	nm	nd	na	4.79	28.078	nm	6.95	15.3	1096.	nm	nm	nm	Sampled Sept.20
A3MW03-03	A3-MW03-03	0.8-6.9	12-Apr-06	6.600	32.972	32.868	4840	nd	na	4.42	28.448	---	6.54	10.8	964.	nm	nm	nm	---
A3MW03-03	A3-MW03-03	0.8-6.9	31-Aug-06	6.550	32.972	32.868	500	nd	na	4.96	27.908	0.65	6.2	13.5	737.	nm	nm	nm	---
A3MW03-03	A3-MW03-03	0.8-6.9	4-Apr-07	6.550	32.972	32.868	nm	nd	na	4.74	28.128	0.33	6.84	10.3	981.	nm	nm	nm	---
A3MW03-03	A3-MW03-03	0.8-6.9	29-Aug-07	6.500	32.972	32.868	4950	nd	na	4.6	28.268	0.45	6.84	13.6	776.	nm	nm	nm	BC: Clear.
A3MW03-03	A3-MW03-03	0.8-6.9	9-Apr-08	6.550	32.972	32.868	75	nd	na	3.936	28.932	1.12	7.37	10.2	886.	nm	nm	nm	pH collected at lab
A3MW03-03	A3-MW03-03	0.8-6.9	28-Aug-08	6.538	32.972	32.868	100	nd	na	4.554	28.314	0.7	6.48	12.1	845.	nm	nm	nm	BC: Clear
A3MW03-03	A3-MW03-03	0.8-6.9	27-Apr-09	6.535	32.972	32.868	>11000	nd	na	4.41	28.458	1.	6.64	9.7	461.	nm	nm	nm	BC: Clear; Clear sample with orange suspended debris
A3MW03-03	A3-MW03-03	0.8-6.9	3-Sep-09	6.538	32.972	32.868	>11000	nd	na	4.618	28.25	0.2	6.41	12.	875.	nm	nm	nm	Clear
A3MW03-03	A3-MW03-03	0.8-6.9	19-Apr-10	6.470	32.972	32.868	1100	nd	na	3.68	29.188	0.12	6.53	10.6	909.	nm	nm	nm	Slightly turbid with organic smell; Peristaltic pump purged water from the bottom of the well, sheen not observed, no product
A3MW03-03	A3MW03-03	0.8-6.9	20-Sep-10	6.460	32.972	32.868	>11000	nd	na	4.518	28.35	0.87	6.57	13.4	1088.	nm	nm	nm	Very slightly turbid
A3MW03-03	A3MW03-03	0.8-6.9	4-May-11	6.470	32.972	32.868	45	nd	na	4.517	28.351	3.86	6.72	14.6	604.	nm	nm	nm	Clear
A3MW03-03	A3MW03-03	0.8-6.9	21-Sep-11	6.480	32.972	32.868	60	nd	na	5.	27.868	0.1	6.96	12.35	628.	nm	nm	nm	Clear
A3MW03-03	A3MW03-03	0.8-6.9	15-May-12	6.445	32.972	32.868	nd	nd	na	5.14	27.728	1.03	6.98	14.56	598.	nm	nm	nm	Clear
A3MW03-03	A3MW03-03	0.8-6.9	20-Sep-12	6.460	32.972	32.868	35	nd	na	4.72	28.148	5.22	7.	17.15	531.	nm	nm	nm	Clear; slightly turbid; DUP-25; BC: Clear
A3MW03-03	A3MW03-03	0.8-6.9	9-Apr-13	6.530	32.972	32.868	nd	nd	na	4.63	28.238	7.64	6.82	10.5	313.	nm	nm	nm	Clear; DUP-19
A3MW03-03	A3MW03-03	0.8-6.9	3-Sep-13	6.540	32.972	32.868	15	nd	na	4.76	28.108	1.54	6.55	15.47	556.	nm	nm	nm	Clear; DUP-20
A3MW03-03	A3MW03-03	0.8-6.9	28-May-14	6.460	32.972	32.868	nd	nd	na	4.56	28.308	0.75	6.38	11.8	444.	0.385	0.29	-21.9	Turbid
A3MW03-03	A3MW03-03	0.8-6.9	27-Aug-14	6.560	32.972	32.868	nd	nd	na	4.65	28.218	0.23	6.33	16.25	776.	0.605	0.46	-28.5	Clear
A3MW03-03	A3MW03-03	0.8-6.9	8-Jul-15	6.670	32.972	32.868	45	nd	na	4.61	28.258	0.5	6.51	16.37	1712.	1.333	1.05	5.6	Clear; Well redeveloped successfully by Mac and Mac
A3MW03-03	A3MW03-03	0.8-6.9	2-Sep-15	6.630	32.972	32.868	120	nd	na	4.4	28.468	0.29	6.75	16.98	445.	0.341	0.26	11.5	Clear
A3MW03-03	A3MW03-03	0.8-6.9	15-Mar-16	6.650	32.972	32.868	85	nd	na	3.95	28.918	4.82	6.68	12.46	445.	0.381	0.29	75.6	Clear
A3MW03-03	A3MW03-03	0.8-6.9	12-Oct-16	6.640	32.972	32.868	15	nd	na	4.83	28.038	0.23	6.25	14.32	390.	0.31	0.23	-52.1	Clear
A3MW03-03	A3MW03-03	0.8-6.9	25-Apr-17	6.660	32.972	32.868	20	nd	na	4.34	28.528	0.96	6.77	10.78	402.	0.359	0.27	41.2	Clear
A3MW03-03	A3MW03-03	0.8-6.9	20-Sep-17	6.400	32.972	32.868	90	nd	na	4.1	28.768	0.16	6.41	14.51	859.	0.699	0.54	-72	Clear
A3MW03-03	A3MW03-03	0.8-6.9	1-May-18	6.650	32.972	32.868	70	nd	na	4.255	28.613	0.9	6.04	11.32	411.	0.362	0.27	132.4	Clear
A3MW03-03	A3MW03-03	0.8-6.9	25-Sep-18	6.663	32.972	32.868	nd	nd	na	4.7	28.168	0.68	6.1	14.53	359.	0.291	0.22	151	Clear; sampled
A3MW03-03	A3MW03-03	0.8-6.9	9-Apr-19	4.157	32.972	32.868	25	nd	na	3.952	28.916	4.36	6.77	11.72	603.	0.525	0.4	65	clear; minor orange sediment; sample taken on recharge
A3MW03-03	A3MW03-03	0.8-6.9	26-Sep-19	4.490	32.972	32.868	15	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A3MW03-03	A3MW03-03	0.8-6.9	23-Mar-20	6.194	32.972	32.868	15	nd	na	4.556	28.312	3.53	6.74	11.41	833.	0.732	0.56	32.3	Clear
A3MW03-03	A3MW03-03	0.8-6.9	19-Aug-20	6.213	32.972	32.868	65	nd	na	4.641	28.227	0.41	6.51	14.83	900.	0.726	0.56	6.4	Clear
A3MW03-04	MW03-04	1.5-6.7	5-May-04	6.500	33.42	33.316	50	nd	na	5.17	28.146	nm	6.77	12.	801.	nm	nm	nm	---
A3MW03-04	MW03-04	1.5-6.7	25-Oct-04	6.550	33.42	33.316	75	nd	na	5.072	28.244	nm	7.04	13.7	702.	nm	0.1	nm	---
A3MW03-04	MW03-04	1.5-6.7	26-Apr-05	6.600	33.42	33.316	>11000	nd	na	2.96	30.356	nm	6.68	13.4	848.	nm	nm	nm	---
A3MW03-04	A3-MW03-04	1.5-6.7	19-Sep-05	6.590	33.42	33.316	nm	nd	na	nm	na	nm	6.65	14.3	871.	nm	nm	nm	Sampled Sept.19
A3MW03-04	MW03-04	1.5-6.7	12-Apr-06	6.600	33.42	33.316	4400	nd	na	4.81	28.506	nm	6.46	11.5	782.	nm	nm	nm	---
A3MW03-04	MW03-04	1.5-6.7	31-Aug-06	6.610	33.42	33.316	500	nd	na	5.32	27.996	0.7	6.28	13.28	1070.	nm	nm	nm	---
A3MW03-04	MW03-04	1.5-6.7	4-Apr-07	6.600	33.42	33.316	3080	nd	na	4.88	28.436	0.3	6.57	11.1	791.	nm	nm	nm	---

TABLE 1-1
AREAS 1 AND 3 GROUNDWATER MONITORING DATA
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY

Well ID	Sample ID	Screened Interval (mbgs)	Date Monitored	Total Depth of Well (m from TOC)	Ground Elevation (mASL)[1]	Top of Casing Elevation (TOC, mASL)1	Headspace Vapour Concentration (ppmv)	Depth to Product (m from TOC)	Apparent Product Thickness (mm)	Depth to Water (DTW, m from TOC)	Groundwater Elevation (mASL) [1]	Dissolved Oxygen (mg/L)	pH	Temperature (°C)	Electrical Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	ORP (mV)	Observations
A3MW03-04	MW03-04	1.5-6.7	28-Aug-07	6.600	33.42	33.316	1210	nd	na	5.05	28.266	0.19	6.67	14.7	949.	nm	nm	nm	---
A3MW03-04	MW03-04	1.5-6.7	9-Apr-08	6.620	33.42	33.316	>11000	nd	na	4.345	28.971	1.21	7.23	11.2	543.	nm	nm	nm	pH collected at lab
A3MW03-04	MW03-04	1.5-6.7	28-Aug-08	6.625	33.42	33.316	1100	nd	na	4.853	28.463	0.3	6.5	12.1	761.	nm	nm	nm	Strong hydrocarbon odour
A3MW03-04	MW03-04	1.5-6.7	27-Apr-09	6.618	33.42	33.316	>11000	nd	na	4.89	28.426	0.6	6.52	10.8	1554.	nm	nm	nm	Clear with orange suspended debris
A3MW03-04	MW03-04	1.5-6.7	9-Sep-09	6.630	33.42	33.316	8800	nd	na	5.17	28.146	0.2	6.8	11.9	852.	nm	nm	nm	Clear
A3MW03-04	MW03-04	1.5-6.7	19-Apr-10	6.620	33.42	33.316	>11000	nd	na	4.75	28.566	0.13	6.58	11.8	796.	nm	nm	nm	Slightly turbid with organic smell
A3MW03-04	MW03-04	1.5-6.7	7-Sep-10	6.600	33.42	33.316	>11000	nd	na	5.11	28.206	0.12	6.38	13.4	867.	nm	nm	nm	Purged dry; clear with fine black particles
A3MW03-04	MW03-04	1.5-6.7	4-May-11	6.610	33.42	33.316	80	nd	na	4.7	28.616	0.62	6.08	13.5	561.	nm	nm	nm	Clear with trace orange-brown flocculant, probe and tape covered in mud
A3MW03-04	ns	1.5-6.7	27-Sep-11	6.605	33.42	33.316	70	nd	na	4.88	28.436	0.78	6.23	14.38	491.	nm	nm	nm	Purged dry at 6 L - Silty;, Still dry at end of day
A3MW03-04	MW03-04	1.5-6.7	15-May-12	6.510	33.42	33.316	5	nd	na	5.84	27.476	3.41	6.31	13.13	564.	nm	nm	nm	Ran dry; silty; 1/2 amber collected
A3MW03-04	MW03-04	1.5-6.7	20-Sep-12	6.600	33.42	33.316	55	nd	na	5.38	27.936	1.23	8.04	14.89	888.	nm	nm	nm	Turbid
A3MW03-04	MW03-04	1.5-6.7	9-Apr-13	6.620	33.42	33.316	160	nd	na	4.99	28.326	0.23	6.12	10.8	370.	nm	nm	nm	Clear
A3MW03-04	MW03-04	1.5-6.7	28-Aug-13	6.620	33.42	33.316	30	nd	na	5.25	28.066	6.2	6.44	14.4	944.	nm	nm	nm	Clear
A3MW03-04	MW03-04	1.5-6.7	28-May-14	6.630	33.42	33.316	180	nd	na	4.97	28.346	2.52	6.18	11.91	415.	0.36	0.27	-47.3	Clear; DUP-28
A3MW03-04	MW03-04	1.5-6.7	27-Aug-14	6.635	33.42	33.316	35	nd	na	5.16	28.156	1.12	6.16	14.41	508.	0.414	0.31	53.5	Clear
A3MW03-04	MW03-04	1.5-6.7	9-Apr-15	6.630	33.42	33.316	75	nd	na	4.885	28.431	0.16	6.08	13.64	375.	0.311	0.23	21.8	Clear
A3MW03-04	MW03-04	1.5-6.7	2-Sep-15	6.630	33.42	33.316	290	nd	na	4.93	28.386	0.21	6.67	14.95	534.	0.43	0.32	-20.3	Clear; DUP-12
A3MW03-04	MW03-04	1.5-6.7	15-Mar-16	6.640	33.42	33.316	120	nd	na	4.41	28.906	0.27	6.39	12.43	414.	0.354	0.27	61	Clear
A3MW03-04	MW03-04	1.5-6.7	19-Sep-16	6.650	33.42	33.316	nm	nd	na	5.06	28.256	0.33	6.22	14.57	575.	0.467	0.35	13.1	---
A3MW03-04	A3MW03-04	1.5-6.7	25-Apr-17	6.640	33.42	33.316	210	nd	na	4.67	28.646	0.5	6.24	11.26	385.	0.339	0.25	29	Clear; DUP-13
A3MW03-04	A3MW03-04	1.5-6.7	20-Sep-17	6.600	33.42	33.316	20	nd	na	3.88	29.436	1.46	6.01	14.48	610.	0.496	0.38	51.4	Clear; DUP-10
A3MW03-04	MW03-04	1.5-6.7	18-Apr-18	6.530	33.42	33.316	230	nd	na	4.57	28.746	2.63	6.13	11.19	426.	0.373	0.28	87.6	Clear; sampled
A3MW03-04	MW03-04	1.5-6.7	25-Sep-18	6.675	33.42	33.316	45	nd	na	5.046	28.27	0.81	6.	14.15	743.	0.609	0.46	152.9	Clear; sampled
A3MW03-04	MW03-04	1.5-6.7	8-Apr-19	6.652	33.42	33.316	280	nd	na	4.623	28.693	0.02	6.16	12.23	8999.	0.773	0.59	365.8	sampled on recharge
A3MW03-04	MW03-04	1.5-6.7	26-Sep-19	6.655	33.42	33.316	100	nd	na	4.885	28.431	0.48	7.03	13.69	780.	0.647	0.47	-48.6	Clear
MW03-04	MW03-04	1.5-6.7	23-Mar-20	6.658	33.42	33.316	250	nd	na	4.973	28.343	0.96	6.29	11.12	608.	0.527	0.4	-17.2	Clear
MW03-04	MW03-04	1.5-6.7	19-Aug-20	6.650	33.42	33.316	10	nd	na	4.877	28.439	0.64	5.39	14.48	831.	0.677	0.52	93.6	Clear
MW03-07	MW03-07	0.6-2.2	3-May-04	1.940	34.965	34.874	115	nd	na	1.36	33.514	nm	7.11	14.1	731.	nm	nm	nm	---
MW03-07	MW03-07	0.6-2.2	21-Oct-04	1.966	34.965	34.874	50	nd	na	1.317	33.557	nm	7.33	13.4	479.	nm	nm	nm	---
MW03-07	MW03-07	0.6-2.2	21-Apr-05	1.940	34.965	34.874	10	nd	na	1.28	33.594	nm	7.42	12.8	1916.	nm	nm	nm	---
MW03-07	ns	0.6-2.2	21-Sep-05	1.960	34.965	34.874	nm	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
MW03-07	MW03-07	0.6-2.2	3-Apr-06	2.100	34.965	34.874	10	nd	na	1.28	33.594	5.75	6.83	11.	22.6	nm	nm	nm	---
MW03-07	ns	0.6-2.2	31-Aug-06	2.100	34.965	34.874	nm	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
MW03-07	MW03-07	0.6-2.2	5-Apr-07	2.100	34.965	34.874	10	nd	na	1.28	33.594	2.7	7.23	10.8	2220.	nm	nm	nm	---
MW03-07	MW03-07	0.6-2.2	27-Aug-07	2.120	34.965	34.874	25	nd	na	1.53	33.344	0.32	6.89	20.	2320.	nm	nm	nm	---
MW03-07	MW03-07	0.6-2.2	3-Apr-08	2.100	34.965	34.874	15	nd	na	1.252	33.622	7.73	7.	9.	2410.	nm	nm	nm	---
MW03-07	MW03-07	0.6-2.2	26-Aug-08	2.290	34.965	34.874	75	nd	na	1.31	33.564	2.6	6.74	18.1	1112.	nm	nm	nm	---
MW03-07	MW03-07	0.6-2.2	20-Apr-09	2.124	34.965	34.874	nd	nd	na	1.285	33.589	4.5	7.01	10.1	3550.	nm	nm	nm	Clear
MW03-07	MW03-07	0.6-2.2	24-Aug-09	2.080	34.965	34.874	nd	nd	na	1.37	33.504	2.1	6.9	20.2	2880.	nm	nm	nm	Cloudy
MW03-07	MW03-07	0.6-2.2	6-Apr-10	2.150	34.965	34.874	nd	nd	na	1.29	33.584	10.77	7.3	8.4	1560.	nm	nm	nm	---
MW03-07	MW03-07	0.6-2.2	2-Sep-10	2.110	34.965	34.874	nd	nd	na	1.21	33.664	0.56	6.11	19.8	389.	nm	nm	nm	Clear
MW03-07	MW03-07	0.6-2.2	28-Apr-11	2.115	34.965	34.874	10	nd	na	1.27	33.604	0.11	7.02	9.1	3760.	nm	nm	nm	Clear
MW03-07	MW03-07	0.6-2.2	15-Sep-11	2.120	34.965	34.874	15	nd	na	1.53	33.344	4.01	6.86	18.28	1992.	nm	nm	nm	Purged Dry (Sept.14); Silty (Sept.15)
MW03-07	MW03-07	0.6-2.2	14-May-12	2.110	34.965	34.874	15	nd	na	1.28	33.594	7.35	6.61	13.4	3278.	nm	nm	nm	Clear
MW03-07	MW03-07	0.6-2.2	9-Aug-12	2.130	34.965	34.874	nd	nd	na	1.29	33.584	4.41	6.81	19.98	2694.	nm	nm	nm	Clear
MW03-07	MW03-07	0.6-2.2	10-Apr-13	2.110	34.965	34.874	nd	nd	na	1.27	33.604	8.3	7.16	9.64	2500.	nm	nm	nm	Clear
MW03-07	MW03-07	0.6-2.2	28-Aug-13	2.130	34.965	34.874	5	nd	na	1.39	33.484	1.62	6.88	18.89	5672.	nm	nm	nm	Clear
MW03-07	MW03-07	0.6-2.2	4-Jun-14	2.120	34.965	34.874	15	nd	na	1.27	33.604	1.56	6.5	14.87	4706.	3.794	3.18	19.7	Clear
MW03-07	MW03-07	0.6-2.2	4-Sep-14	2.110	34.965	34.874	5	nd	na	1.28	33.594	1.33	6.64	19.44	3489.	2.616	2.13	62.2	Clear
MW03-07	MW03-07	0.6-2.2	22-Apr-15	2.110	34.965	34.874	5	nd	na	1.27	33.604	0.84	6.74	12.15	2360.	2.031	1.64	114.9	Clear
MW03-07	MW03-07	0.6-2.2	15-Sep-15	2.110	34.965	34.874	nd	nd	na	1.28	33.594	1.05	6.99	18.31	2753.	2.037	1.64	8.7	Clear
MW03-07	MW03-07	0.6-2.2	17-Mar-16	2.110	34.965	34.874	15	nd	na	1.27	33.604	4.9	7.02	9.3	1908.	1.769	1.41	62.2	Clear; DUP-8
MW03-07	MW03-07	0.6-2.2	23-Sep-16	2.100	34.965	34.874	nm	nd	na	1.29	33.584	1.79	6.76	16.36	3230.	2.513	2.05	-40.7	---
MW03-07	MW03-07	0.6-2.2	13-Apr-17	2.120	34.965	34.874	nd	nd	na	1.29	33.584	2.45	7.8	8.99	8123.	7.52	6.65	-109.5	Clear
MW03-07	MW03-07	0.6-2.2	30-Aug-17	2.120	34.965	34.874	20	nd	na	1.31	33.564	4.66	6.85	20.66	5177.	3.681	3.08	-36.5	Silty, brown
MW03-07	MW03-07	0.6-2.2	12-Apr-18	2.130	34.965	34.874	nd	nd	na	1.306	33.568	1.68	6.86	9.24	7630.	7.099	6.2	11	Clear; sampled
MW03-07	MW03-07	0.6-2.2	4-Sep-18	2.120	34.965	34.874	5	nd	na	1.299	33.575	0.69	7.09	19.44	5059.	3.68	3.08	-279.8	Silty; sampled
MW03-07	MW03-07	0.6-2.2	2-Apr-19	2.103	34.965	34.874	110	nd	na	1.282	33.592	0.55	6.5	10.74	10461.	9.344	836	145.3	cloudy/opaque
MW03-07	MW03-07	0.6-2.2	25-Sep-19	2.120	34.965	34.874	nd	nd	na	1.296	33.578	0.64	8.31	16.51	3719.	2.886	2.38	-138.8	Clear
MW03-07	MW03-07	0.6-2.2	19-Mar-20	2.102	34.965	34.874	nd	nd	na	1.282	33.592	8.59	6.85	7.05	5762.	5.703	4.89	-54.7	Slightly cloudy; purged dry 18/03/20 and sampled the next day
MW03-07	MW03-07	0.6-2.2	26-Aug-20	2.119	34.965	34.874	5	nd	na	1.288	33.586	1.26	7.17	19.01	4662.	3.419	2.85	-98.3	Clear
G1-1A	G1-1A	3.1-6.1	3-May-04	5.940	39.921	39.765	>11000	nd	na	4.85	34.915	nm	5.91	11.8	398.	nm	nm	nm	---
G1-1A	G1-1A	3.1-6.1	20-Oct-04	5.930	39.921	39.765	8800	nd	na	4.441	35.324	nm	6.04	14.7	487.	nm	0.	nm	---
G1-1A	G1-1A	3.1-6.1	20-Apr-05	6.000	39.921	39.765	25	nd	na	3.86	35.905	nm	5.39	12.9	593.	nm	nm	nm	---
G1-1A	G1-1A	3.1-6.1	21-Sep-05	5.930	39.921	39.765	nm	nd	na	5.21	34.555	nm	6.12	15.3	569.	nm	nm	nm	Sampled on Sept.22
G1-1A	G1-1A	3.1-6.1	29-Mar-06	5.930	39.921	39.765	80	nd	na	4.06	35.705	1.58	6.	12.2	50.2	nm	nm	nm	---
G1-1A	ns	3.1-6.1	30-Aug-06	5.900	39.921	39.765	100	nd	na	5.34	34.425	nm	nm	nm	nm	nm	nm	nm	Dry after purging.
G1-1A	G1-1A	3.1-6.1	5-Apr-07	5.430	39.921	39.765	100	nd	na	3.91	35.855	0.8	6.02	11.4	620.	nm	nm	nm	---
G1-1A	G1-1A	3.1-6.1	30-Aug-07	6.000	39.921	39.765	280	nd	na	5.21	34.555	0.5	6.12	16.9	592.	nm	nm	nm	---
G1-1A	G1-1A	3.1-6.1	3-Apr-08	5.978	39.921	39.765	75	nd	na	4.144	35.621	0.78	5.95	10.4	1940.	nm	nm	nm	---
G1-1A	G1-1A	3.1-6.1	26-Aug-08	6.002	39.921	39.765	nm	nd	na	5.047	34.718	0.3	6.25	12.3	412.	nm	nm	nm	Cap not in place; Silty
G1-1A	G1-1A	3.1-6.1	21-Apr-09	5.988	39.921	39.765	500	nd	na	3.81	35.955	1.	6.42	11.5	1100.	nm	nm	nm	Clear, minimal sediment (well re-sampled May.5)
G1-1A	G1-1A	3.1-6.1	24-Aug-09	6.003	39.921	39.765	4950	nd	na	5.13	34.635	0.7	5.81	14.7	904.	nm	nm	nm	Turbid
G1-1A	G1-1A	3.1-6.1	2-Sep-10	6.000	39.921	39.765	nd	nd	na	5.12	34.645	0.2	5.95	14.5	666.	nm	nm	nm	Clear
G1-1A	G1-1A	3.1-6.1	28-Apr-11	6.005	39.921	39.765	70	nd	na	3.801	35.964	nm	6.48	10.3	650.	nm	nm	nm	Clear, DO meter malfunctioning
G1-1A	G1-1A	3.1-6.1	19-Sep-11	6.000	39.921	39.765	>11000	nd	na	5.045	34.72	0.33	5.76	12.72	574.	nm	nm	nm	Clear
G1-1A	G1-1A	3.1-6.1	14-May-12	6.010	39.921	39.765	750	nd	na	4.335	35.43	0.6	5.45	12.29	527.	nm	nm	nm	Clear
G1-1A	G1-1A	3.1-6.1	4-Sep-12	6.000	39.921	39.765	>11000	nd	na	5.14	34.625	0.83	6.31	14.04	585.	nm	nm	nm	Clear
G1-1A	G1-1A	3.1-6.1	3-Apr-13	6.000	39.921	39.765	155	nd	na	4.145	35.62	1.	5.63	11.19	420.	nm	nm	nm	Clear
G1-1A	G1-1A	3.1-6.1	26-Aug-13	6.000	39.921	39.765	55	nd	na	5.22	34.545	1.24	5.27	15.11	591.	nm	nm	nm	Clear
G1-1A	G1-1A	3.1-6.1	2-Jun-14	6.000	39.921	39.765	160	nd	na	4.27	35.495	0.57	5.59	11.73	594.	0.517	0.39	25.3	Clear
G1-1A	G1-1A	3.1-6.1	23-Sep-14	6.000	39.921	39.765	75	nd	na	5.15	34.615	1.07	5.75	15.81	801.	0.629	0.48	-37.6	Clear
G1-1A	G1-1A	3.1-6.1	4-May-15	6.000	39.921	39.765	140	nd	na	4.38	35.385	0.21	6.02	12.05	549.	0.474	0.36	44.4	Clear
G1-1A	G1-1A	3.1-6.1	3-Sep-15	6.000	39.921	39.765	>11000	nd	na	4.82	34.945	0.28	5.96	15.23	731.	0.584	0.44	-26.2	Clear
G1-1A	G1-1A	3.1-6.1	4-Apr-16	6.020	39.921	39.765	70	nd	na	3.64	36.125	0.38	6.22	11.79	351.	0.305	0.23	-18.8	Clear
G1-1A	G1-1A	3.1-6.1	22-Sep-16	6.000	39.921	39.765	nd	nd	na	4.91	34.855	7.42	8.28	12.92	273.	0.231	0.17	-23.4	---
G1-1A	G1-1A	3.1-6.1	15-Apr-17	6.000	39.921	39.765	240	nd	na	3.1	36.665	0.93	5.83	10.25	520.	0.471	0.36	-20.5	Clear; DUP-7
G1-1A	G1-1A	3.1-6.1	30-Aug-17	6.020	39.921	39.765	330	nd	na	5.07	34.695	0.35	5.91	15.53	495.	0.393	0.3	24.6	Clear; DUP-3
G1-1A	G1-1A	3.1-6.1	10-Apr-18	6.010	39.921	39.765	100	nd	na	3.11	36.655	0.26	6.24	11.31	637.	0.561	0.43	0.2	Clear
G1-1A	G1-1A	3.1-6.1	7-May-18	6.012	39.921	39.765	170	nd	na	3.803	35.962	0.74	5.82	11.21	545.	0.48	0.36	21.2	Clear; sampled
G1-1A	G1-1A	3.1-6.1	5-Sep-18	6.015	39.921	39.765	150	nd	na	4.956	34.809	0.46	5.9	15.81	527.	0.415	0.31	69.7	Sampled
G1-1A	G1-1A	3.1-6.1	4-Apr-19	6.004	39.921	39.765	75	nd	na	4.076	35.689	0.06	5.96	11.	1005.	0.892	0.69	174.9	cloudy/opaque and silty
G1-1A	G1-1A	3.1-6.1	23-Sep-19	6.008	39.921	39.765	200	nd	na	3.944	35.821	6.02	6.64	11.57	2256.	1.972	1.59	-61.9	Clear
G1-1A	G1-1A	3.1-6.1	25-Mar-20	6.002	39.921	39.765	15	nd	na	3.92	35.845	0.51	6.13	10.91	842.	0.749	0.58	33.4	Clear
G1-1A	G1-1A	3.1-6.1	25-Aug-20	6.002	39.921	39.765	40	nd	na	4.675	35.09	1.16	6.01	14.41	666.	0.542	0.41	11.6	Clear
G1-1B	G1-1B	10.8-12.3	3-May-04	12.420	39.634	39.512	85	nd	na	8.57	30.942	nm	7.87	11.9	342.	nm	nm	nm	---
G1-1B	G1-1B	10.8-12.3	20-Oct-04	12.446	39.634	39.512	125	nd	na	8.539	30.973	nm	8.7	12.	251.	nm	0.	nm	---
G1-1B	G1-1B	10.8-12.3	20-Apr-05	12.420	39.634	39.512	50	nd	na	8.4	31.112	nm	9.03	13.3	344.	nm	nm	nm	---
G1-1B	G1-1B	10.8-12.3	21-Sep-05	12.440	39.634	39.512	nm	nd	na	8.04	31.472	nm	9.1	14.	370.	nm	nm	nm	Sampled on Sept.22
G1-1B	G1-1B	10.8-12.3	29-Mar-06	12.500	39.634	39.512	10	nd	na	8.38	31.132	3.5	8.44	11.6	244.	nm	nm	nm	---
G1-1B	G1-1B	10.8-12.3	5-Nov-06	12.460	39.634	39.512	100	nd	na	8.64	30.872	nm	7.8	12.8	360.	nm	nm	nm	---
G1-1B	G1-1B	10.8-12.3	5-Apr-07	12.450	39.634	39.512	10	nd	na	8.73	30.782	0.12	9.41	13.2	341.	nm	nm	nm	---
G1-1B	G1-1B	10.8-12.3	30-Aug-07	12.450	39.634	39.512	50	nd	na	8.56	30.952	0.18	8.3	15.3	423.	nm	nm	nm	---
G1-1B	G1-1B	10.8-12.3	3-Apr-08	12.380	39.634	39.512	20	nd	na	8.375	31.137	0.27	9.24	13.6	436.	nm	nm	nm	---
G1-1B	G1-1B	10.8-12.3	26-Aug-08	12.470	39.634	39.512	15	nd	na	8.567	30.945	0.1	6.01	13.	740.	nm	nm	nm	Silty
G1-1B	G1-1B	10.8-12.3	21-Apr-09	12.491	39.634	39.512	25	nd	na	8.768	30.744	0.6	8.89	12.9	342.	nm	nm	nm	Silty, some sediment
G1-1B	G1-1B	10.8-12.3	24-Aug-09	12.512	39.634	39.512	nd	nd	na	8.58	30.932	1.7	9.29	12.1	338.	nm	nm	nm	Clear
G1-1B	G1-1B	10.8-12.3	2-Sep-10	12.495	39.634	39.512	nd	nd	na	8.685	30.827	0.2	8.64	13.3	541.	nm	nm	nm	Clear
G1-1B	G1-1B	10.8-12.3	3-May-11	12.440	39.634	39.512	30	nd	na	8.28	31.232	1.1	8.55	12.1	687.	nm	nm	nm	Clear

TABLE 1-1
AREAS 1 AND 3 GROUNDWATER MONITORING DATA
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY

Well ID	Sample ID	Screened Interval (mbgs)	Date Monitored	Total Depth of Well (m from TOC)	Ground Elevation (mASL)[1]	Top of Casing Elevation (TOC, mASL)1	Headspace Vapour Concentration (ppmv)	Depth to Product (m from TOC)	Apparent Product Thickness (mm)	Depth to Water (DTW, m from TOC)	Groundwater Elevation (mASL) [1]	Dissolved Oxygen (mg/L)	pH	Temperature (°C)	Electrical Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	ORP (mV)	Observations
G1-1B	G1-1B	10.8-12.3	19-Sep-11	12.490	39.634	39.512	15	nd	na	8.435	31.077	4.77	8.94	13.83	424.	nm	nm	nm	Clear; DUP-28
G1-1B	G1-1B	10.8-12.3	14-May-12	12.490	39.634	39.512	nd	nd	na	8.33	31.182	1.09	7.58	14.8	1786.	nm	nm	nm	Clear
G1-1B	G1-1B	10.8-12.3	4-Sep-12	12.500	39.634	39.512	nd	nd	na	8.51	31.002	0.97	8.6	14.27	409.	nm	nm	nm	Clear
G1-1B	G1-1B	10.8-12.3	3-Apr-13	12.480	39.634	39.512	nd	nd	na	8.29	31.222	0.29	7.77	12.95	2336.	nm	nm	nm	Clear
G1-1B	G1-1B	10.8-12.3	26-Aug-13	12.490	39.634	39.512	nd	nd	na	8.5	31.012	0.88	6.96	14.53	641.	nm	nm	nm	Clear
G1-1B	G1-1B	10.8-12.3	2-Jun-14	12.490	39.634	39.512	nd	nd	na	8.3	31.212	3.33	6.82	15.67	381.	nm	nm	nm	Clear
G1-1B	G1-1B	10.8-12.3	23-Sep-14	12.490	39.634	39.512	nd	nd	na	8.46	31.052	1.5	6.92	12.51	376.	0.322	0.29	0.58	Clear
G1-1B	G1-1B	10.8-12.3	4-May-15	12.480	39.634	39.512	nd	nd	na	3.35	36.162	5.93	6.98	12.98	172.	0.246	0.11	77.3	Clear; Roadbox needs replacement
G1-1B	G1-1B	10.8-12.3	3-Sep-15	12.490	39.634	39.512	nd	nd	na	8.44	31.072	1.32	6.97	13.88	109.	0.09	0.07	5.7	Clear
G1-1B	G1-1B	10.8-12.3	4-Apr-16	12.500	39.634	39.512	5	nd	na	8.27	31.242	3.7	6.83	12.82	60.	0.051	0.04	119	Clear; Roadbox needs replacement
G1-1B	G1-1B	10.8-12.3	22-Sep-16	12.500	39.634	39.512	nd	nd	na	8.44	31.072	nm	nm	nm	nm	nm	nm	nm	Purged dry; collected sample on recharge
G1-1B	G1-1B	10.8-12.3	15-Apr-17	12.490	39.634	39.512	15	nd	na	8.26	31.252	5.28	7.83	12.	271.	0.234	0.17	-66.3	Clear
G1-1B	G1-1B	10.8-12.3	30-Aug-17	10.870	39.634	39.512	10	nd	na	8.72	30.792	3.	7.95	12.34	422.	0.362	0.27	102.5	---
G1-1B	G1-1B	10.8-12.3	10-Apr-18	12.400	39.634	39.512	15	nd	na	8.274	31.238	4.36	8.05	13.06	11531.	9.68	8.66	-38.3	Purged dry at 5 L; cloudy (yellow/orange); sampled on recharge
G1-1B	G1-1B	10.8-12.3	7-May-18	12.440	39.634	39.512	5	nd	na	8.418	31.094	0.62	7.87	14.24	2675.	2.189	1.78	128.7	Silty; sampled on recharge
G1-1B	G1-1B	10.8-12.3	5-Sep-18	12.440	39.634	39.512	nd	nd	na	8.825	30.687	7.89	7.32	12.84	4437.	3.757	3.15	207.4	Sampled
G1-1B	G1-1B	10.8-12.3	4-Apr-19	12.454	39.634	39.512	nd	nd	na	8.393	31.119	6.06	7.99	14.07	8047.	6.612	5.77	305.5	Cloudy/opaque and silty
G1-1B	G1-1B	10.8-12.3	23-Sep-19	12.440	39.634	39.512	0	nd	na	8.375	31.137	0.03	5.81	14.5	614.	0.501	0.38	-13.1	Clear
G1-1B	G1-1B	10.8-12.3	25-Mar-20	12.436	39.634	39.512	15	nd	na	8.453	31.059	1.67	8.85	11.52	8215.	7.191	6.31	-23.4	Clear, YSI possibly malfunctioning (DO)
G1-1B	G1-1B	10.8-12.3	25-Aug-20	12.441	39.634	39.512	0	nd	na	8.418	31.094	8.26	8.45	15.84	4398.	3.463	2.89	15.9	Clear
G1-1C	G1-1C	19.8-21.3	3-May-04	21.510	40.506	40.405	25	nd	na	9.71	30.695	nm	9.14	11.8	546.	nm	nm	nm	---
G1-1C	G1-1C	19.8-21.3	20-Oct-04	21.310	40.506	40.405	75	nd	na	10.127	30.278	nm	9.33	11.5	401.	nm	0.	nm	---
G1-1C	G1-1C	19.8-21.3	20-Apr-05	21.180	40.506	40.405	25	nd	na	10.06	30.345	nm	9.44	12.7	559.	nm	nm	nm	---
G1-1C	G1-1C	19.8-21.3	21-Sep-05	21.310	40.506	40.405	nm	nd	na	10.17	30.235	nm	9.33	12.9	480.	nm	nm	nm	Sampled on Sept.22
G1-1C	G1-1C	19.8-21.3	29-Mar-06	21.200	40.506	40.405	10	nd	na	10.28	30.125	3.44	9.34	11.2	364.	nm	nm	nm	---
G1-1C	G1-1C	19.8-21.3	30-Aug-06	21.200	40.506	40.405	70	nd	na	10.83	29.575	2.1	7.1	11.2	540.	nm	nm	nm	---
G1-1C	G1-1C	19.8-21.3	5-Apr-07	21.000	40.506	40.405	nd	nd	na	9.82	30.585	0.16	9.69	14.1	558.	nm	nm	nm	---
G1-1C	G1-1C	19.8-21.3	30-Aug-07	21.400	40.506	40.405	50	nd	na	10.47	29.935	0.24	8.5	16.2	568.	nm	nm	nm	A1-Sentry-Dup3
G1-1C	G1-1C	19.8-21.3	3-Apr-08	20.980	40.506	40.405	10	nd	na	9.99	30.415	0.22	9.45	12.7	584.	nm	nm	nm	DUP
G1-1C	G1-1C	19.8-21.3	26-Aug-08	21.110	40.506	40.405	25	nd	na	10.31	30.095	1.1	8.83	11.9	638.	nm	nm	nm	Silty
G1-1C	G1-1C	19.8-21.3	21-Apr-09	21.097	40.506	40.405	5	nd	na	9.958	30.447	0.4	9.56	12.7	609.	nm	nm	nm	Transparent, sample a little murky
G1-1C	G1-1C	19.8-21.3	24-Aug-09	21.420	40.506	40.405	25	nd	na	10.385	30.02	0.3	9.32	12.9	15.	nm	nm	nm	Cloudy
G1-1C	G1-1C	19.8-21.3	2-Sep-10	21.227	40.506	40.405	15	nd	na	10.18	30.225	0.2	8.28	17.3	678.	nm	nm	nm	Clear
G1-1C	G1-1C	19.8-21.3	4-May-11	21.240	40.506	40.405	15	nd	na	9.855	30.55	0.07	9.12	13.4	613.	nm	nm	nm	Clear; DUP-23
G1-1C	G1-1C	19.8-21.3	19-Sep-11	21.210	40.506	40.405	15	nd	na	9.975	30.43	4.74	9.22	12.08	390.	nm	nm	nm	Silty; sample collected on Sept.20
G1-1C	G1-1C	19.8-21.3	14-May-12	21.210	40.506	40.405	20	nd	na	9.85	30.555	2.95	9.46	12.79	482.	nm	nm	nm	Clear; Purged dry at 70 L on May.14; Clear
G1-1C	G1-1C	19.8-21.3	4-Sep-12	21.190	40.506	40.405	25	nd	na	9.96	30.445	4.16	9.5	12.09	454.	nm	nm	nm	Silty; BTEX only; DUP-21; EPH collected Sept.5
G1-1C	G1-1C	19.8-21.3	3-Apr-13	21.160	40.506	40.405	nd	nd	na	9.79	30.615	2.41	8.9	11.3	443.	nm	nm	nm	Purged 70 L; Parameters and sample collected Apr.4
G1-1C	G1-1C	19.8-21.3	26-Aug-13	21.140	40.506	40.405	10	nd	na	9.91	30.495	5.44	8.75	12.07	460.	nm	nm	nm	Odour and brown tinge, purged very silty; silty BTEX; amber collected Aug.27 AM, too silty on Aug.26
G1-1C	G1-1C	19.8-21.3	2-Jun-14	21.170	40.506	40.405	100	nd	na	9.82	30.585	2.41	8.39	13.62	490.	0.405	0.31	65.3	Clear
G1-1C	G1-1C	19.8-21.3	23-Sep-14	21.170	40.506	40.405	40	nd	na	9.89	30.515	3.31	8.98	11.49	463.	0.405	0.3	-72.8	Clear
G1-1C	G1-1C	19.8-21.3	4-May-15	21.185	40.506	40.405	80	nd	na	9.865	30.54	4.08	9.17	11.84	473.	0.411	0.31	59	Turbid; DUP-11
G1-1C	G1-1C	19.8-21.3	3-Sep-15	21.150	40.506	40.405	5	nd	na	9.9	30.505	1.5	9.07	11.56	449.	0.393	0.3	-55.6	Clear
G1-1C	G1-1C	19.8-21.3	4-Apr-16	21.120	40.506	40.405	nd	nd	na	9.76	30.645	6.4	8.5	11.79	248.	0.216	0.16	109.7	Purged dry at 40 L on Apr.4; Parameters and sample collected on Apr.5; Clear
G1-1C	G1-1C	19.8-21.3	22-Sep-16	21.210	40.506	40.405	5	nd	na	9.93	30.475	4.91	9.27	12.04	427.	0.369	0.28	-37	Turbid; DUP-8
G1-1C	G1-1C	19.8-21.3	15-Apr-17	21.340	40.506	40.405	nd	nd	na	9.76	30.645	2.22	9.55	11.99	406.	0.351	0.26	-39.2	Clear
G1-1C	G1-1C	19.8-21.3	30-Aug-17	21.220	40.506	40.405	5	nd	na	10.06	30.345	4.63	9.31	13.14	439.	0.369	0.28	37.3	Turbid
G1-1C	G1-1C	19.8-21.3	10-Apr-18	21.383	40.506	40.405	15	nd	na	9.847	30.558	3.84	9.35	12.48	472.	0.404	0.3	82.8	Cloudy/grey; bailed; sampled
G1-1C	G1-1C	19.8-21.3	3-May-18	21.357	40.506	40.405	nd	nd	na	9.917	30.488	7.29	8.99	13.19	599.	0.503	0.38	41.9	Cloudy/grey; bailed; sampled
G1-1C	G1-1C	19.8-21.3	5-Sep-18	21.330	40.506	40.405	5	nd	na	10.193	30.212	7.4	9.42	12.94	579.	0.488	0.37	-331.9	Sampled
G1-1C	G1-1C	19.8-21.3	4-Apr-19	21.333	40.506	40.405	30	nd	na	9.779	30.626	6.37	8.57	13.18	709.	0.595	0.45	167.7	cloudy/opaque and silty
G1-1C	G1-1C	19.8-21.3	23-Sep-19	21.327	40.506	40.405	10	nd	na	9.956	30.449	6.14	8.88	11.24	567.	0.51	0.38	-24.4	Purged dry at 40L; sampled on recharge; Clear
G1-1C	G1-1C	19.8-21.3	25-Mar-20	21.319	40.506	40.405	10	nd	na	9.835	30.57	7.65	9.19	12.34	745.	0.638	0.49	1.8	Well cap off on arrival, sampled on recharge, sample cloudy
G1-1C	G1-1C	19.8-21.3	25-Aug-20	21.311	40.506	40.405	5	nd	na	9.865	30.54	3.77	9.39	14.45	623.	0.507	0.38	9.6	Sampled on recharge same day; slightly cloudy, grey
G1-2A	G1-2A	1.8-3.4	4-May-04	3.150	34.462	34.352	75	nd	na	1.09	33.262	nm	8.65	13.7	4910.	nm	nm	nm	---
G1-2A	G1-2A	1.8-3.4	21-Oct-04	3.200	34.462	34.352	75	nd	na	1.544	32.808	nm	7.16	17.2	1601.	nm	0.8	nm	---
G1-2A	G1-2A	1.8-3.4	12-Apr-05	3.150	34.462	34.352	1100	nd	na	1.55	32.802	nm	7.5	13.9	1139.	nm	nm	nm	---
G1-2A	G1-2A	1.8-3.4	21-Sep-05	3.176	34.462	34.352	nm	nd	na	1.49	32.862	nm	7.47	19.8	2310.	nm	nm	nm	Sampled on Sept.22
G1-2A	G1-2A	1.8-3.4	3-Apr-06	3.170	34.462	34.352	25	nd	na	1.285	33.067	3.17	7.8	11.6	29.8	nm	nm	nm	---
G1-2A	G1-2A	1.8-3.4	5-Sep-06	3.170	34.462	34.352	nm	nd	na	1.35	33.002	nm	6.71	21.5	471.	nm	nm	nm	DUP16
G1-2A	G1-2A	1.8-3.4	13-Apr-07	3.200	34.462	34.352	75	nd	na	1.43	32.922	0.78	nm	9.6	6260.	nm	nm	nm	---
G1-2A	G1-2A	1.8-3.4	30-Aug-07	3.200	34.462	34.352	100	nd	na	1.66	32.692	0.09	7.38	19.4	5220.	nm	nm	nm	A1 Sentry DUP1
G1-2A	G1-2A	1.8-3.4	9-Apr-08	3.177	34.462	34.352	50	nd	na	1.447	32.905	1.42	7.33	10.5	2380.	nm	nm	nm	EPH; DUP
G1-2A	G1-2A	1.8-3.4	26-Aug-08	3.179	34.462	34.352	50	nd	na	1.557	32.795	0.3	6.76	19.5	2630.	nm	nm	nm	---
G1-2A	G1-2A	1.8-3.4	21-Apr-09	3.154	34.462	34.352	30	nd	na	1.506	32.846	2.5	6.92	11.9	888.	nm	nm	nm	Clear
G1-2A	G1-2A	1.8-3.4	24-Aug-09	3.155	34.462	34.352	nd	nd	na	1.428	32.924	0.2	7.05	20.4	2390.	nm	nm	nm	Clear
G1-2A	G1-2A	1.8-3.4	2-Sep-10	3.125	34.462	34.352	nd	nd	na	1.135	33.217	0.03	7.8	19.8	977.	nm	nm	nm	Clear
G1-2A	G1-2A	1.8-3.4	27-Apr-11	3.140	34.462	34.352	20	nd	na	0.996	33.356	2.4	9.66	9.6	2460.	nm	nm	nm	Clear
G1-2A	G1-2A	1.8-3.4	14-Sep-11	3.145	34.462	34.352	nd	nd	na	1.45	32.902	7.43	9.48	19.2	1570.	nm	nm	nm	Sheen and silty
G1-2A	G1-2A	1.8-3.4	14-May-12	3.150	34.462	34.352	nd	nd	na	1.07	33.282	6.83	9.61	13.5	977.	nm	nm	nm	Clear; purged dry during parameters at 4 L
G1-2A	G1-2A	1.8-3.4	9-Aug-12	3.160	34.462	34.352	10	nd	na	1.435	32.917	1.69	8.23	19.19	2386.	nm	nm	nm	Clear
G1-2A	G1-2A	1.8-3.4	10-Apr-13	3.150	34.462	34.352	15	nd	na	1.41	32.942	3.29	7.9	10.34	1541.	nm	nm	nm	Clear
G1-2A	G1-2A	1.8-3.4	26-Aug-13	3.160	34.462	34.352	nd	nd	na	1.71	32.642	0.97	8.02	20.14	2173.	nm	nm	nm	Clear
G1-2A	G1-2A	1.8-3.4	5-Jun-14	3.150	34.462	34.352	60	nd	na	1.035	33.317	1.28	7.31	15.41	846.	0.673	0.51	-149.7	---
G1-2A	G1-2A	1.8-3.4	3-Sep-14	3.145	34.462	34.352	nd	nd	na	1.63	32.722	0.61	7.5	19.81	1783.	1.286	1.01	-27	Clear
G1-2A	G1-2A	1.8-3.4	21-Apr-15	3.180	34.462	34.352	25	nd	na	1.075	33.277	2.39	7.17	12.46	2117.	1.809	1.45	2.33	Clear
G1-2A	G1-2A	1.8-3.4	1-Sep-15	3.145	34.462	34.352	15	nd	na	1.58	32.772	1.24	7.51	19.52	2069.	1.502	1.19	-52.9	Clear
G1-2A	G1-2A	1.8-3.4	15-Mar-16	3.190	34.462	34.352	nd	nd	na	0.99	33.362	3.2	7.97	9.51	1161.	1.071	0.84	179.6	Clear
G1-2A	G1-2A	1.8-3.4	21-Sep-16	3.180	34.462	34.352	5	nd	na	1.18	33.172	4.66	7.46	15.93	1012.	0.795	0.61	150.6	---
G1-2A	G1-2A	1.8-3.4	19-Apr-17	3.200	34.462	34.352	15	nd	na	1.9	33.172	0.9	7.52	9.43	819.	0.756	0.58	47.8	Clear
G1-2A	G1-2A	1.8-3.4	31-Aug-17	3.200	34.462	34.352	15	nd	na	1.72	33.172	207.	7.15	20.15	2463.	1.766	1.41	40.9	Silty, grey/brown
G1-2A	G1-2A	1.8-3.4	16-Apr-18	3.200	34.462	34.352	30	nd	na	1.12	33.172	3.38	7.66	10.23	2941.	2.665	2.19	170.8	Clear
G1-2A	G1-2A	1.8-3.4	6-Sep-18	3.235	34.462	34.352	15	nd	na	1.712	33.172	0.57	7.09	20.23	3047.	2.179	1.76	240.6	Silty; sampled
G1-2A	G1-2A	1.8-3.4	28-Mar-19	3.201	34.462	34.352	25	nd	na	1.371	33.172	3.85	7.19	8.8	2004.	1.889	1.51	103.3	slightly silty (grey)
G1-2A	G1-2A	1.8-3.4	24-Sep-19	3.220	34.462	34.352	5	nd	na	1.585	33.172	0.4	7.21	17.71	2246.	1.692	1.35	-31.1	Clear
G1-2A	G1-2A	1.8-3.4	18-Mar-20	3.201	34.462	34.352	5	nd	na	1.547	33.172	1.3	6.65	8.97	1650.	1.548	1.23	110.1	Clear
G1-2A	G1-2A	1.8-3.4	26-Aug-20	3.207	34.462	34.352	nd	nd	na	1.306	33.172	2.26	7.2	19.61	2593.	1.878	1.51	32.1	Clear
G1-2B	G1-2B	4.6-6.1	4-May-04	6.020	34.398	34.255	450	nd	na	2.22	32.035	nm	8.18	11.7	2250.	nm	nm	nm	---
G1-2B	G1-2B	4.6-6.1	21-Oct-04	6.164	34.398	34.255	100	nd	na	3.295	30.96	nm	7.73	15.6	1490.	nm	0.8	nm	---
G1-2B	G1-2B	4.6-6.1	27-Apr-05	6.200	34.398	34.255	10	nd	na	1.5	32.755	nm	7.98	12.9	2590.	nm	nm	nm	---
G1-2B	G1-2B	4.6-6.1	21-Sep-05	6.225	34.398	34.255	nm	nd	na	1.05	33.205	nm	7.83	18.	607.	nm	nm	nm	Sampled on Sept.22
G1-2B	G1-2B	4.6-6.1	3-Apr-06	6.240	34.398	34.255	<5	nd	na	1.615	32.64	1.75	7.79	12.7	45.7	nm	nm	nm	---
G1-2B	G1-2B	4.6-6.1	5-Sep-06	6.250	34.398	34.255	nm	nd	na	1.56	32.695	nm	7.76	19.6	394.	nm	nm	nm	---
G1-2B	G1-2B	4.6-6.1	13-Apr-07	6.330	34.398	34.255	50	nd	na	1.44	32.815	0.14	nm	9.4	6320.	nm	nm	nm	---
G1-2B	G1-2B	4.6-6.1	30-Aug-07	6.260	34.398	34.255	75	nd	na	1.57	32.685	0.19	7.94	16.4	2290.	nm	nm	nm	A1 Sentry DUP2
G1-2B	G1-2B	4.6-6.1	9-Apr-08	6.258	34.398	34.255	25	nd	na	1.612	32.643	0.97	8.06	10.5	1961.	nm	nm	nm	---
G1-2B	G1-2B	4.6-6.1	26-Aug-08	6.261	34.398	34.255	nd	nd	na	1.171	33.084	0.1	9.09	16.7	991.	nm	nm	nm	---
G1-2B	G1-2B	4.6-6.1	21-Apr-09	6.241	34.398	34.255	50	nd	na	1.307	32.948	0.5	8.37	11.9	1084.	nm	nm	nm	Clear
G1-2B	G1-2B	4.6-6.1	24-Aug-09	6.265	34.398	34.255	nd	nd	na	1.402	32.853	0.1	8.1	16.4	6810.	nm	nm	nm	Cloudy
G1-2B	G1-2B	4.6-6.1	2-Sep-10	6.260	34.398	34.255	nd	nd	na	1.25	33.005	0.03	9.56	17.1	1761.	nm	nm	nm	Low sediment, low turbid
G1-2B	G1-2B	4.6-6.1	27-Apr-11	6.260	34.398	34.255	60	nd	na	1.113	33.142	0.02	8.48	9.4	5930.	nm	nm	nm	Clear
G1-2B	G1-2B	4.6-6.1	14-Sep-11	6.260	34.398	34.255	nd	nd	na	1.45	32.805	2.23	7.72	15.77	2879.	nm	nm	nm	Clear
G1-2B	G1-2B	4.6-6.1	14-May-12	6.270	34.398	34.255	50	nd	na	1.38	32.875	0.36	7.93	13.09	5558.	nm	nm	nm	Clear; DUP-9
G1-2B	G1-2B	4.6-6.1	9-Aug-12	6.265	34.398	34.255	15	nd	na	1.205	33.05	4.75	9.58	17.92	1679.	nm	nm	nm	Clear; Purged dry at 10 L - sampled on same day recharge

TABLE 1-1
AREAS 1 AND 3 GROUNDWATER MONITORING DATA
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY

Well ID	Sample ID	Screened Interval (mbgs)	Date Monitored	Total Depth of Well (m from TOC)	Ground Elevation (mASL)[1]	Top of Casing Elevation (TOC, mASL)1	Headspace Vapour Concentration (ppmv)	Depth to Product (m from TOC)	Apparent Product Thickness (mm)	Depth to Water (DTW, m from TOC)	Groundwater Elevation (mASL) [1]	Dissolved Oxygen (mg/L)	pH	Temperature (°C)	Electrical Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	ORP (mV)	Observations
G1-2B	G1-2B	4.6-6.1	10-Apr-13	6.260	34.398	34.255	45	nd	na	1.35	32.905	1.45	8.2	10.96	3420.	nm	nm	nm	Clear
G1-2B	G1-2B	4.6-6.1	26-Aug-13	6.260	34.398	34.255	10	nd	na	1.385	32.87	1.98	7.45	16.56	2315.	nm	nm	nm	Clear
G1-2B	G1-2B	4.6-6.1	5-Jun-14	6.260	34.398	34.255	80	nd	na	1.365	32.89	0.28	7.43	12.28	3772.	3.242	2.69	148.1	Clear; DUP-34
G1-2B	G1-2B	4.6-6.1	3-Sep-14	6.260	34.398	34.255	nd	nd	na	1.3	32.955	2.43	8.42	15.71	2439.	1.927	1.55	-18.6	Clear
G1-2B	G1-2B	4.6-6.1	21-Apr-15	6.260	34.398	34.255	25	nd	na	1.27	32.985	0.33	7.89	13.08	2338.	1.966	1.59	282.9	Clear
G1-2B	G1-2B	4.6-6.1	1-Sep-15	6.260	34.398	34.255	25	nd	na	1.32	32.935	1.18	7.9	16.63	2150.	1.658	1.32	3.4	Clear
G1-2B	G1-2B	4.6-6.1	15-Mar-16	6.240	34.398	34.255	25	nd	na	1.16	33.095	2.35	7.78	10.86	2190.	1.943	1.56	193.6	Clear
G1-2B	G1-2B	4.6-6.1	26-Sep-16	6.190	34.398	34.255	nd	nd	na	1.23	33.025	1.	8.38	16.67	890.	0.597	0.45	-71.2	Clear
G1-2B	G1-2B	4.6-6.1	19-Apr-17	6.260	34.398	34.255	15	nd	na	1.28	32.975	2.3	7.8	10.24	2710.	2.452	2.	62.9	Clear
G1-2B	G1-2B	4.6-6.1	31-Aug-17	6.270	34.398	34.255	nd	nd	na	1.29	32.965	1.72	7.66	15.77	2183.	1.721	1.38	6.8	Clear
G1-2B	G1-2B	4.6-6.1	16-Apr-18	6.260	34.398	34.255	35	nd	na	1.32	32.935	4.39	7.5	9.25	1879.	1.746	0.4	154.8	Clear
G1-2B	G1-2B	4.6-6.1	6-Sep-18	6.270	34.398	34.255	20	nd	na	1.235	33.02	2.79	7.6	17.39	2708.	2.063	1.67	2.71	Clear; sampled; DUP-6
G1-2B	G1-2B	4.6-6.1	28-Mar-19	6.259	34.398	34.255	30	nd	na	1.203	33.052	1.19	6.95	10.99	11621.	10.31	9.3	80.2	Slighltly silty (brown/orange)
G1-2B	G1-2B	4.6-6.1	24-Sep-19	6.271	34.398	34.255	5	nd	na	1.203	33.052	4.52	8.65	16.6	1999.	1.528	1.21	-17.2	Clear
G1-2B	G1-2B	4.6-6.1	18-Mar-20	6.257	34.398	34.255	5	nd	na	1.321	32.934	4.67	8.77	11.37	1682.	1.479	1.17	-30.9	Clear, possible DO probe malfunction, DUP-2
G1-2B	G1-2B	4.6-6.1	26-Aug-20	6.255	34.398	34.255	nd	nd	na	1.253	33.002	1.36	8.77	16.19	2691.	2.099	1.77	5.1	Clear, DUP-5
G1-5	G1-5	9.1-12.2	3-May-04	12.550	51.856	51.740	60	nd	na	7.68	44.06	nm	7.75	15.3	1112.	nm	nm	nm	---
G1-5	G1-5	9.1-12.2	20-Oct-04	12.530	51.856	51.740	100	nd	na	7.872	43.868	nm	7.81	11.5	928.	nm	0.2	nm	---
G1-5	G1-5	9.1-12.2	20-Apr-05	12.610	51.856	51.740	30	nd	na	7.6	44.14	nm	6.97	12.8	1048.	nm	nm	nm	---
G1-5	G1-5	9.1-12.2	22-Sep-05	12.600	51.856	51.740	nm	nd	na	8.2	43.54	nm	8.7	12.9	964.	nm	nm	nm	Sampled on Sept-23-05
G1-5	G1-5	9.1-12.2	29-Mar-06	12.620	51.856	51.740	25	nd	na	6.6	45.14	5.95	6.92	11.	449.	nm	nm	nm	---
G1-5	G1-5	9.1-12.2	30-Aug-06	12.610	51.856	51.740	85	nd	na	8.18	43.56	0.8	7.26	15.8	580.	nm	nm	nm	---
G1-5	G1-5	9.1-12.2	4-Apr-07	12.630	51.856	51.740	nm	nd	na	6.48	45.26	0.12	7.45	11.8	957.	nm	nm	nm	---
G1-5	G1-5	9.1-12.2	27-Aug-07	12.700	51.856	51.740	100	nd	na	7.95	43.79	1.12	7.22	13.8	1026.	nm	nm	nm	---
G1-5	G1-5	9.1-12.2	3-Apr-08	12.640	51.856	51.740	20	nd	na	6.84	44.9	0.26	7.86	13.4	1013.	nm	nm	nm	---
G1-5	G1-5	9.1-12.2	26-Aug-08	12.618	51.856	51.740	160	nd	na	7.473	44.267	0.4	6.78	12.2	1108.	nm	nm	nm	---
G1-5	G1-5	9.1-12.2	21-Apr-09	12.625	51.856	51.740	nd	nd	na	6.662	45.078	0.6	6.85	12.9	940.	nm	nm	nm	Clear, minimal sediment
G1-5	G1-5	9.1-12.2	24-Aug-09	12.628	51.856	51.740	nd	nd	na	7.575	44.165	0.6	6.88	12.7	1050.	nm	nm	nm	Clear
G1-5	G1-5	9.1-12.2	6-Apr-10	12.600	51.856	51.740	5	nd	na	6.56	45.18	0.16	6.86	9.2	919.	nm	nm	nm	Clear Duplicate
G1-5	G1-5	9.1-12.2	2-Sep-10	12.615	51.856	51.740	nd	nd	na	7.24	44.5	0.09	6.68	13.5	990.	nm	nm	nm	Clear, QA/QC duplicate: DUP-1
G1-5	G1-5	9.1-12.2	4-May-11	12.625	51.856	51.740	65	nd	na	6.691	45.049	0.21	6.68	13.6	901.	nm	nm	nm	Clear, purged dry at 20L; DUP 24
G1-5	G1-5	9.1-12.2	19-Sep-11	12.610	51.856	51.740	30	nd	na	7.35	44.39	9.75	3.92	12.29	148.	nm	nm	nm	Collected BTEX Sept 19 b/c ran dry; AM - Collected EPH Sept.20
G1-5	G1-5	9.1-12.2	14-May-12	12.500	51.856	51.740	nd	nd	na	6.85	44.89	0.61	6.27	13.97	688.	nm	nm	nm	Slightly turbid
G1-5	G1-5	9.1-12.2	4-Sep-12	12.620	51.856	51.740	nd	nd	na	7.225	44.515	9.2	7.68	12.58	620.	nm	nm	nm	Bailed dry at 16 L; EPH samples taken Sept.5 b/c too silty
G1-5	G1-5	9.1-12.2	3-Apr-13	12.605	51.856	51.740	35	nd	na	6.715	45.025	0.54	6.59	11.29	396.	nm	nm	nm	Clear; Dup-12
G1-5	G1-5	9.1-12.2	26-Aug-13	12.610	51.856	51.740	40	nd	na	7.24	44.5	0.92	6.17	15.4	268.	nm	nm	nm	Clear; Dup-15
G1-5	G1-5	9.1-12.2	2-Jun-14	12.610	51.856	51.740	15	nd	na	6.62	45.12	4.69	6.3	14.1	367.	0.298	0.2	-138.3	Clear
G1-5	G1-5	9.1-12.2	2-Sep-14	12.630	51.856	51.740	5	nd	na	7.39	44.35	3.75	6.95	15.01	520.	0.417	0.31	124	Turbid; DUP-21
G1-5	G1-5	9.1-12.2	13-May-15	12.640	51.856	51.740	5	nd	na	6.65	45.09	3.76	6.42	12.96	317.	0.268	0.2	146.8	Clear; DUP-14
G1-5	G1-5	9.1-12.2	23-Sep-15	12.655	51.856	51.740	30	nd	na	7.18	44.56	0.67	6.67	15.2	535.	0.426	0.32	92.6	Slightly turbid; medium biofoul
G1-5	G1-5	9.1-12.2	4-Apr-16	12.530	51.856	51.740	15	nd	na	6.39	45.35	0.73	6.78	12.66	500.	0.423	0.32	19.2	Clear
G1-5	G1-5	9.1-12.2	22-Sep-16	12.530	51.856	51.740	15	nd	na	7.06	44.68	2.95	6.75	14.89	269.	0.216	0.16	46.9	Clear
G1-5	G1-5	9.1-12.2	15-Apr-17	12.610	51.856	51.740	5	nd	na	6.11	45.63	0.65	6.92	12.16	595.	0.515	0.39	42.0	Clear
G1-5	G1-5	9.1-12.2	30-Aug-17	12.640	51.856	51.740	20	nd	na	7.2	44.54	0.43	7.19	14.28	577.	0.471	0.36	10.3	Clear
G1-5	G1-5	9.1-12.2	10-Apr-18	15.140	51.856	51.740	20	nd	na	7.503	44.237	4.93	7.3	11.74	385.	0.335	0.25	49.2	Well purged dry after 12.5L; clear; sampled on recharge
G1-5	G1-5	9.1-12.2	3-May-18	12.623	51.856	51.740	15	nd	na	6.58	45.16	0.21	6.71	13.97	623.	0.513	0.39	24.6	Clear; sampled
G1-5	G1-5	9.1-12.2	5-Sep-18	12.612	51.856	51.740	nd	nd	na	7.358	44.382	7.14	6.21	14.74	766.	0.619	0.47	257.2	Well purged dry after 17L; clear; sampled on recharge
G1-5	G1-5	9.1-12.2	2-Apr-19	12.608	51.856	51.740	5	nd	na	6.752	44.988	4.07	6.73	15.14	528.	0.423	0.31	161.5	clear; sampled on recharge
G1-5	G1-5	9.1-12.2	19-Sep-19	12.613	51.856	51.740	15	nd	na	6.945	44.795	8.66	7.79	11.93	601.	0.52	0.4	-12.8	Slightly cloudy (grey); slightly silty
G1-5	G1-5	9.1-12.2	19-Mar-20	12.617	51.856	51.740	35	nd	na	6.582	45.158	6.65	6.8	12.68	622.	0.529	0.4	132.1	Bailed dry at 20L, clear sample with minor sediments
G1-5	ns	9.1-12.2	17-Aug-20	12.628	51.856	51.740	15	nd	na	7.179	44.561	nm	nm	nm	nm	nm	nm	nm	Bailed dry at 20L, could not sample, poor recharge
G1-5	G1-5	9.1-12.2	25-Aug-20	12.594	51.856	51.740	25	nd	na	7.452	44.288	7.7	6.63	13.64	753.	0.622	0.47	60.2	Bailed dry at 19L, sampled on recharge, sample taken on 24/8/20 too cloudy; sample taken on 25/8/20 clear, submitted
G1-6	G1-6	7.9-11	3-May-04	10.740	42.280	42.179	40	nd	na	6.13	36.049	nm	8.45	11.7	383.	nm	nm	nm	---
G1-6	G1-6	7.9-11	20-Oct-04	10.820	42.280	42.179	150	nd	na	5.771	36.408	nm	8.02	11.9	423.	nm	0.	nm	---
G1-6	G1-6	7.9-11	20-Apr-05	10.810	42.280	42.179	50	nd	na	5.37	36.809	nm	7.63	12.5	466.	nm	nm	nm	---
G1-6	G1-6	7.9-11	21-Sep-05	10.735	42.280	42.179	nm	nd	na	6.28	35.899	nm	8.12	13.8	433.	nm	nm	nm	Sampled on Sept-22-05
G1-6	G1-6	7.9-11	29-Mar-06	10.900	42.280	42.179	55	nd	na	5.59	36.589	4.37	7.12	12.6	71.	nm	nm	nm	---
G1-6	G1-6	7.9-11	30-Aug-06	10.800	42.280	42.179	10	nd	na	6.66	35.519	2.52	7.23	16.2	526.	nm	nm	nm	---
G1-6	G1-6	7.9-11	4-Apr-07	10.800	42.280	42.179	20	nd	na	5.585	36.594	0.14	7.31	11.5	583.	nm	nm	nm	---
G1-6	G1-6	7.9-11	27-Aug-07	10.850	42.280	42.179	40	nd	na	6.3	35.879	0.54	7.9	15.	517.	nm	nm	nm	---
G1-6	G1-6	7.9-11	3-Apr-08	10.800	42.280	42.179	40	nd	na	5.635	36.544	0.16	7.51	12.1	719.	nm	nm	nm	---
G1-6	G1-6	7.9-11	26-Aug-08	10.804	42.280	42.179	65	nd	na	6.022	36.157	0.3	7.4	11.1	642.	nm	nm	nm	---
G1-6	G1-6	7.9-11	21-Apr-09	10.800	42.280	42.179	10	nd	na	5.342	36.837	0.8	7.18	11.9	682.	nm	nm	nm	Clear
G1-6	G1-6	7.9-11	24-Aug-09	10.805	42.280	42.179	75	nd	na	6.18	35.999	0.5	7.56	11.6	646.	nm	nm	nm	Clear
G1-6	G1-6	7.9-11	6-Apr-10	10.820	42.280	42.179	nd	nd	na	5.22	36.959	0.16	7.11	8.9	635.	nm	nm	nm	Clear
G1-6	G1-6	7.9-11	2-Sep-10	10.800	42.280	42.179	nd	nd	na	6.08	36.099	0.09	7.45	12.7	612.	nm	nm	nm	Clear
G1-6	G1-6	7.9-11	28-Apr-11	10.803	42.280	42.179	60	nd	na	5.381	36.798	nm	6.76	10.9	624.	nm	nm	nm	Clear, DO meter malfunctioning
G1-6	ns	7.9-11	19-Sep-11	nm	42.280	42.179	nm	nm	na	nm	na	nm	nm	nm	nm	nm	nm	nm	Well was covered
G1-6	ns	7.9-11	14-May-12	nm	42.280	42.179	nm	nm	na	nm	na	nm	nm	nm	nm	nm	nm	nm	Well was covered by steel plate
G1-6	G1-6	7.9-11	4-Sep-12	10.800	42.280	42.179	5	nd	na	6.11	36.069	0.29	7.54	12.17	428.	nm	nm	nm	Clear
G1-6	G1-6	7.9-11	3-Apr-13	10.790	42.280	42.179	nd	nd	na	5.575	36.604	0.71	7.38	11.28	408.	nm	nm	nm	Dup-14
G1-6	G1-6	7.9-11	26-Aug-13	10.780	42.280	42.179	35	nd	na	6.14	36.039	1.02	6.61	12.06	418.	nm	nm	nm	Clear
G1-6	G1-6	7.9-11	2-Jun-14	10.795	42.280	42.179	15	nd	na	5.585	36.594	0.28	6.64	10.87	468.	0.417	0.31	8.6	Clear
G1-6	G1-6	7.9-11	22-Sep-14	10.795	42.280	42.179	10	nd	na	6.04	36.139	1.06	7.11	10.99	464.	0.412	0.31	-11.1	Clear
G1-6	G1-6	7.9-11	13-May-15	10.810	42.280	42.179	70	nd	na	5.84	36.339	0.6	7.22	11.56	434.	0.379	0.29	-9.9	Clear
G1-6	G1-6	7.9-11	23-Sep-15	10.840	42.280	42.179	nd	nd	na	5.79	36.389	0.1	7.13	11.89	525.	0.455	0.34	8.6	Clear
G1-6	G1-6	7.9-11	4-Apr-16	10.730	42.280	42.179	nd	nd	na	5.25	36.929	1.56	7.23	11.66	485.	0.423	0.32	18.6	Clear
G1-6	G1-6	7.9-11	22-Sep-16	10.750	42.280	42.179	95	nd	na	5.81	36.369	0.01	7.28	13.11	478.	0.402	0.3	-10	---
G1-6	G1-6	7.9-11	15-Apr-17	10.800	42.280	42.179	15	nd	na	4.67	37.509	0.53	7.4	11.06	443.	0.393	0.3	-27.4	Clear
G1-6	G1-6	7.9-11	30-Aug-17	10.800	42.280	42.179	5	nd	na	6.02	36.159	0.22	7.01	12.25	477.	0.409	0.31	245.0	Clear
G1-6	G1-6	7.9-11	10-Apr-18	10.790	42.280	42.179	15	nd	na	4.59	37.589	0.28	7.35	11.74	472.	0.411	0.31	-13	Clear
G1-6	G1-6	7.9-11	3-May-18	10.790	42.280	42.179	5	nd	na	5.188	36.991	0.59	6.33	12.65	574.	0.488	0.37	105	Clear; sampled
G1-6	G1-6	7.9-11	5-Sep-18	10.805	42.280	42.179	10	nd	na	5.45	36.729	0.3	6.89	12.35	550.	0.471	0.36	136.3	Sampled
G1-6	G1-6	7.9-11	2-Apr-19	10.803	42.280	42.179	15	nd	na	5.469	36.71	0.27	7.33	12.23	614.	0.528	0.4	-23.8	Clear; sampled on recharge; DUP-09
G1-6	G1-6	7.9-11	19-Sep-19	10.811	42.280	42.179	85	nd	na	5.244	36.935	0.38	7.87	11.49	612.	0.536	0.41	-38.4	Clear
G1-6	G1-6	7.9-11	18-Mar-20	10.754	42.280	42.179	25	5.219	nd	5.219	36.96	4.36	7.04	13.05	579.	0.487	0.37	-43.6	Solid tone at surface, BC: clear; sample is clear
G1-6	G1-6	7.9-11	24-Aug-20	10.792	42.280	42.179	90	nd	na	5.672	36.507	0.6	7.04	13.44	667.	0.557	0.42	32.6	Clear
G1-7A	G1-7A	0.9-2.4	4-May-04	2.320	35.038	34.913	70	nd	na	0.92	33.993	nm	8.16	11.6	882.	nm	nm	nm	---
G1-7A	G1-7A	0.9-2.4	20-Oct-04	1.519	35.038	34.913	125	nd	na	0.982	33.931	nm	7.81	14.2	705.	nm	0.1	nm	---
G1-7A	G1-7A	0.9-2.4	21-Apr-05	2.330	35.038	34.913	20	nd	na	0.94	33.973	nm	7.64	9.9	866.	nm	nm	nm	---
G1-7A	G1-7A	0.9-2.4	22-Sep-05	2.200	35.038	34.913	nm	nd	na	1.18	33.733	nm	7.79	15.2	971.	nm	nm	nm	Sampled on Sept-20-05
G1-7A	G1-7A	0.9-2.4	29-Mar-06	2.300	35.038	34.913	30	nd	na	0.93	33.983	2.02	8.49	11.2	120.	nm	nm	nm	---
G1-7A	G1-7A	0.9-2.4	30-Aug-06	2.350	35.038	34.913	45	nd	na	1.56	33.353	nm	7.43	17.9	51.	nm	nm	nm	---
G1-7A	G1-7A	0.9-2.4	5-Apr-07	2.350	35.038	34.913	125	nd	na	0.91	34.003	0.43	7.36	8.6	1340.	nm	nm	nm	---
G1-7A	G1-7A	0.9-2.4	27-Aug-07	2.350	35.038	34.913	75	nd	na	1.07	33.843	0.95	7.26	16.5	1386.	nm	nm	nm	---
G1-7A	G1-7A	0.9-2.4	9-Apr-08	2.328	35.038	34.913	75	nd	na	0.906	34.007	0.84	7.44	10.5	1329.	nm	nm	nm	---
G1-7A	G1-7A	0.9-2.4	26-Aug-08	2.338	35.038	34.913	75	nd	na	0.96	33.953	4.3	7.04	16.1	1299.	nm	nm	nm	Clear
G1-7A	G1-7A	0.9-2.4	20-Apr-09	2.319	35.038	34.913	40	nd	na	0.906	34.007	2.2	7.33	8.8	1734.	nm	nm	nm	Transparent, sample slightly murky
G1-7A	G1-7A	0.9-2.4	24-Aug-09	2.338	35.038	34.913	20	nd	na	0.998	33.915	4.6	7.03	17.	2140.	nm	nm	nm	Transparent, sample slightly murky
G1-7A	G1-7A	0.9-2.4	2-Sep-10	2.650	35.038	34.913	nd	nd	na	1.71	33.203	0.05	7.71	16.2	1605.	nm	nm	nm	Clear
G1-7A	G1-7A	0.9-2.4	28-Apr-11	2.703	35.038	34.913	140	nd	na	1.421	33.492	nm	7.01	10.2	7870.	nm	nm	nm	pm-Slightly silty, DO meter malfunctioning
G1-7A	G1-7A	0.9-2.4	19-Sep-11	2.705	35.038	34.913	110	nd	na	1.7	33.213	0.27	7.42	14.59	1893.	nm	nm	nm	AM - collected BTEX only b/c silty; PM - collected one EPH jar - silty
G1-7A	G1-7A	0.9-2.4	14-May-12	2.715	35.038	34.913	40	nd	na	1.555	33.358	4.39	7.	10.66	3797.	nm	nm	nm	Silty

TABLE 1-1
AREAS 1 AND 3 GROUNDWATER MONITORING DATA
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY

Well ID	Sample ID	Screened Interval (mbgs)	Date Monitored	Total Depth of Well (m from TOC)	Ground Elevation (mASL)[1]	Top of Casing Elevation (TOC, mASL)1	Headspace Vapour Concentration (ppmv)	Depth to Product (m from TOC)	Apparent Product Thickness (mm)	Depth to Water (DTW, m from TOC)	Groundwater Elevation (mASL) [1]	Dissolved Oxygen (mg/L)	pH	Temperature (°C)	Electrical Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	ORP (mV)	Observations
G1-7A	G1-7A	0.9-2.4	9-Aug-12	2.710	35.038	34.913	nd	nd	na	1.64	33.273	0.98	7.23	16.03	1684.	nm	nm	nm	Sunny; slight turbid
G1-7A	G1-7A	0.9-2.4	3-Apr-13	2.710	35.038	34.913	nd	nd	na	1.58	33.333	5.61	7.03	8.32	6395.	nm	nm	nm	turbid
G1-7A	G1-7A	0.9-2.4	26-Aug-13	2.710	35.038	34.913	50	nd	na	1.97	32.943	0.89	7.	16.52	1831.	nm	nm	nm	Slightly silty ambers
G1-7A	G1-7A	0.9-2.4	2-Jun-14	2.710	35.038	34.913	35	nd	na	1.5	33.413	2.27	6.95	13.	6123.	5.188	4.42	-154.1	Clear
G1-7A	G1-7A	0.9-2.4	22-Sep-14	2.710	35.038	34.913	65	nd	na	1.8	33.113	1.03	7.33	16.58	2711.	2.099	1.7	66.7	Clear
G1-7A	G1-7A	0.9-2.4	4-May-15	2.700	35.038	34.913	130	nd	na	1.55	33.363	0.27	7.23	11.05	3824.	3.391	2.83	-3	Clear
G1-7A	G1-7A	0.9-2.4	23-Sep-15	2.700	35.038	34.913	170	nd	na	1.63	33.283	1.6	7.49	16.41	2284.	1.776	1.42	327.6	Clear; Purged dry at 2 L; Parameters and sample collected on recharge
G1-7A	G1-7A	0.9-2.4	17-Mar-16	2.710	35.038	34.913	25	nd	na	1.51	33.403	4.16	7.28	9.41	5275.	4.884	4.16	87.9	Clear; Purged dry at 5 L; Parameters and sample collected on recharge
G1-7A	G1-7A	0.9-2.4	22-Sep-16	2.710	35.038	34.913	100	nd	na	1.65	33.263	0.51	7.41	16.06	1742.	1.383	1.09	11.2	Clear
G1-7A	G1-7A	0.9-2.4	15-Apr-17	2.710	35.038	34.913	70	nd	na	1.47	33.443	4.37	6.81	8.52	8330.	7.889	6.9	33.5	Clear
G1-7A	G1-7A	0.9-2.4	30-Aug-17	2.730	35.038	34.913	80	nd	na	2.11	32.803	0.66	7.12	16.78	3623.	2.78	2.3	19.8	Clear; EPH collected Aug 31 at 9:30am
G1-7A	G1-7A	0.9-2.4	11-Apr-18	2.703	35.038	34.913	80	nd	na	1.5	33.413	3.41	7.4	8.47	4411.	3.48	3.52	149.5	Slightly cloudy (grey); sampled
G1-7A	G1-7A	0.9-2.4	7-May-18	2.704	35.038	34.913	45	nd	na	1.575	33.338	3.59	6.9	10.59	12033.	10.79	9.76	10.4	Slightly cloudy (grey); sampled
G1-7A	G1-7A	0.9-2.4	4-Sep-18	2.620	35.038	34.913	55	nd	na	2.142	32.771	4.4	7.47	17.25	4726.	3.58	2.99	234.3	Clear; sampled, no metals collected due to minimum water
G1-7A	G1-7A	0.9-2.4	4-Apr-19	2.709	35.038	34.913	45	nd	na	1.632	33.281	0.05	7.41	8.55	4632.	4.39	3.71	621	clear
G1-7A	G1-7A	0.9-2.4	23-Sep-19	2.680	35.038	34.913	95	nd	na	1.6	33.313	0.57	7.35	16.	2510.	1.956	1.57	79.6	Plurged dry at 18L; sampled on recharge; Clear
G1-7A	G1-7A	0.9-2.4	19-Mar-20	2.696	35.038	34.913	80	nd	na	1.692	33.221	3.94	7.77	8.34	5350.	5.1	4.35	105.7	Clear
G1-7A	G1-7A	0.9-2.4	25-Aug-20	2.709	35.038	34.913	35	nd	na	1.743	33.17	0.87	7.41	16.06	3555.	2.799	2.31	46.7	Slightly cloudy (grey)
G1-7B	G1-7B	6.1-9.1	4-May-04	8.950	35.047	34.910	550	nd	na	1.22	33.69	nm	9.17	13.2	6570.	nm	nm	nm	---
G1-7B	G1-7B	6.1-9.1	20-Oct-04	8.980	35.047	34.910	150	nd	na	1.848	33.062	nm	8.77	14.1	557.	nm	0.	nm	---
G1-7B	G1-7B	6.1-9.1	21-Apr-05	8.980	35.047	34.910	50	nd	na	1.58	33.33	nm	8.88	11.5	784.	nm	nm	nm	---
G1-7B	G1-7B	6.1-9.1	22-Sep-05	8.980	35.047	34.910	nm	nd	na	2.02	32.89	nm	8.45	13.	767.	nm	nm	nm	Sampled on Sept-20-05
G1-7B	G1-7B	6.1-9.1	29-Mar-06	9.000	35.047	34.910	30	nd	na	1.59	33.32	1.4	7.27	9.7	135.1	nm	nm	nm	---
G1-7B	G1-7B	6.1-9.1	30-Aug-06	8.980	35.047	34.910	10	nd	na	1.69	33.22	nm	8.7	14.5	50.	nm	nm	nm	---
G1-7B	G1-7B	6.1-9.1	5-Apr-07	9.000	35.047	34.910	50	nd	na	1.225	33.685	0.15	8.67	11.2	1007.	nm	nm	nm	---
G1-7B	G1-7B	6.1-9.1	27-Aug-07	8.820	35.047	34.910	50	nd	na	1.725	33.185	0.26	8.75	12.7	936.	nm	nm	nm	---
G1-7B	G1-7B	6.1-9.1	9-Apr-08	8.967	35.047	34.910	25	nd	na	1.367	33.543	0.12	8.67	10.9	894.	nm	nm	nm	---
G1-7B	G1-7B	6.1-9.1	26-Aug-08	8.989	35.047	34.910	50	nd	na	1.727	33.183	0.2	8.51	13.1	705.	nm	nm	nm	Duplicate taken
G1-7B	G1-7B	6.1-9.1	20-Apr-09	8.972	35.047	34.910	nd	nd	na	1.241	33.669	1.1	8.38	11.1	810.	nm	nm	nm	Clear
G1-7B	G1-7B	6.1-9.1	24-Aug-09	8.990	35.047	34.910	nd	nd	na	2.12	32.79	0.6	8.2	12.5	740.	nm	nm	nm	Clear
G1-7B	G1-7B	6.1-9.1	2-Sep-10	14.090	35.047	34.910	2200	nd	na	2.758	32.152	0.06	8.49	14.6	466.	nm	nm	nm	Clear
G1-7B	G1-7B	6.1-9.1	3-May-11	15.145	35.047	34.910	80	nd	na	2.943	31.967	0.1	8.32	12.1	477.	nm	nm	nm	Clear
G1-7B	G1-7B	6.1-9.1	19-Sep-11	15.175	35.047	34.910	10	nd	na	3.215	31.695	0.43	8.76	11.25	380.	nm	nm	nm	Clear; DUP-27
G1-7B	G1-7B	6.1-9.1	14-May-12	15.170	35.047	34.910	20	nd	na	3.16	31.75	0.11	8.55	11.68	391.	nm	nm	nm	Clear
G1-7B	G1-7B	6.1-9.1	9-Aug-12	15.130	35.047	34.910	nd	nd	na	2.97	31.94	0.41	8.81	12.58	380.	nm	nm	nm	Clear, sunny
G1-7B	G1-7B	6.1-9.1	3-Apr-13	15.150	35.047	34.910	nd	nd	na	2.97	31.94	0.52	8.78	10.95	357.	nm	nm	nm	Clear
G1-7B	G1-7B	6.1-9.1	26-Aug-13	15.160	35.047	34.910	nd	nd	na	3.15	31.76	1.08	7.99	12.7	394.	nm	nm	nm	Clear
G1-7B	G1-7B	6.1-9.1	2-Jun-14	15.150	35.047	34.910	5	nd	na	3.18	31.73	1.38	7.8	11.62	385.	nm	nm	nm	Clear
G1-7B	G1-7B	6.1-9.1	23-Sep-14	15.160	35.047	34.910	nd	nd	na	3.22	31.69	0.94	8.36	11.89	386.	0.334	0.25	-115	Clear
G1-7B	G1-7B	6.1-9.1	4-May-15	15.150	35.047	34.910	20	nd	na	3.06	31.85	3.98	8.1	12.53	371.	0.316	0.24	-192.7	Clear
G1-7B	G1-7B	6.1-9.1	23-Sep-15	15.190	35.047	34.910	110	nd	na	3.16	31.75	0.08	8.75	12.94	389.	0.328	0.25	32.2	Clear; DUP-16
G1-7B	G1-7B	6.1-9.1	17-Mar-16	15.170	35.047	34.910	15	nd	na	2.87	32.04	0.63	8.82	11.35	343.	0.301	0.22	6.4	Clear
G1-7B	G1-7B	6.1-9.1	22-Sep-16	15.170	35.047	34.910	5	nd	na	2.93	31.98	0.92	8.56	12.68	380.	0.323	0.24	66.4	---
G1-7B	G1-7B	6.1-9.1	15-Apr-17	15.230	35.047	34.910	10	nd	na	3.1	31.81	0.22	8.51	11.6	358.	0.313	0.23	-126.2	Clear
G1-7B	G1-7B	6.1-9.1	31-Aug-17	15.270	35.047	34.910	15	nd	na	3.67	31.24	2.87	8.28	13.67	374.	0.31	0.23	-47.4	Clear
G1-7B	G1-7B	6.1-9.1	11-Apr-18	15.418	35.047	34.910	15	nd	na	4.76	30.15	1.69	8.77	11.06	348.	0.309	0.23	-32.5	Slightly cloudy (grey); sampled; DUP-3
G1-7B	G1-7B	6.1-9.1	7-May-18	15.450	35.047	34.910	10	nd	na	2.898	32.012	0.06	8.67	12.18	378.	0.325	0.24	-117.4	Slightly cloudy (grey); sampled; DUP-3
G1-7B	G1-7B	6.1-9.1	4-Sep-18	15.430	35.047	34.910	nd	nd	na	3.535	31.375	0.35	8.46	13.43	455.	0.379	0.28	234	Clear; sampled;
G1-7B	G1-7B	6.1-9.1	4-Apr-19	15.420	35.047	34.910	nd	nd	na	3.407	31.503	1.16	8.61	11.92	496.	0.43	0.32	15.7	Clear; sampled on recharge; DUP-11
G1-7B	G1-7B	6.1-9.1	23-Sep-19	15.460	35.047	34.910	10	nd	na	3.485	31.425	0.14	8.43	12.3	388.2	0.333	0.25	-100.8	Clear; DUP-6
G1-7B	G1-7B	6.1-9.1	19-Mar-20	15.424	35.047	34.910	nd	nd	na	3.291	31.619	1.32	8.88	11.24	540.	0.476	0.36	41.3	Clear
G1-7B	G1-7B	6.1-9.1	26-Aug-20	15.487	35.047	34.910	5	nd	na	3.519	31.391	3.54	8.68	14.6	673.	0.546	0.41	14.5	Clear
G1-8	G1-8	7.0-13.1	4-May-04	13.710	34.791	34.663	770	nd	na	4.15	30.513	nm	7.85	12.	948.	nm	nm	nm	---
G1-8	G1-8	7.0-13.1	25-Oct-04	13.850	34.791	34.663	550	nd	na	3.826	30.837	nm	8.08	12.	681.	nm	0.2	nm	---
G1-8	G1-8	7.0-13.1	27-Apr-05	13.710	34.791	34.663	25	nd	na	3.86	30.803	nm	8.18	13.8	1042.	nm	nm	nm	---
G1-8	G1-8	7.0-13.1	21-Sep-05	13.558	34.791	34.663	nm	nd	na	4.224	30.439	nm	8.01	12.5	789.	nm	nm	nm	Sampled on Sept-22-05
G1-8	G1-8	7.0-13.1	3-Apr-06	14.000	34.791	34.663	25	nd	na	3.785	30.878	136.	7.69	11.8	11.03	nm	nm	nm	---
G1-8	G1-8	7.0-13.1	30-Aug-06	13.740	34.791	34.663	45	nd	na	4.46	30.203	1.32	7.66	13.51	765.	nm	nm	nm	---
G1-8	G1-8	7.0-13.1	13-Apr-07	13.750	34.791	34.663	140	nd	na	3.28	31.383	3.28	nm	10.2	1692.	nm	nm	nm	---
G1-8	G1-8	7.0-13.1	28-Aug-07	13.750	34.791	34.663	80	nd	na	3.782	30.881	0.16	7.28	13.7	693.	nm	nm	nm	---
G1-8	G1-8	7.0-13.1	3-Apr-08	13.750	34.791	34.663	70	nd	na	3.465	31.198	0.2	7.92	11.9	1626.	nm	nm	nm	---
G1-8	G1-8	7.0-13.1	26-Aug-08	13.051	34.791	34.663	50	nd	na	3.898	30.765	0.4	7.23	12.6	1386.	nm	nm	nm	---
G1-8	G1-8	7.0-13.1	21-Apr-09	13.743	34.791	34.663	25	nd	na	3.316	31.347	0.6	6.23	12.5	1066.	nm	nm	nm	Clear
G1-8	G1-8	7.0-13.1	24-Aug-09	13.763	34.791	34.663	75	nd	na	3.75	30.913	0.3	7.98	12.1	659.	nm	nm	nm	Clear
G1-8	G1-8	7.0-13.1	6-Apr-10	13.760	34.791	34.663	nd	nd	na	3.26	31.403	0.12	8.06	10.2	800.	nm	nm	nm	Low turbidity, minimal sediment
G1-8	G1-8	7.0-13.1	2-Sep-10	12.750	34.791	34.663	nd	nd	na	3.775	30.888	0.05	7.11	13.3	661.	nm	nm	nm	Clear
G1-8	G1-8	7.0-13.1	28-Apr-11	13.740	34.791	34.663	50	nd	na	3.171	31.492	0.06	7.48	10.6	2230.	nm	nm	nm	Clear; purged dry 28 L
G1-8	G1-8	7.0-13.1	14-Sep-11	13.750	34.791	34.663	40	nd	na	3.615	31.048	2.63	7.4	13.2	874.	nm	nm	nm	Clear; Sampled Sept.15
G1-8	G1-8	7.0-13.1	14-May-12	13.750	34.791	34.663	nd	nd	na	3.205	31.458	0.34	7.65	14.5	1517.	nm	nm	nm	Clear
G1-8	G1-8	7.0-13.1	4-Sep-12	13.740	34.791	34.663	nd	nd	na	3.54	31.123	0.48	8.1	12.92	713.	nm	nm	nm	Clear; Limited EPH - ran dry
G1-8	G1-8	7.0-13.1	3-Apr-13	nm	34.791	34.663	nd	nm	na	nm	na	nm	nm	nm	nm	nm	nm	nm	Covered by Brymark Seacan container
G1-8	G1-8	7.0-13.1	26-Aug-13	13.705	34.791	34.663	15	nd	na	3.87	30.793	0.78	7.37	13.88	589.	nm	nm	nm	Clear; Dup-14; Slight sheen in ambers
G1-8	G1-8	7.0-13.1	4-Jun-14	13.745	34.791	34.663	50	nd	na	3.205	31.458	5.92	7.04	14.25	801.	0.655	0.5	70.5	Purged dry at 30 L; quick recharge
G1-8	G1-8	7.0-13.1	23-Sep-14	13.730	34.791	34.663	10	nd	na	3.57	31.093	2.46	7.78	13.64	692.	0.574	0.44	-89.7	Clear; DUP-27
G1-8	G1-8	7.0-13.1	13-May-15	13.750	34.791	34.663	25	nd	na	3.37	31.293	1.43	7.3	12.8	545.	0.462	0.35	96.2	Clear
G1-8	G1-8	7.0-13.1	23-Sep-15	13.790	34.791	34.663	45	nd	na	3.41	31.253	0.29	8.34	14.2	1155.	0.999	0.58	-182.9	Clear; DUP-17
G1-8	G1-8	7.0-13.1	21-Mar-16	13.700	34.791	34.663	15	nd	na	2.45	32.213	4.28	6.71	11.59	438.	0.383	0.29	-26.5	Clear
G1-8	G1-8	7.0-13.1	26-Sep-16	13.720	34.791	34.663	25	nd	na	2.63	32.033	0.56	8.15	14.74	470.	0.38	0.28	-83.5	---
G1-8	G1-8	7.0-13.1	19-Apr-17	13.750	34.791	34.663	100	nd	na	2.1	32.563	2.12	7.58	11.49	376.	0.33	0.25	-199.8	Clear; DUP-12
G1-8	G1-8	7.0-13.1	31-Aug-17	13.770	34.791	34.663	15	nd	na	2.33	32.333	1.28	7.47	14.47	403.	0.328	0.25	-24.7	Clear; DUP-5
G1-8	G1-8	7.0-13.1	12-Apr-18	13.735	34.791	34.663	25	nd	na	2.05	32.613	0.1	8.18	11.44	2298.	2.015	1.63	-62.3	Clear; sampled
G1-8	G1-8	7.0-13.1	4-Sep-18	13.718	34.791	34.663	5	nd	na	2.247	32.416	0.22	8.7	13.78	594.	0.492	0.37	189.8	sampled
G1-8	G1-8	7.0-13.1	3-Apr-19	13.736	34.791	34.663	180	nd	na	2.146	32.517	1.48	8.41	11.37	1190.	1.045	0.82	-60.1	Clear
G1-8	G1-8	7.0-13.1	23-Sep-19	13.750	34.791	34.663	20	nd	na	2.08	32.583	0.78	8.38	12.25	598.	0.514	0.39	-111.2	Clear
G1-8	G1-8	7.0-13.1	18-Mar-20	13.734	34.791	34.663	10	nd	na	3.156	31.507	1.3	7.77	11.12	491.	0.434	0.33	-53.4	Clear
G1-8	G1-8	7.0-13.1	26-Aug-20	13.738	34.791	34.663	20	nd	na	2.984	31.679	0.35	8.55	15.61	581.	0.46	0.35	-67.5	Clear
NDM97-2	NDM97-2	2.3-5.1	3-May-04	4.980	34.825	34.701	75	nd	na	1.55	33.151	nm	6.74	10.7	325.	nm	nm	nm	---
NDM97-2	NDM97-2	2.3-5.1	21-Oct-04	5.000	34.825	34.701	75	nd	na	1.462	33.239	nm	7.32	14.7	284.	nm	0.	nm	---
NDM97-2	NDM97-2	2.3-5.1	27-Apr-05	4.980	34.825	34.701	110	nd	na	1.25	33.451	nm	7.42	11.4	458.	nm	nm	nm	---
NDM97-2	NDM97-2	2.3-5.1	21-Sep-05	4.977	34.825	34.701	nm	nd	na	1.85	32.851	nm	7.4	15.4	421.	nm	nm	nm	Sampled Sept-21-05
NDM97-2	NDM97-2	2.3-5.1	3-Apr-06	4.950	34.825	34.701	80	nd	na	1.28	33.421	2.45	7.11	10.1	495.	nm	nm	nm	---
NDM97-2	NDM97-2	2.3-5.1	30-Aug-06	4.960	34.825	34.701	10	nd	na	2.12	32.581	0.65	7.31	15.27	658.	nm	nm	nm	---
NDM97-2	NDM97-2	2.3-5.1	13-Apr-07	4.650	34.825	34.701	40	nd	na	1.27	33.431	1.72	nm	9.4	591.	nm	nm	nm	---
NDM97-2	NDM97-2	2.3-5.1	27-Aug-07	4.880	34.825	34.701	30	nd	na	1.69	33.011	0.24	7.12	16.	4.23	nm	nm	nm	---
NDM97-2	NDM97-2	2.3-5.1	3-Apr-08	4.800	34.825	34.701	50	nd	na	1.395	33.306	2.52	6.69	9.2	428.	nm	nm	nm	---
NDM97-2	NDM97-2	2.3-5.1	26-Aug-08	4.169	34.825	34.701	25	nd	na	1.668	33.033	0.2	6.79	15.2	352.	nm	nm	nm	---
NDM97-2	NDM97-2	2.3-5.1	21-Apr-09	4.961	34.825	34.701	85	nd	na	1.556	33.145	2.9	7.26	10.2	88.	nm	nm	nm	Clear
NDM97-2	NDM97-2	2.3-5.1	24-Aug-09	4.972	34.825	34.701	nd	nd	na	1.943	32.758	0.5	6.88	16.	563.	nm	nm	nm	Clear
NDM97-2	NDM97-2	2.3-5.1	6-Apr-10	4.980	34.825	34.701	25	nd	na	0.955	33.746	0.1	6.87	9.9	450.	nm	nm	nm	Clear, low sediment

TABLE 1-1
AREAS 1 AND 3 GROUNDWATER MONITORING DATA
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY

Well ID	Sample ID	Screened Interval (mbgs)	Date Monitored	Total Depth of Well (m from TOC)	Ground Elevation (mASL)[1]	Top of Casing Elevation (TOC, mASL)1	Headspace Vapour Concentration (ppmv)	Depth to Product (m from TOC)	Apparent Product Thickness (mm)	Depth to Water (DTW, m from TOC)	Groundwater Elevation (mASL) [1]	Dissolved Oxygen (mg/L)	pH	Temperature (°C)	Electrical Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	ORP (mV)	Observations
NDM97-2	NDM97-2	2.3-5.1	2-Sep-10	4.960	34.825	34.701	nd	nd	na	1.04	33.661	0.07	6.67	15.7	588.	nm	nm	nm	Clear; Well comprised by unknown? of road water due to rainstorm during purging. Re-purged well.
NDM97-2	NDM97-2	2.3-5.1	27-Apr-11	4.953	34.825	34.701	30	nd	na	1.044	33.657	0.08	7.05	8.9	585.	nm	nm	nm	Clear; Well comprised by unknown amount of road water due to rainstorm during purging. Re-purged well.
NDM97-2	NDM97-2	2.3-5.1	14-Sep-11	4.980	34.825	34.701	5	nd	na	1.655	33.046	1.94	6.76	14.08	587.	nm	nm	nm	Clear
NDM97-2	NDM97-2	2.3-5.1	14-May-12	4.980	34.825	34.701	5	nd	na	1.185	33.516	2.11	7.01	10.54	468.	nm	nm	nm	Clear
NDM97-2	NDM97-2	2.3-5.1	9-Aug-12	4.970	34.825	34.701	35	nd	na	1.335	33.366	1.72	6.84	14.42	423.	nm	nm	nm	Clear
NDM97-2	NDM97-2	2.3-5.1	3-Apr-13	nm	34.825	34.701	nd	nm	na	nm	na	nm	nm	nm	nm	nm	nm	nm	Covered by Brymark Seaman container
NDM97-2	NDM97-2	2.3-5.1	26-Aug-13	4.980	34.825	34.701	nd	nd	na	0.86	33.841	1.55	6.39	15.13	513.	nm	nm	nm	Clear with some light sheen in ambers
NDM97-2	NDM97-2	2.3-5.1	4-Jun-14	4.980	34.825	34.701	nm	nd	na	0.	34.701	9.74	6.75	10.94	404.	0.359	0.27	64.7	J-plug off; redevelop with waterra 5 times volume
NDM97-2	NDM97-2	2.3-5.1	23-Sep-14	5.030	34.825	34.701	15	nd	na	1.1	33.601	2.1	6.75	14.47	472.	0.384	0.29	60.5	Clear
NDM97-2	NDM97-2	2.3-5.1	13-May-15	5.040	34.825	34.701	40	nd	na	1.17	33.531	1.32	6.68	11.56	472.	0.412	0.31	5.7	Clear
NDM97-2	NDM97-2	2.3-5.1	23-Sep-15	5.040	34.825	34.701	55	nd	na	0.58	34.121	2.37	6.67	15.11	532.	0.426	0.32	110.6	Clear
NDM97-2	NDM97-2	2.3-5.1	21-Mar-16	5.050	34.825	34.701	25	nd	na	0.42	34.281	1.01	6.65	10.14	335.	0.303	0.23	214.7	Clear; DUP-10
NDM97-2	NDM97-2	2.3-5.1	26-Sep-16	5.050	34.825	34.701	5	nd	na	0.53	34.171	2.74	7.08	15.45	401.	0.319	0.24	66.4	---
NDM97-2	NDM97-2	2.3-5.1	19-Apr-17	5.050	34.825	34.701	100	nd	na	0.7	34.001	1.3	6.76	9.34	361.	0.335	0.25	-161.8	---
NDM97-2	NDM97-2	2.3-5.1	31-Aug-17	5.060	34.825	34.701	nd	nd	na	0.96	33.741	0.86	6.77	15.5	449.	0.356	0.27	80.7	Clear
NDM97-2	NDM97-2	2.3-5.1	12-Apr-18	5.062	34.825	34.701	25	nd	na	0.427	34.274	0.73	6.89	9.33	679.	0.629	0.48	103.3	Silty; clear
NDM97-2	NDM97-2	2.3-5.1	4-Sep-18	5.060	34.825	34.701	70	nd	na	0.837	33.864	4.12	7.07	16.14	660.	0.516	0.4	-332.6	Clear; sampled
NDM97-2	NDM97-2	2.3-5.1	28-Mar-19	5.053	34.825	34.701	20	nd	na	0.523	34.178	0.3	6.87	9.	1280.	1.197	0.94	52.7	Clear
NDM97-2	NDM97-2	2.3-5.1	23-Sep-19	5.050	34.825	34.701	20	nd	na	0.575	34.126	2.63	7.47	14.57	703.	0.571	0.43	-42.3	Clear
NDM97-2	NDM97-2	2.3-5.1	18-Mar-20	5.032	34.825	34.701	20	nd	na	0.902	33.799	1.68	6.53	9.31	629.	0.583	0.44	102.8	Clear
NDM97-2	NDM97-2	2.3-5.1	26-Aug-20	5.045	34.825	34.701	5	nd	na	1.409	33.292	1.38	6.76	15.79	585.	0.461	0.35	22.5	Clear
NDM97-3	NDM97-3	6.1-9.1	3-May-04	6.000	35.003	34.873	nm	nd	na	2.85	32.023	nm	7.41	11.9	463.	nm	nm	nm	---
NDM97-3	NDM97-3	6.1-9.1	20-Oct-04	8.035	35.003	34.873	175	nd	na	2.601	32.272	nm	7.74	13.1	425.	nm	0.	nm	---
NDM97-3	NDM97-3	6.1-9.1	27-Apr-05	8.035	35.003	34.873	4400	nd	na	2.73	32.143	nm	7.66	13.6	510.	nm	nm	nm	---
NDM97-3	NDM97-3	6.1-9.1	21-Sep-05	8.035	35.003	34.873	nm	nd	na	3.1	31.773	nm	7.76	13.	393.	nm	nm	nm	Sampled Sept-21-05
NDM97-3	NDM97-3	6.1-9.1	29-Mar-06	8.200	35.003	34.873	1980	nd	na	2.71	32.163	1.55	7.2	11.3	156.	nm	nm	nm	---
NDM97-3	NDM97-3	6.1-9.1	30-Aug-06	8.020	35.003	34.873	180	nd	na	3.74	31.133	nm	7.78	14.7	76.	nm	nm	nm	---
NDM97-3	NDM97-3	6.1-9.1	5-Apr-07	9.050	35.003	34.873	11000	nd	na	2.8	32.073	0.38	7.83	11.2	596.	nm	nm	nm	---
NDM97-3	NDM97-3	6.1-9.1	27-Aug-07	9.035	35.003	34.873	25	nd	na	3.22	31.653	0.26	7.86	12.9	390.	nm	nm	nm	---
NDM97-3	NDM97-3	6.1-9.1	3-Apr-08	9.050	35.003	34.873	20	nd	na	2.84	32.033	0.37	7.49	10.8	507.	nm	nm	nm	---
NDM97-3	NDM97-3	6.1-9.1	26-Aug-08	9.058	35.003	34.873	150	nd	na	2.82	32.053	0.2	7.1	12.8	356.	nm	nm	nm	---
NDM97-3	NDM97-3	6.1-9.1	20-Apr-09	9.031	35.003	34.873	nd	nd	na	2.798	32.075	0.9	8.13	11.5	413.	nm	nm	nm	Clear
NDM97-3	NDM97-3	6.1-9.1	24-Aug-09	9.030	35.003	34.873	100	nd	na	3.19	31.683	0.2	7.25	12.6	400.	nm	nm	nm	Clear
NDM97-3	NDM97-3	6.1-9.1	6-Apr-10	9.050	35.003	34.873	220	nd	na	2.7	32.173	0.14	7.65	10.9	490.	nm	nm	nm	clear
NDM97-3	NDM97-3	6.1-9.1	2-Sep-10	9.020	35.003	34.873	nd	nd	na	3.2	31.673	0.05	7.25	13.2	386.	nm	nm	nm	Clear
NDM97-3	NDM97-3	6.1-9.1	28-Apr-11	9.030	35.003	34.873	480	nd	na	2.758	32.115	0.12	7.12	9.8	941.	nm	nm	nm	Clear, DUP-21
NDM97-3	NDM97-3	6.1-9.1	14-Sep-11	9.035	35.003	34.873	nd	nd	na	3.445	31.428	0.89	7.44	12.5	330.	nm	nm	nm	Clear; DUP-26
NDM97-3	NDM97-3	6.1-9.1	14-May-12	9.055	35.003	34.873	45	nd	na	2.975	31.898	1.09	7.36	11.2	353.	nm	nm	nm	Clear
NDM97-3	NDM97-3	6.1-9.1	9-Aug-12	9.020	35.003	34.873	95	nd	na	3.12	31.753	0.25	7.58	12.45	290.	nm	nm	nm	Clear
NDM97-3	NDM97-3	6.1-9.1	4-Apr-13	9.020	35.003	34.873	nd	nd	na	2.92	31.953	0.26	7.24	10.32	519.	nm	nm	nm	Clear; Dup-15
NDM97-3	NDM97-3	6.1-9.1	28-Aug-13	9.030	35.003	34.873	470	nd	na	3.705	31.168	0.68	7.41	12.34	329.	nm	nm	nm	Clear; DUP-17
NDM97-3	NDM97-3	6.1-9.1	3-Jun-14	9.020	35.003	34.873	85	nd	na	2.86	32.013	0.52	6.91	10.91	496.	0.441	0.33	-122.8	Sheen on probe; DUP-32
NDM97-3	NDM97-3	6.1-9.1	4-Sep-14	9.040	35.003	34.873	100	nd	na	3.05	31.823	0.21	6.98	12.54	331.	0.288	0.21	-132.9	Clear; DUP-24
NDM97-3	NDM97-3	6.1-9.1	21-Apr-15	9.020	35.003	34.873	880	nd	na	2.91	31.963	0.23	7.34	12.2	361.	0.311	0.23	-99.9	Clear
NDM97-3	NDM97-3	6.1-9.1	15-Sep-15	9.070	35.003	34.873	20	nd	na	2.97	31.903	1.52	7.45	13.19	318.	0.266	0.2	11.6	Clear; DUP-15
NDM97-3	NDM97-3	6.1-9.1	17-Mar-16	9.030	35.003	34.873	230	nd	na	2.62	32.253	0.18	7.39	11.17	415.	0.365	0.27	-103.3	Clear
NDM97-3	NDM97-3	6.1-9.1	22-Sep-16	9.030	35.003	34.873	50	nd	na	2.97	31.903	0.07	7.19	12.73	279.	0.217	0.18	-85.3	---
NDM97-3	NDM97-3	6.1-9.1	13-Apr-17	9.020	35.003	34.873	650	nd	na	2.34	32.533	0.49	7.18	11.08	335.	0.297	0.22	-134.0	Clear; DUP-10
NDM97-3	NDM97-3	6.1-9.1	30-Aug-17	9.080	35.003	34.873	nd	nd	na	3.87	31.003	1.02	7.39	13.82	299.	0.247	0.18	29.2	Clear
NDM97-3	NDM97-3	6.1-9.1	11-Apr-18	9.018	35.003	34.873	400	nd	na	2.8	32.073	0.11	7.52	10.92	556.	0.494	0.37	-91.9	Clear; sampled; DUP-4
NDM97-3	NDM97-3	6.1-9.1	6-Sep-18	9.072	35.003	34.873	400	nd	na	3.773	31.1	0.07	6.72	13.64	398.	0.331	0.25	-34.2	Clear; Sampled
NDM97-3	NDM97-3	6.1-9.1	3-Apr-19	9.023	35.003	34.873	210	nd	na	2.914	31.959	0.18	7.37	10.92	7.93	0.703	0.54	62.7	silty; DUP-10
NDM97-3	NDM97-3	6.1-9.1	23-Sep-19	9.075	35.003	34.873	70	nd	na	2.836	32.037	1.77	7.41	12.5	307.5	0.263	0.2	145.6	Clear, small black specs
NDM97-3	NDM97-3	6.1-9.1	19-Mar-20	9.048	35.003	34.873	70	nd	na	2.754	32.119	0.81	7.36	11.3	469.	0.413	0.31	-122.4	Clear
NDM97-3	NDM97-3	6.1-9.1	26-Aug-20	9.052	35.003	34.873	nd	nd	na	3.125	31.748	0.23	7.6	12.88	349.	0.3	0.22	-41.4	Clear
U07-10D	U07-10D	8.5-10.65	4-Jul-07	10.470	33.164	33.069	880	nd	na	4.25	28.819	nm	7.49	13.2	300.	nm	nm	nm	BC: no NAPL
U07-10D	U07-10D	8.5-10.65	28-Aug-07	10.470	33.164	33.069	50	nd	na	4.36	28.709	0.26	7.57	12.4	718.	nm	nm	nm	---
U07-10D	U07-10D	8.5-10.65	9-Apr-08	10.463	33.164	33.069	20	nd	na	2.784	30.285	0.54	6.96	9.2	289.	nm	nm	nm	---
U07-10D	U07-10D	8.5-10.65	28-Aug-08	10.503	33.164	33.069	25	nd	na	3.645	29.424	0.5	6.93	12.4	403.	nm	nm	nm	---
U07-10D	U07-10D	8.5-10.65	27-Apr-09	10.512	33.164	33.069	50	nd	na	3.885	29.184	0.7	7.14	10.5	780.	nm	nm	nm	Clear
U07-10D	U07-10D	8.5-10.65	3-Sep-09	10.420	33.164	33.069	30	nd	na	4.532	28.537	0.2	7.47	12.	1105.	nm	nm	nm	Clear
U07-10D	U07-10D	8.5-10.65	19-Apr-10	10.500	33.164	33.069	nd	nd	na	3.672	29.397	5.13	7.16	9.8	391.	nm	nm	nm	Clear low sediment
U07-10D	U07-10D	8.5-10.65	7-Sep-10	10.450	33.164	33.069	nd	nd	na	4.585	28.484	0.09	7.15	12.9	704.	nm	nm	nm	Clear
U07-10D	U07-10D	8.5-10.65	4-May-11	10.340	33.164	33.069	10	nd	na	4.16	28.909	6.42	6.67	12.2	333.	nm	nm	nm	Clear
U07-10D	U07-10D	8.5-10.65	27-Sep-11	10.275	33.164	33.069	nd	nd	na	3.84	29.229	5.21	6.78	16.79	215.	nm	nm	nm	Clear
U07-10D	U07-10D	8.5-10.65	16-May-12	10.100	33.164	33.069	nd	nd	na	4.43	28.639	3.28	7.7	12.62	399.	nm	nm	nm	Clear
U07-10D	U07-10D	8.5-10.65	18-Sep-12	10.000	33.164	33.069	nd	nd	na	4.61	28.459	5.59	7.78	15.92	761.	nm	nm	nm	Clear
U07-10D	U07-10D	8.5-10.65	9-Apr-13	10.060	33.164	33.069	10	nd	na	2.76	30.309	5.43	6.77	9.21	432.	nm	nm	nm	Clear
U07-10D	U07-10D	8.5-10.65	3-Sep-13	9.930	33.164	33.069	300	nd	na	4.65	28.419	0.79	6.85	13.14	830.	nm	nm	nm	Clear
U07-10D	U07-10D	8.5-10.65	28-May-14	9.930	33.164	33.069	30	nd	na	3.7	29.369	5.81	6.72	12.97	408.	0.344	0.26	-77.2	Clear
U07-10D	U07-10D	8.5-10.65	27-Aug-14	9.950	33.164	33.069	nd	nd	na	4.26	28.809	0.59	7.03	18.84	317.	0.233	0.17	105.2	Clear
U07-10D	U07-10D	8.5-10.65	10-Apr-15	9.940	33.164	33.069	nd	nd	na	3.45	29.619	0.47	6.9	11.62	344.	0.3	0.22	60.7	Clear
U07-10D	U07-10D	8.5-10.65	2-Sep-15	9.950	33.164	33.069	5	nd	na	4.18	28.889	0.13	7.37	13.69	442.	0.366	0.27	-11.8	Clear
U07-10D	U07-10D	8.5-10.65	15-Mar-16	9.970	33.164	33.069	10	nd	na	2.56	30.509	3.86	7.29	11.57	176.	0.154	0.11	229	Clear
U07-10D	U07-10D	8.5-10.65	21-Sep-16	9.950	33.164	33.069	20	nd	na	4.37	28.699	0.7	7.17	11.71	366.	0.296	0.22	477.6	Clear
U07-10D	U07-10D	8.5-10.65	26-Apr-17	10.000	33.164	33.069	40	nd	na	2.62	30.449	2.05	6.99	12.07	261.	0.225	0.17	-81.4	Clear; DUP-14
U07-10D	U07-10D	8.5-10.65	21-Sep-17	10.000	33.164	33.069	60	nd	na	4.2	28.869	0.12	7.21	13.96	582.	0.479	0.36	-72.8	Clear
U07-10D	U07-10D	8.5-10.65	16-Apr-18	10.000	33.164	33.069	20	nd	na	2.73	30.339	4.99	7.12	10.75	321.	0.287	0.21	100.7	Clear
U07-10D	U07-10D	8.5-10.65	10-Sep-18	10.009	33.164	33.069	55	nd	na	4.074	28.995	0.95	7.08	15.24	560.	0.447	0.34	-271.7	Clear; DUP-9
U07-10D	U07-10D	8.5-10.65	9-Apr-19	10.009	33.164	33.069	nd	nd	na	3.916	29.153	5.08	6.93	11.8	620.	0.538	0.41	69.2	clear
U07-10D	U07-10D	8.5-10.65	25-Sep-19	10.038	33.164	33.069	15	nd	na	3.551	29.518	0.83	8.14	14.66	495.	0.401	0.3	-54.1	Clear
U07-10D	U07-10D	8.5-10.65	24-Mar-20	10.009	33.164	33.069	0	nd	na	4.038	29.031	1.39	7.28	10.39	636.	0.574	0.44	-39.1	Clear
U07-10D	U07-10D	8.5-10.65	20-Aug-20	10.045	33.164	33.069	5	nd	na	4.071	28.998	0.14	7.33	14.47	782.	0.637	0.49	-50.1	Clear
U07-10I	U07-10I	6.65-8.15	4-Jul-07	8.120	33.164	32.993	5	nd	na	4.4	28.593	nm	7.44	13.	262.	nm	nm	nm	BC: no NAPL
U07-10I	U07-10I	6.65-8.15	28-Aug-07	8.120	33.164	32.993	11000	nd	na	4.405	28.588	0.37	7.4	13.1	735.	nm	nm	nm	---
U07-10I	U07-10I	6.65-8.15	9-Apr-08	7.977	33.164	32.993	20	nd	na	3.216	29.777	0.18	6.69	9.5	390.	nm	nm	nm	---
U07-10I	U07-10I	6.65-8.15	28-Aug-08	8.034	33.164	32.993	60	nd	na	3.86	29.133	0.3	7.27	12.4	496.	nm	nm	nm	---
U07-10I	U07-10I	6.65-8.15	27-Apr-09	8.020	33.164	32.993	100	nd	na	3.982	29.011	0.5	7.24	9.7	461.	nm	nm	nm	Clear
U07-10I	U07-10I	6.65-8.15	3-Sep-09	8.060	33.164	32.993	2200	nd	na	4.463	28.53	0.2	6.94	12.	989.	nm	nm	nm	Clear
U07-10I	U07-10I	6.65-8.15	19-Apr-10	8.050	33.164	32.993	nd	nd	na	3.82	29.173	0.1	7.4	10.	447.	nm	nm	nm	Clear low sediment
U07-10I	U07-10I	6.65-8.15	7-Sep-10	7.590	33.164	32.993	430	nd	na	4.65	28.343	nm	7.17	13.3	714.	nm	nm	nm	Clear
U07-10I	U07-10I	6.65-8.15	4-May-11	7.481	33.164	32.993	15	nd	na	4.23	28.763	14.28	6.49	11.7	269.	nm	nm	nm	Clear, DUP-27
U07-10I	U07-10I	6.65-8.15	28-Sep-11	7.550	33.164	32.993	55	nd	na	4.135	28.858	1.1	7.17	13.75	484.	nm	nm	nm	Clear; some confusion over well ID - resolved
U07-10I	U07-10I	6.65-8.15	16-May-12	7.540	33.164	32.993	5	nd	na	4.42	28.573	3.2	7.83	11.6	358.	nm	nm	nm	Clear; 1.5 L purge
U07-10I	U07-10I	6.65-8.15	9-Apr-13	7.460	33.164	32.993	nd	nd	na	2.75	30.243	5.25	6.66	9.32	434.	nm	nm	nm	Turbid
U07-10I	U07-10I	6.65-8.15	3-Sep-13	7.380	33.164	32.993	nd	nd	na	4.52	28.473	0.88	6.7	13.38	814.	nm	nm	nm	Cloudy
U07-10I	U07-10I	6.65-8.15	28-May-14	7.340	33.164	32.993	50	nd	na	3.695	29.298	3.61	6.66	13.65	454.	0.377	0.28	-19.8	Clear
U07-10I	U07-10I	6.65-8.15	27-Aug-14	7.410	33.164	32.993	370	nd	na	4.24	28.753	0.39	5.94	20.12	335.	0.24	0.18	116.4	Slightly turbid
U07-10I	U07-10I	6.65-8.15	10-Apr-15	7.410	33.164	32.993	5	nd	na	3.31	29.683	7.54	6.65	12.04	326.	0.282	0.21	58.9	---
U07-10I	U07-10I	6.65-8.15	2-Sep-15	7.350	33.164	32.993	25	nd	na	4.8	28.193	4.09	7.04	15.69	394.	0.312	0.23	12.5	Slightly turbid
U07-10I	U07-10I	6.65-8.15	15-Mar-16	7.450	33.164	32.993	5	nd	na	2.38	30.613	4.73	7.11	11.53	160.	0.14	0.1	54.2	Clear
U07-10I	U07-10I	6.65-8.15	21-Sep-16	7.430	33.164	32.993	25	nd	na	4.31	28.683	0.48	6.97	14.95	384.	0.309	0.23	-34.2	Silty
U07-10I	U07-10I	6.65-8.15	25-Apr-17	7.470	33.164	32.993	nd	nd	na	2.84	30.153	2.94	6.86	10.97	191.	0.17	0.13	38.6	---
U07-10I	U07-10I	6.65-8.15	21-Sep-17	7.490	33.164	32.993	nd	nd	na	4.21	28.783	0.63	6.55	14.63	595.	0.483	0.37	-22.2	Clear
U07-10I	U07-10I	6.65-8.15	16-Apr-18	7.480	33.164	32.993	15	nd	na	2.82	30.173	7.98	7.08	10.53	446.	0.401	0.3	131.7	Clear
U07-10I	U07-10I	6.65-8.15	10-Sep-18	7.476	33.164	32.993	35	nd	na	4.774	28.219	2.6	7.24	15.21	760.	0.607	0.46	-337.3	Slightly turbid; sampled

TABLE 1-1
AREAS 1 AND 3 GROUNDWATER MONITORING DATA
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY

Well ID	Sample ID	Screened Interval (mbgs)	Date Monitored	Total Depth of Well (m from TOC)	Ground Elevation (mASL)[1]	Top of Casing Elevation (TOC, mASL)1	Headspace Vapour Concentration (ppmv)	Depth to Product (m from TOC)	Apparent Product Thickness (mm)	Depth to Water (DTW, m from TOC)	Groundwater Elevation (mASL) [1]	Dissolved Oxygen (mg/L)	pH	Temperature (°C)	Electrical Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	ORP (mV)	Observations
U07-10I	U07-10I	6.65-8.15	9-Apr-19	7.463	33.164	32.993	35	nd	na	3.275	29.718	<0.02	6.91	11.65	828.	0.722	0.56	634.9	clear; minor sediment
U07-10I	U07-10I	6.65-8.15	25-Sep-19	7.478	33.164	32.993	10	nd	na	3.431	29.562	1.08	6.81	15.1	434.3	0.348	0.26	-42.1	Clear
U07-10I	U07-10I	6.65-8.15	24-Mar-20	7.466	33.164	32.993	0	nd	na	4.081	28.912	1.04	7.12	9.97	543.	0.496	0.38	-29.2	slightly turbid
U07-10I	U07-10I	6.65-8.15	20-Aug-20	7.462	33.164	32.993	5	nd	na	3.993	29.000	1.6	7.25	14.86	559.	0.45	0.34	-100	clear
U07-10S	U07-10S	4.7-6.2	4-Jul-07	6.150	33.112	32.950	2200	nd	na	4.74	28.21	nm	6.29	14.6	358.	nm	nm	nm	BC: Clear
U07-10S	U07-10S	4.7-6.2	28-Aug-07	6.150	33.112	32.950	4950	nd	na	4.82	28.13	1.55	6.24	13.6	940.	nm	nm	nm	---
U07-10S	U07-10S	4.7-6.2	9-Apr-08	6.109	33.112	32.950	8250	nd	na	4.393	28.557	0.72	6.78	8.9	649.	nm	nm	nm	pH collected at lab
U07-10S	U07-10S	4.7-6.2	27-Apr-09	6.035	33.112	32.950	2200	nd	na	4.8	28.15	nm	6.32	11.3	1937.	nm	nm	nm	BC: Sheen strong odour (9:30-10:10)
U07-10S	U07-10S	4.7-6.2	19-Apr-10	6.150	33.112	32.950	60	nd	na	4.15	28.8	nm	nm	nm	nm	nm	nm	nm	Product in well, not sampled.
U07-10S	U07-10S	4.7-6.2	4-May-11	6.130	33.112	32.950	60	nd	na	4.429	28.521	0.37	5.94	11.7	1006.	nm	nm	nm	Clear, sheen observation
U07-10S	U07-10S	4.7-6.2	21-Sep-11	6.130	33.112	32.950	10230	nd	na	4.92	28.03	0.85	5.98	13.69	665.	nm	nm	nm	Clear with sheen on top; DUP-34 (DUP of VOC/SVOC only)
U07-10S	U07-10S	4.7-6.2	27-Aug-14	6.140	33.112	32.950	>11000	nd	na	4.5	28.45	1.62	6.08	17.32	1060.	0.807	0.62	-66.5	Clear
U07-10S	U07-10S	4.7-6.2	10-Apr-15	6.130	33.112	32.950	1080	nd	na	4.15	28.8	1.73	5.89	11.69	747.	0.651	0.5	-22.9	Sheen in water
U07-10S	U07-10S	4.7-6.2	2-Sep-15	6.130	33.112	32.950	>11000	nd	na	4.4	28.55	0.36	6.27	15.31	964.	0.769	0.59	-47.7	Clear; Dark coloured, heavy, fibrous and liquid substance on tubing; DUP-13
U07-10S	U07-10S	4.7-6.2	15-Mar-16	6.130	33.112	32.950	40	nd	na	3.81	29.14	1.55	6.52	11.18	689.	0.608	0.48	-33.1	Dark coloured, heavy, fibrous and liquid substance at the bottom; Hydrocarbon odour
U07-10S	U07-10S	4.7-6.2	21-Sep-16	6.130	33.112	32.950	470	nd	na	4.59	28.36	0.06	6.19	15.83	945.	0.746	0.57	-39.7	Clear with creosote-like odour
U07-10S	U07-10S	4.7-6.2	25-Apr-17	6.150	33.112	32.950	nd	nd	na	3.92	29.03	0.99	6.28	10.73	807.	0.721	0.55	-51.1	Clear
U07-10S	U07-10S	4.7-6.2	21-Sep-17	6.150	33.112	32.950	10	nd	na	4.48	28.47	0.98	6.09	15.79	729.	0.575	0.44	-23.1	Clear
U07-10S	U07-10S	4.7-6.2	12-Apr-18	6.157	33.112	32.950	360	nd	na	4.004	28.946	0.75	6.57	10.89	519.	0.961	0.35	80	Strong hydrocarbon odour; sheen; Brown globules present very small; Clear
U07-10S	U07-10S	4.7-6.2	10-Sep-18	6.443	33.112	32.950	810	nd	na	4.555	28.395	0.89	5.87	15.6	1005.	0.791	0.61	25.8	Solid tune at the bottom, sheen in the water
U07-10S	U07-10S	4.7-6.2	9-Apr-19	6.132	33.112	32.950	400	nd	na	4.078	28.872	0.	6.65	11.79	879.	0.764	0.59	717.9	DNAPL at bottom of well (purged);Slightly yellow tinged; minor sediment; sampled for BTEX/VPH, LEPH/HEPH and PAHs
U07-10S	U07-10S	4.7-6.2	10-Apr-19	6.132	33.112	32.950	nd	nd	na	4.149	28.801	0.21	6.26	10.48	899.	0.808	0.62	434.7	DNAPL at bottom of well (purged); water was clear; sheen; globules; sample for VOCs/SVOCs
U07-10S	U07-10S	4.7-6.3	25-Sep-19	6.150	33.112	32.950	470	nd	na	4.305	28.645	0.06	6.12	14.9	709.	0.572	0.43	-22.9	Clear, hc odour
U07-10S	U07-10S	4.7-6.2	24-Mar-20	6.138	33.112	32.950	340	nd	na	4.412	28.538	0.67	6.32	9.91	1013.	0.924	0.72	-15.5	Sheen in purge water, HC odour, clear sample, DUP-5
U07-10S	U07-10S	4.7-6.2	20-Aug-20	6.146	33.112	32.950	510	nd	na	4.338	28.612	0.33	6.2	14.22	769.	0.628	0.48	-19.7	Sheen and HC odour in purge water, clear sample with sheen on surface
U6	ns	0.9-3.9	19-Sep-05	3.900	32.889	32.789	400	nd	na	1.6	31.189	nm	nm	nm	nm	nm	nm	nm	Developed well, cloudy, very silty
U6	A3-U6	0.9-3.9	21-Sep-05	3.900	32.889	32.789	nm	nd	na	1.84	30.949	nm	6.73	16.5	1157.	nm	nm	nm	---
U6	U6	0.9-3.9	29-Mar-06	3.920	32.889	32.789	660	nd	na	0.72	32.069	10.07	7.	9.	60.9	nm	nm	nm	---
U6	U6	0.9-3.9	30-Aug-06	3.910	32.889	32.789	10	nd	na	2.79	29.999	0.65	5.96	15.15	676.	nm	nm	nm	---
U6	U6	0.9-3.9	4-Apr-07	3.900	32.889	32.789	600	nd	na	0.7	32.089	2.36	7.01	8.7	109.1	nm	nm	nm	---
U6	U6	0.9-3.9	28-Aug-07	3.910	32.889	32.789	75	nd	na	1.33	31.459	0.16	6.87	17.3	190.	nm	nm	nm	---
U6	U6	0.9-3.9	9-Apr-08	3.893	32.889	32.789	20	nd	na	0.626	32.163	7.86	7.31	11.2	64.9	nm	nm	nm	pH collected at lab
U6	U6	0.9-3.9	28-Aug-08	3.911	32.889	32.789	75	nd	na	0.509	32.28	6.2	6.58	17.3	65.6	nm	nm	nm	Clear
U6	U6	0.9-3.9	27-Apr-09	3.910	32.889	32.789	25	nd	na	0.715	32.074	9.	6.96	12.3	216.	nm	nm	nm	Clear
U6	U6	0.9-3.9	3-Sep-09	3.916	32.889	32.789	10	nd	na	1.165	31.624	0.2	6.97	18.1	125.8	nm	nm	nm	Clear
U6	U6	0.9-3.9	19-Apr-10	3.908	32.889	32.789	nd	nd	na	0.732	32.057	0.24	6.76	11.3	97.5	nm	nm	nm	Clear low sediment
U6	U6	0.9-3.9	7-Sep-10	3.900	32.889	32.789	nd	nd	na	0.655	32.134	0.17	5.8	18.7	61.	nm	nm	nm	Clear
U6	U6	0.9-3.9	4-May-11	3.905	32.889	32.789	nd	nd	na	0.653	32.136	5.09	6.65	13.3	90.	nm	nm	nm	Clear
U6	U6	0.9-3.9	22-Sep-11	3.900	32.889	32.789	45	nd	na	0.645	32.144	5.05	6.03	16.85	78.	nm	nm	nm	Clear
U6	U6	0.9-3.9	15-May-12	3.910	32.889	32.789	5	nd	na	0.79	31.999	0.66	6.38	11.39	73.	nm	nm	nm	Clear
U6	U6	0.9-3.9	18-Sep-12	3.920	32.889	32.789	35	nd	na	2.65	30.139	0.83	6.51	13.15	209.	nm	nm	nm	Clear
U6	U6	0.9-3.9	10-Apr-13	3.910	32.889	32.789	5	nd	na	0.56	32.229	5.26	6.11	9.47	331.	nm	nm	nm	Clear
U6	U6	0.9-3.9	27-Aug-13	3.920	32.889	32.789	30	nd	na	1.52	31.269	0.6	5.78	16.83	464.	nm	nm	nm	Clear
U6	U6	0.9-3.9	28-May-14	3.910	32.889	32.789	90	nd	na	0.68	32.109	3.67	5.55	13.03	126.	0.106	0.08	-5.3	Clear
U6	U6	0.9-3.9	27-Aug-14	3.930	32.889	32.789	130	nd	na	0.9	31.889	0.55	6.	17.56	172.	0.131	0.1	56.7	Clear
U6	U6	0.9-3.9	9-Apr-15	3.910	32.889	32.789	110	nd	na	0.68	32.109	5.04	4.69	10.96	98.	0.87	0.06	143	Clear
U6	U6	0.9-3.9	2-Sep-15	3.910	32.889	32.789	45	nd	na	0.26	32.529	5.16	6.4	17.89	118.	0.089	0.06	14.3	Clear
U6	U6	0.9-3.9	15-Mar-16	3.910	32.889	32.789	nd	nd	na	0.65	32.139	4.08	6.89	10.84	65.	0.058	0.04	87.5	Clear
U6	U6	0.9-3.9	19-Sep-16	3.810	32.889	32.789	35	nd	na	0.62	32.169	2.61	6.36	17.92	105.	0.079	0.06	47.5	Clear
U6	U6	0.9-3.9	20-Apr-17	3.920	32.889	32.789	25	nd	na	0.67	32.119	6.18	5.43	11.13	67.	0.06	0.04	103.3	Clear
U6	U6	0.9-3.9	14-Sep-17	3.960	32.889	32.789	80	nd	na	3.36	29.429	0.11	6.38	17.16	318.	0.243	0.18	-78.1	Clear
U6	U6	0.9-3.9	17-Apr-18	3.920	32.889	32.789	25	nd	na	0.66	32.129	0.75	4.	8.98	98.	0.093	0.07	198.4	Clear
U6	U6	0.9-3.9	25-Sep-18	3.911	32.889	32.789	35	nd	na	0.69	32.099	2.25	6.22	16.72	85.	0.066	0.05	233	Clear
U6	U6	0.9-3.9	8-Apr-19	3.909	32.889	32.789	20	nd	na	0.665	32.124	<0.02	6.4	9.59	86.	0.071	0.06	621.9	sediment; DUP-12
U6	U6	0.9-3.9	26-Sep-19	3.911	32.889	32.789	25	nd	na	0.663	32.126	1.63	6.7	15.75	81.	0.064	0.05	-36.2	Clear
U6	U6	0.9-3.9	24-Mar-20	3.908	32.889	32.789	0	nd	na	0.674	32.115	6.17	6.3	8.27	87.	0.082	0.06	35.5	Clear
U6	U6	0.9-3.9	19-Aug-20	3.902	32.889	32.789	25	nd	na	1.226	31.563	1.54	5.25	17.78	87.	0.066	0.05	128	Clear
U7	ns	1.2-5.8	19-Sep-05	5.800	32.783	32.618	550	nd	na	3.29	29.328	nm	nm	nm	nm	nm	nm	nm	Developed well; cloudy; very silty
U7	U7	1.2-5.8	21-Sep-05	5.800	32.783	32.618	nm	nd	na	3.11	29.508	nm	6.83	13.3	490.	nm	nm	nm	---
U7	U7	1.2-5.8	29-Mar-06	5.750	32.783	32.618	70	nd	na	1.765	30.853	1.85	6.84	8.9	148.3	nm	nm	nm	---
U7	U7	1.2-5.8	30-Aug-06	5.780	32.783	32.618	85	nd	na	3.23	29.388	0.53	6.14	13.65	498.	nm	nm	nm	---
U7	U7	1.2-5.8	4-Apr-07	5.780	32.783	32.618	90	nd	na	1.97	30.648	0.71	6.75	8.4	269.	nm	nm	nm	---
U7	U7	1.2-5.8	28-Aug-07	5.770	32.783	32.618	50	nd	na	2.72	29.898	0.21	6.76	12.91	396.	nm	nm	nm	---
U7	U7	1.2-5.8	9-Apr-08	5.742	32.783	32.618	70	nd	na	1.409	31.209	4.69	7.63	9.4	90.5	nm	nm	nm	pH collected at lab
U7	U7	1.2-5.8	28-Aug-08	5.705	32.783	32.618	100	nd	na	1.123	31.495	1.1	6.53	17.	224.	nm	nm	nm	Clear
U7	U7	1.2-5.8	27-Apr-09	5.705	32.783	32.618	75	nd	na	1.915	30.703	1.4	7.1	10.6	711.	nm	nm	nm	Clear minimal sediment
U7	U7	1.2-5.8	3-Sep-09	5.680	32.783	32.618	20	nd	na	3.	29.618	0.2	6.31	12.3	492.	nm	nm	nm	Clear
U7	U7	1.2-5.8	19-Apr-10	5.618	32.783	32.618	nd	nd	na	1.895	30.723	1.98	6.57	10.4	298.	nm	nm	nm	J -plug not in place clear; low sediment
U7	U7	1.2-5.8	7-Sep-10	5.600	32.783	32.618	190	nd	na	2.89	29.728	0.16	6.11	13.7	488.	nm	nm	nm	Clear
U7	U7	1.2-5.8	4-May-11	5.530	32.783	32.618	40	nd	na	0.692	31.926	1.87	6.16	12.6	209.	nm	nm	nm	Clear
U7	U7	1.2-5.8	22-Sep-11	5.575	32.783	32.618	60	nd	na	2.455	30.163	3.74	6.04	15.44	353.	nm	nm	nm	Clear; DUP-35
U7	U7	1.2-5.8	15-May-12	5.470	32.783	32.618	75	nd	na	2.05	30.568	0.31	6.63	9.72	257.	nm	nm	nm	Clear
U7	U7	1.2-5.8	18-Sep-12	5.480	32.783	32.618	85	nd	na	2.8	29.818	0.32	6.79	12.4	400.	nm	nm	nm	Clear
U7	U7	1.2-5.8	10-Apr-13	5.530	32.783	32.618	65	nd	na	0.83	31.788	1.96	5.35	8.54	255.	nm	nm	nm	Clear
U7	U7	1.2-5.8	27-Aug-13	5.510	32.783	32.618	130	nd	na	2.82	29.798	0.81	6.01	13.54	974.	nm	nm	nm	Clear
U7	U7	1.2-5.8	29-May-14	5.550	32.783	32.618	1210	nd	na	2.05	30.568	0.41	6.1	10.43	473.	0.426	0.32	-80.8	Clear
U7	U7	1.2-5.8	27-Aug-14	5.570	32.783	32.618	500	nd	na	2.7	29.918	0.27	6.09	15.19	592.	0.474	0.36	-9.5	Clear
U7	U7	1.2-5.8	9-Apr-15	5.540	32.783	32.618	55	nd	na	1.86	30.758	2.2	6.06	10.44	375.	0.337	0.25	-19.9	Clear
U7	U7	1.2-5.8	2-Sep-15	5.500	32.783	32.618	220	nd	na	2.58	30.038	0.54	6.26	15.23	482.	0.386	0.29	-62.6	Clear
U7	U7	1.2-5.8	16-Mar-16	5.560	32.783	32.618	nm	nd	na	0.65	31.968	1.6	7.13	9.8	177.	0.162	0.12	65.6	Road box filled of water, J-plug off and well water compromised; Used riser pipe to purge 6 times well volume prior to collecting sample; Clear
U7	U7	1.2-5.8	21-Sep-16	5.540	32.783	32.618	20	nd	na	2.28	30.338	2.95	6.52	15.53	407.	0.323	0.24	131.3	Clear
U7	U7	1.2-5.8	1-May-17	5.580	32.783	32.618	35	nd	na	1.53	31.088	2.18	4.35	9.96	186.	0.169	0.12	210.8	Clear
U7	U7	1.2-5.8	14-Sep-17	6.520	32.783	32.618	200	nd	na	4.38	28.238	0.18	6.25	14.63	382.	0.31	0.23	0.6	Clear
U7	U7	1.2-5.8	17-Apr-18	6.540	32.783	32.618	55	nd	na	1.06	31.558	3.38	5.36	10.5	56.	0.052	0.04	132.6	Clear
U7	U7	1.2-5.8	25-Sep-18	6.540	32.783	32.618	130	nd	na	3.114	29.504	0.78	6.28	14.86	322.	0.26	0.19	-367.6	Clear; sampled; DUP-8
U7	U7	1.2-5.8	8-Apr-19	6.515	32.783	32.618	5	nd	na	1.692	30.926	5	6.85	9.32	229.	0.213	0.16	-36.8	clear, minor sediments
U7	U7	1.2-5.8	26-Sep-19	6.503	32.783	32.618	50	nd	na	0.955	31.663	0.25	6.62	15.9	151.6	0.12	0.09	20.5	Clear
U7	U7	1.2-5.8	24-Mar-20	6.514	32.783	32.618	0	nd	na	1.505	31.113	6	6.49	7.66	140.	0.135	0.1	12.8	Clear
U7	U7	1.2-5.8	19-Aug-20	6.514	32.783	32.618	60	nd	na	3.755	28.863	0.92	6.58	13.7	404.	0.335	0.25	-8.6	Went dry at 4L, sampled on recharge, clear
MW17-04	MW17-04	0.8 - 1.5	17-Jul-17	1.360	52.989	52.883	180	nd	na	0.8	52.083	0.86	5.65	15.54	1012.	0.803	0.62	83	Clear
MW17-04	MW17-04	0.8 - 1.5	5-Apr-18	1.283	52.989	52.883	180	nd	na	0.756	52.127	0.46	6.49	8.41	869.	0.827	0.64	-1.2	Clear
MW17-04	MW17-04	0.8 - 1.5	30-Aug-18	1.280	52.989	52.883	230	nd	na	0.851	52.032	1.08	0.28	15.97	1162.	0.912	0.71	22.8	Clear; sampled
MW17-04	MW17-04	0.8 - 1.5	28-Mar-19	1.360	52.989	52.883	95	nd	na	0.823	52.06	0.58	6.34	9.22	1293.	1.188	0.93	-7.8	Clear; sampled on recharge
MW17-04	MW17-04	0.8 - 1.5	24-Sep-19	1.359	52.989	52.883	150	nd	na	0.776	52.107	0.64	7.42	14.8	1367.	1.103	0.86	-32.6	Clear
MW17-4	MW17-4	0.8 - 1.5	17-Mar-20	1.358	52.989	52.883	100	nd	na	0.807	52.076	2.91	6.01	7.75	960.	10.93	10.72	-40.4	Clear
MW17-4	MW17-4	0.8 - 1.5	19-Aug-20	1.355	52.989	52.883	110	nd	na	0.853	52.03	0.35	6.11	16.82	1228.	0.947	0.74	31.3	Clear

TABLE 1-1
AREAS 1 AND 3 GROUNDWATER MONITORING DATA
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY

Well ID	Sample ID	Screened Interval (mbgs)	Date Monitored	Total Depth of Well (m from TOC)	Ground Elevation (mASL)[1]	Top of Casing Elevation (TOC, mASL)1	Headspace Vapour Concentration (ppmv)	Depth to Product (m from TOC)	Apparent Product Thickness (mm)	Depth to Water (DTW, m from TOC)	Groundwater Elevation (mASL) [1]	Dissolved Oxygen (mg/L)	pH	Temperature (°C)	Electrical Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	ORP (mV)	Observations

Abbreviations:

BC	Bailer confirmed
°C	Degree Celsius
DUP	Duplicate
g/L	Grams per litre
L	Litres
m	Metres
mASL	Metres above sea level
mbgs	Metres below ground surface
mg/L	Milligrams per litre
mL	Millilitres
mV	Millivolts
µS/cm	Microsiemens per centimeter
na	Not applicable/ available
nd	Not detected
nm	Not monitored
ns	Not sampled
ORP	Oxidation reduction potential
ppmv	Parts per million by volume
ppt	Parts per thousand
TDS	Total dissolved solids
TOC	Top of casing
---	No observations noted

Notes:

1 Elevations are in Parkland Datum = Geodetic Datum + 91.51 feet (27.895 m)

TABLE 1-2
AREAS 1 AND 3 CONCENTRATIONS OF EXTRACTABLE PETROLEUM HYDROCARBONS IN GROUNDWATER
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY
µg/L (ppb)

					LEPHw[3]	HEPHw[3]	EPH w (C10-<C19)[2, 3]	EPH w (C19-C32)[3]	VH w (C6-C10)	VPHw	Benzene	Toluene	Ethylbenzene	Xylenes	Styrene	Groundwater Classification
Generic Numerical Water Standards[4]																
CSR	Schedule 3.2 - Freshwater Aquatic Life			(AW)	500[1]	NS	5000[1]	NS	15000[1]	1500[1]	400	5	2000	300[1]	720[1]	
	Schedule 3.2 - Marine Aquatic Life			(AW)	500[1]	NS	5000[1]	NS	15000[1]	1500[1]	1000	2000	2500	300[1]	720[1]	
Site-Specific Screening Levels (SSSLs)					3000	NS	5000	NS	15000	15000	21000	7700	3200	3300	720	
Well ID	**Sample ID**	**Screened Interval (mbgs)**	**ALS Laboratory Report #**	**Sample Date**												
A1-3D	A1-3D	10.9-15.5		4-May-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-3D	A1-3D	10.9-15.5		20-Oct-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-3D	A1-3D	10.9-15.5		21-Apr-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-3D	A1-3D	10.9-15.5		22-Sep-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-3D	A1-3D	10.9-15.5		4-Apr-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-3D	A1-3D	10.9-15.5		31-Aug-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-3D	A1-3D	10.9-15.5		5-Apr-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-3D	A1-3D	10.9-15.5		28-Aug-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-3D	A1-3D	10.9-15.5		10-Apr-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-3D	A1-3D	10.9-15.5		26-Aug-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-3D	A1-3D	10.9-15.5		21-Apr-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-3D	A1-3D	10.9-15.5		25-Aug-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-3D	A1-3D	10.9-15.5		22-Sep-10	---	---	<250.	310.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
A1-3D	A1-3D	10.9-15.5		3-May-11	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
A1-3D	A1-3D	10.9-15.5		20-Sep-11	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-3D	A1-3D	10.9-15.5		16-May-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-3D	A1-3D	10.9-15.5		4-Sep-12	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-3D	A1-3D	10.9-15.5		5-Sep-12	---	---	<250.	<250.	---	---	---	---	---	---	---	AW-
A1-3D	A1-3D	10.9-15.5		3-Apr-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-3D	A1-3D	10.9-15.5		27-Aug-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-3D	A1-3D	10.9-15.5		3-Apr-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-3D	A1-3D	10.9-15.5		27-Aug-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-3D	A1-3D	10.9-15.5	L1464702-3	3-Jun-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-3D	A1-3D	10.9-15.5	L1522243-1	23-Sep-14	---	---	<250.	<250.	<100.	<100.	<0.5	0.64	<0.5	0.81	---	AW-
A1-3D	A1-3D	10.9-15.5	L1611514-5	13-May-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-3D	A1-3D	10.9-15.5	L1677757-10	23-Sep-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-3D	A1-3D	10.9-15.5	L1572244-1	5-Apr-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-3D	A1-3D	10.9-15.5	L1833762-2	22-Sep-16	---	---	<250.	<250.	---	---	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-3D	A1-3D	10.9-15.5	L1910707-3	6-Apr-17	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A1-3D	A1-3D	10.9-15.5	L1984002-2	30-Aug-17	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A1-3D	A1-3D	10.9-15.5	L2078315-3	10-Apr-18	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A1-3D	A1-3D	10.9-15.5	L2159148-6	5-Sep-18	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A1-3D	A1-3D	10.9-15.5	L2253959-1	4-Apr-19	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A1-3D	A1-3D	10.9-15.5	L2350854-1	19-Sep-19	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A1-3D	A1-3D	10.9-15.5	VA20A3631-001	19-Mar-20	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A1-3D	A1-3D	10.9-15.5	VA20B3584-007	25-Aug-20	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A1-3S	A1-3S	1.1-4.1		30-Mar-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-3S	A1-3S	1.1-4.1		20-Apr-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-3S	A1-3S	1.1-4.1		20-Sep-10	---	---	<250.	350.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
A1-3S	A1-3S	1.1-4.1		3-May-11	---	---	<250.	510.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
A1-3S	A1-3S	1.1-4.1	L1910707-2	6-Apr-17	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A1-3S	A1-3S	1.1-4.1	L2078315-2	10-Apr-18	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A1-3S	A1-3S	1.1-4.1	L2256471-1	10-Apr-19	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A1-12S	A1-12S	1.0-2.5		6-May-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-12S	A1-12S	1.0-2.5		19-Oct-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-12S	A1-12S	1.0-2.5		19-Apr-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-12S	A1-12S	1.0-2.5		15-Sep-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-12S	A1-12S	1.0-2.5		4-Apr-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-12S	A1-12S	1.0-2.5		5-Sep-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-12S	A1-12S	1.0-2.5		2-Apr-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-12S	A1-12S	1.0-2.5		28-Aug-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-12S	A1-12S	1.0-2.5		8-Apr-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-12S	A1-12S	1.0-2.5		2-Sep-08	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<1.	---	AW-
A1-12S	A1-12S	1.0-2.5		21-Apr-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-12S	A1-12S	1.0-2.5		25-Aug-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-12S	A1-12S	1.0-2.5		7-Apr-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-12S	A1-12S	1.0-2.5		7-Sep-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
A1-12S	A1-12S	1.0-2.5		26-Apr-11	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
A1-12S	A1-12S	1.0-2.5		20-Sep-11	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-12S	A1-12S	1.0-2.5		18-May-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-12S	A1-12S	1.0-2.5		23-Aug-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-12S	A1-12S	1.0-2.5		16-Apr-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-12S	A1-12S	1.0-2.5		3-Sep-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-12S	A1-12S	1.0-2.5	L1459753-1	23-May-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-12S	A1-12S	1.0-2.5	L1511474-1	2-Sep-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-12S	A1-12S	1.0-2.5	L1594270-1	1-Apr-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-12S	A1-12S	1.0-2.5	L1666479-1	1-Sep-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-12S	A1-12S	1.0-2.5	L1745658-1	16-Mar-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-12S	A1-12S	1.0-2.5	L1838680-1	4-Oct-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-12S	A1-12S	1.0-2.5	L1919077-1	28-Apr-17	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A1-12S	A1-12S	1.0-2.5	L1991780-2	14-Sep-17	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A1-12S	A1-12S	1.0-2.5	L2078315-8	10-Apr-18	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A1-12S	A1-12S	1.0-2.5	L2154662-1	28-Aug-18	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A1-12S	A1-12S	1.0-2.5	L2250150-1	27-Mar-19	---	---	<250	<250.	<100	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A1-12S	A1-12S	1.0-2.5	L2353321-3	24-Sep-19	---	---	<250	<250.	<100	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A1-12S	A1-12S	1.0-2.5	VA20A3495-001	17-Mar-20	---	---	<250	<250.	<100	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A1-12S	A1-12S	1.0-2.5	VA20B3791-001	27-Aug-20	---	---	<250	<250.	<100	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A1-12C	A1-12C	5.2-6.7		6-May-04	<300.	<1000.	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-12C	A1-12C	5.2-6.7		19-Oct-04	300.	<1000.	300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-12C	A1-12C	5.2-6.7		19-Apr-05	<300.	<1000.	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-12C	A1-12C	5.2-6.7		15-Sep-05	<300.	<1000.	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-12C	A1-12C	5.2-6.7		4-Apr-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-12C	A1-12C	5.2-6.7		5-Sep-06	---	---	310.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-12C	A1-12C	5.2-6.7		2-Apr-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-12C	A1-12C	5.2-6.7		28-Aug-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-12C	A1-12C	5.2-6.7		8-Apr-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-12C	A1-12C	5.2-6.7		26-Aug-08	---	---	280.	280.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-12C	A1-12C	5.2-6.7		21-Apr-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-12C	A1-12C	5.2-6.7		25-Aug-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-12C	A1-12C	5.2-6.7		7-Apr-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-12C	A1-12C	5.2-6.7		7-Sep-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
A1-12C	A1-12C	5.2-6.7		26-Apr-11	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
A1-12C	A1-12C	5.2-6.7		20-Sep-11	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-12C	A1-12C	5.2-6.7		18-May-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-12C	A1-12C	5.2-6.7		23-Aug-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-12C	A1-12C	5.2-6.7		16-Apr-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-12C	A1-12C	5.2-6.7		3-Sep-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-12C	A1-12C	5.2-6.7	L1459753-3	23-May-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-12C	A1-12C	5.2-6.7	L1511474-3	2-Sep-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-12C	A1-12C	5.2-6.7	L1594270-3	1-Apr-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-12C	A1-12C	5.2-6.7	L1666479-3	1-Sep-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-

TABLE 1-2
AREAS 1 AND 3 CONCENTRATIONS OF EXTRACTABLE PETROLEUM HYDROCARBONS IN GROUNDWATER
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY
µg/L (ppb)

					LEPHw[3]	HEPHw[3]	EPH w (C10-<C19)[2, 3]	EPH w (C19-C32)[3]	VH w (C6-C10)	VPHw	Benzene	Toluene	Ethylbenzene	Xylenes	Styrene	Groundwater Classification
Generic Numerical Water Standards[4]																
CSR	Schedule 3.2 - Freshwater Aquatic Life			(AW)	500[1]	NS	5000[1]	NS	15000[1]	1500[1]	400	5	2000	300[1]	720[1]	
	Schedule 3.2 - Marine Aquatic Life			(AW)	500[1]	NS	5000[1]	NS	15000[1]	1500[1]	1000	2000	2500	300[1]	720[1]	
	Site-Specific Screening Levels (SSSLs)				3000	NS	5000	NS	15000	15000	21000	7700	3200	3300	720	
Well ID	**Sample ID**	**Screened Interval (mbgs)**	**ALS Laboratory Report #**	**Sample Date**												
A1-12C	A1-12C	5.2-6.7	L1745658-2	16-Mar-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-12C	A1-12C	5.2-6.7	L1838680-3	4-Oct-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-12C	A1-12C	5.2-6.7	L1919061-2	27-Apr-17	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A1-12C	A1-12C	5.2-6.7	L1991780-3	14-Sep-17	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A1-12C	A1-12C	5.2-6.7	L2077579-2	9-Apr-18	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A1-12C	A1-12C	5.2-6.7	L2156437-1	30-Aug-18	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A1-12C	A1-12C	5.2-6.7	L2250150-3	27-Mar-19	---	---	<250.	290.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A1-12C	A1-12C	5.2-6.7	L2353321-5	24-Sep-19	---	---	<250.	<250	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A1-12C	A1-12C	5.2-6.7	VA20A3495-003	17-Mar-20	---	---	<250.	<250	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A1-12C	A1-12C	5.2-6.7	VA20B3791-003	27-Aug-20	---	---	<250.	<250	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A1-12D	A1-12D	1.7-3.2		6-May-04	---	---	520.	<1000.	180.	180.	<0.5	<1.	<0.5	<1.	---	AW-
A1-12D	A1-12D	1.7-3.2		19-Oct-04	---	---	630.	<1000.	160.	160.	<0.5	<1.	<0.5	<1.	---	AW-
A1-12D	A1-12D	1.7-3.2		19-Apr-05	---	---	560.	<1000.	120.	120.	<0.5	<1.	<0.5	<1.	---	AW-
A1-12D	A1-12D	1.7-3.2		15-Sep-05	400.	<1000.	400.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-12D	A1-12D	1.7-3.2		4-Apr-06	400.	<250.	400.	<250.	120.	120.	<0.5	<1.	<0.5	<1.	---	AW-
A1-12D	A1-12D	1.7-3.2		5-Sep-06	480.	<250.	480.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-12D	A1-12D	1.7-3.2		2-Apr-07	540.	<250.	540.	<250.	120.	120.	<0.5	<1.	<0.5	<1.	---	**AW+**
A1-12D	A1-12D	1.7-3.2		28-Aug-07	350.	<250.	350.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-12D	A1-12D	1.7-3.2		8-Apr-08	550.	<250.	550.	<250.	110.	110.	<0.5	<1.	<0.5	<1.	---	**AW+**
A1-12D	A1-12D	1.7-3.2		28-Aug-08	510.	<250.	510.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	**AW+**
A1-12D	A1-12D	1.7-3.2		21-Apr-09	450.	<250.	450.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-12D	A1-12D	1.7-3.2		25-Aug-09	---	---	470.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-12D	A1-12D	1.7-3.2		7-Apr-10	---	---	470.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A1-12D	A1-12D	1.7-3.2		7-Sep-10	---	---	480.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
A1-12D	A1-12D	1.7-3.2		26-Apr-11	---	---	380.	<250.	110.	110.	<0.5	<1.	<0.5	<0.71	---	AW-
A1-12D	A1-12D	1.7-3.2		20-Sep-11	---	---	340.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-12D	A1-12D	1.7-3.2		18-May-12	---	---	380.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-12D	A1-12D	1.7-3.2		23-Aug-12	---	---	330.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-12D	A1-12D	1.7-3.2		16-Apr-13	---	---	280.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-12D	A1-12D	1.7-3.2		3-Sep-13	---	---	310.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-12D	A1-12D	1.7-3.2	L1459753-2	23-May-14	---	---	330.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-12D	A1-12D	1.7-3.2	L1511474-2	2-Sep-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-12D	A1-12D	1.7-3.2	L1594270-2	1-Apr-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-12D	A1-12D	1.7-3.2	L1666479-2	1-Sep-15	---	---	380.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-12D	A1-12D	1.7-3.2	L1745658-2	16-Mar-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-12D	A1-12D	1.7-3.2	L1838680-2	4-Oct-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A1-12D	A1-12D	1.7-3.2	L1919061-1	27-Apr-17	---	---	260.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A1-12D	A1-12D	1.7-3.2	L1991780-1	14-Sep-17	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A1-12D	A1-12D	1.7-3.2	L2077579-1	9-Apr-18	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A1-12D	A1-12D	1.7-3.2	L2154662-2	28-Aug-18	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A1-12D	A1-12D	1.7-3.2	L2250150-2	27-Mar-19	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A1-12D	A1-12D	1.7-3.2	L2353321-4	24-Sep-19	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A1-12D	A1-12D	1.7-3.2	VA20A3495-002	17-Mar-20	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A1-12D	A1-12D	1.7-3.2	VA20B3791-002	27-Aug-20	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW02-05	MW02-05	2.4-6.1		5-May-04	<300.	<1000.	<300.	<1000.	<100.	<100.	0.73	<1.	0.72	<1.	---	AW-
A3MW02-05	MW02-05	2.4-6.1		25-Oct-04	330.	<1000.	420.	<1000.	<100.	<100.	4.85	<1.	1.99	2.5	---	AW-
A3MW02-05	MW02-05	2.4-6.1		26-Apr-05	<300.	<1000.	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A3MW02-05	MW02-05	2.4-6.1		20-Sep-05	620.	<1000.	790.	<1000.	<100.	<100.	14.2	<1.	2.52	3.4	---	**AW+**
A3MW02-05	A3 MW02-05	2.4-6.1		30-Mar-06	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A3MW02-05	A3 MW02-05	2.4-6.1		28-Jun-06	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A3MW02-05	A3 MW02-05	2.4-6.1		24-Jul-06	450.	<250.	550.	<250.	<100.	<100.	<0.8	<1.	0.86	<1.2	---	AW-
A3MW02-05	A3 MW02-05	2.4-6.1		31-Aug-06	850.	550.	1060.	550.	<100.	<100.	9.3	<1.	1.7	2.6	---	**AW+**
A3MW02-05	MW02-05	2.4-6.1		4-Apr-07	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A3MW02-05	MW02-05	2.4-6.1		28-Aug-07	510.	560.	540.	560.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	**AW+**
A3MW02-05	A3 MW02-05	2.4-6.1		9-Apr-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A3MW02-05	A3 MW02-05	2.4-6.1		28-Aug-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A3MW02-05	A3 MW02-05	2.4-6.1		4-Sep-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A3MW02-05	A3 MW02-05	2.4-6.1		27-Apr-09	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A3MW02-05	A3 MW02-05	2.4-6.1		3-Sep-09	320.	<250.	350.	<250.	<100.	<100.	0.51	<1.	<0.5	<1.	---	AW-
A3MW02-05	A3 MW02-05	2.4-6.1		19-Apr-10	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A3MW02-05	A3 MW02-05	2.4-6.1		20-Sep-10	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
A3MW02-05	A3 MW02-05	2.4-6.1		4-May-11	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
A3MW02-05	A3 MW02-05	2.4-6.1		27-Sep-11	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-05	A3 MW02-05	2.4-6.1		16-May-12	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-05	A3MW02-05	2.4-6.1		20-Sep-12	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-05	A3MW02-05	2.4-6.1		10-Apr-13	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-05	A3MW02-05	2.4-6.1	L1357011-1	3-Sep-13	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-05	A3MW02-05	2.4-6.1	L1461846-4	28-May-14	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-05	A3MW02-05	2.4-6.1	L1509397-5	27-Aug-14	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-05	A3MW02-05	2.4-6.1	L1597132-1	9-Apr-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-05	A3MW02-05	2.4-6.1	L1667283-4	2-Sep-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-05	A3MW02-05	2.4-6.1	L1745655-2	16-Mar-16	310.	470.	320.	470.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-05	A3MW02-05	2.4-6.1	L1830885-1	19-Sep-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-05	A3MW02-05	2.4-6.1	L1917194-1	25-Apr-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW02-05	A3MW02-05	2.4-6.1	L1995423-1	21-Sep-17	2430.	2640.	2430.	2650.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	**AW+**
A3MW02-05	A3MW02-05	2.4-6.1	L2087551-2	1-May-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.71	<0.5	AW-
A3MW02-05	A3MW02-05	2.4-6.1	L2164059-1	13-Sep-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW02-05	A3MW02-05	2.4-6.1	L2255718-9	9-Apr-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW02-05	A3MW02-05	2.4-6.1	L2354839-6	26-Sep-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW02-05	A3MW02-05	2.4-6.1	VA20A3785-001	23-Mar-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW02-05	A3MW02-05	2.4-6.1	VA20B3130-004	19-Aug-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW02-05	DUP-04	2.4-6.1	VA20B3130-008	19-Aug-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
QA/QC RPD				19-Aug-20	---	---	---	---	---	---	---	---	---	---	---	
A3MW02-06	MW02-06	3.4-6.4		5-May-04	530.	<1000.	540.	<1000.	220.	220.	0.77	<1.	<0.5	1.8	---	**AW+**
A3MW02-06	MW02-06	3.4-6.4		25-Oct-04	460.	<1000.	460.	<1000.	230.	230.	<0.5	<1.	<0.5	2.	---	AW-
A3MW02-06	MW02-06	3.4-6.4		26-Apr-05	500.	<1000.	500.	<1000.	300.	300.	<0.5	<1.	<0.5	3.8	---	AW-
A3MW02-06	A1-MW02-06	3.4-6.4		19-Sep-05	540.	<1000.	550.	<1000.	140.	140.	<0.5	<1.	<0.5	1.1	---	**AW+**
A3MW02-06	A3 MW02-06	3.4-6.4		30-Mar-06	470.	<250.	460.	<250.	230.	220.	<0.5	<1.	<0.5	<2.	---	AW-
A3MW02-06	A3 MW02-06	3.4-6.4		28-Jun-06	500.	<250.	510.	<250.	230.	230.	<0.5	<1.	<0.5	1.8	---	AW-
A3MW02-06	A3 MW02-06	3.4-6.4		31-Aug-06	440.	<250.	450.	<250.	210.	210.	<0.5	<1.	<0.5	1.2	---	AW-
A3MW02-06	MW02-06	3.4-6.4		4-Apr-07	490.	<250.	490.	<250.	140.	140.	<0.5	<2.	<0.5	2.5	---	AW-
A3MW02-06	A3 MW02-06	3.4-6.4		28-Aug-07	530.	<250.	540.	<250.	120.	120.	<0.5	<1.	<0.5	2.3	---	**AW+**
A3MW02-06	A3 MW02-06	3.4-6.4		9-Apr-08	540.	<250.	540.	<250.	190.	190.	<0.5	<1.	<0.5	<2.5	---	**AW+**
A3MW02-06	A3 MW02-06	3.4-6.4		28-Aug-08	480.	<250.	480.	<250.	<120.	<120.	<0.5	<1.	<0.5	<3.5	---	AW-
A3MW02-06	A3 MW02-06	3.4-6.4		27-Apr-09	470.	<250.	480.	<250.	270.	270.	<0.5	<1.	<0.5	1.6	---	AW-
A3MW02-06	A3 MW02-06	3.4-6.4		3-Sep-09	540.	<250.	550.	<250.	210.	210.	<0.5	<1.	<0.5	1.	---	**AW+**
A3MW02-06	A3 MW02-06	3.4-6.4		19-Apr-10	530.	<250.	530.	<250.	250.	250.	<0.5	<1.	<0.5	2.5	---	**AW+**
A3MW02-06	A3 MW02-06	3.4-6.4		7-Sep-10	570.	380.	570.	380.	250.	260.	<0.5	<1.	<0.5	1.52	---	**AW+**
A3MW02-06	A3 MW02-06	3.4-6.4		4-May-11	590.	<250.	610.	<250.	400.	390.	<7.4	<1.	6.94	3.51	---	**AW+**

TABLE 1-2
AREAS 1 AND 3 CONCENTRATIONS OF EXTRACTABLE PETROLEUM HYDROCARBONS IN GROUNDWATER
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY
µg/L (ppb)

					LEPHw[3]	HEPHw[3]	EPH w (C10-<C19)[2, 3]	EPH w (C19-C32)[3]	VH w (C6-C10)	VPHw	Benzene	Toluene	Ethylbenzene	Xylenes	Styrene	Groundwater Classification
Generic Numerical Water Standards[4]																
CSR	Schedule 3.2 - Freshwater Aquatic Life			(AW)	500[1]	NS	5000[1]	NS	15000[1]	1500[1]	400	5	2000	300[1]	720[1]	
	Schedule 3.2 - Marine Aquatic Life			(AW)	500[1]	NS	5000[1]	NS	15000[1]	1500[1]	1000	2000	2500	300[1]	720[1]	
	Site-Specific Screening Levels (SSSLs)				3000	NS	5000	NS	15000	15000	21000	7700	3200	3300	720	
Well ID	**Sample ID**	**Screened Interval (mbgs)**	**ALS Laboratory Report #**	**Sample Date**												
A3MW02-06	A3 MW02-06	3.4-6.4		27-Sep-11	360.	<250.	370.	<250.	200.	200.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-06	A3 MW02-06	3.4-6.4		15-May-12	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-06	A3MW02-06	3.4-6.4		20-Sep-12	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-06	A3MW02-06	3.4-6.4		10-Apr-13	<250.	<250.	<250.	<250.	130.	130.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-06	A3MW02-06	3.4-6.4		3-Sep-13	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-06	A3MW02-06	3.4-6.4	L1461846-5	28-May-14	290.	<250.	300.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-06	A3MW02-06	3.4-6.4	L1509397-6	27-Aug-14	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-06	A3MW02-06	3.4-6.4	L1597132-2	9-Apr-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-06	A3MW02-06	3.4-6.4	L1667283-5	2-Sep-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-06	A3MW02-06	3.4-6.4	L1745655-3	16-Mar-16	<250.	<250.	<250.	<250.	130.	130.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-06	A3MW02-06	3.4-6.4	L1830885-2	19-Sep-16	320.	<250.	320.	<250.	<100.	<150.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-06	A3MW02-06	3.4-6.4	L1917194-2	25-Apr-17	360.	<250.	360.	<250.	290.	290.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW02-06	A3MW02-06	3.4-6.4	L1994653-1	20-Sep-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW02-06	A3MW02-06	3.4-6.4	L2081247-1	17-Apr-18	260.	<250.	270.	<250.	150.	150.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW02-06	A3MW02-06	3.4-6.4	L2170535-3	25-Sep-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW02-06	A3MW02-06	3.4-6.4	L2255046-4	8-Apr-19	<250.	<250.	<250.	<250.	170.	170.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW02-06	A3MW02-06	3.4-6.4	L2354839-7	26-Sep-19	<250.	<250.	<250.	<250.	<100	<100	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW02-06	A3MW02-06	3.4-6.4	L2431889-2	24-Mar-20	<250.	<250.	<250.	<250.	170.	170.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW02-06	A3MW02-06	3.4-6.4	VA20B3130-003	19-Aug-20	<250.	<250.	<250.	<250.	160.	160.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW02-07	MW02-07	3.1-6.2		5-May-04	---	---	<300.	<1000.	<100.	<100.	0.69	<1.	<0.5	<1.	---	AW-
A3MW02-07	MW02-07	3.1-6.2		25-Oct-04	---	---	390.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A3MW02-07	MW02-07	3.1-6.2		26-Apr-05	---	---	450.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A3MW02-07	A3-MW02-07	3.1-6.2		19-Sep-05	<300.	<1000.	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A3MW02-07	A3 MW02-07	3.1-6.2		30-Mar-06	280.	<250.	350.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A3MW02-07	A3 MW02-07	3.1-6.2		31-Aug-06	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A3MW02-07	A3 MW02-07	3.1-6.2		4-Apr-07	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A3MW02-07	A3 MW02-07	3.1-6.2		28-Aug-07	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A3MW02-07	A3 MW02-07	3.1-6.2		9-Apr-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A3MW02-07	A3 MW02-07	3.1-6.2		28-Aug-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A3MW02-07	A3 MW02-07	3.1-6.2		27-Apr-09	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A3MW02-07	A3 MW02-07	3.1-6.2		3-Sep-09	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A3MW02-07	A3 MW02-07	3.1-6.2		19-Apr-10	340.	<250.	440.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A3MW02-07	A3 MW02-07	3.1-6.2		7-Sep-10	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
A3MW02-07	A3 MW02-07	3.1-6.2		4-May-11	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
A3MW02-07	A3 MW02-07	3.1-6.2		15-May-12	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-07	A3MW02-07	3.1-6.2		20-Sep-12	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-07	A3MW02-07	3.1-6.2		10-Apr-13	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-07	A3MW02-07	3.1-6.2		28-Aug-13	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-07	A3MW02-07	3.1-6.2	L1461850-2	28-May-14	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-07	A3MW02-07	3.1-6.2	L1509407-4	27-Aug-14	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-07	A3MW02-07	3.1-6.2	L1597133-2	9-Apr-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-07	A3MW02-07	3.1-6.2	L1667287-2	2-Sep-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-07	A3MW02-07	3.1-6.2	L1745659-2	16-Mar-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-07	A3MW02-07	3.1-6.2	L1830885-3	19-Sep-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-07	A3MW02-07	3.1-6.2	L1915574-1	20-Apr-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW02-07	A3MW02-07	3.1-6.2	L1994653-2	20-Sep-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW02-07	A3MW02-07	3.1-6.2	L2081247-2	17-Apr-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW02-07	A3MW02-07	3.1-6.2	L2170535-4	25-Sep-18	<250.	<250.	300.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW02-07	A3MW02-07	3.1-6.2	L2181036-1	15-Oct-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW02-07	A3MW02-07	3.1-6.2	L2255718-3	9-Apr-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW02-07	A3MW02-07	3.1-6.2	L2354839-2	26-Sep-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW02-07	A3MW02-07	3.1-6.2	L2431889-3	24-Mar-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW02-07	DUP-4	3.1-6.2	L2431889-10	24-Mar-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
QA/QC RPD				24-Mar-20	---	---	---	---	---	---	---	---	---	---	---	
A3MW02-07	A3MW02-07	3.1-6.2	VA20B3129-002	19-Aug-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW02-07	DUP-03	3.1-6.2	VA20B3129-003	19-Aug-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
QA/QC RPD				19-Aug-20	---	---	---	---	---	---	---	---	---	---	---	
A3MW02-08	MW02-08	1.5-5.5		4-May-04	---	---	<300.	<1000.	<100.	<100.	2.76	<1.	1.33	<1.	---	AW-
A3MW02-08	MW02-08	1.5-5.5		25-Oct-04	---	---	<300.	<1000.	<100.	<100.	0.64	<1.	<0.5	<1.	---	AW-
A3MW02-08	MW02-08	1.5-5.5		26-Apr-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A3MW02-08	MW02-08	1.5-5.5		19-Sep-05	<300.	<1000.	<300.	<1000.	<100.	<100.	0.51	<1.	<0.5	2.9	---	AW-
A3MW02-08	A3 MW02-08	1.5-5.5		30-Mar-06	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A3MW02-08	A3 MW02-08	1.5-5.5		31-Aug-06	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	1.9	---	AW-
A3MW02-08	A3 MW02-08	1.5-5.5		4-Apr-07	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A3MW02-08	A3 MW02-08	1.5-5.5		28-Aug-07	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	5.5	---	AW-
A3MW02-08	A3 MW02-08	1.5-5.5		9-Apr-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A3MW02-08	A3 MW02-08	1.5-5.5		28-Aug-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A3MW02-08	A3 MW02-08	1.5-5.5		27-Apr-09	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A3MW02-08	A3 MW02-08	1.5-5.5		3-Sep-09	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	0.87	<1.	---	AW-
A3MW02-08	A3 MW02-08	1.5-5.5		19-Apr-10	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A3MW02-08	A3 MW02-08	1.5-5.5		7-Sep-10	<250.	<250.	<250.	<250.	<100.	<100.	<0.55	<1.	0.77	1.38	---	AW-
A3MW02-08	A3 MW02-08	1.5-5.5		4-May-11	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
A3MW02-08	A3 MW02-08	1.5-5.5		15-May-12	<250.	770.	<250.	780.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-08	A3MW02-08	1.5-5.5		20-Sep-12	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-08	A3MW02-08	1.5-5.5		10-Apr-13	<250.	270.	<250.	270.	<100.	200.	<0.5	8.58	31.4	133.	---	AW-
A3MW02-08	A3MW02-08	1.5-5.5		27-Aug-13	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-08	A3MW02-08	1.5-5.5	L1461850-3	28-May-14	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-08	A3MW02-08	1.5-5.5	L1509407-5	27-Aug-14	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-08	A3MW02-08	1.5-5.5	L1597133-3	9-Apr-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-08	A3MW02-08	1.5-5.5	L1667287-3	2-Sep-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-08	A3MW02-08	1.5-5.5	L1745659-3	16-Mar-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-08	A3MW02-08	1.5-5.5	L1830885-4	19-Sep-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW02-08	A3MW02-08	1.5-5.5	L1915574-2	20-Apr-17	<250.	280.	<250.	280.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW02-08	A3MW02-08	1.5-5.5	L1994653-3	20-Sep-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW02-08	A3MW02-08	1.5-5.5	L2081247-3	17-Apr-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW02-08	A3MW02-08	1.5-5.5	L2170535-5	25-Sep-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW02-08	A3MW02-08	1.5-5.5	L2255718-4	9-Apr-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW02-08	A3MW02-08	1.5-5.5	L2354839-3	26-Sep-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW02-08	A3MW02-08	1.5-5.5	L2431889-4	24-Mar-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW02-08	A3MW02-08	1.5-5.5	VA20B3129-001	19-Aug-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW03-01	MW03-01	1.5-6.1		4-May-04	---	---	<300.	<1000.	<100.	<100.	4.52	<1.	0.99	<1.	---	AW-
A3MW03-01	MW03-01	1.5-6.1		25-Oct-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A3MW03-01	MW03-01	1.5-6.1		26-Apr-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A3MW03-01	A3-MW03-01	1.5-6.1		20-Sep-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A3MW03-01	A3 MW03-01	1.5-6.1		30-Mar-06	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A3MW03-01	A3 MW03-01	1.5-6.1		31-Aug-06	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A3MW03-01	A3 MW03-01	1.5-6.1		4-Apr-07	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A3MW03-01	A3 MW03-01	1.5-6.1		28-Aug-07	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A3MW03-01	A3 MW03-01	1.5-6.1		3-Apr-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-

TABLE 1-2
AREAS 1 AND 3 CONCENTRATIONS OF EXTRACTABLE PETROLEUM HYDROCARBONS IN GROUNDWATER
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY
µg/L (ppb)

					LEPHw[3]	HEPHw[3]	EPH w (C10-<C19)[2, 3]	EPH w (C19-C32)[3]	VH w (C6-C10)	VPHw	Benzene	Toluene	Ethylbenzene	Xylenes	Styrene	Groundwater Classification
Generic Numerical Water Standards[4]																
CSR	Schedule 3.2 - Freshwater Aquatic Life			(AW)	500[1]	NS	5000[1]	NS	15000[1]	1500[1]	400	5	2000	300[1]	720[1]	
	Schedule 3.2 - Marine Aquatic Life			(AW)	500[1]	NS	5000[1]	NS	15000[1]	1500[1]	1000	2000	2500	300[1]	720[1]	
	Site-Specific Screening Levels (SSSLs)				3000	NS	5000	NS	15000	15000	21000	7700	3200	3300	720	
Well ID	**Sample ID**	**Screened Interval (mbgs)**	**ALS Laboratory Report #**	**Sample Date**												
A3MW03-01	A3 MW03-01	1.5-6.1		28-Aug-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A3MW03-01	A3 MW03-01	1.5-6.1		27-Apr-09	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A3MW03-01	A3 MW03-01	1.5-6.1		3-Sep-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A3MW03-01	A3 MW03-01	1.5-6.1		19-Apr-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
A3MW03-01	A3 MW03-01	1.5-6.1		7-Sep-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
A3MW03-01	A3 MW03-01	1.5-6.1		4-May-11	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
A3MW03-01	A3 MW03-01	1.5-6.1		28-Sep-11	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW03-01	A3 MW03-01	1.5-6.1		16-May-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW03-01	A3MW03-01	1.5-6.1		18-Sep-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW03-01	A3MW03-01	1.5-6.1		9-Apr-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW03-01	A3MW03-01	1.5-6.1	L1354933-1	28-Aug-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW03-01	A3MW03-01	1.5-6.1	L1462453-1	29-May-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW03-01	A3MW03-01	1.5-6.1	L1509407-1	27-Aug-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW03-01	A3MW03-01	1.5-6.1	L1597689-1	10-Apr-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW03-01	A3MW03-01	1.5-6.1	L1668411-1	3-Sep-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW03-01	A3MW03-01	1.5-6.1	L1745070-1	15-Mar-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW03-01	A3MW03-01	1.5-6.1	L1832800-1	21-Sep-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW03-01	A3MW03-01	1.5-6.1	L1917918-1	26-Apr-17	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW03-01	A3MW03-01	1.5-6.1	L1995423-2	21-Sep-17	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW03-01	A3 MW03-01	1.5-6.1	L2080618-1	16-Apr-18	---	---	<250.	<250.	<100.	<100.	<0.5	4.75	2.95	15.7	<0.5	AW-
A3MW03-01	A3 MW03-01	1.5-6.1	L2161509-1	10-Sep-18	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW03-01	A3 MW03-01	1.5-6.1	L2255718-1	9-Apr-19	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW03-01	A3 MW03-01	1.5-6.1	L2354359-1	25-Sep-19	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW03-01	A3 MW03-01	1.5-6.1	VA20A3785-002	23-Mar-20	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW03-01	A3 MW03-01	1.5-6.1	VA20B3370-001	20-Aug-20	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW03-02	MW03-02	2.3-8.3		4-May-04	920.	<1000.	930.	<1000.	1020.	900.	119.	<2.	1.9	<2.	---	**AW+**
A3MW03-02	MW03-02	2.3-8.3		25-Oct-04	870.	<1000.	870.	<1000.	770.	620.	137.	1.4	2.18	3.6	---	**AW+**
A3MW03-02	MW03-02	2.3-8.3		26-Apr-05	1120.	<1000.	1140.	<1000.	1120.	1070.	41.8	1.7	9.29	2.4	---	**AW+**
A3MW03-02	A3-MW03-02	2.3-8.3		20-Sep-05	580.	<1000.	580.	<1000.	270.	220.	54.	<1.	0.76	<1.	---	**AW+**
A3MW03-02	A3 MW03-02	2.3-8.3		30-Mar-06	830.	280.	840.	280.	660.	620.	36.8	1.4	3.83	2.8	---	**AW+**
A3MW03-02	A3 MW03-02	2.3-8.3		31-Aug-06	460.	<250.	460.	<250.	200.	180.	18.5	<2.	0.64	<1.5	---	AW-
A3MW03-02	MW03-02	2.3-8.3		4-Apr-07	700.	<250.	700.	<250.	580.	530.	45.5	<2.	2.64	2.3	---	**AW+**
A3MW03-02	MW03-02	2.3-8.3		28-Aug-07	920.	<250.	920.	<250.	500.	420.	82.6	<2.5	<1.3	<2.5	---	**AW+**
A3MW03-02	MW03-02	2.3-8.3		3-Apr-08	1000.	<250.	1000.	<250.	770.	720.	43.4	<2.	<1.	<7.	---	**AW+**
A3MW03-02	MW03-02	2.3-8.3		28-Aug-08	750.	<250.	750.	<250.	770.	750.	23.9	1.1	<0.5	<1.8	---	**AW+**
A3MW03-02	MW03-02	2.3-8.3		27-Apr-09	1080.	<250.	1090.	<250.	1240.	1210.	25.4	<2.	1.	7.6	---	**AW+**
A3MW03-02	MW03-02	2.3-8.3		3-Sep-09	580.	<250.	580.	<250.	360.	350.	8.73	<1.	<0.5	<1.	---	**AW+**
A3MW03-02	MW03-02	2.3-8.3		19-Apr-10	960.	<250.	960.	<250.	740.	730.	4.73	<1.	<0.5	4.8	---	**AW+**
A3MW03-02	MW03-02	2.3-8.3		7-Sep-10	720.	<250.	720.	<250.	530.	550.	12.9	<1.	<0.5	0.72	---	**AW+**
A3MW03-02	A3 MW03-02	2.3-8.3		4-May-11	610.	<250.	610.	<250.	390.	390.	<0.83	<1.	<0.5	0.73	---	**AW+**
A3MW03-02	MW03-02	2.3-8.3		28-Sep-11	830.	<250.	830.	<250.	720.	720.	<5.	0.98	<0.5	1.81		**AW+**
A3MW03-02	A3 MW03-02	2.3-8.3		16-May-12	580.	<250.	580.	<250.	250.	250.	2.2	<0.6	<0.5	<0.75	---	**AW+**
A3MW03-02	A3MW03-02	2.3-8.3		18-Sep-12	550.	<250.	550.	<250.	510.	500.	1.36	0.54	<0.5	<0.75	---	**AW+**
A3MW03-02	A3MW03-02	2.3-8.3		9-Apr-13	290.	<250.	300.	<250.	<100.	<100.	0.56	<0.5	<0.5	<0.75	---	AW-
A3MW03-02	A3MW03-02	2.3-8.3		28-Aug-13	610.	<250.	610.	<250.	550.	550.	<2.	0.87	<0.5	1.3	---	**AW+**
A3MW03-02	A3MW03-02	2.3-8.3	L1462453-2	29-May-14	560.	<250.	560.	<250.	330.	330.	<0.5	0.56	<0.5	1.34	---	**AW+**
A3MW03-02	A3MW03-02	2.3-8.3	L1509407-2	27-Aug-14	520.	<250.	520.	<250.	340.	340.	<0.5	<0.53	<0.5	0.91	---	**AW+**
A3MW03-02	A3MW03-02	2.3-8.3	L1597689-2	10-Apr-15	690.	<250.	690.	<250.	590.	590.	<0.9	<2.	<0.5	3.85	---	**AW+**
A3MW03-02	A3MW03-02	2.3-8.3	L1668411-2	3-Sep-15	470.	<250.	470.	<250.	810.	810.	<0.9	0.99	<0.5	2.11	---	AW-
A3MW03-02	A3MW03-02	2.3-8.3	L1745070-2	15-Mar-16	930.	<250.	940.	<250.	990.	990.	<0.5	1.5	0.68	4.04	---	**AW+**
A3MW03-02	A3MW03-02	2.3-8.3	L1832800-2	21-Sep-16	720.	<250.	720.	<250.	<1200.	<1200.	<2.	1.57	<0.5	2.68	---	**AW+**
A3MW03-02	A3MW03-02	2.3-8.3	L1917918-2	26-Apr-17	950.	<250.	960.	<250.	930.	930.	<0.7	1.25	<0.5	4.04	<0.5	**AW+**
A3MW03-02	A3MW03-02	2.3-8.3	L1995423-3	21-Sep-17	820.	<250.	830.	<250.	700.	700.	<2.	1.41	<0.5	3.25	<0.5	**AW+**
A3MW03-02	A3 MW03-02	2.3-8.3	L2079613-2	12-Apr-18	1150.	<250.	1150.	<250.	1130.	1120.	<0.5	1.65	<0.5	5.91	<0.5	**AW+**
A3MW03-02	A3 MW03-02	2.3-8.3	L2161509-2	10-Sep-18	<250.	<250.	<250.	<250.	560.	560.	<2.5	1.09	<0.5	<0.75	<0.5	AW-
A3MW03-02	A3 MW03-02	2.3-8.3	L2255718-2	9-Apr-19	900.	<250.	910.	<250.	680.	680.	<0.5	0.97	<0.5	3.5	<0.5	**AW+**
A3MW03-02	A3 MW03-02	2.3-8.3	L2354359-2	25-Sep-19	560.	<250.	570.	<250.	640.	640.	<0.80	0.69	<0.5	1.64	<0.5	**AW+**
A3MW03-02	A3 MW03-02	2.3-8.3	L2431889-1	24-Mar-20	940	<250.	940.	<250.	1020.	1020.	<0.5	0.94	<0.5	4.13	<0.5	**AW+**
A3MW03-02	A3 MW03-02	2.3-8.3	VA20B3584-008	25-Aug-20	680	<250.	690.	<250.	790.	770.	18.1	1.11	1.36	2.49	<0.5	**AW+**
A3MW03-03	MW03-03	0.8-6.9		4-May-04	---	---	1290.	<1000.	710.	610.	8.2	<5.	82.5	10.1	---	AW-
A3MW03-03	MW03-03	0.8-6.9		25-Oct-04	---	---	820.	<1000.	590.	540.	2.61	<1.	42.1	9.4	---	AW-
A3MW03-03	MW03-03	0.8-6.9		26-Apr-05	---	---	490.	<1000.	330.	290.	0.94	<1.	41.2	1.7	---	AW-
A3MW03-03	A3-MW03-03	0.8-6.9		20-Sep-05	---	---	1290.	<1000.	920.	740.	4.34	<1.	164.	9.6	---	AW-
A3MW03-03	A3 MW03-03	0.8-6.9		12-Apr-06	610.	340.	620.	340.	960.	940.	3.31	<1.	11.3	<1.	---	**AW+**
A3MW03-03	A3 MW03-03	0.8-6.9		31-Aug-06	2860.	2050.	2870.	2060.	730.	660.	<3.	<5.	74.	<7.	---	**AW+**
A3MW03-03	A3 MW03-03	0.8-6.9		4-Apr-07	340.	260.	340.	260.	720.	710.	2.83	<1.	2.86	<1.	---	AW-
A3MW03-03	A3 MW03-03	0.8-6.9		28-Aug-07	810.	300.	810.	300.	<250.	<250.	2.8	<5.	42.3	<5.	---	**AW+**
A3MW03-03	A3 MW03-03	0.8-6.9		9-Apr-08	<250.	<250.	<250.	<250.	<100.	<100.	<1.	<1.	<0.5	<1.	---	AW-
A3MW03-03	A3 MW03-03	0.8-6.9		28-Aug-08	720.	260.	730.	260.	310.	300.	1.13	<1.	10.4	<1.	---	**AW+**
A3MW03-03	A3 MW03-03	0.8-6.9		27-Apr-09	270.	<250.	270.	<250.	300.	300.	1.6	<1.	<0.5	<1.	---	AW-
A3MW03-03	A3 MW03-03	0.8-6.9		3-Sep-09	990.	400.	990.	400.	460.	450.	3.95	<1.	5.28	<1.	---	**AW+**
A3MW03-03	A3 MW03-03	0.8-6.9		19-Apr-10	660.	610.	660.	610.	420.	420.	<2.	<1.	<0.5	<1.	---	**AW+**
A3MW03-03	A3 MW03-03	0.8-6.9		20-Sep-10	900.	520.	890.	520.	1160.	1.3	14.4	5.5	4.7	<3.5	---	**AW+**
A3MW03-03	A3 MW03-03	0.8-6.9		4-May-11	550.	<250.	550.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	**AW+**
A3MW03-03	A3 MW03-03	0.8-6.9		21-Sep-11	940.	<250.	950.	<250.	<100.	<100.	<0.5	0.76	<0.5	<0.75	---	**AW+**
A3MW03-03	A3 MW03-03	0.8-6.9		16-May-12	920.	410.	920.	410.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	**AW+**
A3MW03-03	A3 MW03-03	0.8-6.9		20-Sep-12	960.	450.	960.	450.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	**AW+**
A3MW03-03	A3MW03-03	0.8-6.9		9-Apr-13	440.	280.	440.	280.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW03-03	A3MW03-03	0.8-6.9		3-Sep-13	920.	430.	920.	430.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	**AW+**
A3MW03-03	A3MW03-03	0.8-6.9	L1461846-3	28-May-14	380.	<250.	380.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW03-03	A3MW03-03	0.8-6.9	L1509397-4	27-Aug-14	930.	740.	930.	740.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	**AW+**
A3MW03-03	A3MW03-03	0.8-6.9	L1639257-1	8-Jul-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW03-03	A3MW03-03	0.8-6.9	L1667283-3	2-Sep-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW03-03	A3MW03-03	0.8-6.9	L1745655-1	16-Mar-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW03-03	A3MW03-03	0.8-6.9	L1843040-1	12-Oct-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW03-03	A3MW03-03	0.8-6.9	L1917194-3	25-Apr-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW03-03	A3MW03-03	0.8-6.9	L1994653-4	20-Sep-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW03-03	A3 MW03-03	0.8-6.9	L2087551-1	1-May-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.71	<0.5	AW-
A3MW03-03	A3 MW03-03	0.8-6.9	L2170535-6	25-Sep-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW03-03	A3 MW03-03	0.8-6.9	L2255718-8	9-Apr-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW03-03	A3 MW03-03	0.8-6.9	VA20A3785-003	23-Mar-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW03-03	A3 MW03-03	0.8-6.9	VA20B3130-005	19-Aug-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW03-04	MW03-04	1.5-6.7		4-May-04	---	---	830.	<1000.	540.	390.	39.6	1.3	58.8	47.	---	AW-
A3MW03-04	MW03-04	1.5-6.7		25-Oct-04	---	---	1060.	<1000.	860.	500.	144.	5.3	69.3	141.	---	AW-
A3MW03-04	MW03-04	1.5-6.7		26-Apr-05	---	---	600.	<1000.	1080.	930.	66.2	2.3	28.7	55.3	---	AW-
A3MW03-04	A3-MW03-04	1.5-6.7		19-Sep-05	560.	<1000.	570.	<1000.	490.	430.	8.26	<1.	40.6	6.8	---	**AW+**
A3MW03-04	MW03-04	1.5-6.7		12-Apr-06	860.	<250.	870.	<250.	1640.	1360.	181.	4.5	22.3	78.4	---	**AW+**
A3MW03-04	MW03-04	1.5-6.7		31-Aug-06	530.	<250.	540.	<250.	800.	750.	25.9	<2.	12.9	6.6	---	**AW+**
A3MW03-04	MW03-04	1.5-6.7		4-Apr-07	360.	<250.	370.	<250.	1350.	1240.	70.3	2.2	15.	21.1	---	AW-

TABLE 1-2
AREAS 1 AND 3 CONCENTRATIONS OF EXTRACTABLE PETROLEUM HYDROCARBONS IN GROUNDWATER
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY
µg/L (ppb)

					LEPHw[3]	HEPHw[3]	EPH w (C10-<C19)[2, 3]	EPH w (C19-C32)[3]	VH w (C6-C10)	VPHw	Benzene	Toluene	Ethylbenzene	Xylenes	Styrene	Groundwater Classification
Generic Numerical Water Standards[4]																
CSR	Schedule 3.2 - Freshwater Aquatic Life			(AW)	500[1]	NS	5000[1]	NS	15000[1]	1500[1]	400	5	2000	300[1]	720[1]	
	Schedule 3.2 - Marine Aquatic Life			(AW)	500[1]	NS	5000[1]	NS	15000[1]	1500[1]	1000	2000	2500	300[1]	720[1]	
	Site-Specific Screening Levels (SSSLs)				3000	NS	5000	NS	15000	15000	21000	7700	3200	3300	720	
Well ID	**Sample ID**	**Screened Interval (mbgs)**	**ALS Laboratory Report #**	**Sample Date**												
A3MW03-04	MW03-04	1.5-6.7		28-Aug-07	960.	<250.	960.	<250.	1390.	1150.	132.	10.5	13.7	85.6	---	**AW+**
A3MW03-04	MW03-04	1.5-6.7		9-Apr-08	260.	<250.	260.	<250.	490.	480.	4.3	<1.	1.45	1.6	---	AW-
A3MW03-04	MW03-04	1.5-6.7		28-Aug-08	620.	<250.	620.	<250.	1070.	960.	63.8	9.4	8.35	26.2	---	**AW+**
A3MW03-04	MW03-04	1.5-6.7		27-Apr-09	400.	<250.	410.	<250.	2300.	1900.	203.	8.3	77.4	117.	---	**AW+**
A3MW03-04	MW03-04	1.5-6.7		3-Sep-09	570.	<250.	570.	<250.	1340.	1290.	27.4	<3.	2.4	12.3	---	**AW+**
A3MW03-04	MW03-04	1.5-6.7		19-Apr-10	350.	<250.	360.	<250.	1680.	1550.	55.2	2.2	51.6	17.4	---	**AW+**
A3MW03-04	MW03-04	1.5-6.7		7-Sep-10	970.	<250.	970.	<250.	1420.	1690.	131.	8.1	76.7	53.1	---	**AW+**
A3MW03-04	MW03-04	1.5-6.7		4-May-11	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
A3MW03-04	MW03-04	1.5-6.7		15-May-12	550.	<250.	550.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	**AW+**
A3MW03-04	A3MW03-04	1.5-6.7	L1212478-1	20-Sep-12	1070.	290.	1070.	290.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	**AW+**
A3MW03-04	A3MW03-04	1.5-6.7		9-Apr-13	640.	<250.	640.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	**AW+**
A3MW03-04	MW03-04	1.5-6.7		28-Aug-13	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW03-04	MW03-04	1.5-6.7	L1461850-1	28-May-14	290.	<250.	290.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW03-04	MW03-04	1.5-6.7	L1509407-3	27-Aug-14	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW03-04	MW03-04	1.5-6.7	L1597133-1	9-Apr-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW03-04	MW03-04	1.5-6.7	L1667287-1	2-Sep-15	<250.	<250.	250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW03-04	MW03-04	1.5-6.7	L1745659-1	16-Mar-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW03-04	MW03-04	1.5-6.7	L1830885-5	19-Sep-16	<250.	<250.	<250.	<250.	---	---	<0.5	<0.5	<0.5	<0.75	---	AW-
A3MW03-04	A3MW03-04	1.5-6.7	L1917194-4	25-Apr-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW03-04	A3MW03-04	1.5-6.7	L1994653-5	20-Sep-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW03-04	A3MW03-04	1.5-6.7	L2081872-1	18-Apr-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW03-04	MW03-04	1.5-6.7	L2170535-7	25-Sep-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW03-04	MW03-04	1.5-6.7	L2255046-1	8-Apr-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW03-04	MW03-04	1.5-6.7	L2354839-1	26-Sep-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW03-04	MW03-04	1.5-6.7	VA20A3785-004	23-Mar-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
A3MW03-04	MW03-04	1.5-6.7	VA20B3130-006	19-Aug-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-1A	G1-1A	3.1-6.1		3-May-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-1A	G1-1A	3.1-6.1		20-Oct-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-1A	G1-1A	3.1-6.1		20-Apr-05	<300.	<1000.	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-1A	A1-G1-1A	3.1-6.1		22-Sep-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<0.5	<1.	<1.	---	AW-
G1-1A	G1-1A	3.1-6.1		30-Mar-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-1A	G1-1A	3.1-6.1		5-Apr-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-1A	G1-1A	3.1-6.1		30-Aug-07	---	---	<250.	320.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-1A	G1-1A	3.1-6.1		3-Apr-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-1A	G1-1A	3.1-6.1		26-Aug-08	---	---	370.	1740.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-1A	G1-1A	3.1-6.1		21-Apr-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-1A	G1-1A	3.1-6.1		5-May-09	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-1A	G1-1A	3.1-6.1		24-Aug-09	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-1A	G1-1A	3.1-6.1		6-Apr-10	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-1A	G1-1A	3.1-6.1		2-Sep-10	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
G1-1A	G1-1A	3.1-6.1		28-Apr-11	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
G1-1A	G1-1A	3.1-6.1		19-Sep-11	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-1A	G1-1A	3.1-6.1		14-May-12	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-1A	G1-1A	3.1-6.1	L1204527-5	4-Sep-12	<250.	260.	<250.	260.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-1A	G1-1A	3.1-6.1		3-Apr-13	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-1A	G1-1A	3.1-6.1		26-Aug-13	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-1A	G1-1A	3.1-6.1	L1463846-3	2-Jun-14	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-1A	G1-1A	3.1-6.1	L1522243-2	23-Sep-14	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-1A	G1-1A	3.1-6.1	L1606759-1	4-May-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-1A	G1-1A	3.1-6.1	L1668270-1	3-Sep-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-1A	G1-1A	3.1-6.1	L1752106-3	4-Apr-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-1A	G1-1A	3.1-6.1	L1833762-4	22-Sep-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-1A	G1-1A	3.1-6.1	L1910706-1	7-Apr-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-1A	G1-1A	3.1-6.1	L1984002-4	30-Aug-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-1A	G1-1A	3.1-6.1	L2078315-5	10-Apr-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-1A	G1-1A	3.1-6.1	L2159148-4	5-Sep-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-1A	G1-1A	3.1-6.1	L2253959-2	4-Apr-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-1A	G1-1A	3.1-6.1	L2352452-3	23-Sep-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-1A	G1-1A	3.1-6.1	VA20A3942-001	25-Mar-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-1A	G1-1A	3.1-6.1	VA20B3584-001	25-Aug-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-1B	G1-1B	10.8-12.3		3-May-04	<300.	<1000.	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-1B	G1-1B	10.8-12.3		20-Oct-04	<300.	<1000.	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-1B	G1-1B	10.8-12.3		21-Apr-05	<300.	<1000.	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-1B	A1-G1-1B	10.8-12.3		22-Sep-05	<300.	<1000.	<300.	<1000.	<100.	<100.	<0.5	<0.5	<1.	<1.	---	AW-
G1-1B	G1-1B	10.8-12.3		30-Mar-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-1B	G1-1B	10.8-12.3		6-Nov-06	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-1B	G1-1B	10.8-12.3		5-Apr-07	---	---	<250.	380.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-1B	G1-1B	10.8-12.3		30-Aug-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-1B	G1-1B	10.8-12.3		3-Apr-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-1B	G1-1B	10.8-12.3		26-Aug-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-1B	G1-1B	10.8-12.3		21-Apr-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-1B	G1-1B	10.8-12.3		25-Aug-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-1B	G1-1B	10.8-12.3		7-Apr-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-1B	G1-1B	10.8-12.3		2-Sep-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
G1-1B	G1-1B	10.8-12.3		3-May-11	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
G1-1B	G1-1B	10.8-12.3		19-Sep-11	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-1B	G1-1B	10.8-12.3		14-May-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-1B	G1-1B	10.8-12.3		4-Sep-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-1B	G1-1B	10.8-12.3		3-Apr-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-1B	G1-1B	10.8-12.3		26-Aug-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-1B	G1-1B	10.8-12.3	L1463846-4	2-Jun-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-1B	G1-1B	10.8-12.3	L1522243-3	23-Sep-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-1B	G1-1B	10.8-12.3	L1606759-2	4-May-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-1B	G1-1B	10.8-12.3	L1668270-2	3-Sep-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-1B	G1-1B	10.8-12.3	L1752106-2	4-Apr-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-1B	G1-1B	10.8-12.3	L1833762-5	22-Sep-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-1B	G1-1B	10.8-12.3	L1910706-2	7-Apr-17	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-1B	G1-1B	10.8-12.3	L1984002-5	30-Aug-17	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-1B	G1-1B	10.8-12.3	L2078315-6	10-Apr-18	---	---	<250.	480.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-1B	G1-1B	10.8-12.3	L2159148-3	5-Sep-18	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-1B	G1-1B	10.8-12.3	L2253959-4	4-Apr-19	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-1B	G1-1B	10.8-12.3	L2352452-1	23-Sep-19	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-1B	G1-1B	10.8-12.3	VA20A3942-002	25-Mar-20	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-1B	G1-1B	10.8-12.3	VA20B3584-002	25-Aug-20	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-1C	G1-1C	19.8-21.3		3-May-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-1C	G1-1C	19.8-21.3		20-Oct-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-1C	G1-1C	19.8-21.3		21-Apr-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-1C	A1-G1-1C	19.8-21.3		22-Sep-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<0.5	<1.	<1.	---	AW-
G1-1C	G1-1C	19.8-21.3		30-Mar-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-

TABLE 1-2
AREAS 1 AND 3 CONCENTRATIONS OF EXTRACTABLE PETROLEUM HYDROCARBONS IN GROUNDWATER
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY
µg/L (ppb)

					LEPHw[3]	HEPHw[3]	EPH w (C10-<C19)[2, 3]	EPH w (C19-C32)[3]	VH w (C6-C10)	VPHw	Benzene	Toluene	Ethylbenzene	Xylenes	Styrene	Groundwater Classification
Generic Numerical Water Standards[4]																
CSR	Schedule 3.2 - Freshwater Aquatic Life			(AW)	500[1]	NS	5000[1]	NS	15000[1]	1500[1]	400	5	2000	300[1]	720[1]	
	Schedule 3.2 - Marine Aquatic Life			(AW)	500[1]	NS	5000[1]	NS	15000[1]	1500[1]	1000	2000	2500	300[1]	720[1]	
	Site-Specific Screening Levels (SSSLs)				3000	NS	5000	NS	15000	15000	21000	7700	3200	3300	720	
Well ID	**Sample ID**	**Screened Interval (mbgs)**	**ALS Laboratory Report #**	**Sample Date**												
G1-1C	G1-1C	19.8-21.3		31-Aug-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-1C	G1-1C	19.8-21.3		5-Apr-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-1C	G1-1C	19.8-21.3		30-Aug-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-1C	G1-1C	19.8-21.3		3-Apr-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-1C	G1-1C	19.8-21.3		26-Aug-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-1C	G1-1C	19.8-21.3		21-Apr-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-1C	G1-1C	19.8-21.3		25-Aug-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-1C	G1-1C	19.8-21.3		7-Apr-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-1C	G1-1C	19.8-21.3		2-Sep-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
G1-1C	G1-1C	19.8-21.3		4-May-11	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
G1-1C	G1-1C	19.8-21.3		20-Sep-11	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-1C	G1-1C	19.8-21.3		15-May-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-1C	G1-1C	19.8-21.3		4-Sep-12	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-1C	G1-1C	19.8-21.3		5-Sep-12	---	---	<250.	<250.	---	---	---	---	---	---	---	AW-
G1-1C	G1-1C	19.8-21.3		3-Apr-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-1C	G1-1C	19.8-21.3		26-Aug-13	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-1C	G1-1C	19.8-21.3	L1463846-5	2-Jun-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-1C	G1-1C	19.8-21.3	L1522243-4	23-Sep-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-1C	G1-1C	19.8-21.3	L1606759-3	4-May-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-1C	G1-1C	19.8-21.3	L1668270-3	3-Sep-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-1C	G1-1C	19.8-21.3	L1572244-2	5-Apr-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-1C	G1-1C	19.8-21.3	L1833762-6	22-Sep-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-1C	G1-1C	19.8-21.3	L1910706-3	7-Apr-17	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-1C	G1-1C	19.8-21.3	L1984002-6	30-Aug-17	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-1C	G1-1C	19.8-21.3	L2078315-7	10-Apr-18	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-1C	G1-1C	19.8-21.3	L2159148-2	5-Sep-18	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-1C	G1-1C	19.8-21.3	L2253959-3	4-Apr-19	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-1C	G1-1C	19.8-21.3	L2352452-2	23-Sep-19	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-1C	G1-1C	19.8-21.3	VA20A3942-003	25-Mar-20	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-1C	G1-1C	19.8-21.3	VA20B3584-003	25-Aug-20	---	---	<250.	370.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-2A	G1-2A	1.8-3.4		4-May-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-2A	G1-2A	1.8-3.4		21-Oct-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-2A	G1-2A	1.8-3.4		27-Apr-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-2A	A1-G1-2A	1.8-3.4		21-Sep-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-2A	G1-2A	1.8-3.4		4-Apr-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-2A	G1-2A	1.8-3.4		5-Sep-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-2A	G1-2A	1.8-3.4		13-Apr-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-2A	G1-2A	1.8-3.4		30-Aug-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-2A	G1-2A	1.8-3.4		9-Apr-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-2A	G1-2A	1.8-3.4		26-Aug-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-2A	G1-2A	1.8-3.4		21-Apr-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-2A	G1-2A	1.8-3.4		24-Aug-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-2A	G1-2A	1.8-3.4		7-Apr-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-2A	G1-2A	1.8-3.4		2-Sep-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
G1-2A	G1-2A	1.8-3.4		27-Apr-11	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
G1-2A	G1-2A	1.8-3.4		14-Sep-11	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-2A	G1-2A	1.8-3.4		15-May-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-2A	G1-2A	1.8-3.4		9-Aug-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-2A	G1-2A	1.8-3.4		10-Apr-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-2A	G1-2A	1.8-3.4		26-Aug-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-2A	G1-2A	1.8-3.4	L1466577-1	5-Jun-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-2A	G1-2A	1.8-3.4	L1512240-1	3-Sep-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-2A	G1-2A	1.8-3.4	L1601619-1	21-Apr-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-2A	G1-2A	1.8-3.4	L1666481-1	1-Sep-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-2A	G1-2A	1.8-3.4	L1745068-1	15-Mar-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-2A	G1-2A	1.8-3.4	L1847163-1	21-Oct-16	<250.	<250.	<250.	<250.	---	---	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-2A	G1-2A	1.8-3.4	L1914925-1	19-Apr-17	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-2A	G1-2A	1.8-3.4	L1984726-4	31-Aug-17	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-2A	G1-2A	1.8-3.4	L2080617-1	16-Apr-18	---	---	<250.	<250.	<100.	<100.	<0.5	12.4	7.62	41.9	<0.5	AW-
G1-2A	G1-2A	1.8-3.4	L2160015-1	6-Sep-18	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-2A	G1-2A	1.8-3.4	L2250791-2	28-Mar-19	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-2A	G1-2A	1.8-3.4	L2353321-1	24-Sep-19	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-2A	G1-2A	1.8-3.4	VA20A3569-003	18-Mar-20	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-2A	G1-2A	1.8-3.4	VA20B3702-004	26-Aug-20	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-2B	G1-2B	4.6-6.1		4-May-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-2B	G1-2B	4.6-6.1		21-Oct-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-2B	G1-2B	4.6-6.1		27-Apr-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-2B	A1-G1-2B	4.6-6.1		21-Sep-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-2B	G1-2B	4.6-6.1		4-Apr-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-2B	G1-2B	4.6-6.1		5-Sep-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-2B	G1-2B	4.6-6.1		13-Apr-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-2B	G1-2B	4.6-6.1		30-Aug-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-2B	G1-2B	4.6-6.1		9-Apr-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-2B	G1-2B	4.6-6.1		26-Aug-08	---	---	<250.	330.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-2B	G1-2B	4.6-6.1		21-Apr-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-2B	G1-2B	4.6-6.1		24-Aug-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-2B	G1-2B	4.6-6.1		7-Apr-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-2B	G1-2B	4.6-6.1		2-Sep-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
G1-2B	G1-2B	4.6-6.1		27-Apr-11	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
G1-2B	G1-2B	4.6-6.1		14-Sep-11	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-2B	G1-2B	4.6-6.1		15-May-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-2B	G1-2B	4.6-6.1		9-Aug-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-2B	G1-2B	4.6-6.1		10-Apr-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-2B	G1-2B	4.6-6.1		26-Aug-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-2B	G1-2B	4.6-6.1	L1466577-3	5-Jun-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-2B	G1-2B	4.6-6.1	L1512240-2	3-Sep-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-2B	G1-2B	4.6-6.1	L1601619-2	21-Apr-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-2B	G1-2B	4.6-6.1	L1666481-2	1-Sep-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-2B	G1-2B	4.6-6.1	L1745068-2	15-Mar-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-2B	G1-2B	4.6-6.1	L1835097-2	26-Sep-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-2B	G1-2B	4.6-6.1	L1914925-2	19-Apr-17	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-2B	G1-2B	4.6-6.1	L1984726-5	31-Aug-17	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-2B	G1-2B	4.6-6.1	L2080617-2	16-Apr-18	---	---	<250.	<250.	<100.	<100.	<0.5	6.62	4.08	22.5	<0.5	AW-
G1-2B	G1-2B	4.6-6.1	L2160015-2	6-Sep-18	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-2B	G1-2B	4.6-6.1	L2250791-3	28-Mar-19	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-2B	G1-2B	4.6-6.1	L2353321-2	24-Sep-19	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-2B	G1-2B	4.6-6.1	VA20A3569-004	18-Mar-20	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-2B	DUP-2	4.6-6.1	VA20A3569-006	18-Mar-20	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
QA/QC RPD				18-Mar-20	---	---	---	---	---	---	---	---	---	---	---	

TABLE 1-2
AREAS 1 AND 3 CONCENTRATIONS OF EXTRACTABLE PETROLEUM HYDROCARBONS IN GROUNDWATER
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY
µg/L (ppb)

					LEPHw[3]	HEPHw[3]	EPH w (C10-<C19)[2, 3]	EPH w (C19-C32)[3]	VH w (C6-C10)	VPHw	Benzene	Toluene	Ethylbenzene	Xylenes	Styrene	Groundwater Classification
Generic Numerical Water Standards[4]																
CSR	Schedule 3.2 - Freshwater Aquatic Life			(AW)	500[1]	NS	5000[1]	NS	15000[1]	1500[1]	400	5	2000	300[1]	720[1]	
	Schedule 3.2 - Marine Aquatic Life			(AW)	500[1]	NS	5000[1]	NS	15000[1]	1500[1]	1000	2000	2500	300[1]	720[1]	
	Site-Specific Screening Levels (SSSLs)				3000	NS	5000	NS	15000	15000	21000	7700	3200	3300	720	
Well ID	**Sample ID**	**Screened Interval (mbgs)**	**ALS Laboratory Report #**	**Sample Date**												
G1-2B	G1-2B	4.6-6.1	VA20B3702-005	26-Aug-20	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-2B	DUP-05	4.6-6.1	VA20B3702-008	26-Aug-20	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
QA/QC RPD				26-Aug-20	---	---	---	---	---	---	---	---	---	---	---	
G1-5	G1-5	9.1-12.2		4-May-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-5	G1-5	9.1-12.2		20-Oct-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-5	G1-5	9.1-12.2		21-Apr-05	---	---	440.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-5	A1-G1-5	9.1-12.2		23-Sep-05	---	---	310.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-5	G1-5	9.1-12.2		30-Mar-06	---	---	340.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-5	G1-5	9.1-12.2		31-Aug-06	---	---	360.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-5	G1-5	9.1-12.2		4-Apr-07	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-5	G1-5	9.1-12.2		28-Aug-07	350.	330.	350.	330.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-5	G1-5	9.1-12.2		3-Apr-08	310.	310.	310.	310.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-5	G1-5	9.1-12.2		26-Aug-08	450.	330.	450.	330.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-5	G1-5	9.1-12.2		21-Apr-09	390.	<250.	390.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-5	G1-5	9.1-12.2		25-Aug-09	---	---	440.	250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-5	G1-5	9.1-12.2		7-Apr-10	370.	<250.	370.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-5	G1-5	9.1-12.2		2-Sep-10	400.	<250.	400.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
G1-5	G1-5	9.1-12.2		4-May-11	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
G1-5	G1-5	9.1-12.2		19-Sep-11	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-5	G1-5	9.1-12.2		4-May-11	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
G1-5	G1-5	9.1-12.2		19-Sep-11	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-5	G1-5	9.1-12.2		20-Sep-11	---	---	<250.	<250.	---	---	---	---	---	---	---	AW-
G1-5	G1-5	9.1-12.2		14-May-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-5	G1-5	9.1-12.2		4-Sep-12	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-5	G1-5	9.1-12.2		5-Sep-12	---	---	<250.	<250.	---	---	---	---	---	---	---	AW-
G1-5	G1-5	9.1-12.2		3-Apr-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-5	G1-5	9.1-12.2		26-Aug-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-5	G1-5	9.1-12.2	L1463846-1	2-Jun-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-5	G1-5	9.1-12.2	L1511464-1	2-Sep-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-5	G1-5	9.1-12.2	L1611514-1	13-May-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-5	G1-5	9.1-12.2	L1677757-2	23-Sep-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-5	G1-5	9.1-12.2	L1752106-5	4-Apr-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-5	G1-5	9.1-12.2	L1833762-1	22-Sep-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-5	G1-5	9.1-12.2	L1910707-1	6-Apr-17	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-5	G1-5	9.1-12.2	L1984002-1	30-Aug-17	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-5	G1-5	9.1-12.2	L2078315-1	10-Apr-18	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-5	G1-5	9.1-12.2	L2160015-4	6-Sep-18	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-5	G1-5	9.1-12.2	L2252535-1	2-Apr-19	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-5	G1-5	9.1-12.2	L2350854-3	19-Sep-19	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-5	G1-5	9.1-12.2	VA20A3631-006	19-Mar-20	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-5	G1-5	9.1-12.2	VA20B3584-004	25-Aug-20	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-6	G1-6	7.9-11		3-May-04	---	---	<300.	<1000.	<100.	<100.	1.09	<1.	8.65	13.7	---	AW-
G1-6	G1-6	7.9-11		20-Oct-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-6	G1-6	7.9-11		21-Apr-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-6	A1-G1-6	7.9-11		22-Sep-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<0.5	<1.	<1.	---	AW-
G1-6	G1-6	7.9-11		30-Mar-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-6	G1-6	7.9-11		31-Aug-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-6	G1-6	7.9-11		4-Apr-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-6	G1-6	7.9-11		28-Aug-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-6	G1-6	7.9-11		3-Apr-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-6	G1-6	7.9-11		26-Aug-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-6	G1-6	7.9-11		21-Apr-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-6	G1-6	7.9-11		25-Aug-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-6	G1-6	7.9-11		7-Apr-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-6	G1-6	7.9-11		2-Sep-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
G1-6	G1-6	7.9-11		28-Apr-11	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
G1-6	G1-6	7.9-11		4-Sep-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-6	G1-6	7.9-11		3-Apr-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-6	G1-6	7.9-11		26-Aug-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-6	G1-6	7.9-11	L1463846-2	2-Jun-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-6	G1-6	7.9-11	L1521897-1	22-Sep-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-6	G1-6	7.9-11	L1611514-2	13-May-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-6	G1-6	7.9-11	L1677757-1	23-Sep-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-6	G1-6	7.9-11	L1752106-1	4-Apr-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-6	G1-6	7.9-11	L1833762-3	22-Sep-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-6	G1-6	7.9-11	L1910707-4	6-Apr-17	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-6	G1-6	7.9-11	L1984002-3	30-Aug-17	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-6	G1-6	7.9-11	L2078315-4	10-Apr-18	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-6	G1-6	7.9-11	L2159148-5	5-Sep-18	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-6	G1-6	7.9-11	L2252535-2	2-Apr-19	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-6	G1-6	7.9-11	L2350854-2	19-Sep-19	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-6	G1-6	7.9-11	VA20A3569-001	18-Mar-20	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-6	G1-6	7.9-11	VA20B3584-005	24-Aug-20	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-7A	G1-7A	0.9-2.4		4-May-04	---	---	<300.	<1000.	<100.	<100.	2.22	<1.	8.18	11.7	---	AW-
G1-7A	G1-7A	0.9-2.4		20-Oct-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-7A	G1-7A	0.9-2.4		21-Apr-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-7A	A1-G1-7A	0.9-2.4		22-Sep-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<0.5	<1.	<1.	---	AW-
G1-7A	G1-7A	0.9-2.4		30-Mar-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-7A	G1-7A	0.9-2.4		5-Sep-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-7A	G1-7A	0.9-2.4		5-Apr-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-7A	G1-7A	0.9-2.4		27-Aug-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-7A	G1-7A	0.9-2.4		9-Apr-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-7A	G1-7A	0.9-2.4		25-Aug-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-7A	G1-7A	0.9-2.4		20-Apr-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-7A	G1-7A	0.9-2.4		24-Aug-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-7A	G1-7A	0.9-2.4		2-Sep-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
G1-7A	G1-7A	0.9-2.4		28-Apr-11	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
G1-7A	G1-7A	0.9-2.4		19-Sep-11	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-7A	G1-7A	0.9-2.4		20-Sep-11	---	---	<250.	<250.	---	---	---	---	---	---	---	AW-
G1-7A	G1-7A	0.9-2.4		14-May-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-7A	G1-7A	0.9-2.4		9-Aug-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-7A	G1-7A	0.9-2.4		3-Apr-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-7A	G1-7A	0.9-2.4		26-Aug-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-7A	G1-7A	0.9-2.4	L1464702-1	2-Jun-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-7A	G1-7A	0.9-2.4	L1521897-2	22-Sep-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-7A	G1-7A	0.9-2.4	L1606759-4	4-May-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-7A	G1-7A	0.9-2.4	L1677757-5	23-Sep-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-7A	G1-7A	0.9-2.4	L1746135-1	17-Mar-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-7A	G1-7A	0.9-2.4	L1833759-1	22-Sep-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-7A	G1-7A	0.9-2.4	L1910706-4	7-Apr-17	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-7A	G1-7A	0.9-2.4	L1984002-7	30-Aug-17	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-

TABLE 1-2
AREAS 1 AND 3 CONCENTRATIONS OF EXTRACTABLE PETROLEUM HYDROCARBONS IN GROUNDWATER
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY
µg/L (ppb)

					LEPHw[3]	HEPHw[3]	EPH w (C10-<C19)[2, 3]	EPH w (C19-C32)[3]	VH w (C6-C10)	VPHw	Benzene	Toluene	Ethylbenzene	Xylenes	Styrene	Groundwater Classification
Generic Numerical Water Standards[4]																
CSR	Schedule 3.2 - Freshwater Aquatic Life			(AW)	500[1]	NS	5000[1]	NS	15000[1]	1500[1]	400	5	2000	300[1]	720[1]	
	Schedule 3.2 - Marine Aquatic Life			(AW)	500[1]	NS	5000[1]	NS	15000[1]	1500[1]	1000	2000	2500	300[1]	720[1]	
	Site-Specific Screening Levels (SSSLs)				3000	NS	5000	NS	15000	15000	21000	7700	3200	3300	720	
Well ID	**Sample ID**	**Screened Interval (mbgs)**	**ALS Laboratory Report #**	**Sample Date**												
G1-7A	G1-7A	0.9-2.4	L1984726-6	31-Aug-17	---	---	<250.	<250.	---	---	---	---	---	---	---	AW-
G1-7A	G1-7A	0.9-2.4	L2079008-1	11-Apr-18	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-7A	G1-7A	0.9-2.4	L2158081-1	4-Sep-18	---	---	<250.	1100.	---	---	---	---	---	---	---	AW-
G1-7A	G1-7A	0.9-2.4	L2159148-1	5-Sep-18	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-7A	G1-7A	0.9-2.4	L2253959-5	4-Apr-19	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-7A	G1-7A	0.9-2.4	L2352452-4	23-Sep-19	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-7A	G1-7A	0.9-2.4	VA20A3631-004	19-Mar-20	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-7A	G1-7A	0.9-2.4	VA20B3584-006	25-Aug-20	---	---	<250.	430.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-7B	G1-7B	6.1-9.1		4-May-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-7B	G1-7B	6.1-9.1		20-Oct-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-7B	G1-7B	6.1-9.1		21-Apr-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-7B	G1-7B	6.1-9.1		22-Sep-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<0.5	<1.	<1.	---	AW-
G1-7B	G1-7B	6.1-9.1		30-Mar-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-7B	G1-7B	6.1-9.1		5-Sep-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-7B	G1-7B	6.1-9.1		5-Apr-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-7B	G1-7B	6.1-9.1		27-Aug-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-7B	G1-7B	6.1-9.1		9-Apr-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-7B	G1-7B	6.1-9.1		25-Aug-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-7B	G1-7B	6.1-9.1		20-Apr-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-7B	G1-7B	6.1-9.1		24-Aug-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-7B	G1-7B	6.1-9.1		2-Sep-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
G1-7B	G1-7B	6.1-9.1		3-May-11	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
G1-7B	G1-7B	6.1-9.1		19-Sep-11	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-7B	G1-7B	6.1-9.1		14-May-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-7B	G1-7B	6.1-9.1		9-Aug-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-7B	G1-7B	6.1-9.1		3-Apr-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-7B	G1-7B	6.1-9.1		27-Aug-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-7B	G1-7B	6.1-9.1	L1464702-2	3-Jun-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-7B	G1-7B	6.1-9.1	L1522243-5	23-Sep-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-7B	G1-7B	6.1-9.1	L1606759-5	4-May-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-7B	G1-7B	6.1-9.1	L1677757-6	23-Sep-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-7B	G1-7B	6.1-9.1	L1746135-2	17-Mar-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-7B	G1-7B	6.1-9.1	L1833759-2	22-Sep-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-7B	G1-7B	6.1-9.1	L1910706-5	7-Apr-17	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-7B	G1-7B	6.1-9.1	L1984726-1	31-Aug-17	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-7B	G1-7B	6.1-9.1	L2079008-2	11-Apr-18	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-7B	G1-7B	6.1-9.1	L2158081-2	4-Sep-18	---	---	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	AW-
G1-7B	G1-7B	6.1-9.1	L2253959-6	4-Apr-19	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-7B	G1-7B	6.1-9.1	L2352452-5	23-Sep-19	---	---	<250	<250	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-7B	G1-7B	6.1-9.1	VA20A3631-005	19-Mar-20	---	---	<250	<250	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-7B	G1-7B	6.1-9.1	VA20B3702-006	26-Aug-20	---	---	<250	<250	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-8	G1-8	7.0-13.1		4-May-04	---	---	540.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-8	G1-8	7.0-13.1		21-Oct-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-8	G1-8	7.0-13.1		27-Apr-05	---	---	400.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-8	A1-G1-8	7.0-13.1		22-Sep-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<0.5	<1.	<1.	---	AW-
G1-8	G1-8	7.0-13.1		4-Apr-06	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-8	G1-8	7.0-13.1		31-Aug-06	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-8	G1-8	7.0-13.1		13-Apr-07	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-8	G1-8	7.0-13.1		28-Aug-07	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-8	G1-8	7.0-13.1		3-Apr-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-8	G1-8	7.0-13.1		4-Apr-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-8	G1-8	7.0-13.1		4-Sep-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-8	G1-8	7.0-13.1		21-Apr-09	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-8	G1-8	7.0-13.1		25-Aug-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-8	G1-8	7.0-13.1		7-Apr-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
G1-8	G1-8	7.0-13.1		2-Sep-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
G1-8	G1-8	7.0-13.1		28-Apr-11	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
G1-8	G1-8	7.0-13.1		15-Sep-11	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-8	G1-8	7.0-13.1		15-May-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-8	G1-8	7.0-13.1		4-Sep-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-8	G1-8	7.0-13.1		27-Aug-13	---	---	<250.	310.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-8	G1-8	7.0-13.1	L1465609-2	4-Jun-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-8	G1-8	7.0-13.1	L1522243-7	23-Sep-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-8	G1-8	7.0-13.1	L1611514-3	13-May-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-8	G1-8	7.0-13.1	L1677757-4	23-Sep-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-8	G1-8	7.0-13.1	L1747001-2	21-Mar-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-8	G1-8	7.0-13.1	L1835097-1	26-Sep-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
G1-8	G1-8	7.0-13.1	L1914925-5	19-Apr-17	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-8	G1-8	7.0-13.1	L1984726-3	31-Aug-17	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-8	G1-8	7.0-13.1	L2079613-5	12-Apr-18	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-8	G1-8	7.0-13.1	L2158081-4	4-Sep-18	---	---	<250.	290.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	AW-
G1-8	G1-8	7.0-13.1	L2253280-2	3-Apr-19	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-8	G1-8	7.0-13.1	L2352452-7	23-Sep-19	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-8	G1-8	7.0-13.1	VA20A3569-002	18-Mar-20	---	---	<250.	390.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
G1-8	G1-8	7.0-13.1	VA20B3702-007	26-Aug-20	---	---	<250.	<250	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
MW03-07	MW03-07	0.6-2.2		3-May-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
MW03-07	MW03-07	0.6-2.2		21-Oct-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
MW03-07	MW03-07	0.6-2.2		27-Apr-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
MW03-07	MW03-07	0.6-2.2		4-Apr-06	---	---	<250.	400.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
MW03-07	MW03-07	0.6-2.2		7-Apr-07	<250.	390.	<250.	390.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
MW03-07	MW03-07	0.6-2.2		27-Aug-07	<250.	720.	<250.	720.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
MW03-07	MW03-07	0.6-2.2		3-Apr-08	<250.	300.	<250.	300.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
MW03-07	MW03-07	0.6-2.2		26-Aug-08	<250.	260.	<250.	260.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
MW03-07	MW03-07	0.6-2.2		20-Apr-09	<250.	390.	<250.	390.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
MW03-07	MW03-07	0.6-2.2		24-Aug-09	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
MW03-07	MW03-07	0.6-2.2		6-Apr-10	<250.	<400.	<250.	<400.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
MW03-07	MW03-07	0.6-2.2		2-Sep-10	<250.	480.	<250.	480.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
MW03-07	MW03-07	0.6-2.2		28-Apr-11	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
MW03-07	MW03-07	0.6-2.2		15-Sep-11	<250.	280.	<250.	280.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
MW03-07	MW03-07	0.6-2.2		14-May-12	<250.	290.	<250.	290.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
MW03-07	MW03-07	0.6-2.2		9-Aug-12	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
MW03-07	MW03-07	0.6-2.2		10-Apr-13	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
MW03-07	MW03-07	0.6-2.2	L1354937-1	28-Aug-13	<250.	<300.	<250.	<300.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
MW03-07	MW03-07	0.6-2.2	L1465606-1	4-Jun-14	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
MW03-07	MW03-07	0.6-2.2	L1512995-2	4-Sep-14	<250.	330.	<250.	330.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
MW03-07	MW03-07	0.6-2.2	L1602111-1	22-Apr-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
MW03-07	MW03-07	0.6-2.2	L1673248-7	15-Sep-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
MW03-07	MW03-07	0.6-2.2	L1746133-1	17-Mar-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
MW03-07	MW03-07	0.6-2.2	L1833819-1	23-Sep-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-

TABLE 1-2
AREAS 1 AND 3 CONCENTRATIONS OF EXTRACTABLE PETROLEUM HYDROCARBONS IN GROUNDWATER
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY
µg/L (ppb)

					LEPHw[3]	HEPHw[3]	EPH w (C10-<C19)[2, 3]	EPH w (C19-C32)[3]	VH w (C6-C10)	VPHw	Benzene	Toluene	Ethylbenzene	Xylenes	Styrene	Groundwater Classification
Generic Numerical Water Standards[4]																
CSR	Schedule 3.2 - Freshwater Aquatic Life			(AW)	500[1]	NS	5000[1]	NS	15000[1]	1500[1]	400	5	2000	300[1]	720[1]	
	Schedule 3.2 - Marine Aquatic Life			(AW)	500[1]	NS	5000[1]	NS	15000[1]	1500[1]	1000	2000	2500	300[1]	720[1]	
	Site-Specific Screening Levels (SSSLs)				3000	NS	5000	NS	15000	15000	21000	7700	3200	3300	720	
Well ID	**Sample ID**	**Screened Interval (mbgs)**	**ALS Laboratory Report #**	**Sample Date**												
MW03-07	MW03-07	0.6-2.2	L1913256-2	13-Apr-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
MW03-07	MW03-07	0.6-2.2	L1983999-1	30-Aug-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
MW03-07	MW03-07	0.6-2.2	L2079613-3	12-Apr-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
MW03-07	MW03-07	0.6-2.2	L2158080-1	4-Sep-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	AW-
MW03-07	MW03-07	0.6-2.2	L2252535-3	2-Apr-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
MW03-07	MW03-07	0.6-2.2	L2354359-6	25-Sep-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
MW03-07	MW03-07	0.6-2.2	VA20A3631-002	19-Mar-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
MW03-07	MW03-07	0.6-2.2	VA20B3702-003	26-Aug-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
NDM97-2	NDM97-2	2.3-5.1		3-May-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
NDM97-2	NDM97-2	2.3-5.1		21-Oct-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
NDM97-2	NDM97-2	2.3-5.1		27-Apr-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
NDM97-2	A1-NDM97-2	2.3-5.1		21-Sep-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
NDM97-2	NDM97-2	2.3-5.1		4-Apr-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
NDM97-2	NDM97-2	2.3-5.1		31-Aug-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
NDM97-2	NDM97-2	2.3-5.1		13-Apr-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
NDM97-2	NDM97-2	2.3-5.1		28-Aug-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
NDM97-2	NDM97-2	2.3-5.1		3-Apr-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
NDM97-2	NDM97-2	2.3-5.1		26-Aug-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
NDM97-2	NDM97-2	2.3-5.1		21-Apr-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
NDM97-2	NDM97-2	2.3-5.1		24-Aug-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
NDM97-2	NDM97-2	2.3-5.1		7-Apr-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
NDM97-2	NDM97-2	2.3-5.1		2-Sep-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
NDM97-2	NDM97-2	2.3-5.1		27-Apr-11	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
NDM97-2	NDM97-2	2.3-5.1		14-Sep-11	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
NDM97-2	NDM97-2	2.3-5.1		15-May-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
NDM97-2	NDM97-2	2.3-5.1		9-Aug-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
NDM97-2	NDM97-2	2.3-5.1		26-Aug-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
NDM97-2	NDM97-2	2.3-5.1	L1465609-1	4-Jun-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
NDM97-2	NDM97-2	2.3-5.1	L1522243-6	23-Sep-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
NDM97-2	NDM97-2	2.3-5.1	L1611514-4	13-May-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
NDM97-2	NDM97-2	2.3-5.1	L1677757-3	23-Sep-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
NDM97-2	NDM97-2	2.3-5.1	L1747001-1	21-Mar-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
NDM97-2	NDM97-2	2.3-5.1	L1835097-3	26-Sep-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
NDM97-2	NDM97-2	2.3-5.1	L1914925-6	19-Apr-17	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
NDM97-2	NDM97-2	2.3-5.1	L1984726-2	31-Aug-17	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
NDM97-2	NDM97-2	2.3-5.1	L2079613-4	12-Apr-18	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
NDM97-2	NDM97-2	2.3-5.1	L2158081-3	4-Sep-18	---	---	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	AW-
NDM97-2	NDM97-2	2.3-5.1	L2250791-1	28-Mar-19	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
NDM97-2	NDM97-2	2.3-5.1	L2352452-6	23-Sep-19	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
NDM97-2	NDM97-2	2.3-5.1	VA20A3569-005	18-Mar-20	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
NDM97-2	NDM97-2	2.3-5.1	VA20B3702-001	26-Aug-20	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
NDM97-3	NDM97-3	6.1-9.1		3-May-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
NDM97-3	NDM97-3	6.1-9.1		20-Oct-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
NDM97-3	NDM97-3	6.1-9.1		27-Apr-05	---	---	<300.	<1000.	<100.	<100.	1.14	<1.	<0.5	<1.	---	AW-
NDM97-3	A1-NDM97-3	6.1-9.1		21-Sep-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
NDM97-3	NDM97-3	6.1-9.1		30-Mar-06	---	---	<250.	260.	<100.	<100.	0.94	<1.	<0.5	<1.	---	AW-
NDM97-3	NDM97-3	6.1-9.1		5-Sep-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
NDM97-3	NDM97-3	6.1-9.1		12-Apr-07	---	---	<250.	<250.	<100.	<100.	0.56	<1.	<0.5	<1.	---	AW-
NDM97-3	NDM97-3	6.1-9.1		27-Aug-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
NDM97-3	NDM97-3	6.1-9.1		3-Apr-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
NDM97-3	NDM97-3	6.1-9.1		25-Aug-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
NDM97-3	NDM97-3	6.1-9.1		20-Apr-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
NDM97-3	NDM97-3	6.1-9.1		24-Aug-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
NDM97-3	NDM97-3	6.1-9.1		6-Apr-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
NDM97-3	NDM97-3	6.1-9.1		2-Sep-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
NDM97-3	NDM97-3	6.1-9.1		28-Apr-11	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
NDM97-3	NDM97-3	6.1-9.1		14-Sep-11	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
NDM97-3	NDM97-3	6.1-9.1		14-May-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
NDM97-3	NDM97-3	6.1-9.1		9-Aug-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
NDM97-3	NDM97-3	6.1-9.1		4-Apr-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
NDM97-3	NDM97-3	6.1-9.1		28-Aug-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
NDM97-3	NDM97-3	6.1-9.1	L1464701-1	3-Jun-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
NDM97-3	NDM97-3	6.1-9.1	L1512995-1	4-Sep-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
NDM97-3	NDM97-3	6.1-9.1	L1601618-1	21-Apr-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
NDM97-3	NDM97-3	6.1-9.1	L1673248-8	15-Sep-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
NDM97-3	NDM97-3	6.1-9.1	L1746133-2	17-Mar-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
NDM97-3	NDM97-3	6.1-9.1	L1833819-2	23-Sep-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
NDM97-3	NDM97-3	6.1-9.1	L1913256-3	13-Apr-17	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
NDM97-3	NDM97-03	6.1-9.1	L1983999-2	30-Aug-17	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
NDM97-3	NDM97-3	6.1-9.1	L2079008-5	11-Apr-18	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
NDM97-3	NDM97-3	6.1-9.1	L2160017-1	6-Sep-18	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
NDM97-3	NDM97-03	6.1-9.1	L2253280-1	3-Apr-19	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
NDM97-3	NDM97-03	6.1-9.1	L2352452-8	23-Sep-19	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
NDM97-3	NDM97-03	6.1-9.1	VA20A3631-003	19-Mar-20	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
NDM97-3	NDM97-03	6.1-9.1	VA20B3702-002	26-Aug-20	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
U6	A3-U6	0.9-3.9		21-Sep-05	<300.	<1000.	<300.	<1000.	<100.	<100.	<0.5	<0.5	<1.	<1.	---	AW-
U6	U6	0.9-3.9		30-Mar-06	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
U6	U6	0.9-3.9		31-Aug-06	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
U6	U6	0.9-3.9		4-Apr-07	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
U6	U6	0.9-3.9		28-Aug-07	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
U6	U6	0.9-3.9		9-Apr-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
U6	U6	0.9-3.9		28-Aug-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
U6	U6	0.9-3.9		27-Apr-09	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
U6	U6	0.9-3.9		3-Sep-09	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
U6	U6	0.9-3.9		19-Apr-10	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
U6	U6	0.9-3.9		7-Sep-10	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
U6	U6	0.9-3.9		4-May-11	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
U6	U6	0.9-3.9		22-Sep-11	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U6	U6	0.9-3.9		15-May-12	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U6	U6	0.9-3.9		18-Sep-12	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U6	U6	0.9-3.9		10-Apr-13	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U6	U6	0.9-3.9		27-Aug-13	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U6	U6	0.9-3.9	L1461850-4	28-May-14	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U6	U6	0.9-3.9	L1509407-6	27-Aug-14	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U6	U6	0.9-3.9	L1597133-4	9-Apr-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U6	U6	0.9-3.9	L1667287-4	2-Sep-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U6	U6	0.9-3.9	L1745659-3	16-Mar-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U6	U6	0.9-3.9	L1830885-6	19-Sep-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U6	U6	0.9-3.9	L1915574-3	20-Apr-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-

TABLE 1-2
AREAS 1 AND 3 CONCENTRATIONS OF EXTRACTABLE PETROLEUM HYDROCARBONS IN GROUNDWATER
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY
µg/L (ppb)

					LEPHw[3]	HEPHw[3]	EPH w (C10-<C19)[2, 3]	EPH w (C19-C32)[3]	VH w (C6-C10)	VPHw	Benzene	Toluene	Ethylbenzene	Xylenes	Styrene	Groundwater Classification
Generic Numerical Water Standards[4]																
CSR	Schedule 3.2 - Freshwater Aquatic Life			(AW)	500[1]	NS	5000[1]	NS	15000[1]	1500[1]	400	5	2000	300[1]	720[1]	
	Schedule 3.2 - Marine Aquatic Life			(AW)	500[1]	NS	5000[1]	NS	15000[1]	1500[1]	1000	2000	2500	300[1]	720[1]	
	Site-Specific Screening Levels (SSSLs)				3000	NS	5000	NS	15000	15000	21000	7700	3200	3300	720	
Well ID	**Sample ID**	**Screened Interval (mbgs)**	**ALS Laboratory Report #**	**Sample Date**												
U6	U6	0.9-3.9	L1991781-1	14-Sep-17	<250.	<250.	<250.	<250.	<300.	<300.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
U6	U6	0.9-3.9	L2081247-4	17-Apr-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
U6	U6	0.9-3.9	L2170535-1	25-Sep-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
U6	U6	0.9-3.9	L2255046-2	8-Apr-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
U6	U6	0.9-3.9	L2354839-4	26-Sep-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	0.63	<0.5	<0.75	<0.5	AW-
U6	U6	0.9-3.9	L2431889-5	24-Mar-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
U6	U6	0.9-3.9	VA20B3130-001	19-Aug-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
U7	A3-U7	1.2-5.8		21-Sep-05	<300.	<1000.	<300.	<1000.	<100.	<100.	<0.5	<0.5	<1.	<1.	---	AW-
U7	U7	1.2-5.8		30-Mar-06	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
U7	U7	1.2-5.8		31-Aug-06	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
U7	U7	1.2-5.8		4-Apr-07	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
U7	U7	1.2-5.8		28-Aug-07	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	1.9	<0.5	<1.	---	AW-
U7	U7	1.2-5.8		9-Apr-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
U7	U7	1.2-5.8		28-Aug-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
U7	U7	1.2-5.8		27-Apr-09	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
U7	U7	1.2-5.8		3-Sep-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
U7	U7	1.2-5.8		19-Apr-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
U7	U7	1.2-5.8		7-Sep-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
U7	U7	1.2-5.8		4-May-11	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
U7	U7	1.2-5.8		22-Sep-11	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	0.78	<0.5	<0.75	---	AW-
U7	U7	1.2-5.8		15-May-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U7	U7	1.2-5.8		18-Sep-12	---	---	4120.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U7	U7	1.2-5.8		15-Apr-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U7	U7	1.2-5.8		27-Aug-13	---	---	<250.	<250.	<100.	<100.	<0.5	2.71	<0.5	<0.75	---	AW-
U7	U7	1.2-5.8	L1462453-3	29-May-14	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U7	U7	1.2-5.8	L1509407-7	27-Aug-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U7	U7	1.2-5.8	L1597133-5	9-Apr-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U7	U7	1.2-5.8	L1667287-5	2-Sep-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U7	U7	1.2-5.8	L1745659-5	16-Mar-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U7	U7	1.2-5.8	L1832800-3	21-Sep-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U7	U7	1.2-5.8	L1919609-1	1-May-17	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
U7	U7	1.2-5.8	L1991781-2	14-Sep-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
U7	U7	1.2-5.8	L2081247-5	17-Apr-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
U7	U7	1.2-5.8	L2170535-2	25-Sep-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
U7	U7	1.2-5.8	L2255046-3	8-Apr-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
U7	U7	1.2-5.8	L2354839-5	26-Sep-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
U7	U7	1.2-5.8	L2431889-6	24-Mar-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
U7	U7	1.2-5.8	VA20B3130-002	19-Aug-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
U07-10S	U07-10S	4.7-6.2		4-Jul-07	**3000.**	350.	3610.	350.	200.	<100.	83.4	4.6	3.93	13.4	---	**AW+**
U07-10S	U07-10S	4.7-6.2		28-Aug-07	**5100.**	450.	**6890.**	450.	360.	230.	94.8	10.1	5.7	204.	---	**AW+**
U07-10S	U07-10S	4.7-6.2		9-Apr-08	**7710.**	1430.	**11400.**	1740.	350.	270.	49.2	9.1	5.	19.7	---	**AW+**
U07-10S	U07-10S	4.7-6.2		27-Apr-09	**3490.**	1070.	**7190.**	1380.	270.	<200.	42.4	7.8	5.	17.7	---	**AW+**
U07-10S	U07-10S	4.7-6.2		4-May-11	**9970.**	1600.	**17000.**	2000.	170.	<100.	60.1	14.4	23.9	33.9	---	**AW+**
U07-10S	U07-10S	4.7-6.2		21-Sep-11	**10400.**	2390.	**18100.**	2830.	110.	<100.	39.	8.57	11.7	16.5	---	**AW+**
U07-10S	U7-10S	4.7-6.2		3-Sep-13	**47000.**	33300.	**108000.**	54500.	250.	110.	58.	12.8	26.9	38.	---	**AW+**
U07-10S	U7-10S	4.7-6.2	L1462454-1	29-May-14	**6700.**	1300.	**11400.**	1500.	<100.	<100.	20.8	3.32	5.54	9.82	---	**AW+**
U07-10S	U7-10S	4.7-6.2	L1509397-1	27-Aug-14	**19400.**	3190.	**25600.**	3270.	180.	<100.	66.3	12.4	21.5	30.8	---	**AW+**
U07-10S	U7-10S	4.7-6.2	L1597686-1	10-Apr-15	**8590.**	2660.	**16300.**	3690.	190.	<100.	38.1	8.3	17.5	25.8	---	**AW+**
U07-10S	U7-10S	4.7-6.2	L1668445-1	3-Sep-15	**8140.**	320.	**15900.**	440.	200.	<100.	58.	10.7	23.	32.1	---	**AW+**
U07-10S	U07-10S	4.7-6.2	L1745069-1	15-Mar-16	**84600.**	47100.	**157000.**	74100.	300.	<200.	40.7	10.9	30.1	40.6	---	**AW+**
U07-10S	U07-10S	4.7-6.2	L1832785-1	21-Sep-16	**5870.**	<250.	**18100.**	<250.	<400.	<400.	73.8	13.	29.6	38.1	---	**AW+**
U07-10S	U07-10S	4.7-6.2	L1917194-6	25-Apr-17	**8250.**	560.	**14500.**	730.	260.	110.	58.3	12.6	32.7	44.2	<0.5	**AW+**
U07-10S	U07-10S	4.7-6.2	L1995423-4	21-Sep-17	**4080.**	<250.	**13200.**	250.	210.	100.	41.1	8.62	26.5	35.9	<0.5	**AW+**
U07-10S	U07-10S	4.7-6.2	L1995424-1	21-Sep-17	---	---	---	---	---	---	34.8	8.94	28.4	38.2	<0.5	AW-
U07-10S	U07-10S	4.7-6.2	L2079614-1	12-Apr-18	---	---	---	---	---	---	16.3	4.51	11.3	17.6	0.83	AW-
U07-10S	U07-10S	4.7-6.2	L2161509-3	10-Sep-18	**8440.**	560.	**17500.**	740.	220.	130.	40.9	10.8	15.9	29.6	1.11	**AW+**
U07-10S	U07-10S	4.7-6.2	L2161512-1	10-Sep-18	---	---	---	---	---	---	39.3	9.68	25.9	35.5	1.51	AW-
U07-10S	U07-10S	4.7-6.2	L2255718-7	9-Apr-19	**4660.**	780.	**10400.**	1090.	<100.	<100.	6.24	2.31	7.59	11.4	<0.5	**AW+**
U07-10S	U07-10S	4.7-6.2	L2256470-1	10-Apr-19	---	---	---	---	---	---	9.46	3.53	8.38	12.6	<0.5	AW-
U07-10S	U07-10S	4.7-6.2	L2354359-3	25-Sep-19	**7020.**	300.	**14600.**	360.	150.	<100	23.4	9.22	24.5	30.9	<0.5	**AW+**
U07-10S	U07-10S	4.7-6.2	L2431889-7	24-Mar-20	**7760**	<250.	**14800**	280.	250.	170.	21.5	7.33	20.	29.7	<0.5	**AW+/SSSL+**
U07-10S	DUP-5	4.7-6.2	L2431889-11	24-Mar-20	**8370**	260.	**14700**	300.	200.	120.	21.7	7.93	21.	29.4	<0.5	**AW+/SSSL+**
QA/QC RPD				24-Mar-20	7.6%	---	0.7%	---	---	---	0.9%	7.9%	4.9%	1.0%	---	
U07-10S	U07-10S	4.7-6.2	VA20B3370-002	20-Aug-20	**63500**	36300.	**113000**	54400.	270.	150.	35.8	11.2	30.1	39.7	<0.5	**AW+/SSSL+**
U07-10I	U07-10I	6.65-8.15		4-Jul-07	2380.	630.	2400.	630.	120.	120.	0.6	<1.	<0.5	3.3	---	**AW+**
U07-10I	U07-10I	6.65-8.15		28-Aug-07	1330.	420.	1340.	420.	<100.	<100.	1.84	<1.	<0.5	3.4	---	**AW+**
U07-10I	U07-10I	6.65-8.15		9-Apr-08	1010.	610.	1010.	610.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	**AW+**
U07-10I	U07-10I	6.65-8.15		28-Aug-08	610.	320.	620.	330.	110.	110.	0.9	<1.	<0.5	<1.	---	**AW+**
U07-10I	U07-10I	6.65-8.15		27-Apr-09	640.	360.	640.	370.	<100.	<100.	0.91	<1.	<0.5	<1.	---	**AW+**
U07-10I	U07-10I	6.65-8.15		3-Sep-09	450.	<250.	450.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
U07-10I	U07-10I	6.65-8.15		19-Apr-10	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
U07-10I	U07-10I	6.65-8.15		7-Sep-10	440.	<250.	450.	<250.	120.	120.	0.8	<1.	<0.5	0.79	---	AW-
U07-10I	U07-10I	6.65-8.15		4-May-11	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
U07-10I	U07-10I	6.65-8.15		28-Sep-11	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U07-10I	U07-10I	6.65-8.15		16-May-12	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U07-10I	U07-10I	6.65-8.15		9-Apr-13	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U07-10I	U7-10I	6.65-8.15		3-Sep-13	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U07-10I	U7-10I	6.65-8.15	L1461846-1	28-May-14	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U07-10I	U7-10I	6.65-8.15	L1509397-2	27-Aug-14	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U07-10I	U7-10I	6.65-8.15	L1597686-2	10-Apr-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U07-10I	U7-10I	6.65-8.15	L1667283-1	2-Sep-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U07-10I	U7-10I	6.65-8.15	L1745069-2	15-Mar-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U07-10I	U7-10I	6.65-8.15	L1832785-2	21-Sep-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U07-10I	U07-10I	6.65-8.15	L1917194-5	25-Apr-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
U07-10I	U07-10I	6.65-8.15	L1995423-5	21-Sep-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
U07-10I	U07-10I	6.65-8.15	L2080618-2	16-Apr-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	3.61	2.5	12.2	<0.5	AW-
U07-10I	U07-10I	6.65-8.15	L2161509-4	10-Sep-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	0.55	<0.5	<0.75	<0.5	AW-
U07-10I	U07-10I	6.65-8.15	L2255718-6	9-Apr-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
U07-10I	U07-10I	6.65-8.15	L2354359-4	25-Sep-19	<250.	<250.	<250.	<250.	120.	120.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
U07-10I	U07-10I	6.65-8.15	L2431889-8	24-Mar-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
U07-10I	U07-10I	6.65-8.15	VA20B3370-003	20-Aug-20	330.	<250.	330.	<250.	180.	160.	18.9	<0.5	<0.5	<0.75	<0.5	AW-
U07-10D	U07-10D	8.5-10.65		4-Jul-07	420.	<250.	450.	<250.	210.	210.	0.57	<1.	<0.5	<1.	---	AW-
U07-10D	U07-10D	8.5-10.65		28-Aug-07	710.	260.	750.	260.	220.	220.	<1.3	<2.5	<1.3	<2.5	---	**AW+**
U07-10D	U07-10D	8.5-10.65		9-Apr-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
U07-10D	U07-10D	8.5-10.65		28-Aug-08	<250.	<250.	<250.	<250.	330.	330.	<0.5	<1.	<0.5	<1.	---	AW-
U07-10D	U07-10D	8.5-10.65		27-Apr-09	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-
U07-10D	U07-10D	8.5-10.65		3-Sep-09	500.	<250.	530.	<250.	360.	360.	<0.5	<1.	<0.5	1.4	---	AW-
U07-10D	U07-10D	8.5-10.65		19-Apr-10	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	AW-

TABLE 1-2
AREAS 1 AND 3 CONCENTRATIONS OF EXTRACTABLE PETROLEUM HYDROCARBONS IN GROUNDWATER
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY
µg/L (ppb)

					LEPHw [3]	HEPHw [3]	EPH w (C10-<C19) [2, 3]	EPH w (C19-C32) [3]	VH w (C6-C10)	VPHw	Benzene	Toluene	Ethylbenzene	Xylenes	Styrene	Groundwater Classification
Generic Numerical Water Standards [4]																
CSR	Schedule 3.2 - Freshwater Aquatic Life			(AW)	500 [1]	NS	5000 [1]	NS	15000 [1]	1500 [1]	400	5	2000	300 [1]	720 [1]	
	Schedule 3.2 - Marine Aquatic Life			(AW)	500 [1]	NS	5000 [1]	NS	15000 [1]	1500 [1]	1000	2000	2500	300 [1]	720 [1]	
Site-Specific Screening Levels (SSSLs)					3000	NS	5000	NS	15000	15000	21000	7700	3200	3300	720	
Well ID	**Sample ID**	**Screened Interval (mbgs)**	**ALS Laboratory Report #**	**Sample Date**												
U07-10D	U07-10D	8.5-10.65		7-Sep-10	<250.	<250.	<250.	<250.	120.	120.	<0.5	<1.	<0.5	<0.71	---	AW-
U07-10D	U07-10D	8.5-10.65		4-May-11	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	AW-
U07-10D	U07-10D	8.5-10.65		28-Sep-11	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U07-10D	U07-10D	8.5-10.65		16-May-12	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U07-10D	U07-10D	8.5-10.65		18-Sep-12	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U07-10D	U07-10D	8.5-10.65		9-Apr-13	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U07-10D	U7-10D	8.5-10.65		3-Sep-13	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U07-10D	U7-10D	8.5-10.65	L1461846-2	28-May-14	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U07-10D	U7-10D	8.5-10.65	L1509397-3	27-Aug-14	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U07-10D	U7-10D	8.5-10.65	L1597686-3	10-Apr-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U07-10D	U7-10D	8.5-10.65	L1667283-2	2-Sep-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U07-10D	U7-10D	8.5-10.65	L1745069-3	15-Mar-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U07-10D	U7-10D	8.5-10.65	L1832785-3	21-Sep-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	AW-
U07-10D	U07-10D	8.5-10.65	L1917918-3	26-Apr-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
U07-10D	U07-10D	8.5-10.65	L1995423-6	21-Sep-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
U07-10D	U07-10D	8.5-10.65	L2080618-3	16-Apr-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	2.15	1.38	7.4	<0.5	AW-
U07-10D	U07-10D	8.5-10.65	L2170535-8	25-Sep-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
U07-10D	U07-10D	8.5-10.65	L2255718-5	9-Apr-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
U07-10D	U07-10D	8.5-10.65	L2354359-5	25-Sep-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
U07-10D	U07-10D	8.5-10.65	L2431889-9	24-Mar-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
U07-10D	U07-10D	8.5-10.65	VA20B3370-004	20-Aug-20	<250.	<250.	<250.	<250.	<100.	<100.	7.1	<0.5	<0.5	<0.75	<0.5	AW-
MW17-04	MW17-04	0.8 - 1.5	L1960116-6	17-Jul-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
MW17-04	MW17-04	0.8 - 1.5	L2076585-4	5-Apr-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
MW17-04	MW17-04	0.8 - 1.5	L2156436-3	30-Aug-18	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
MW17-04	MW17-04	0.8 - 1.5	L2250790-1	28-Mar-19	---	---	<250.	<250.	<100.	<101	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
MW17-04	MW17-04	0.8 - 1.5	L2353320-4	24-Sep-19	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
MW17-04	MW17-04	0.8 - 1.5	VA20A3495-004	17-Mar-20	---	---	<250	<250	<100	<100	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
MW17-04	MW17-04	0.8 - 1.5	VA20B3130-007	19-Aug-20	<250	<250	<250	<250	<100	<100	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
Travel Blank	TRAVEL BLANK-1	---	VA20A3495-005	17-Mar-20	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
Travel Blank	TRAVEL BLANK-2	---	VA20A3569-007	18-Mar-20	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
Travel Blank	TRAVEL BLANK-3	---	VA20A3631-007	19-Mar-20	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
Travel Blank	TRAVEL BLANK-4	---	VA20A3785-005	23-Mar-20	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
Travel Blank	TRAVEL BLANK-5	---	L2431889-12	24-Mar-20	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
Travel Blank	TRAVEL BLANK-6	---	VA20A3942-005	25-Mar-20	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
Travel Blank	TRAVEL BLANK-5	---	VA20B3130-010	19-Aug-20	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
Travel Blank	TRAVEL BLANK-6	---	VA20B3370-005	20-Aug-20	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
Travel Blank	TRAVEL BLANK-7	---	VA20B3584-009	25-Aug-20	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
Travel Blank	TRAVEL BLANK-8	---	VA20B3702-009	26-Aug-20	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
Travel Blank	TRAVEL BLANK-9	---	VA20B3790-006	27-Aug-20	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	AW-
Reported Detection Limit					250.	250.	250.	250.	100.	100.	0.5	0.5	0.5	0.8	0.5	

Abbreviations:

CSR	Contaminated Sites Regulation (including Stage 12 Amendments, January 2019)
LEPHw	Light extractable petroleum hydrocarbons in water
HEPHw	Heavy extractable petroleum hydrocarbons in water
EPHw	Extractable petroleum hydrocarbons in water
VHw	Volatile hydrocarbons in water
VPHw	Volatile petroleum hydrocarbons in water
MTBE	Methyl tert-butyl ether
QA/QC	Quality assurance / quality control
RPD	Relative percent difference
NS	No standard established for indicated parameter.
mbgs	Metres below ground surface
ppb	Parts per billion
µg/L	Micrograms per litre
<	Sample concentration less than the reported detection limit indicated
---	Sample not analyzed for indicated parameter

	Sample concentration greater than CSR standard for aquatic life (AW).
BOLD	Sample concentration greater than CSR standard for aquatic life (AW) and Site-Specific Screening Levels (SSSLs).
BOLD	Reportable Detection Limit (RDL) exceeds the regulatory standard.

Notes:

1 Standards are applicable at all sites, irrespective of water use
2 BC MOE groundwater AW standard (500 µg/L) is for LEPH corrected for PAHs;
EPH (C10<-C19) is LEPH uncorrected for PAHs and therefore conservative.
3 Some LEPH/HEPH and EPH10-19/EPH19-32 results from ALS were affected by laboratory contamination. The former values are available upon request.
4 Criterion concentrations reported in µg/L

TABLE 1-3
AREAS 1 AND 3 CONCENTRATIONS OF POLYCYCLIC AROMATIC HYDROCARBONS IN GROUNDWATER
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY
µg/L (ppb)

Well ID	Sample ID	Screened Interval (mbgs)	ALS Laboratory Report #	Sample Date	Acenaphthene	Acridine	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b+k)fluoranthene	Benzo(b+j+k)fluoranthene [3]	Benzo(ghi)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	1-Methylnaphthalene [4]	2-Methylnaphthalene [4]	Naphthalene	Phenanthrene	Pyrene	Quinoline	Total PAHs [4]	Groundwater Classification
Generic Numerical Water Standards [2]																									
CSR	Schedule 3.2 - Marine and Freshwater Aquati			(AW)	60	0.5	1	1	0.1	NS	NS	NS	1	NS	2	120	NS	NS	NS	10	3	0.2	34	NS	
CSR	Site-Specific Screening Levels (SSSLs)				60	30	40	1	2.8	NS	NS	NS	1	NS	40	120	NS	NS	NS	440	3	40	34	NS	
A1-12C	A1-12C	5.2-6.7		5-May-04	0.116	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.269	<0.05	---	---	<0.35	<0.05	<0.05	<0.2	---	AW-
A1-12C	A1-12C	5.2-6.7		19-Oct-04	0.133	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.338	<0.05	---	---	<0.4	<0.05	<0.05	<0.06	---	AW-
A1-12C	A1-12C	5.2-6.7		19-Apr-05	0.172	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.356	<0.05	---	---	<0.3	<0.05	<0.05	<0.15	---	AW-
A1-12C	A1-12C	5.2-6.7		15-Sep-05	0.107	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.262	<0.05	---	---	<0.2	<0.05	<0.05	<0.2	---	AW-
A1-12D	A1-12D	1.7-3.2		15-Sep-05	0.384	<0.07	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.92	<0.05	---	---	<0.5	<0.05	<0.05	<0.3	---	AW-
A1-12D	A1-12D	1.7-3.2		4-Apr-06	0.405	<0.1	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	1.05	<0.05	---	---	<2.	<0.05	<0.05	<0.4	---	AW-
A1-12D	A1-12D	1.7-3.2		5-Sep-06	0.411	<0.1	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.969	<0.05	---	---	<1.	<0.05	<0.05	<0.4	---	AW-
A1-12D	A1-12D	1.7-3.2		2-Apr-07	0.543	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	1.48	<0.05	---	---	<2.	<0.05	<0.05	<0.2	---	AW-
A1-12D	A1-12D	1.7-3.2		28-Aug-07	0.345	<0.08	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	1.05	<0.05	---	---	<0.6	<0.05	<0.05	<0.3	---	AW-
A1-12D	A1-12D	1.7-3.2		8-Apr-08	0.485	<0.09	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	1.2	<0.05	---	---	<2.	<0.05	<0.05	<0.3	---	AW-
A1-12D	A1-12D	1.7-3.2		28-Aug-08	0.472	0.084	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	1.36	<0.05	---	---	<0.7	<0.05	<0.05	<0.4	---	AW-
A1-12D	A1-12D	1.7-3.2		21-Apr-09	0.412	<0.09	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	1.27	<0.05	---	---	<1.5	<0.05	<0.05	<0.3	---	AW-
A3MW02-05	MW02-05	2.4-6.1		5-May-04	4.24	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.847	<0.05	---	---	9.84	0.337	<0.05	<0.05	---	AW-
A3MW02-05	MW02-05	2.4-6.1		25-Oct-04	19.2	0.392	0.267	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	0.147	6.54	<0.05	---	---	53.6	4.28	0.072	<0.05	---	**AW+**
A3MW02-05	MW02-05	2.4-6.1		26-Apr-05	1.96	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.185	<0.05	---	---	2.03	0.052	<0.05	<0.05	---	AW-
A3MW02-05	MW02-05	2.4-6.1		20-Sep-05	35.8	0.547	0.643	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	0.951	12.7	<0.05	---	---	115.	12.	0.456	<0.05	---	**AW+**
A3MW02-05	A3 MW02-05	2.4-6.1		30-Mar-06	0.887	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A3MW02-05	A3 MW02-05	2.4-6.1		28-Jun-06	1.56	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.09	<0.05	---	---	1.95	<0.05	<0.05	<0.05	---	AW-
A3MW02-05	A3 MW02-05	2.4-6.1		24-Jul-06	16.7	0.36	0.118	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	0.066	5.69	<0.05	---	---	77.5	2.48	<0.05	<0.05	---	**AW+**
A3MW02-05	A3 MW02-05	2.4-6.1		31-Aug-06	35.6	<1.	0.378	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	0.155	10.7	<0.05	---	---	154.	6.22	0.107	<0.05	---	**AW+**
A3MW02-05	MW02-05	2.4-6.1		4-Apr-07	1.04	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	0.153	<0.05	<0.05	<0.05	---	AW-
A3MW02-05	MW02-05	2.4-6.1		28-Aug-07	4.	<0.3	<0.05	<0.05	0.011	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.674	<0.05	---	---	21.4	0.141	<0.08	<0.05	---	**AW+**
A3MW02-05	MW02-05	2.4-6.1		9-Apr-08	0.914	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A3MW02-05	MW02-05	2.4-6.1		28-Aug-08	1.49	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.112	<0.05	---	---	0.269	0.129	<0.05	<0.05	---	AW-
A3MW02-05	MW02-05	2.4-6.1		27-Apr-09	0.868	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A3MW02-05	MW02-05	2.4-6.1		3-Sep-09	5.14	<0.2	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	1.01	<0.05	---	---	33.2	0.146	<0.05	<0.05	---	**AW+**
A3MW02-05	MW02-05	2.4-6.1		19-Apr-10	0.852	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	0.082	0.096	<0.05	---	---	0.099	0.156	0.071	<0.05	---	AW-
A3MW02-05	A3 MW02-05	2.4-6.1		20-Sep-10	1.28	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.087	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A3MW02-05	A3 MW02-05	2.4-6.1		4-May-11	<0.7	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.2	<0.07	<0.05	---	---	<0.25	<0.07	<0.15	<0.05	---	AW-
A3MW02-05	A3 MW02-05	2.4-6.1		27-Sep-11	0.695	<0.05	0.092	0.103	<0.03	<0.1	---	<0.05	0.341	<0.05	<0.05	0.072	<0.05	---	---	<0.05	0.156	<0.05	<0.05	---	AW-
A3MW02-05	A3MW02-05	2.4-6.1		16-May-12	0.123	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A3MW02-05	A3MW02-05	2.4-6.1		20-Sep-12	0.148	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A3MW02-05	A3MW02-05	2.4-6.1		10-Apr-13	0.157	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A3MW02-05	A3MW02-05	2.4-6.1		3-Sep-13	<0.05	<0.05	<0.05	<0.05	0.014	<0.1	---	<0.05	<0.05	<0.05	0.064	<0.05	<0.05	---	---	0.054	0.105	0.061	<0.05	---	AW-
A3MW02-05	A3MW02-05	2.4-6.1	L1461846-4	28-May-14	0.442	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A3MW02-05	A3MW02-05	2.4-6.1	L1509397-5	27-Aug-14	0.2	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A3MW02-05	A3MW02-05	2.4-6.1	L1597132-1	9-Apr-15	0.658	<0.07	<0.04	<0.01	<0.01	<0.02	---	<0.01	<0.01	<0.01	<0.01	0.101	<0.01	---	---	<0.05	<0.02	0.02	<0.05	---	AW-
A3MW02-05	A3MW02-05	2.4-6.1	L1667283-4	2-Sep-15	3.08	<0.05	0.064	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.958	<0.05	---	---	0.067	<0.05	<0.05	<0.05	---	AW-
A3MW02-05	A3MW02-05	2.4-6.1	L1745655-2	16-Mar-16	5.5	<0.08	0.197	0.515	0.264	0.536	---	0.091	0.362	<0.05	2.52	1.83	0.095	---	---	0.094	<0.06	2.32	<0.05	---	**AW+**
A3MW02-05	A3MW02-05	2.4-6.1	L1830885-1	19-Sep-16	1.03	<0.06	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	0.151	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A3MW02-05	A3MW02-05	2.4-6.1	L1917194-1	25-Apr-17	0.737	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	0.114	0.475	<0.05	---	---	<0.05	<0.05	0.17	<0.05	---	AW-
A3MW02-05	A3MW02-05	2.4-6.1	L1995423-1	21-Sep-17	2.48	<0.06	<0.05	<0.5	<0.2	0.246	---	0.069	<0.9	<0.04	2.89	1.23	<0.05	---	---	<0.09	<0.08	2.83	<0.2	---	**AW+**
A3MW02-05	A3 MW02-05	2.4-6.1	L2087551-2	1-May-18	0.024	<0.02	0.012	<0.01	<0.005	<0.015	---	<0.01	<0.01	<0.005	0.016	0.01	<0.01	---	---	<0.05	<0.02	0.017	<0.05	---	AW-
A3MW02-05	A3 MW02-05	2.4-6.1	L2164059-1	13-Sep-18	0.988	<0.2	<0.04	<0.05	<0.03	0.019	---	0.013	<0.07	<0.007	0.191	0.055	0.01	---	---	<0.05	<0.02	0.2	<0.05	---	AW-
A3MW02-05	A3 MW02-05	2.4-6.1	L2255718-9	9-Apr-19	0.083	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.050	<0.11	AW-
A3MW02-05	A3 MW02-05	2.4-6.1	L2354839-6	26-Sep-19	0.561	<0.030	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	0.015	<0.010	<0.050	<0.050	<0.050	<0.020	0.014	<0.050	0.59	AW-
A3MW02-05	A3 MW02-05	2.4-6.1	VA20A3785-001	23-Mar-20	0.355	<0.040	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	0.028	0.011	<0.010	0.011	0.016	<0.050	<0.020	0.031	<0.050	0.425	AW-
A3MW02-05	A3 MW02-05	2.4-6.1	VA20B3130-004	19-Aug-20	0.493	<0.020	<0.020	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	0.011	<0.010	0.016	0.016	<0.050	<0.020	0.012	<0.050	0.516	AW-
A3MW02-05	DUP-04	2.4-6.1	VA20B3130-008	19-Aug-20	0.539	<0.040	0.016	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	0.014	0.015	<0.050	<0.020	0.012	<0.050	0.568	AW-
QA/QC RPD				19-Aug-20	8.9%	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	9.6%	
A3MW02-06	MW02-06	3.4-6.4		5-May-04	4.58	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	1.22	<0.05	---	---	<1.	0.322	<0.05	<0.05	---	AW-
A3MW02-06	MW02-06	3.4-6.4		25-Oct-04	4.15	<0.05	0.068	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	1.19	<0.05	---	---	0.497	0.367	<0.05	<0.3	---	AW-
A3MW02-06	MW02-06	3.4-6.4		26-Apr-05	4.72	<0.05	0.061	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	1.39	<0.05	---	---	<0.5	0.415	<0.05	<0.3	---	AW-
A3MW02-06	MW02-06	3.4-6.4		19-Sep-05	4.41	<0.05	0.067	<0.05	0.012	<0.05	---	<0.05	<0.1	<0.05	<0.05	1.32	<0.05	---	---	<0.4	0.445	<0.05	<0.05	---	AW-
A3MW02-06	A3MW02-06	3.4-6.4		30-Mar-06	3.93	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.946	<0.05	---	---	<0.9	0.294	<0.05	<0.3	---	AW-
A3MW02-06	A3MW02-06	3.4-6.4		28-Jun-06	3.93	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.971	<0.05	---	---	0.813	0.295	<0.05	<0.3	---	AW-
A3MW02-06	A3MW02-06	3.4-6.4		24-Jul-06	4.6	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	1.18	<0.05	---	---	<0.6	0.295	<0.05	<0.05	---	AW-
A3MW02-06	A3MW02-06	3.4-6.4		31-Aug-06	4.04	<0.05	0.055	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	1.06	<0.05	---	---	<1.	0.359	<0.05	<0.5	---	AW-
A3MW02-06	MW02-06	3.4-6.4		4-Apr-07	4.61	<0.05	0.077	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	1.11	<0.05	---	---	<2.	0.398	<0.05	<0.4	---	AW-
A3MW02-06	A3MW02-06	3.4-6.4		28-Aug-07	4.46	<0.05	0.051	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	1.05	<0.05	---	---	<0.5	0.284	<0.05	<0.3	---	AW-
A3MW02-06	A3MW02-06	3.4-6.4		9-Apr-08	4.54	<0.05	0.057	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	1.07	<0.05	---	---	<2.	0.433	<0.05	<0.4	---	AW-
A3MW02-06	A3MW02-06	3.4-6.4		28-Aug-08	3.57	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.842	<0.05	---	---	<0.45	0.412	<0.05	<0.3	---	AW-
A3MW02-06	A3MW02-06	3.4-6.4		27-Apr-09	4.34	<0.05	0.063	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.912	<0.05	---	---	<1.5	0.434	<0.05	<0.35	---	AW-
A3MW02-06	A3MW02-06	3.4-6.4		3-Sep-09	4.43	<0.05	0.074	<0.05	0.017	<0.1	---	<0.05	<0.05	<0.05	0.071	1.09	<0.05	---	---	<0.8	0.552	0.054	<0.5	---	AW-
A3MW02-06	A3MW02-06	3.4-6.4		19-Apr-10	3.87	<0.05	0.096	<0.05	0.078	0.181	---	0.06	0.065	<0.05	0.115	0.877	0.065	---	---	<0.7	0.386	0.124	<0.35	---	AW-
A3MW02-06	A3MW02-06	3.4-6.4		7-Sep-10	4.07	<0.07	0.149	0.117	0.1	0.227	---	0.082	0.161	<0.05	0.489	0.925	0.082	---	---	<0.9	0.565	0.426	<0.3	---	**AW+**
A3MW02-06	A3MW02-06	3.4-6.4		4-May-11	7.55	0.179	0.498	<0.05	<0.03	<0.1	---	<0.05	<0.05	<0.05	1.78	5.48	<0.05	---	---	8.55	4.49	1.06	<0.7	---	**AW+**
A3MW02-06	A3MW02-06	3.4-6.4		27-Sep-11	4.02	<0.05	0.133	<0.05	<0.03	<0.1	---	<0.05	<0.05	<0.05	0.598	2.47	<0.05	---	---	1.87	0.539	0.47	<0.3	---	**AW+**
A3MW02-06	A3MW02-06	3.4-6.4		15-May-12	0.248	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	0.062	0.063	<0.05	---	---	0.121	<0.05	0.06	<0.05	---	AW-
A3MW02-06	A3MW02-06	3.4-6.4		20-Sep-12	0.15	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	0.103	<0.05	<0.05	<0.05	---	AW-
A3MW02-06	A3MW02-06	3.4-6.4		10-Apr-13	2.17	<0.05	0.135	<0.05	0.047	<0.122	---	<0.05	0.054	<0.05	0.464	0.18	<0.05	---	---	<0.4	<0.2	0.345	0.122	---	**AW+**
A3MW02-06	A3MW02-06	3.4-6.4		3-Sep-13	0.516	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	0.054	0.21	<0.05	---	---	0.501	0.074	<0.05	<0.05	---	AW-
A3MW02-06	A3MW02-06	3.4-6.4	L1461846-5	28-May-14	1.4	<0.05	0.134	0.061	0.058	0.155	---	0.051	<0.2	<0.05	0.533	0.583	<0.05	---	---	<0.5	0.083	0.455	<0.2	---	**AW+**
A3MW02-06	A3MW02-06	3.4-6.4	L1509397-6	27-Aug-14	1.23	<0.05	0.077	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	0.204	0.291	<0.05	---	---	<0.3	<0.05	0.131	<0.07	---	AW-
A3MW02-06	A3MW02-06	3.4-6.4	L1597132-2	9-Apr-15	1.57	<0.15	<0.03	0.029	0.021	0.052	---	0.021	0.024	<0.01	0.575	1.07	0.019	---	---	<0.8	0.14	0.444	<0.4	---	**AW+**
A3MW02-06	A3MW02-06	3.4-6.4	L1667283-5	2-Sep-15	0.834	<0.05	0.102	<0.05	0.022	<0.1	---	<0.05	<0.05	<0.05	0.226	0.66	<0.05	---	---	<0.4	<0.05	0.18	<0.3	---	AW-
A3MW02-06	A3MW02-06	3.4-6.4	L1745655-3	16-Mar-16	2.04	<0.05	0.078	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	0.184	1.75	<0.05	---	---	<0.7	<0.05	0.124	<0.9	---	AW-
A3MW02-06	A3MW02-06	3.4-6.4	L1830885-2	19-Sep-16	2.11	<0.2	0.128	0.062	0.064	0.106	---	0.054	0.081	0.009	0.496	2.05	<0.05	---	---	<0.4	0.066	0.393	<1.5	---	**AW+**
A3MW02-06	A3MW02-06	3.4-6.4	L1917194-2	25-Apr-17	3.32	<0.05	<0.2	<0.05	0.0075	<0.1	---	<0.05	<0.05	<0.005	0.46	3.25	<0.05	---	---	<2.	<0.05	0.31	<2.	---	**AW+**
A3MW02-06	A3MW02-06	3.4-6.4	L1994653-1	20-Sep-17	2.3	<0.05	0.134	<0.05	0.0228	<0.1	---	<0.05	<0.06	<0.005	0.534	2.37	<0.05	---	---	<0.8	0.062	0.38	<2.	---	**AW+**
A3MW02-06	A3MW02-06	3.4-6.4	L2081247-1	17-Apr-18	3.24	<0.2	<0.2	<0.05	0.028	<0.1	---	<0.05	<0.05	<0.006	0.471	2.61	<0.05	---	---	<1.	0.094	0.339	<2.	---	**AW+**
A3MW02-06	A3 MW02-06	3.4-6.4	L2170535-3	25-Sep-18	2.74	<0.09	<0.1	<0.02	<0.005	<0.015	---	<0.01	<0.03	<0.005	0.31	1.63	<0.01	---	---	<0.08	<0.02	0.206	<0.7	---	**AW+**
A3MW02-06	A3 MW02-06	3.4-6.4	L2255046-4	8-Apr-19	2.41	<0.080	<0.070	<0.010	<0.0050	---	<0.015	<0.010	<0.020	<0.0050	0.216	1.22	<0.010	0.827	<0.050	<2.0	0.068	0.144	<0.80	4.9	AW-
A3MW02-06	A3 MW02-06	3.4-6.4	L2354839-7	26-Sep-19	2.11	<0.070	0.058	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	0.178	0.992	<0.010	0.545	<0.050	<0.70	0.046	0.112	<1.0	4.1	AW-
A3MW02-06	A3 MW02-06	3.4-6.4	L2431889-2	24-Mar-20	2.98	<0.080	<0.080	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	0.183	1.36	<0.010	1.34	<0.060	<2.0	<0.070	0.121	<0.90	6.	AW-
A3MW02-06	A3 MW02-06	3.4-6.4	VA20B3130-003	19-Aug-20	2.58	<0.070	<0.070	<0.010	0.005	---	<0.015	<0.010	<0.010	<0.0050	0.194	1.12	<0.010	2.11	0.151	<0.800	0.104	0.129	<0.800	4.13	AW-
A3MW02-07	A3-MW02-07	3.1-6.2		19-Sep-05	19.3	<0.05	0.19	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	0.139	7.78	<0.05	---	---	0.679	0.213	0.068	<0.05	---	AW-
A3MW02-07	A3MW02-07	3.1-6.2		30-Mar-06	39.1	<0.05	0.382	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	0.242	13.1	<0.05	---	---	12.2	4.56	0.116	<0.05	---	**AW+**
A3MW02-07	A3MW02-07	3.1-6.2		28-Jun-06	32.1	<0.05	0.245	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	0.137	11.3	<0.05	---	---	2.84	1.05	0.067	<0.05	---	AW-
A3MW02-07	A3MW02-07	3.1-6.2		24-Jul-06	22.5	<0.05	0.215	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	0.167	8.83	<0.05	---	---	0.752	0.318	0.088	<0.05	---	AW-
A3MW02-07	A3MW02-07	3.1-6.2		31-Aug-06	17.	<0.05	0.165	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	0.128	6.39	<0.05	---	---	0.37	0.264	0.06	<0.05	---	AW-
A3MW02-07	A3MW02-07	3.1-6.2		4-Apr-07	22.4	<0.05	0.201	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	0.107	7.68	<0.05	---	---	0.73	0.585	0.054	<0.08	---	AW-
A3MW02-07	A3MW02-07	3.1-6.2		28-Aug-07	18.6	<0.05	0.201	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	0.106	6.48	<0.05	---	---	0.176	0.505	0.06	<0.05	---	AW-
A3MW02-07	A3MW02-07	3.1-6.2		9-Apr-08	21.9	<0.05	0.186	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	0.097	7.1	<0.05	---	---	0.38	0.631	0.055	<0.1	---	AW-
A3MW02-07	A3MW02-07	3.1-6.2		28-Aug-08	13.9	<0.05	0.134	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	0.121	4.61	<0.05	---	---	0.409	0.184	0.073	<0.06	---	AW-
A3MW02-07	A3MW02-07	3.1-6.2		27-Apr-09	26.6	<0.05	0.21	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	0.105	7.89	<0.05	---	---	0.298	0.712	0.056	<0.15	---	AW-
A3MW02-07	A3MW02-07	3.1-6.2		3-Sep-09	17.7	<0.05	0.177	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	0.141	6.13	<0.05	---	---	<0.08	0.1	0.075	<0.08	---	AW-
A3MW02-07	A3MW02-07	3.1-6.2		19-Apr-10	51.1	0.063	0.476	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	0.311	20.4	<0.05	---	---	16.1	8.71	0.142	<0.2	---	**AW+**
A3MW02-07	A3MW02-07	3.1-6.2		7-Sep-10	19.7	<0.05	0.271	<0.05	0.017	<0.1	---	<0.05	<0.05	<0.05	0.355	8.63	<0.05	---	---	<0.5	1.44	0.228	<0.07	---	**AW+**
A3MW02-07	A3MW02-07	3.1-6.2		4-May-11	0.627	<0.05	<0.05	<0.05	0.012	<0.1	---	<0.05	<0.05	<0.05	0.145	0.134	<0.05	---	---	0.621	0.284	0.13	<0.05	---	AW-
A3MW02-07	A3MW02-07	3.1-6.2		15-May-12	1.54	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.273	<0.05	---	---	4.92	<0.05	<0.05	<0.05	---	AW-
A3MW02-07	A3MW02-07	3.1-6.2		20-Sep-12	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A3MW02-07	A3MW02-07	3.1-6.2		10-Apr-13	12.9	<0.05	0.105	<0.05	0.017	<0.1	---	<0.05	<0.05	<0.05	0.101	3.86	<0.05	---	---	1.58	0.164	0.061	<0.05	---	AW-
A3MW02-07	A3MW02-07	3.1-6.2		28-Aug-13	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A3MW02-07	A3MW02-07	3.1-6.2	L1461850-2	28-May-14	3.42	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.867	<0.05	---	---	1.5	0.116	<0.05	<0.05	---	AW-
A3MW02-07	A3MW02-07	3.1-6.2	L1509407-4	27-Aug-14	0.264	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.054	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A3MW02-07	A3MW02-07	3.1-6.2	L1597133-2	9-Apr-15	20.6	<0.02	0.095	<0.01	<0.01	<0.02	---	<0.01	<0.01	<0.01	0.024	5.42	<0.01	---	---	1.75	0.836	0.01	<0.1	---	AW-
A3MW02-07	A3MW02-07	3.1-6.2	L1667287-2	2-Sep-15	2.69	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.71	<0.05	---	---	0.088	<0.05	<0.05	<0.05	---	AW-
A3MW02-07	A3MW02-07	3.1-6.2	L1745659-2	16-Mar-16	20.5	<0.05	0.335	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	0.469	9.2	<0.05	---	---	1.2	0.611	0.215	<0.3	---	**AW+**
A3MW02-07	A3MW02-07	3.1-6.2	L1830885-3	19-Sep-16	1.7	<0.05	0.163	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	0.276	2.44	<0.05	---	---	<0.05	<0.05	0.135	<0.05	---	AW-
A3MW02-07	A3MW02-07	3.1-6.2	L1915574-1	20-Apr-17	0.711	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	0.356	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A3MW02-07	A3MW02-07	3.1-6.2	L1994653-2	20-Sep-17	5.17	<0.05	0.082	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	0.09	1.72	<0.05	---	---	<0.08	<0.05	<0.05	<0.06	---	AW-
A3MW02-07	A3MW02-07	3.1-6.2	L2081247-2	17-Apr-18	28.8	<0.07	0.595	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	0.922	16.5	<0.05	---	---	<0.7	<0.2	0.448	<0.7	---	**AW+**
A3MW02-07	A3 MW02-07	3.1-6.2	L2170535-4	25-Sep-18	**69.8**	<0.2	1.42	0.012	<0.005	<0.015	---	<0.01	<0.01	<0.005	2.13	32.6	<0.01	---	---	13.9	1.53	0.947	<2.	---	**AW+**
A3MW02-07	A3MW02-07	3.1-6.2	L2181036-1	15-Oct-18	32.8	<0.05	0.536	<0.01	<0.005	<0.015	---	<0.01	<0.01	<0.005	0.711	15.1	<0.01	---	---	<0.3	0.164	0.378	<0.4	---	**AW+**
A3MW02-07	A3MW02-07	3.1-6.2	L2255718-3	9-Apr-19	52.2	<0.090	0.823	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	1.24	23.6	<0.010	1.42	<0.050	4.27	<0.20	0.564	<0.70	84.4	**AW+**
A3MW02-07	A3MW02-07	3.1-6.2	L2354839-2	26-Sep-19	44.4	<0.090	0.738	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	1.3	20.5	<0.010	1.5	<0.050	<0.70	<0.20	0.59	<0.80	69.2	**AW+**
A3MW02-07	A3MW02-07	3.1-6.2	L2431889-3	24-Mar-20	40.6	<0.090	0.829	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	1.31	20.9	<0.010	2.00	<0.050	5.08	<0.20	0.598	<0.60	71.4	**AW+**
A3MW02-07	DUP-4	3.1-6.2	L2431889-10	24-Mar-20	37.8	<0.090	0.79	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	1.33	19.5	<0.010	1.94	<0.050	4.96	<0.30	0.606	<0.70	66.9	**AW+**
QA/QC RPD				24-Mar-20	7.1%	---	4.8%	---	---	---	---	---	---	---	1.5%	6.9%	---	3.0%	---	2.4%	---	1.3%	---	6.5%	
A3MW02-07	A3MW02-07	3.1-6.2	VA20B3129-002	19-Aug-20	31.1	<0.060	0.618	0.012	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	1.48	16.1	<0.010	0.149	0.014	<0.200	<0.040	0.698	<0.600	50.1	**AW+**
A3MW02-07	DUP-03	3.1-6.2	VA20B3129-003	19-Aug-20	29.3	<0.070	0.616	0.011	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	1.41	15.2	<0.010	0.142	0.014	<0.200	<0.040	0.668	<0.500	47.4	**AW+**
QA/QC RPD				19-Aug-20	6.0%	---	0.3%	---	---	---	---	---	---	---	4.8%	5.8%	---	4.8%	---	---	---	4.4%	---	5.5%	
A3MW02-08	A3-MW02-08	1.5-5.5		19-Sep-05	16.5	<0.05	0.81	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	1.18	7.38	<0.05	---	---	15.6	4.14	0.716	<0.05	---	**AW+**
A3MW02-08	A3MW02-08	1.5-5.5		30-Mar-06	11.8	<0.05	0.486	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	0.449	4.44	<0.05	---	---	13.4	1.8	0.272	<0.05	---	**AW+**
A3MW02-08	A3MW02-08	1.5-5.5		28-Jun-06	15.6	<0.05	0.62	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	0.841	6.18	<0.05	---	---	10.9	3.29	0.486	<0.05	---	**AW+**
A3MW02-08	A3MW02-08	1.5-5.5		24-Jul-06	16.	<0.05	0.653	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	0.918	6.56	<0.05	---	---	18.	3.74	0.55	<0.05	---	**AW+**
A3MW02-08	A3MW02-08	1.5-5.5		31-Aug-06	13.9	<0.05	0.479	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	0.53	5.33	<0.05	---	---	13.3	2.46	0.307	<0.05	---	**AW+**
A3MW02-08	A3MW02-08	1.5-5.5		4-Apr-07	16.1	<0.05	0.632	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	0.843	6.44	<0.05	---	---	20.3	3.77	0.507	<0.05	---	**AW+**
A3MW02-08	A3MW02-08	1.5-5.5		28-Aug-07	15.9	<0.05	0.565	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	0.795	6.11	<0.05	---	---	15.1	3.13	0.471	<0.05	---	**AW+**
A3MW02-08	A3MW02-08	1.5-5.5		9-Apr-08	16.	<0.1	<0.75	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	0.93	6.58	<0.05	---	---	13.2	4.09	0.571	<0.05	---	**AW+**
A3MW02-08	A3MW02-08	1.5-5.5		28-Aug-08	16.9	<0.05	0.603	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	0.999	6.62	<0.05	---	---	14.4	2.32	0.594	<0.1	---	**AW+**
A3MW02-08	A3MW02-08	1.5-5.5		27-Apr-09	18.8	<0.05	0.765	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	0.997	7.29	<0.05	---	---	16.8	4.64	0.598	<0.06	---	**AW+**
A3MW02-08	A3MW02-08	1.5-5.5		3-Sep-09	15.7	<0.05	0.609	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	0.908	6.37	<0.05	---	---	13.3	3.35	0.522	<0.2	---	**AW+**
A3MW02-08	A3MW02-08	1.5-5.5		19-Apr-10	17.6	<0.05	0.742	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	1.12	7.54	<0.05	---	---	13.5	5.05	0.66	<0.07	---	**AW+**
A3MW02-08	A3MW02-08	1.5-5.5		7-Sep-10	10.8	<0.05	0.45	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	0.627	4.63	<0.05	---	---	6.47	1.73	0.378	<0.2	---	**AW+**
A3MW02-08	A3MW02-08	1.5-5.5		4-May-11	7.4	<0.05	0.178	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	0.265	2.61	<0.05	---	---	11.2	0.408	0.207	<0.06	---	**AW+**

TABLE 1-3
AREAS 1 AND 3 CONCENTRATIONS OF POLYCYCLIC AROMATIC HYDROCARBONS IN GROUNDWATER
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY
µg/L (ppb)

Well ID	Sample ID	Screened Interval (mbgs)	ALS Laboratory Report #	Sample Date	Acenaphthene	Acridine	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b+k)fluoranthene	Benzo(b+j+k)fluoranthene [3]	Benzo(ghi)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	1-Methylnaphthalene [4]	2-Methylnaphthalene [4]	Naphthalene	Phenanthrene	Pyrene	Quinoline	Total PAHs [4]	Groundwater Classification
Generic Numerical Water Standards [2]																									
CSR	Schedule 3.2 - Marine and Freshwater Aquatic			(AW)	60	0.5	1	1	0.1	NS	NS	NS	1	NS	2	120	NS	NS	NS	10	3	0.2	34	NS	
	Site-Specific Screening Levels (SSSLs)				60	30	40	1	2.8	NS	NS	NS	1	NS	40	120	NS	NS	NS	440	3	40	34	NS	
A3MW02-08	A3MW02-08	1.5-5.5		15-May-12	0.528	<0.05	0.083	<0.05	0.028	<0.104	---	<0.05	<0.05	<0.05	0.276	0.273	<0.05	---	---	0.21	0.255	0.285	<0.05	---	**AW+**
A3MW02-08	A3MW02-08	1.5-5.5		20-Sep-12	0.712	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	0.116	0.319	<0.05	---	---	0.202	0.067	0.112	<0.05	---	AW-
A3MW02-08	A3MW02-08	1.5-5.5		10-Apr-13	1.96	0.079	0.099	<0.05	0.014	<0.1	---	<0.05	<0.05	<0.05	0.189	0.769	<0.05	---	---	1.11	0.261	0.148	<0.05	---	AW-
A3MW02-08	A3MW02-08	1.5-5.5		27-Aug-13	0.665	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	0.069	0.346	<0.05	---	---	0.077	<0.05	0.059	<0.05	---	AW-
A3MW02-08	A3MW02-08	1.5-5.5	L1461850-3	28-May-14	1.97	<0.05	0.089	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	0.131	0.845	<0.05	---	---	0.546	0.122	0.103	<0.05	---	AW-
A3MW02-08	A3MW02-08	1.5-5.5	L1509407-5	27-Aug-14	1.35	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	0.072	0.69	<0.05	---	---	0.201	<0.05	0.052	<0.05	---	AW-
A3MW02-08	A3MW02-08	1.5-5.5	L1597133-3	9-Apr-15	2.4	<0.06	0.136	<0.01	<0.01	<0.03	---	<0.01	<0.01	<0.01	0.258	1.08	<0.01	---	---	0.162	0.109	0.178	<0.05	---	AW-
A3MW02-08	A3MW02-08	1.5-5.5	L1667287-3	2-Sep-15	1.67	<0.05	0.126	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	0.142	0.731	<0.05	---	---	0.971	0.051	0.106	<0.05	---	AW-
A3MW02-08	A3MW02-08	1.5-5.5	L1745659-3	16-Mar-16	4.3	<0.05	0.134	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	0.323	2.06	<0.05	---	---	0.067	<0.05	0.208	<0.05	---	**AW+**
A3MW02-08	A3MW02-08	1.5-5.5	L1830885-4	19-Sep-16	2.65	<0.05	0.091	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	0.181	1.39	<0.05	---	---	0.141	<0.05	0.129	<0.05	---	AW-
A3MW02-08	A3MW02-08	1.5-5.5	L1915574-2	20-Apr-17	2.5	<0.05	0.11	<0.05	0.0292	<0.1	---	<0.05	<0.05	<0.005	0.338	1.17	<0.05	---	---	0.159	0.073	0.286	<0.05	---	**AW+**
A3MW02-08	A3MW02-08	1.5-5.5	L1994653-3	20-Sep-17	4.13	<0.05	0.115	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	0.244	1.96	<0.05	---	---	<2.	0.066	0.17	<0.08	---	AW-
A3MW02-08	A3MW02-08	1.5-5.5	L2081247-3	17-Apr-18	2.02	<0.05	0.097	<0.05	0.01	<0.1	---	<0.05	<0.05	<0.005	0.269	1.05	<0.05	---	---	0.218	<0.05	0.222	<0.05	---	**AW+**
A3MW02-08	A3 MW02-08	1.5-5.5	L2170535-5	25-Sep-18	4.16	<0.03	0.168	<0.01	<0.005	<0.015	---	<0.01	<0.01	<0.005	0.432	1.96	<0.01	---	---	0.587	0.044	0.28	<0.08	---	**AW+**
A3MW02-08	A3 MW02-08	1.5-5.5	L2255718-4	9-Apr-19	2.62	<0.020	0.103	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	0.236	1.33	<0.010	0.124	<0.050	0.646	0.037	0.152	<0.050	5.26	AW-
A3MW02-08	A3MW02-08	1.5-5.5	L2354839-3	26-Sep-19	4.3	<0.030	0.13	<0.020	0.006	---	<0.015	<0.010	<0.010	<0.0050	0.41	1.86	<0.010	0.161	<0.050	0.733	0.048	0.258	<0.060	7.93	**AW+**
A3MW02-08	DUP-10	1.5-5.5	L2354839-8	26-Sep-19	4.44	<0.030	0.132	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	0.407	1.93	<0.010	0.166	<0.050	0.743	0.049	0.257	<0.080	8.14	**AW+**
QA/QC RPD				26-Sep-19	3.2%	---	1.5%	---	---	---	---	---	---	---	0.7%	3.7%	---	---	---	1.4%	---	0.4%	---	2.6%	
A3MW02-08	A3MW02-08	1.5-5.5	L2431889-4	24-Mar-20	0.968	<0.010	0.024	0.019	<0.030	---	<0.032	<0.030	0.026	<0.0050	0.034	0.286	<0.030	<0.050	<0.050	<0.050	0.02	0.035	<0.050	1.41	AW-
A3MW02-08	A3MW02-08	1.5-5.5	VA20B3129-001	19-Aug-20	2.64	<0.020	0.106	<0.010	0.007	---	<0.015	<0.010	<0.010	<0.0050	0.318	1.33	<0.010	0.105	0.036	0.519	0.028	0.227	<0.050	5.19	**AW+**
A3MW03-01	A3MW03-01	1.5-6.1		30-Mar-06	<0.05	<0.05	<0.05	<0.05	0.022	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A3MW03-01	A3MW03-01	1.5-6.1		28-Jun-06	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A3MW03-01	A3MW03-01	1.5-6.1		24-Jul-06	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A3MW03-01	A3MW03-01	1.5-6.1		31-Aug-06	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A3MW03-01	A3MW03-01	1.5-6.1		4-Apr-07	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A3MW03-01	A3MW03-01	1.5-6.1		28-Aug-07	<0.05	<0.05	<0.05	<0.05	0.012	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A3MW03-01	A3MW03-01	1.5-6.1		3-Apr-08	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A3MW03-01	A3MW03-01	1.5-6.1		28-Aug-08	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A3MW03-01	A3MW03-01	1.5-6.1		27-Apr-09	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A3MW03-01	A3MW03-01	1.5-6.1	L1597689-1	10-Apr-15	<0.01	<0.01	<0.02	<0.01	<0.01	<0.02	---	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	---	---	<0.05	<0.02	<0.01	<0.07	---	AW-
A3MW03-02	MW03-02	2.3-8.3		5-May-04	1.57	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	1.35	<0.05	---	---	<1.	0.259	<0.05	<0.05	---	AW-
A3MW03-02	MW03-02	2.3-8.3		25-Oct-04	1.82	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	1.5	<0.05	---	---	<0.6	0.373	<0.05	<0.4	---	AW-
A3MW03-02	MW03-02	2.3-8.3		26-Apr-05	2.11	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	1.86	<0.05	---	---	19.5	0.399	<0.05	<0.5	---	**AW+**
A3MW03-02	MW03-02	2.3-8.3		20-Sep-05	1.41	<0.05	0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	1.35	<0.05	---	---	<0.6	0.148	<0.05	<0.5	---	AW-
A3MW03-02	A3 MW03-02	2.3-8.3		30-Mar-06	2.2	<0.07	<0.05	<0.05	0.053	<0.05	---	<0.05	0.052	<0.05	<0.05	1.66	<0.05	---	---	6.15	0.329	<0.05	<0.2	---	AW-
A3MW03-02	A3 MW03-02	2.3-8.3		28-Jun-06	1.66	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	1.31	<0.05	---	---	<0.9	0.152	<0.05	<0.05	---	AW-
A3MW03-02	A3 MW03-02	2.3-8.3		24-Jul-06	1.62	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	1.36	<0.05	---	---	<0.7	0.16	<0.05	0.337	---	AW-
A3MW03-02	A3 MW03-02	2.3-8.3		31-Aug-06	0.859	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.781	<0.05	---	---	<0.7	0.13	<0.05	<0.05	---	AW-
A3MW03-02	A3 MW03-02	2.3-8.3		4-Apr-07	1.99	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	1.08	<0.05	---	---	<2.	0.051	<0.05	<0.1	---	AW-
A3MW03-02	A3 MW03-02	2.3-8.3		28-Aug-07	1.82	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	1.75	<0.05	---	---	<0.6	0.192	<0.05	<0.3	---	AW-
A3MW03-02	A3 MW03-02	2.3-8.3		3-Apr-08	2.39	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	1.71	<0.05	---	---	<2.	0.321	<0.05	<0.2	---	AW-
A3MW03-02	MW03-02	2.3-8.3		28-Aug-08	2.34	<0.05	<0.05	<0.05	<0.05	<0.05	---	<0.05	<0.05	<0.05	<0.05	1.62	<0.05	---	---	<0.5	0.24	<0.05	<0.5	---	AW-
A3MW03-02	A3 MW03-02	2.3-8.3		27-Apr-09	2.3	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	1.66	<0.05	---	---	<1.5	0.405	<0.05	<0.65	---	AW-
A3MW03-02	A3 MW03-02	2.3-8.3		3-Sep-09	4.5	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	1.63	<0.05	---	---	<0.6	0.131	<0.05	<0.3	---	AW-
A3MW03-02	A3 MW03-02	2.3-8.3		19-Apr-10	2.56	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	1.98	<0.05	---	---	<1.5	0.419	<0.05	<0.65	---	AW-
A3MW03-02	A3 MW03-02	2.3-8.3		7-Sep-10	1.3	0.054	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	1.49	<0.05	---	---	<1.	0.259	<0.05	<0.2	---	AW-
A3MW03-02	A3 MW03-02	2.3-8.3		4-May-11	3.54	<0.05	0.072	0.075	0.025	<0.1	---	<0.05	<0.05	<0.05	0.412	2.08	<0.05	---	---	<2.	0.92	0.31	<0.6	---	**AW+**
A3MW03-02	A3 MW03-02	2.3-8.3		28-Sep-11	1.85	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	1.85	<0.05	---	---	<2.	0.252	<0.05	<0.6	---	AW-
A3MW03-02	A3 MW03-02	2.3-8.3		16-May-12	2.17	<0.05	0.059	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	0.379	1.67	<0.05	---	---	<2.	0.838	0.275	<0.3	---	**AW+**
A3MW03-02	A3MW03-02	2.3-8.3		18-Sep-12	1.45	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	1.51	<0.05	---	---	<0.6	<0.05	<0.05	<0.3	---	AW-
A3MW03-02	A3MW03-02	2.3-8.3		9-Apr-13	1.61	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.905	<0.05	---	---	<0.3	<0.05	<0.05	<0.1	---	AW-
A3MW03-02	A3MW03-02	2.3-8.3		28-Aug-13	<2.	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	1.31	<0.05	---	---	<0.9	<0.05	<0.05	<0.1	---	AW-
A3MW03-02	A3MW03-02	2.3-8.3	L1462453-2	29-May-14	1.1	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.915	<0.05	---	---	<0.8	0.122	<0.05	<0.3	---	AW-
A3MW03-02	A3MW03-02	2.3-8.3	L1509407-2	27-Aug-14	1.34	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	1.06	<0.05	---	---	<0.5	0.05	<0.05	<0.3	---	AW-
A3MW03-02	A3MW03-02	2.3-8.3	L1597689-2	10-Apr-15	2.62	<0.07	0.095	0.017	<0.01	<0.02	---	<0.01	<0.01	<0.01	0.221	1.78	<0.01	---	---	<1.5	1.58	0.155	<0.8	---	AW-
A3MW03-02	A3MW03-02	2.3-8.3	L1668411-2	3-Sep-15	1.53	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	1.45	<0.05	---	---	<1.	0.163	<0.05	<4.	---	AW-
A3MW03-02	A3MW03-02	2.3-8.3	L1745070-2	15-Mar-16	1.87	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	1.6	<0.05	---	---	<2.	0.294	<0.05	<4.	---	AW-
A3MW03-02	A3MW03-02	2.3-8.3	L1832800-2	21-Sep-16	1.37	<0.05	<0.05	<0.05	<0.005	<0.01	---	<0.05	<0.05	<0.05	<0.05	1.39	<0.05	---	---	<0.8	0.255	<0.05	<3	---	AW-
A3MW03-02	A3MW03-02	2.3-8.3	L1917918-2	26-Apr-17	2.36	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	1.91	<0.05	---	---	<2.	0.352	<0.05	<6.	---	AW-
A3MW03-02	A3MW03-02	2.3-8.3	L1995423-3	21-Sep-17	1.67	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	2.04	<0.05	---	---	<2.	0.438	<0.05	<3.	---	AW-
A3MW03-02	A3 MW03-02	2.3-8.3	L2079613-2	12-Apr-18	1.96	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	1.88	<0.05	---	---	<2.	0.448	<0.05	<4.	---	AW-
A3MW03-02	A3 MW03-02	2.3-8.3	L2161509-2	10-Sep-18	1.09	<0.05	<0.03	<0.01	0.006	<0.015	---	<0.01	<0.01	<0.005	0.013	1.11	<0.01	---	---	<0.6	0.133	0.012	<0.5	---	AW-
A3MW03-02	A3 MW03-02	2.3-8.3	L2255718-2	9-Apr-19	2.28	<0.07	<0.2	0.088	0.029	---	0.059	<0.01	0.059	<0.005	0.736	2.27	0.01	53.1	0.17	<2.	2.28	0.531	<4.	61.6	**AW+**
A3MW03-02	A3 MW03-02	2.3-8.3	L2354359-2	25-Sep-19	1.03	<0.050	0.020	<0.010	<0.0050		<0.015	<0.010	<0.010	<0.0050	<0.010	1.12	<0.010	19.1	0.067	0.695	0.170	<0.010	<4.0	22.2	AW-
A3MW03-02	A3 MW03-02	2.3-8.3	L2431889-1	24-Mar-20	1.81	<0.070	<0.030	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	1.97	<0.010	48.7	<0.070	<2.0	0.543	<0.010	<4.0	53.	AW-
A3MW03-02	A3 MW03-02	2.3-8.3	VA20B3584-008	25-Aug-20	1.62	<0.050	<0.030	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	0.01	1.52	<0.010	38.7	0.136	<1.25	0.364	<0.010	<1.90	3.52	AW-
A3MW03-03	A3MW03-03	0.8-6.9		12-Apr-06	<0.3	0.406	0.106	0.109	0.155	0.069	---	0.103	0.268	<0.05	<0.05	0.247	<0.05	---	---	<0.8	0.637	0.156	<0.2	---	**AW+**
A3MW03-03	A3MW03-03	0.8-6.9		28-Jun-06	0.522	<0.5	<0.08	0.101	0.1	<0.05	---	0.054	0.144	<0.05	0.051	0.491	<0.05	---	---	3.45	0.612	0.176	<0.3	---	**AW+**
A3MW03-03	A3MW03-03	0.8-6.9		24-Jul-06	<0.8	**<0.6**	0.114	0.163	0.189	0.074	---	0.108	0.224	<0.05	0.071	0.594	<0.05	---	---	3.6	0.703	0.221	<0.05	---	**AW+**
A3MW03-03	A3MW03-03	0.8-6.9		31-Aug-06	1.22	**<0.9**	<0.2	0.33	0.41	0.22	---	0.283	0.483	0.108	0.137	0.745	0.055	---	---	4.63	0.52	0.455	<0.4	---	**AW+**
A3MW03-03	A3MW03-03	0.8-6.9		4-Apr-07	0.247	<0.4	<0.05	0.128	0.969	0.057	---	0.072	0.15	<0.05	0.054	0.24	<0.05	---	---	0.21	0.373	0.159	<0.05	---	**AW+**
A3MW03-03	A3MW03-03	0.8-6.9		28-Aug-07	0.393	<0.3	<0.05	0.072	0.084	<0.05	---	0.058	0.14	<0.05	<0.05	0.293	<0.05	---	---	<0.4	0.134	0.109	<0.2	---	AW-
A3MW03-03	A3MW03-03	0.8-6.9		9-Apr-08	0.082	<0.05	<0.05	<0.05	0.012	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.091	<0.05	---	---	<0.08	<0.05	<0.05	<0.05	---	AW-
A3MW03-03	A3MW03-03	0.8-6.9		28-Aug-08	1.5	0.173	<0.15	0.1	0.052	<0.05	---	<0.05	<0.15	<0.05	0.484	0.874	<0.05	---	---	1.54	1.14	0.402	<0.25	---	**AW+**
A3MW03-03	A3MW03-03	0.8-6.9		27-Apr-09	0.554	<0.2	<0.08	0.057	0.046	<0.05	---	<0.05	<0.1	<0.05	0.154	0.372	<0.05	---	---	<0.2	0.134	0.169	<0.1	---	AW-
A3MW03-03	A3MW03-03	0.8-6.9		3-Sep-09	1.37	<0.5	<0.2	<0.2	0.143	0.071	---	0.093	<0.2	<0.05	0.219	0.899	<0.05	---	---	2.6	0.291	0.303	<0.4	---	**AW+**
A3MW03-03	A3MW03-03	0.8-6.9		19-Apr-10	0.516	0.604	<0.15	0.206	0.253	0.158	---	0.131	0.26	<0.06	0.232	0.527	<0.05	---	---	<0.25	0.256	0.346	<0.15	---	**AW+**
A3MW03-03	A3MW03-03	0.8-6.9		20-Sep-10	0.802	**<0.6**	<0.15	0.213	**<0.3**	<0.1563	---	0.163	0.411	<0.07	0.105	<0.86	<0.05	---	---	1.67	0.922	0.336	<0.31	---	**AW+**
A3MW03-03	A3MW03-03	0.8-6.9		4-May-11	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.2	<0.05	<0.05	<0.06	---	AW-
A3MW03-03	A3MW03-03	0.8-6.9		21-Sep-11	1.6	0.09	0.102	0.076	0.035	<0.101	---	<0.05	0.053	<0.05	0.487	0.804	<0.05	---	---	1.41	1.17	0.381	0.151	---	**AW+**
A3MW03-03	A3MW03-03	0.8-6.9		16-May-12	0.147	<0.05	<0.05	<0.05	0.02	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.168	<0.05	---	---	<0.06	<0.05	0.087	<0.05	---	AW-
A3MW03-03	A3MW03-03	0.8-6.9		20-Sep-12	0.199	<0.2	<0.1	<0.2	**<0.2**	<0.1	---	0.078	<0.2	<0.05	0.224	0.306	<0.05	---	---	<0.06	<0.05	0.283	<0.05	---	**AW+**
A3MW03-03	A3MW03-03	0.8-6.9		9-Apr-13	<0.05	<0.2	<0.05	0.105	0.104	<0.119	---	0.055	0.13	<0.05	0.15	0.099	<0.05	---	---	<0.05	<0.05	0.208	<0.05	---	**AW+**
A3MW03-03	A3MW03-03	0.8-6.9		3-Sep-13	0.066	<0.2	<0.05	<0.05	<0.05	<0.1	---	<0.05	<0.07	<0.05	0.079	0.103	<0.05	---	---	0.088	<0.06	0.128	<0.05	---	AW-
A3MW03-03	A3MW03-03	0.8-6.9	L1461846-3	28-May-14	0.054	<0.2	<0.05	<0.05	<0.02	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.11	<0.05	---	---	<0.05	<0.05	0.072	<0.05	---	AW-
A3MW03-03	A3MW03-03	0.8-6.9	L1509397-4	27-Aug-14	<0.05	<0.2	0.054	<0.1	0.108	<0.15	---	0.068	<0.2	<0.05	0.073	0.077	<0.05	---	---	<0.05	<0.05	0.163	<0.05	---	**AW+**
A3MW03-03	A3MW03-03	0.8-6.9	L1639257-1	8-Jul-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A3MW03-03	A3MW03-03	0.8-6.9	L1667283-3	2-Sep-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A3MW03-03	A3MW03-03	0.8-6.9	L1745655-1	16-Mar-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A3MW03-03	A3MW03-03	0.8-6.9	L1843040-1	12-Oct-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A3MW03-03	A3MW03-03	0.8-6.9	L1917194-3	25-Apr-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A3MW03-03	A3MW03-03	0.8-6.9	L1994653-4	20-Sep-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A3MW03-03	A3MW03-03	0.8-6.9	L2087551-1	1-May-18	<0.01	<0.01	<0.01	<0.01	<0.005	<0.015	---	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	---	---	<0.05	<0.02	<0.01	<0.05	---	AW-
A3MW03-03	A3MW03-03	0.8-6.9	L2170535-6	25-Sep-18	<0.01	<0.01	<0.01	<0.01	<0.005	<0.015	---	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	---	---	<0.05	<0.02	<0.01	<0.05	---	AW-
A3MW03-03	A3MW03-03	0.8-6.9	L2255718-8	9-Apr-19	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.050	<0.11	AW-
A3MW03-03	A3MW03-03	0.8-6.9	VA20A3785-003	23-Mar-20	<0.010	<0.040	<0.010	<0.020	<0.0300	---	<0.015	0.041	<0.030	<0.0090	<0.010	<0.010	<0.010	0.013	0.025	<0.050	<0.020	0.015	<0.050	<0.079	AW-
A3MW03-03	A3MW03-03	0.8-6.9	VA20B3130-005	19-Aug-20	0.034	<0.010	<0.010	<0.010	<0.0080	---	<0.015	<0.010	<0.010	<0.0050	<0.010	0.034	<0.010	0.023	0.021	<0.050	<0.020	<0.010	<0.050	0.068	AW-
A3MW03-04	A3-MW03-04	1.5-6.7		19-Sep-05	0.185	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.173	<0.05	---	---	3.76	0.153	<0.05	<0.05	---	AW-
A3MW03-04	MW03-04	1.5-6.7		12-Apr-06	<0.4	<0.2	<0.07	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.388	<0.05	---	---	4.84	0.514	<0.05	<0.05	---	AW-
A3MW03-04	MW03-04	1.5-6.7		28-Jun-06	0.07	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.06	<0.05	---	---	1.34	0.06	<0.05	<0.05	---	AW-
A3MW03-04	MW03-04	1.5-6.7		24-Jul-06	0.075	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	1.29	0.055	<0.05	<0.05	---	AW-
A3MW03-04	MW03-04	1.5-6.7		31-Aug-06	0.154	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.144	<0.05	---	---	1.12	0.119	<0.05	<0.05	---	AW-
A3MW03-04	MW03-04	1.5-6.7		4-Apr-07	0.181	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.197	<0.05	---	---	4.03	0.211	<0.05	<0.05	---	AW-
A3MW03-04	MW03-04	1.5-6.7		28-Aug-07	0.233	<0.07	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.242	<0.05	---	---	4.48	0.207	<0.05	<0.2	---	AW-
A3MW03-04	MW03-04	1.5-6.7		9-Apr-08	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.064	<0.05	---	---	<0.4	0.055	<0.05	<0.05	---	AW-
A3MW03-04	MW03-04	1.5-6.7		28-Aug-08	0.24	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.243	<0.05	---	---	<1.5	0.21	<0.05	<0.3	---	AW-
A3MW03-04	MW03-04	1.5-6.7		27-Apr-09	0.145	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.141	<0.05	---	---	1.19	0.12	<0.05	<0.15	---	AW-
A3MW03-04	MW03-04	1.5-6.7		3-Sep-09	0.313	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.319	<0.05	---	---	<0.75	0.247	<0.05	<0.35	---	AW-
A3MW03-04	MW03-04	1.5-6.7		19-Apr-10	0.184	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	0.069	0.169	<0.05	---	---	0.843	0.179	0.059	<0.15	---	AW-
A3MW03-04	MW03-04	1.5-6.7		7-Sep-10	0.356	<0.05	<0.05	<0.05	0.018	<0.1	---	<0.05	<0.05	<0.05	0.158	0.292	<0.05	---	---	<2.8	0.328	0.132	<0.16	---	AW-
A3MW03-04	MW03-04	1.5-6.7		4-May-11	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.09	<0.05	<0.05	<0.05	---	AW-
A3MW03-04	MW03-04	1.5-6.7		15-May-12	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.06	<0.05	<0.05	<0.05	---	AW-
A3MW03-04	A3MW03-04	1.5-6.7		20-Sep-12	<0.2	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.2	<0.05	0.08	<0.3	---	AW-
A3MW03-04	A3MW03-04	1.5-6.7		9-Apr-13	<0.07	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.2	<0.05	<0.05	<0.2	---	AW-
A3MW03-04	A3MW03-04	1.5-6.7		28-Aug-13	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A3MW03-04	A3MW03-04	1.5-6.7	L1461850-1	28-May-14	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A3MW03-04	A3MW03-04	1.5-6.7	L1509407-3	27-Aug-14	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.07	<0.05	<0.05	<0.05	---	AW-
A3MW03-04	A3MW03-04	1.5-6.7	L1597133-1	9-Apr-15	0.011	<0.01	<0.01	<0.01	<0.01	<0.02	---	<0.01	<0.01	<0.01	<0.01	0.025	<0.01	---	---	<0.05	<0.02	<0.01	<0.05	---	AW-
A3MW03-04	A3MW03-04	1.5-6.7	L1667287-1	2-Sep-15	<0.05	<0.05	<0.06	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.2	<0.05	<0.05	<0.05	---	AW-
A3MW03-04	A3MW03-04	1.5-6.7	L1745659-1	16-Mar-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A3MW03-04	A3MW03-04	1.5-6.7	L1830885-5	19-Sep-16	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.06	---	AW-
A3MW03-04	A3MW03-04	1.5-6.7	L1917194-4	25-Apr-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A3MW03-04	A3MW03-04	1.5-6.7	L1994653-5	20-Sep-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A3MW03-04	A3MW03-04	1.5-6.7	L2081872-1	18-Apr-18	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A3MW03-04	MW03-04	1.5-6.7	L2170535-7	25-Sep-18	<0.01	<0.01	<0.01	<0.01	<0.005	<0.015	---	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	---	---	<0.05	<0.02	<0.01	<0.05	---	AW-
A3MW03-04	MW03-04	1.5-6.7	L2255046-1	8-Apr-19	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.050	<0.11	AW-
A3MW03-04	MW03-04	1.5-6.7	L2354839-1	26-Sep-19	0.012	<0.010	<0.010	<0.010	<0.0050		<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.050	<0.11	AW-
A3MW03-04	MW03-04	1.5-6.7	VA20A3785-004	23-Mar-20	0.025	<0.020	<0.010	<0.010	<0.0050	---		<0.010	<0.010	<0.0050	<0.010	0.019	<0.010	0.027	0.042	<0.100	<0.020	0.011	<0.050	<0.108	AW-
A3MW03-04	MW03-04	1.5-6.7	VA20B3130-006	19-Aug-20	0.01	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.010	0.014	<0.050	<0.020	<0.010	<0.050	<0.065	AW-
G1-1A	G1-1A	3.1-6.1		20-Apr-05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G1-1A	G1-1A	3.1-6.1		5-May-09	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G1-1A	G1-1A	3.1-6.1		24-Aug-09	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G1-1A	G1-1A	3.1-6.1		6-Apr-10	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G1-1A	G1-1A	3.1-6.1		2-Sep-10	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G1-1A	G1-1A	3.1-6.1		28-Apr-11	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G1-1A	G1-1A	3.1-6.1		19-Sep-11	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G1-1A	G1-1A	3.1-6.1		14-May-12	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G1-1A	G1-1A	3.1-6.1		4-Sep-12	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-

TABLE 1-3
AREAS 1 AND 3 CONCENTRATIONS OF POLYCYCLIC AROMATIC HYDROCARBONS IN GROUNDWATER
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY
µg/L (ppb)

Well ID	Sample ID	Screened Interval (mbgs)	ALS Laboratory Report #	Sample Date	Acenaphthene	Acridine	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b+k)fluoranthene	Benzo(b+j+k)fluoranthene [3]	Benzo(ghi)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	1-Methylnaphthalene [4]	2-Methylnaphthalene [4]	Naphthalene	Phenanthrene	Pyrene	Quinoline	Total PAHs [4]	Groundwater Classification
Generic Numerical Water Standards [2]																									
CSR	Schedule 3.2 - Marine and Freshwater Aquatic			(AW)	60	0.5	1	1	0.1	NS	NS	NS	1	NS	2	120	NS	NS	NS	10	3	0.2	34	NS	
	Site-Specific Screening Levels (SSSLs)				60	30	40	1	2.8	NS	NS	NS	1	NS	40	120	NS	NS	NS	440	3	40	34	NS	
G1-1A	G1-1A	3.1-6.1		3-Apr-13	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	0.055	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G1-1A	G1-1A	3.1-6.1		26-Aug-13	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G1-1A	G1-1A	3.1-6.1	L1463846-3	2-Jun-14	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G1-1A	G1-1A	3.1-6.1	L1522243-2	23-Sep-14	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G1-1A	G1-1A	3.1-6.1	L1606759-1	4-May-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G1-1A	G1-1A	3.1-6.1	L1668270-1	3-Sep-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G1-1A	G1-1A	3.1-6.1	L1752106-3	4-Apr-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G1-1A	G1-1A	3.1-6.1	L1833762-4	22-Sep-16	<0.05	<0.05	<0.05	<0.05	<0.005	<0.01	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G1-1A	G1-1A	3.1-6.1	L1910706-1	7-Apr-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G1-1A	G1-1A	3.1-6.1	L1984002-4	30-Aug-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G1-1A	G1-1A	3.1-6.1	L2078315-5	10-Apr-18	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G1-1A	G1-1A	3.1-6.1	L2159148-4	5-Sep-18	<0.01	<0.01	<0.01	<0.01	<0.005	<0.015	---	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	---	---	<0.05	<0.02	<0.01	<0.05	---	AW-
G1-1A	G1-1A	3.1-6.1	L2253959-2	4-Apr-19	<0.010	<0.010	<0.010	<0.010	0.006	---	<0.015	<0.020	<0.010	<0.0050	0.017	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	0.018	<0.050	<0.11	AW-
G1-1A	G1-1A	3.1-6.1	L2352452-3	23-Sep-19	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.050	<0.11	AW-
G1-1A	G1-1A	3.1-6.1	VA20A3942-001	25-Mar-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.010	0.012	<0.050	<0.020	<0.010	<0.050	<0.065	AW-
G1-1A	G1-1A	3.1-6.1	VA20B3584-001	25-Aug-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.010	0.016	<0.050	<0.020	<0.010	<0.050	<0.065	AW-
G1-1B	G1-1B	10.8-12.3		3-May-04	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G1-1B	G1-1B	10.8-12.3		20-Oct-04	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G1-1B	G1-1B	10.8-12.3		21-Apr-05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G1-1B	A1-G1-1B	10.8-12.3		22-Sep-05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G1-1B	G1-1B	10.8-12.3		6-Nov-06	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G1-2A	G1-2A	1.8-3.4		26-Aug-08	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G1-2A	G1-2A	1.8-3.4	L1847163-1	21-Oct-16	<0.05	<0.05	<0.05	<0.05	<0.005	<0.01	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G1-5	G1-5	9.1-12.2		4-Apr-07	<0.05	<0.05	<0.05	<0.05	<0.03	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	0.171	<0.05	---	AW-
G1-5	G1-5	9.1-12.2		28-Aug-07	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G1-5	G1-5	9.1-12.2		3-Apr-08	<0.05	<0.05	<0.05	<0.05	0.03	<0.1	---	<0.05	<0.07	<0.05	<0.05	<0.05	<0.05	---	---	<0.06	<0.05	0.139	<0.05	---	AW-
G1-5	G1-5	9.1-12.2		26-Aug-08	0.136	<0.05	<0.05	<0.05	0.011	<0.05	---	<0.05	0.062	<0.05	<0.05	<0.05	<0.05	---	---	<0.08	<0.05	0.085	<0.05	---	AW-
G1-5	G1-5	9.1-12.2		21-Apr-09	0.301	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.137	<0.05	---	---	<0.25	<0.05	0.081	<0.05	---	AW-
G1-5	G1-5	9.1-12.2		7-Apr-10	0.214	<0.05	<0.05	<0.05	<0.01	<0.01	---	<0.05	<0.05	<0.05	<0.05	0.08	<0.05	---	---	<0.2	<0.05	0.05	<0.05	---	AW-
G1-5	G1-5	9.1-12.2		2-Sep-10	<0.08	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G1-7A	G1-7A	0.9-2.4	L1833759-1	22-Sep-16	<0.05	<0.05	<0.05	<0.05	<0.005	<0.01	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G1-7B	G1-7B	6.1-9.1	L1833759-2	22-Sep-16	<0.05	<0.05	<0.05	<0.05	<0.005	<0.01	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G1-8	G1-8	7.0-13.1		4-Apr-06	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G1-8	G1-8	7.0-13.1		31-Aug-06	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G1-8	G1-8	7.0-13.1		13-Apr-07	<0.08	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G1-8	G1-8	7.0-13.1		28-Aug-07	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G1-8	G1-8	7.0-13.1		3-Apr-08	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G1-8	G1-8	7.0-13.1		4-Sep-08	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G1-8	G1-8	7.0-13.1		21-Apr-09	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW03-07	MW03-07	0.6-2.2		5-Apr-07	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW03-07	MW03-07	0.6-2.2		27-Aug-07	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW03-07	MW03-07	0.6-2.2		3-Apr-08	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.2	---	AW-
MW03-07	MW03-07	0.6-2.2		26-Aug-08	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW03-07	MW03-07	0.6-2.2		20-Apr-09	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW03-07	MW03-07	0.6-2.2		24-Aug-09	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW03-07	MW03-07	0.6-2.2		6-Apr-10	<0.05	<0.05	<0.05	<0.05	<0.02	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW03-07	MW03-07	0.6-2.2		2-Sep-10	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW03-07	MW03-07	0.6-2.2		28-Apr-11	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW03-07	MW03-07	0.6-2.2		15-Sep-11	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW03-07	MW03-07	0.6-2.2		14-May-12	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW03-07	MW03-07	0.6-2.2		9-Aug-12	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW03-07	MW03-07	0.6-2.2		10-Apr-13	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW03-07	MW03-07	0.6-2.2		28-Aug-13	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW03-07	MW03-07	0.6-2.2	L1465606-1	4-Jun-14	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW03-07	MW03-07	0.6-2.2	L1512995-2	4-Sep-14	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW03-07	MW03-07	0.6-2.2	L1602111-1	22-Apr-15	<0.01	<0.01	0.013	<0.01	<0.01	<0.02	---	<0.01	<0.01	<0.01	<0.01	0.02	<0.01	---	---	<0.05	<0.02	<0.01	<0.05	---	AW-
MW03-07	MW03-07	0.6-2.2	L1673248-7	15-Sep-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	0.081	<0.05	<0.05	<0.05	---	AW-
MW03-07	MW03-07	0.6-2.2	L1746133-1	17-Mar-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW03-07	MW03-07	0.6-2.2	L1833819-1	23-Sep-16	<0.05	<0.05	<0.05	<0.05	<0.005	<0.01	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW03-07	MW03-07	0.6-2.2	L1913256-2	13-Apr-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW03-07	MW03-07	0.6-2.2	L1983999-1	30-Aug-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW03-07	MW03-07	0.6-2.2	L2079613-3	12-Apr-18	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW03-07	MW03-07	0.6-2.2	L2158080-1	4-Sep-18	<0.01	<0.02	<0.01	0.011	0.012	0.016	---	0.011	0.01	<0.005	0.02	0.036	0.012	---	---	<0.05	<0.02	0.021	<0.05	---	AW-
MW03-07	MW03-07	0.6-2.2	L2252535-3	2-Apr-19	<0.010	<0.020	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	0.037	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.050	<0.11	AW-
MW03-07	MW03-07	0.6-2.2	L2354359-6	25-Sep-19	<0.010	<0.020	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	0.071	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.050	<0.11	AW-
MW03-07	MW03-07	0.6-2.2	VA20A3631-002	19-Mar-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	0.059	<0.010	0.015	0.026	<0.060	<0.020	<0.010	<0.050	<0.072	AW-
MW03-07	MW03-07	0.6-2.2	VA20B3702-003	26-Aug-20	0.012	0.013	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	0.073	<0.010	0.011	0.018	<0.050	<0.020	<0.010	<0.050	0.086	AW-
NDM97-3	NDM97-3		L1673248-8	15-Sep-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U6	A3-U6	0.9-3.9		21-Sep-05	<0.05	<0.05	<0.05	<0.05	0.042	0.052	---	<0.05	0.071	<0.05	0.09	<0.05	<0.05	---	---	0.057	0.075	0.112	<0.05	---	AW-
U6	U6	0.9-3.9		30-Mar-06	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U6	U6	0.9-3.9		28-Jun-06	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U6	U6	0.9-3.9		24-Jul-06	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U6	U6	0.9-3.9		31-Aug-06	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U6	U6	0.9-3.9		4-Apr-07	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U6	U6	0.9-3.9		28-Aug-07	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U6	U6	0.9-3.9		9-Apr-08	0.427	<0.05	<0.08	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	0.12	<0.25	<0.05	---	---	1.68	0.362	0.087	<0.05	---	AW-
U6	U6	0.9-3.9		28-Aug-08	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U6	U6	0.9-3.9		27-Apr-09	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U6	U6	0.9-3.9		3-Sep-09	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U6	U6	0.9-3.9		19-Apr-10	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	0.059	<0.05	<0.05	---	---	0.056	0.079	<0.05	<0.05	---	AW-
U6	U6	0.9-3.9		7-Sep-10	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U6	U6	0.9-3.9		4-May-11	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U6	U6	0.9-3.9		22-Sep-11	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	0.088	<0.05	<0.05	---	---	<0.08	0.098	0.066	<0.05	---	AW-
U6	U6	0.9-3.9		15-May-12	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U6	U6	0.9-3.9		18-Sep-12	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U6	U6	0.9-3.9		10-Apr-13	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U6	U6	0.9-3.9		27-Aug-13	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U6	U6	0.9-3.9	L1461850-4	28-May-14	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U6	U6	0.9-3.9	L1509407-6	27-Aug-14	<0.05	<0.05	<0.05	<0.05	0.02	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	0.082	<0.05	<0.05	---	AW-
U6	U6	0.9-3.9	L1597133-4	9-Apr-15	<0.01	<0.01	0.022	<0.01	<0.01	0.021	---	<0.01	<0.01	<0.01	0.012	<0.01	<0.01	---	---	<0.05	<0.02	0.013	<0.05	---	AW-
U6	U6	0.9-3.9	L1667287-4	2-Sep-15	<0.05	<0.05	0.072	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U6	U6	0.9-3.9	L1745659-4	17-Mar-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U6	U6	0.9-3.9	L1830885-6	19-Sep-16	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U6	U6	0.9-3.9	L1915574-3	20-Apr-17	<0.05	<0.05	<0.05	<0.05	0.0076	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U6	U6	0.9-3.9	L1991781-1	14-Sep-17	<0.05	0.075	<0.05	<0.1	0.12	0.513	---	0.141	<0.4	0.025	0.283	<0.05	0.116	---	---	<0.05	<0.05	0.318	<0.05	---	**AW+**
U6	U6	0.9-3.9	L2081247-4	17-Apr-18	<0.05	<0.05	<0.05	<0.05	0.01	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U6	U6	0.9-3.9	L2170535-1	25-Sep-18	<0.01	<0.01	0.014	<0.01	<0.005	<0.015	---	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	---	---	<0.05	<0.02	<0.01	<0.05	---	AW-
U6	U6	0.9-3.9	L2255046-2	8-Apr-19	<0.01	<0.01	<0.01	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.050	<0.11	AW-
U6	U6	0.9-3.9	L2354839-4	26-Sep-19	<0.010	<0.010	0.043	<0.010	<0.0050		<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.050	<0.11	AW-
U6	U6	0.9-3.9	L2431889-5	24-Mar-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.050	<0.11	AW-
U6	U6	0.9-3.9	VA20B3130-001	19-Aug-20	<0.010	<0.010	0.015	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.010	0.011	<0.050	<0.020	<0.010	<0.050	<0.065	AW-
U7	A3-U7	1.2-5.8		21-Sep-05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U7	U7	1.2-5.8		30-Mar-06	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U7	U7	1.2-5.8		28-Jun-06	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U7	U7	1.2-5.8		24-Jul-06	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U7	U7	1.2-5.8		31-Aug-06	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U7	U7	1.2-5.8		4-Apr-07	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U7	U7	1.2-5.8		28-Aug-07	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U7	U7	1.2-5.8		9-Apr-08	0.153	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	0.078	0.082	<0.05	---	---	0.38	0.211	0.055	<0.05	---	AW-
U7	U7	1.2-5.8		28-Aug-08	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U7	U7	1.2-5.8		27-Apr-09	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U7	U7	1.2-5.8		22-Sep-11	<0.05	<0.05	<0.05	<0.05	0.011	<0.1	---	<0.05	<0.05	<0.05	0.057	<0.05	<0.05	---	---	<0.05	0.058	0.073	<0.05	---	AW-
U7	U7	1.2-5.8		22-Jan-13	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U7	U7	1.2-5.8	L1462453-3	29-May-14	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U7	U7	1.2-5.8	L1597133-5	9-Apr-15	<0.01	<0.01	0.017	<0.01	<0.01	0.027	---	<0.01	<0.01	<0.01	0.018	<0.01	<0.01	---	---	<0.05	<0.02	0.017	<0.05	---	AW-
U7	U7	1.2-5.8	L1991781-2	14-Sep-17	<0.05	<0.05	<0.05	<0.05	0.0336	<0.131	---	<0.05	<0.08	0.0072	0.07	<0.05	<0.05	---	---	<0.05	<0.05	0.08	<0.05	---	AW-
U7	U7	1.2-5.8	L2081247-5	17-Apr-18	<0.05	<0.05	<0.05	<0.05	0.008	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U7	U7	1.2-5.8	L2170535-2	25-Sep-18	<0.01	<0.01	<0.01	<0.01	<0.005	<0.015	---	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	---	---	<0.05	<0.02	<0.01	<0.05	---	AW-
U7	U7	1.2-5.8	L2255046-3	8-Apr-19	<0.010	<0.010	0.011	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.050	<0.11	AW-
U7	U7	1.2-5.8	L2354839-5	26-Sep-19	<0.010	<0.010	0.016	<0.010	<0.0050		<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.050	<0.11	AW-
U7	U7	1.2-5.8	L2431889-6	24-Mar-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.050	<0.11	AW-
U7	U7	1.2-5.8	VA20B3130-002	19-Aug-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.010	0.015	<0.050	<0.020	<0.010	<0.050	<0.065	AW-
U07-10S	U07-10S	4.7-6.2		4-May-11	**690.**	**<20.**	**50.6**	**26.1**	**10.6**	23.89	---	2.81	**19.**	0.821	**211.**	**300.**	3.65	---	---	**5410.**	**632.**	**160.**	<4.	---	**AW+**
U07-10S	U07-10S	4.7-6.2		21-Sep-11	**859.**	12.9	31.2	**31.9**	**10.5**	22.89	---	2.15	**19.5**	0.71	**232.**	**299.**	3.1	---	---	**5770.**	**682.**	**163.**	<2.	---	**AW+**
U07-10S	U7-10S	4.7-6.2		3-Sep-13	**9970.**	**<200.**	**1750.**	**1830.**	**675.**	1479.	---	136.	**1070.**	43.8	**10600.**	**6100.**	192.	---	---	**21100.**	**22100.**	**8070.**	<3.	---	**AW+**
U07-10S	U7-10S	4.7-6.2	L1462454-1	29-May-14	**343.**	8.85	13.	**14.**	**5.46**	12.21	---	1.22	**9.95**	0.4	**77.8**	**132.**	1.56	---	---	**4060.**	**213.**	**55.1**	1.89	---	**AW+**
U07-10S	U7-10S	4.7-6.2	L1509397-1	27-Aug-14	**401.**	12.7	11.	**4.28**	1.3	2.93	---	0.287	**2.98**	0.083	**42.2**	**160.**	0.38	---	---	**5420.**	**209.**	29.	<3.	---	**AW+**
U07-10S	U7-10S	4.7-6.2	L1597686-1	10-Apr-15	**817.**	**<20.**	**125.**	**77.3**	**30.4**	67.5	---	7.2	**51.7**	2.29	**534.**	**405.**	9.92	---	---	**5080.**	**1270.**	**387.**	<2.	---	**AW+**
U07-10S	U7-10S	4.7-6.2	L1668445-1	3-Sep-15	**504.**	9.05	**<20.**	**7.18**	2.44	4.98	---	0.48	**5.19**	0.155	**65.2**	**173.**	0.658	---	---	**6850.**	**234.**	**45.4**	<0.2	---	**AW+**
U07-10S	U07-10S	4.7-6.2	L1745069-1	15-Mar-16	**12600.**	**<200.**	**1620.**	**1800.**	**648.**	1246.	---	144.	**1020.**	49.5	**14000**	**6290.**	196.	---	---	**22800.**	**28700.**	**10600.**	<20.	---	**AW+**
U07-10S	U07-10S	4.7-6.2	L1832785-1	21-Sep-16	**639.**	8.13	6.51	**2.61**	0.695	1.409	---	0.147	**1.68**	0.0479	16.7	86.7	0.199	---	---	**11400.**	**102.**	11.4	<0.2	---	**AW+**
U07-10S	U07-10S	4.7-6.2	L1917194-6	25-Apr-17	**460.**	**<20.**	**<20.**	**11.**	**4.07**	7.76	---	0.704	**8.79**	0.268	**82.8**	**178.**	1.08	---	---	**5330.**	**258.**	**63.1**	<2.	---	**AW+**

TABLE 1-3
AREAS 1 AND 3 CONCENTRATIONS OF POLYCYCLIC AROMATIC HYDROCARBONS IN GROUNDWATER
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY
µg/L (ppb)

					Acenaphthene	Acridine	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b+k)fluoranthene	Benzo(b+j+k)fluoranthene [3]	Benzo(ghi)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	1-Methylnaphthalene [4]	2-Methylnaphthalene [4]	Naphthalene	Phenanthrene	Pyrene	Quinoline	Total PAHs [4]	Groundwater Classification
Generic Numerical Water Standards [2]																								
CSR	Schedule 3.2 - Marine and Freshwater Aquatic			(AW)	60	0.5	1	1	0.1	NS	NS	NS	1	NS	2	120	NS	NS	NS	10	3	0.2	34	NS	
	Site-Specific Screening Levels (SSSLs)				60	30	40	1	2.8	NS	NS	NS	1	NS	40	120	NS	NS	NS	440	3	40	34	NS	
Well ID	**Sample ID**	**Screened Interval (mbgs)**	**ALS Laboratory Report #**	**Sample Date**																				
U07-10S	U07-10S	4.7-6.2	L1995423-4	21-Sep-17	**467.**	**<8.**	**<8.**	**1.91**	0.59	1.225	---	0.089	**1.18**	0.0332	36.6	**163.**	0.126	---	---	**8270.**	**178.**	23.8	<2.	---	**AW+**
U07-10S	U07-10S	4.7-6.2	L2161509-3	10-Sep-18	**596.**	13.4	26.	**10.6**	**3.5**	6.03	---	0.779	**8.38**	0.291	**97.3**	**271.**	1.19	---	---	**7820.**	**379.**	**70.2**	<9.	---	**AW+**
U07-10S	U07-10S	4.7-6.2	L2255718-7	9-Apr-19	**655.**	**<20**	24.	**27.7**	**6.96**	---	32.7	1.61	**7.7**	0.541	**157.**	**219.**	2.24	309.	477.	**4510.**	**363.**	**116.**	<0.60	6920.	**AW+**
U07-10S	U07-10S	4.7-6.2	L2354359-3	25-Sep-19	**683.**	13.	**<20**	**1.54**	0.479	---	0.932	0.112	0.955	0.0379	**32.3**	**240.**	0.148	334.	568.	**6370.**	**268.**	21.6	<5.0	8550.	**AW+**
U07-10S	U07-10S	4.7-6.2	L2431889-7	24-Mar-20	**555**	10.5	**<9.0**	**2.42**	0.454	---	0.763	0.114	**1.49**	0.0392	24.4	**199**	0.165	279.	461.	**6110**	**215**	15.2	<2.0	7880	**AW+/SSSL+**
U07-10S	DUP-5	4.7-6.2	L2431889-11	24-Mar-20	**548**	**<10**	**<9.0**	**1.21**	0.364	---	0.604	0.088	0.718	0.0307	23.2	**202**	0.13	278.	488.	**5320**	**214**	9.73	<3.0	7100	**AW+/SSSL+**
QA/QC RPD				24-Mar-20	1.3%	---	---	66.7%	22.0%	---	23.3%	25.7%	69.9%	24.3%	5.0%	1.5%	23.7%	0.4%	5.7%	13.8%	0.5%	43.9%	---	10.4%	
U07-10S	U07-10S	4.7-6.2	VA20B3370-002	20-Aug-20	**9420**	**<118**	**1030**	**1480**	**563**	---	1000	126	**1060**	44.1	**9300**	**5280**	171	2550	4820	**17700**	**15900**	**6790**	<5.80	70200	**AW+/SSSL+**
U07-10I	U07-10I	6.65-8.15		28-Aug-07	1.64	<0.5	<0.5	<0.05	0.026	<0.05	---	0.053	0.064	<0.05	0.051	0.56	<0.05	---	---	<0.5	<0.5	0.102	<0.5	---	AW-
U07-10I	U07-10I	6.65-8.15		9-Apr-08	<0.5	<0.1	<0.05	<0.5	0.042	<0.1	---	<0.05	<0.5	<0.05	<0.5	<0.5	<0.05	---	---	<0.5	<0.06	<0.5	<0.5	---	**AW+**
U07-10I	U07-10I	6.65-8.15		28-Aug-08	2.4	<0.5	<0.6	0.61	0.222	0.332	---	0.055	<0.5	<0.05	4.09	1.41	0.069	---	---	0.63	4.78	3.19	<0.5	---	**AW+**
U07-10I	U07-10I	6.65-8.15		27-Apr-09	0.409	<0.15	<0.07	<0.05	0.026	<0.05	---	<0.05	<0.07	<0.05	0.124	0.326	<0.05	---	---	1.42	0.265	0.137	<0.05	---	AW-
U07-10I	U07-10I	6.65-8.15		3-Sep-09	0.344	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.182	<0.05	---	---	<0.3	<0.05	<0.05	<0.05	---	AW-
U07-10I	U07-10I	6.65-8.15		19-Apr-10	0.15	<0.05	<0.05	<0.05	0.012	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.134	<0.05	---	---	<0.08	<0.05	<0.05	<0.05	---	AW-
U07-10I	U07-10I	6.65-8.15		7-Sep-10	9.01	<0.07	0.184	0.115	0.022	<0.1	---	<0.05	0.063	<0.05	1.43	1.58	<0.05	---	---	0.909	0.585	0.84	<0.05	---	**AW+**
U07-10I	U07-10I	6.65-8.15		4-May-11	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	0.052	0.075	<0.05	<0.05	---	AW-
U07-10I	U07-10I	6.65-8.15		28-Sep-11	3.78	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.432	<0.05	---	---	<0.3	0.058	<0.05	<0.07	---	AW-
U07-10I	U07-10I	6.65-8.15		16-May-12	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U07-10I	U07-10I	6.65-8.15		9-Apr-13	0.055	<0.05	0.061	0.107	0.078	0.172	---	<0.05	0.119	<0.05	0.329	0.053	<0.05	---	---	<0.05	0.133	0.269	<0.05	---	**AW+**
U07-10I	U7-10I	6.65-8.15		3-Sep-13	1.1	<0.05	0.094	0.091	0.045	<0.121	---	<0.05	0.07	<0.05	0.496	0.248	<0.05	---	---	0.502	0.941	0.377	<0.05	---	**AW+**
U07-10I	U7-10I	6.65-8.15	L1461846-1	28-May-14	<0.05	<0.05	<0.05	<0.05	0.011	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U07-10I	U7-10I	6.65-8.15	L1509397-2	27-Aug-14	<0.05	<0.05	<0.05	<0.05	0.015	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U07-10I	U7-10I	6.65-8.15	L1597686-2	10-Apr-15	0.076	<0.05	<0.2	0.144	0.09	0.209	---	0.096	0.096	<0.02	0.431	0.053	0.06	---	---	0.26	0.244	0.389	<0.05	---	**AW+**
U07-10I	U7-10I	6.65-8.15	L1667283-1	2-Sep-15	<0.05	<0.05	0.213	<0.05	0.024	<0.1	---	<0.05	<0.05	<0.05	0.114	<0.05	<0.05	---	---	0.055	<0.05	0.093	<0.05	---	AW-
U07-10I	U07-10I	6.65-8.15	L1745069-2	15-Mar-16	0.681	<0.05	0.07	0.073	0.022	<0.1	---	<0.05	<0.05	<0.05	0.384	0.364	<0.05	---	---	1.84	0.958	0.292	<0.05	---	**AW+**
U07-10I	U07-10I	6.65-8.15	L1832785-2	21-Sep-16	<0.05	<0.05	<0.05	<0.05	<0.005	<0.01	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	0.272	<0.05	<0.05	<0.05	---	AW-
U07-10I	U07-10I	6.65-8.15	L1917194-5	25-Apr-17	0.223	<0.05	0.101	0.370	0.148	0.317	---	0.092	0.296	<0.02	1.35	0.152	0.062	---	---	0.475	0.443	1.07	<0.05	---	**AW+**
U07-10I	U07-10I	6.65-8.15	L1995423-5	21-Sep-17	0.632	<0.05	0.079	<0.05	0.0072	<0.1	---	<0.05	<0.05	<0.005	0.18	0.392	<0.05	---	---	9.14	0.472	0.119	<0.2	---	AW-
U07-10I	U07-10I	6.65-8.15	L2080618-2	16-Apr-18	<0.05	<0.05	<0.05	<0.05	0.02	<0.1	---	<0.05	<0.05	0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U07-10I	U07-10I	6.65-8.15	L2161509-4	10-Sep-18	0.032	<0.01	0.016	0.018	<0.02	0.016	---	0.021	<0.03	<0.005	0.06	0.055	<0.01	---	---	<0.2	0.039	0.054	<0.06	---	AW-
U07-10I	U07-10I	6.65-8.15	L2255718-6	9-Apr-19	0.049	<0.010	0.016	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	0.026	0.039	<0.010	0.078	<0.050	<0.070	0.093	0.018	<0.050	0.32	AW-
U07-10I	U07-10I	6.65-8.15	L2354359-4	25-Sep-19	0.154	<0.010	0.013	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	0.038	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.40	<0.41	AW-
U07-10I	U07-10I	6.65-8.15	L2431889-8	24-Mar-20	0.063	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	0.013	0.021	<0.010	<0.050	<0.050	<0.060	<0.020	0.012	<0.050	<0.11	AW-
U07-10I	U07-10I	6.65-8.15	VA20B3370-003	20-Aug-20	1.1	<0.010	0.032	<0.010	<0.0070	---	<0.015	<0.010	<0.010	<0.0050	0.019	0.117	<0.010	0.613	0.035	<0.500	0.029	0.017	<0.300	1.33	AW-
U07-10D	U07-10D	8.5-10.65		28-Aug-07	30.4	<0.2	0.322	<0.05	0.034	<0.05	---	<0.05	<0.09	<0.05	0.442	5.45	<0.05	---	---	<2.	2.07	0.273	<0.3	---	**AW+**
U07-10D	U07-10D	8.5-10.65		9-Apr-08	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.09	<0.05	<0.05	<0.05	---	AW-
U07-10D	U07-10D	8.5-10.65		28-Aug-08	10.3	<0.05	0.068	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	0.176	1.29	<0.05	---	---	<0.15	0.247	0.101	<0.05	---	AW-
U07-10D	U07-10D	8.5-10.65		27-Apr-09	0.055	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U07-10D	U07-10D	8.5-10.65		3-Sep-09	26.7	<0.05	0.157	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	0.124	7.27	<0.05	---	---	<2.	0.981	0.059	<5.	---	AW-
U07-10D	U07-10D	8.5-10.65		19-Apr-10	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U07-10D	U07-10D	8.5-10.65		7-Sep-10	8.58	<0.05	0.079	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	0.207	1.34	<0.05	---	---	<0.4	0.251	0.123	<0.05	---	AW-
U07-10D	U07-10D	8.5-10.65		4-May-11	0.916	<0.05	0.149	0.201	0.059	0.155	---	<0.05	0.123	<0.05	1.25	0.557	<0.05	---	---	0.457	2.1	0.926	<0.05	---	**AW+**
U07-10D	U07-10D	8.5-10.65		28-Sep-11	7.	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	1.2	<0.05	---	---	<0.3	0.177	<0.05	<0.07	---	AW-
U07-10D	U07-10D	8.5-10.65		16-May-12	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U07-10D	U07-10D	8.5-10.65		18-Sep-12	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U07-10D	U07-10D	8.5-10.65		9-Apr-13	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U07-10D	U7-10D	8.5-10.65		3-Sep-13	1.97	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	0.157	0.098	<0.05	<0.05	---	AW-
U07-10D	U7-10D	8.5-10.65	L1461846-2	28-May-14	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U07-10D	U7-10D	8.5-10.65	L1509397-3	27-Aug-14	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U07-10D	U7-10D	8.5-10.65	L1597686-3	10-Apr-15	0.065	<0.01	0.031	<0.01	<0.01	<0.02	---	<0.01	<0.01	<0.01	<0.01	0.022	<0.01	---	---	0.055	<0.02	<0.01	<0.05	---	AW-
U07-10D	U07-10D	8.5-10.65	L1667283-2	2-Sep-15	0.324	<0.05	0.094	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.113	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U07-10D	U07-10D	8.5-10.65	L1745069-3	15-Mar-16	0.386	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.167	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U07-10D	U07-10D	8.5-10.65	L1832785-3	21-Sep-16	0.31	<0.05	<0.05	<0.05	<0.005	<0.01	---	<0.05	<0.05	<0.005	<0.05	0.158	<0.05	---	---	0.053	<0.05	<0.05	<0.05	---	AW-
U07-10D	U07-10D	8.5-10.65	L1917918-3	26-Apr-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U07-10D	U07-10D	8.5-10.65	L1995423-6	21-Sep-17	2.96	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	0.638	<0.05	---	---	<0.3	<0.05	<0.05	<0.3	---	AW-
U07-10D	U07-10D	8.5-10.65	L2080618-3	16-Apr-18	<0.05	<0.05	<0.05	<0.05	0.007	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U07-10D	U07-10D	8.5-10.65	L2170535-8	25-Sep-18	0.305	<0.01	<0.02	<0.01	<0.005	<0.015	---	<0.01	<0.01	<0.005	<0.01	0.13	<0.01	---	---	<0.05	<0.02	<0.01	<0.05	---	AW-
U07-10D	U07-10D	8.5-10.65	L2255718-5	9-Apr-19	0.256	<0.010	<0.030	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	0.013	0.176	<0.010	<0.050	<0.050	<0.050	0.047	<0.010	<0.050	0.49	AW-
U07-10D	U07-10D	8.5-10.65	L2354359-5	25-Sep-19	0.854	<0.010	0.024	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	0.013	0.483	<0.010	<0.050	<0.050	0.063	<0.020	<0.010	<0.050	1.44	AW-
U07-10D	U07-10D	8.5-10.65	L2431889-9	24-Mar-20	1.05	<0.010	0.017	0.019	0.016	---	0.017	0.022	0.022	<0.0050	0.033	0.296	0.019	<0.050	<0.050	0.054	0.021	0.035	<0.050	1.62	AW-
U07-10D	U07-10D	8.5-10.65	VA20B3370-004	20-Aug-20	7.06	0.012	0.056	0.039	0.012	---	0.015	<0.010	0.024	<0.0050	0.221	2.17	<0.010	0.49	0.099	<0.500	0.344	0.162	<0.200	10.2	AW-
MW17-4	MW17-4	0.8 - 1.5	L1960116-6	17-Jul-17	<0.05	<0.07	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	0.194	<0.05	---	---	<0.2	<0.05	<0.05	<0.2	<0.34	AW-
MW17-4	MW17-4	0.8 - 1.5	L2076585-4	5-Apr-18	<0.05	<0.07	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	<0.05	<0.1	<0.3	AW-
MW17-4	MW17-4	0.8 - 1.5	VA20B3130-007	19-Aug-20	0.012	<0.040	<0.030	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	0.028	<0.010	<0.040	<0.020	<0.650	<0.020	0.035	<0.075	<0.652	AW-
Equipment Blank	R-BLANK-1		VA20B3130-009	19-Aug-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.020	<0.010	<0.050	<0.065	AW-
Reported Detection Limit					0.01	0.01	0.01	0.01	0.005	0.015	0.015	0.01	0.01	0.005	0.01	0.01	0.01	0.01	0.01	0.05	0.02	0.01	0.05	0.065	

Abbreviations:

CSR	Contaminated Sites Regulation (including Stage 12 Amendments, January 2019)
NS	No standard established for indicated parameter
QA/QC	Quality assurance / quality control
RPD	Relative percent difference
mbgs	Metres below ground surface
µg/L	Micrograms per litre
ppb	Parts per billion
<	Sample concentration less than the reported detection limit indicated
---	Sample not analyzed for indicated parameter

	Sample concentration greater than CSR standard for aquatic life (AW).
BOLD	Sample concentration greater than CSR standard for aquatic life (AW) and Site-Specific Screening Levels (SSSLs).
BOLD	Reportable Detection Limit (RDL) exceeds the regulatory standard.

Notes

1 CSR AW standards apply to both freshwater and marine receiving environments
2 Criterion concentration reported in µg/L
3 Beginning 2018 the analysis of Benzo(b+j)fluoranthene has been replaced with Benzo(b+j+k)fluoranthene

TABLE 2-1
AREA 2 GROUNDWATER MONITORING DATA
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY

Well ID	Sample ID	Screened Interval (mbgs)	Date Monitored	Total Depth of Well (m from TOC)	Ground Elevation (mASL) [1]	Top of Casing Elevation (TOC, mASL) [1]	Headspace Vapour Concentration (ppmv)	Depth to Product (m from TOC)	Apparent Product Thickness (mm)	Depth to Water (DTW, m from TOC)	Groundwater Elevation (mASL) [1]	Dissolved Oxygen (mg/L)	pH	Temperature (°C)	Electrical Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	ORP (mV)	Observations
G2-3B	G2-3B	10.1-13.1	26-Apr-04	11.300	45.86	45.742	50	nd	na	7.580	38.162	nm	6.67	14.2	555	nm	nm	nm	---
G2-3B	G2-3B	10.1-13.1	15-Oct-04	11.320	45.86	45.742	175	nd	na	7.632	38.110	nm	6.85	14.1	834	nm	nm	nm	---
G2-3B	G2-3B	10.1-13.1	12-Apr-05	11.370	45.86	45.742	375	nd	na	7.390	38.352	nm	6.67	13.8	752	nm	nm	nm	---
G2-3B	G2-3B	10.1-13.1	12-Sep-05	11.350	45.86	45.742	40	nd	na	7.970	37.772	nm	6.65	14.5	632	nm	nm	nm	Sample collected 13-Sept-05.
G2-3B	G2-3B	10.1-13.1	22-Mar-06	11.450	45.86	45.742	30	nd	na	7.450	38.292	8.65	nm	nm	nm	nm	nm	nm	---
G2-3B	G2-3B	10.1-13.1	22-Aug-06	11.340	45.86	45.742	20	nd	na	7.945	37.797	1.95	6.75	14	50.7	nm	nm	nm	DUP-5
G2-3B	G2-3B	10.1-13.1	11-Apr-07	11.300	45.86	45.742	25	nd	na	7.400	38.342	0.29	6.94	13.2	759	nm	nm	nm	---
G2-3B	G2-3B	10.1-13.1	10-Sep-07	11.320	45.86	45.742	60	nd	na	7.960	37.782	0.22	7.21	14.5	741	nm	nm	nm	---
G2-3B	G2-3B	10.1-13.1	1-Apr-08	11.355	45.86	45.742	30	nd	na	7.370	38.372	0.24	6.27	13.3	707	nm	nm	nm	---
G2-3B	G2-3B	10.1-13.1	2-Sep-08	11.321	45.86	45.742	50	nd	na	7.738	38.004	0.5	nm	13.6	748	nm	nm	nm	---
G2-3B	G2-3B	10.1-13.1	28-Apr-09	11.318	45.86	45.742	25	nd	na	7.530	38.212	0.6	6.62	15.4	1590	nm	nm	nm	Clear
G2-3B	G2-3B	10.1-13.1	31-Aug-09	11.300	45.86	45.742	25	nd	na	8.010	37.732	0.6	6.34	14.1	721	nm	nm	nm	Clear
G2-3B	G2-3B	10.1-13.1	14-Apr-10	11.320	45.86	45.742	5	nd	na	7.360	38.382	0.38	6.53	13.4	790	nm	nm	nm	Clear
G2-3B	G2-3B	10.1-13.1	9-Sep-10	11.305	45.86	45.742	nd	nd	na	7.935	37.807	0.17	6.19	14.2	712	nm	nm	nm	Mostly Clear
G2-3B	G2-3B	10.1-13.1	18-Apr-11	10.365	45.86	45.742	80	nd	na	7.378	38.364	0.87	6.42	13.5	712	nm	nm	nm	Clear
G2-3B	G2-3B	10.1-13.1	9-Aug-11	11.220	45.86	45.742	35	nd	na	7.770	37.972	0.53	6.38	12.58	431	nm	nm	nm	Clear
G2-3B	G2-3B	10.1-13.1	17-May-12	10.385	45.86	45.742	20	nd	na	7.650	38.092	0.21	6.89	12.97	499	nm	nm	nm	Clear
G2-3B	G2-3B	10.1-13.1	22-Aug-12	10.370	45.86	45.742	30	nd	na	8.100	37.642	0.29	6.7	13.3	570	nm	nm	nm	Clear
G2-3B	G2-3B	10.1-13.1	8-May-13	10.385	45.86	45.742	20	nd	na	7.745	37.997	2.42	6.49	15.06	551	nm	nm	nm	Sampled with downhole pump; Clear
G2-3B	G2-3B	10.1-13.1	23-Sep-13	10.390	45.86	45.742	10	nd	na	8.120	37.622	4.16	6.3	14.15	220	nm	nm	nm	Clear
G2-3B	G2-3B	10.1-13.1	27-May-14	10.370	45.86	45.742	130	nd	na	7.740	38.002	2.25	6.03	14.41	568	0.463	0.35	-29	---
G2-3B	G2-3B	10.1-13.1	26-Aug-14	10.400	45.86	45.742	nm	nd	na	8.270	37.472	1.82	6.24	14.78	502	0.406	0.31	-79.1	Clear
G2-3B	G2-3B	10.1-13.1	3-Mar-15	10.380	45.86	45.742	5	nd	na	7.670	38.072	1.12	6.13	12.75	406	0.344	0.26	-172	---
G2-3B	G2-3B	10.1-13.1	16-Sep-15	10.420	45.86	45.742	30	nd	na	8.130	37.612	0.20	6.49	15.33	542	0.433	0.33	3.7	Clear
G2-3B	G2-3B	10.1-13.1	9-Mar-16	10.390	45.86	45.742	nd	nd	na	7.480	38.262	0.37	6.52	12.42	494	0.423	0.32	-142.7	Clear
G2-3B	G2-3B	10.1-13.1	11-Aug-16	10.390	45.86	45.742	5	nd	na	8.100	37.642	0.48	6.44	14.35	330	0.272	0.2	-46.4	Clear
G2-3B	G2-3B	10.1-13.1	23-Mar-17	10.390	45.86	45.742	nd	nd	na	7.480	38.262	0.57	6.31	13.64	490	0.41	0.31	-82.3	Clear
G2-3B	G2-3B	10.1-13.1	27-Aug-18	10.418	45.86	45.742	nd	nd	na	8.341	37.401	3.39	6.38	13.47	597	0.497	0.38	-20.2	Clear
G2-3B	G2-3B	10.1-13.1	21-Mar-19	10.389	45.86	45.742	nd	nd	na	7.594	38.148	1.97	6.18	14.12	441	0.361	0.27	-26.9	Slightly silty
G2-3B	G2-3B	10.1-13.1	12-Sep-19	11.271	45.86	45.742	5	nd	na	8.248	37.494	0.35	6.7	15.13	453	0.363	0.27	3.3	Slightly cloudy
G2-3B	G2-3B	10.1-13.1	2-Apr-20	10.399	45.86	45.742	nd	nd	na	7.472	38.270	4.03	6.6	13.95	681	0.561	0.43	-52.7	clear
G2-3B	G2-3B	10.1-13.1	13-Aug-20	10.408	45.86	45.742	nd	nd	na	7.991	37.751	0.82	6.38	15.06	495	0.397	0.3	-45.9	clear
G2-3C	G2-3C	18.3-22.9	26-Apr-04	21.260	45.82	45.717	20	nd	na	7.615	38.102	nm	7.03	13.7	580	nm	nm	nm	---
G2-3C	G2-3C	18.3-22.9	15-Oct-04	21.230	45.82	45.717	100	nd	na	7.599	38.118	nm	7.09	13.9	704	nm	nm	nm	---
G2-3C	G2-3C	18.3-22.9	12-Apr-05	20.950	45.82	45.717	425	nd	na	7.360	38.357	nm	7.07	13.1	816	nm	nm	nm	---
G2-3C	G2-3C	18.3-22.9	12-Sep-05	21.040	45.82	45.717	70	nd	na	7.940	37.777	nm	7.11	14.6	736	nm	nm	nm	Sample collected 13-Sept-05.
G2-3C	G2-3C	18.3-22.9	22-Mar-06	21.050	45.82	45.717	225	nd	na	7.420	38.297	9.4	nm	nm	nm	nm	nm	nm	---
G2-3C	G2-3C	18.3-22.9	22-Aug-06	21.020	45.82	45.717	15	nd	na	7.930	37.787	0.87	7.11	14.1	133.8	nm	nm	nm	---
G2-3C	G2-3C	18.3-22.9	11-Apr-07	21.200	45.82	45.717	20	nd	na	7.400	38.317	0.17	7.24	13.1	890	nm	nm	nm	---
G2-3C	G2-3C	18.3-22.9	10-Sep-07	21.050	45.82	45.717	80	nd	na	7.940	37.777	0.14	6.96	13.8	685	nm	nm	nm	---
G2-3C	G2-3C	18.3-22.9	1-Apr-08	21.050	45.82	45.717	100	nd	na	7.465	38.252	0.28	6.62	12.9	833	nm	nm	nm	---
G2-3C	G2-3C	18.3-22.9	2-Sep-08	21.023	45.82	45.717	50	nd	na	7.719	37.998	0.4	nm	13.8	917	nm	nm	nm	---
G2-3C	G2-3C	18.3-22.9	28-Apr-09	21.017	45.82	45.717	10	nd	na	7.528	38.189	0.3	6.62	15	1910	nm	nm	nm	Clear
G2-3C	G2-3C	18.3-22.9	31-Aug-09	21.050	45.82	45.717	75	nd	na	8.000	37.717	0.3	6.96	13.7	878	nm	nm	nm	Clear
G2-3C	G2-3C	18.3-22.9	14-Apr-10	21.045	45.82	45.717	nd	nd	na	7.360	38.357	0.03	6.93	13.1	949	nm	nm	nm	Clear
G2-3C	G2-3C	18.3-22.9	9-Sep-10	21.015	45.82	45.717	nd	nd	na	7.925	37.792	0.1	6.59	14.9	918	nm	nm	nm	Clear
G2-3C	G2-3C	18.3-22.9	18-Apr-11	21.020	45.82	45.717	nd	nd	na	7.354	38.363	0.25	6.82	14.1	875	nm	nm	nm	Clear
G2-3C	G2-3C	18.3-22.9	9-Aug-11	21.000	45.82	45.717	45	nd	na	7.740	37.977	6.55	6.43	12.8	75	nm	nm	nm	Clear (DUP-3)
G2-3C	G2-3C	18.3-22.9	17-May-12	21.020	45.82	45.717	nd	nd	na	7.590	38.127	3.05	5.57	13.61	396	nm	nm	nm	Slightly silty; Purged dry at 27 L
G2-3C	G2-3C	18.3-22.9	22-Aug-12	21.000	45.82	45.717	35	nd	na	8.065	37.652	3.32	7.18	13.4	790	nm	nm	nm	Clear; used Bailer
G2-3C	G2-3C	18.3-22.9	8-May-13	21.020	45.82	45.717	15	nd	na	7.740	37.977	2.7	6.89	14.51	662	nm	nm	nm	Sampled with downhole pump; Clear
G2-3C	G2-3C	18.3-22.9	23-Sep-13	21.010	45.82	45.717	20	nd	na	8.100	37.617	0.76	6.71	12.99	635	nm	nm	nm	Clear
G2-3C	G2-3C	18.3-22.9	27-May-14	20.980	45.82	45.717	180	nd	na	7.800	37.917	2.03	6.47	14.13	608	0.498	0.38	-60.7	Clear
G2-3C	G2-3C	18.3-22.9	26-Aug-14	21.020	45.82	45.717	nm	nd	na	8.235	37.482	0.36	6.35	13.09	575	0.484	0.37	-20.5	Clear; DUP-17
G2-3C	G2-3C	18.3-22.9	3-Mar-15	21.010	45.82	45.717	20	nd	na	7.650	38.067	7.61	6.75	11.35	406	0.357	0.27	-60.2	---
G2-3C	G2-3C	18.3-22.9	16-Sep-15	21.080	45.82	45.717	15	nd	na	8.110	37.607	0.82	5.82	13.24	542	0.454	0.34	-20.5	Clear
G2-3C	G2-3C	18.3-22.9	9-Mar-16	20.750	45.82	45.717	25	nd	na	7.420	38.297	0.81	6.86	12	488	0.422	0.32	-133.4	Clear
G2-3C	G2-3C	18.3-22.9	11-Aug-16	21.030	45.82	45.717	10	nd	na	8.600	37.117	2.59	7.46	14.1	493	0.404	0.3	-50	Clear
G2-3C	G2-3C	18.3-22.9	28-Mar-17	20.980	45.82	45.717	nd	nd	na	7.450	38.267	0.26	6.97	12.06	495	0.397	0.2	-151.3	Clear
G2-3C	G2-3C	18.3-22.9	27-Aug-18	21.213	45.82	45.717	40	nd	na	8.324	37.393	1.65	7.14	14.79	564	0.455	0.34	-52.3	Clear, Dup-2
G2-3C	G2-3C	18.3-22.9	21-Mar-19	21.010	45.82	45.717	nd	nd	na	7.543	38.174	2.05	6.47	13.99	413	0.339	0.25	-35.1	Clear
G2-3C	G2-3C	18.3-22.9	17-Sep-19	20.951	45.82	45.717	nd	nd	na	8.110	37.607	5.99	7.09	13.52	591	0.492	0.37	-15.1	Cloudy, some organic debris
G2-3C	G2-3C	18.3-22.9	2-Apr-20	20.973	45.82	45.717	5	nd	na	7.452	38.265	4.66	6.93	14	629	0.518	0.39	-41.9	Clear
G2-3C	G2-3C	18.3-22.9	13-Aug-20	21.010	45.82	45.717	nd	nd	na	7.935	37.782	2.86	7.11	14.12	469	0.385	0.29	-52.3	Bailed 3x well volume, clear
G2-9A	G2-9A	6.1-9.1	7-May-04	9.100	44.51	44.639	>11000	nd	na	7.870	36.769	nm	6.37	13.5	336	nm	nm	nm	---
G2-9A	G2-9A	6.1-9.1	15-Oct-04	9.050	44.51	44.639	4950	nd	na	7.690	36.949	nm	6.86	14.5	604	nm	nm	nm	---
G2-9A	G2-9A	6.1-9.1	12-Apr-05	9.000	44.51	44.639	2200	nd	na	7.175	37.464	nm	6.43	13	379	nm	nm	nm	---
G2-9A	G2-9A	6.1-9.1	12-Sep-05	9.090	44.51	44.639	10	nd	na	8.450	36.189	nm	6.45	15.8	478	nm	nm	nm	Sample collected 13-Sept-05
G2-9A	G2-9A	6.1-9.1	21-Mar-06	9.100	44.51	44.639	440	nd	na	7.450	37.189	1.7	6.77	12.2	265	nm	nm	nm	---
G2-9A	G2-9A	6.1-9.1	30-Aug-06	9.100	44.51	44.639	150	nd	na	8.420	36.219	1.37	6.57	13.4	46.1	nm	nm	nm	---
G2-9A	G2-9A	6.1-9.1	17-Apr-07	9.100	44.51	44.639	150	nd	na	7.460	37.179	0.48	6.75	13.8	400	nm	nm	nm	---
G2-9A	G2-9A	6.1-9.1	10-Sep-07	9.100	44.51	44.639	40	nd	na	8.390	36.249	0.23	6.55	21.4	495	nm	nm	nm	---
G2-9A	G2-9A	6.1-9.1	1-Apr-08	9.081	44.51	44.639	125	nd	na	7.372	37.267	0.12	6.63	11.8	373	nm	nm	nm	---
G2-9A	G2-9A	6.1-9.1	27-Aug-08	9.092	44.51	44.639	50	nd	na	7.950	36.689	0.5	nm	13.8	577	nm	nm	nm	---
G2-9A	G2-9A	6.1-9.1	28-Apr-09	9.085	44.51	44.639	25	nd	na	7.421	37.218	0.7	7.06	13.9	889	nm	nm	nm	1st bailer clear mostly, 2nd cloudy
G2-9A	G2-9A	6.1-9.1	26-Aug-09	9.090	44.51	44.639	10	nd	na	7.230	37.409	0.2	6.29	14.8	488	nm	nm	nm	Low turbidity and sediment
G2-9A	G2-9A	6.1-9.1	14-Apr-10	9.100	44.51	44.639	nd	nd	na	7.125	37.514	0.06	6.18	15.6	619	nm	nm	nm	Clear
G2-9A	G2-9A	6.1-9.1	10-Sep-10	9.080	44.51	44.639	nd	nd	na	8.210	36.429	0.18	6.36	13.6	552	nm	nm	nm	Low turbidity and sediment
G2-9A	G2-9A	6.1-9.1	19-Apr-11	9.083	44.51	44.639	45	nd	na	7.077	37.562	0.39	nm	12.2	333	nm	nm	nm	Clear (pH probe not working)
G2-9A	G2-9A	6.1-9.1	9-Aug-11	9.075	44.51	44.639	15	nd	na	7.929	36.710	1.32	6.19	11.91	396	nm	nm	nm	Clear
G2-9A	G2-9A	6.1-9.1	17-May-12	9.090	44.51	44.639	15	nd	na	7.520	37.119	0.43	6.31	12.63	380	nm	nm	nm	Clear
G2-9A	G2-9A	6.1-9.1	22-Aug-12	9.080	44.51	44.639	5	nd	na	7.980	36.659	0.39	6.36	13.6	832	nm	nm	nm	Clear
G2-9A	G2-9A	6.1-9.1	14-May-13	8.080	44.51	44.639	10	nd	na	7.590	37.049	2.34	12.76	11.83	338	nm	nm	nm	Purged silty then Clear; PH not calibrated
G2-9A	ns	6.1-9.1	16-May-13	nm	44.51	44.639	nm	nm	na	nm	na	1.92	6.14	12.64	344	nm	nm	nm	Parameters Bailed out of well
G2-9A	G2-9A	6.1-9.1	23-Sep-13	9.080	44.51	44.639	45	nd	na	8.090	36.549	0.5	6.12	13.44	430	nm	nm	nm	Clear
G2-9A	G2-9A	6.1-9.1	26-May-14	9.070	44.51	44.639	20	nd	na	7.550	37.089	1.32	6.12	17.23	431	0.326	0.24	2.6	Murky
G2-9A	G2-9A	6.1-9.1	26-Aug-14	9.100	44.51	44.639	nm	nd	na	8.200	36.439	4.01	5.87	15.21	439	0.209	0.26	26.9	Slightly turbid
G2-9A	G2-9A	6.1-9.1	3-Mar-15	9.080	44.51	44.639	110	nd	na	7.440	37.199	0.25	5.89	13.07	344	0.29	0.22	64	---
G2-9A	G2-9A	6.1-9.1	16-Sep-15	9.110	44.51	44.639	300	nd	na	8.120	36.519	1.75	5.64	13.86	382	0.316	0.24	81.2	Clear
G2-9A	G2-9A	6.1-9.1	9-Mar-16	9.070	44.51	44.639	90	nd	na	6.990	37.649	0.47	6.04	12.56	252	0.215	0.16	97.9	Clear
G2-9A	G2-9A	6.1-9.1	11-Aug-16	9.080	44.51	44.639	15	nd	na	8.020	36.619	1.09	6.24	13.57	403	0.335	0.25	10.7	Clear
G2-9A	G2-9A	6.1-9.1	28-Mar-17	9.090	44.51	44.639	45	nd	na	6.990	37.649	0.6	6.06	12.66	257	0.219	0.16	-157.3	Clear
G2-9A	G2-9A	6.1-9.1	23-Aug-17	9.100	44.51	44.639	10	nd	na	8.210	36.429	0.48	5.86	14.9	411	0.331	0.25	55.1	Clear
G2-9A	G2-9A	6.1-9.1	1-May-18	9.063	44.51	44.639	nd	nd	na	7.417	37.222	1.97	6.06	13.53	376	0.313	0.23	60.2	Bailed; silty/grey
G2-9A	G2-9A	6.1-9.1	27-Aug-18	9.138	44.51	44.639	25	nd	na	8.309	36.330	4.35	6.31	13.5	475	0.395	0.3	116	Turbid
G2-9A	G2-9A	6.1-9.1	21-Mar-19	9.068	44.51	44.639	nd	nd	na	7.407	37.232	1.05	6.02	13.24	279	0.234	0.17	37	slightly cloudy (grey)
G2-9A	G2-9A	6.1-9.1	12-Sep-19	9.100	44.51	44.639	15	nd	na	8.207	36.432	0.73	3.46	13.74	378	0.314	0.23	173	Clear
G2-9A	G2-9A	6.1-9.1	2-Apr-20	9.099	44.51	44.639	45	nd	na	7.061	37.578	1.85	5.9	13.46	400	0.334	0.25	52.2	Slightly cloudy
G2-9A	G2-9A	6.1-9.1	13-Aug-20	9.099	44.51	44.639	nd	nd	na	7.908	36.731	1.57	6.09	14.59	416	0.338	0.25	36.7	clear
G2-9B	G2-9B	18.9-21.9	7-May-04	21.730	44.52	44.681	50	nd	na	8.160	36.521	nm	6.91	12.8	340	nm	nm	nm	---
G2-9B	G2-9B	18.9-21.9	15-Oct-04	22.050	44.52	44.681	125	nd	na	7.901	36.780	nm	7.63	13.1	567	nm	nm	nm	---
G2-9B	G2-9B	18.9-21.9	12-Apr-05	21.765	44.52	44.681	350	nd	na	7.530	37.151	nm	6.91	12.1	623	nm	nm	nm	---
G2-9B	G2-9B	18.9-21.9	12-Sep-05	21.800	44.52	44.681	10	nd	na	8.580	36.101	nm	7.04	16.1	446	nm	nm	nm	Sample collected 13-Sept-05
G2-9B	G2-9B	18.9-21.9	21-Mar-06	21.800	44.52	44.681	70	nd	na	7.780	36.901	4.95	6.86	12.2	44	nm	nm	nm	---
G2-9B	G2-9B	18.9-21.9	30-Aug-06	21.800	44.52	44.681	10	nd	na	8.540	36.141	1.5	7.38	13.8	81.2	nm	nm	nm	---
G2-9B	G2-9B	18.9-21.9	17-Apr-07	21.800	44.52	44.681	10	nd	na	7.630	37.051	0.21	7.3	15.1	475	nm	nm	nm	---
G2-9B	G2-9B	18.9-21.9	10-Sep-07	21.800	44.52	44.681	50	nd	na	8.570	36.111	0.14	7.27	15.4	473	nm	nm	nm	---
G2-9B	G2-9B	18.9-21.9	1-Apr-08	21.800	44.52	44.681	100	nd	na	7.675	37.006	0.9	6.52	12	455	nm	nm	nm	---
G2-9B	G2-9B	18.9-21.9	27-Aug-08	21.747	44.52	44.681	25	nd	na	8.091	36.590	0.3	nm	14	541	nm	nm	nm	---
G2-9B	G2-9B	18.9-21.9	28-Apr-09	21.768	44.52	44.681	nd	nd	na	7.763	36.918	0.5	7.32	14.4	1005	nm	nm	nm	Clear
G2-9B	G2-9B	18.9-21.9	26-Aug-09	21.800	44.52	44.681	nd	nd	na	8.400	36.281	0.2	6.44	14.5	505	nm	nm	nm	Clear
G2-9B	G2-9B	18.9-21.9	14-Apr-10	21.760	44.52	44.681	10	nd	na	7.490	37.191	0.08	6.85	13.1	541	nm	nm	nm	Clear
G2-9B	G2-9B	18.9-21.9	9-Sep-10	21.760	44.52	44.681	nm	nd	na	8.430	36.251	0.3	6.99	15.2	522	nm	nm	nm	Clear
G2-9B	G2-9B	18.9-21.9	19-Apr-11	21.760	44.52	44.681	nd	nd	na	7.608	37.073	0.3	nm	11.8	285	nm	nm	nm	Clear (pH probe not working)
G2-9B	G2-9B	18.9-21.9	9-Aug-11	21.744	44.52	44.681	15	nd	na	8.180	36.501	0.73	6.92	12.38	356	nm	nm	nm	Clear
G2-9B	G2-9B	18.9-21.9	17-May-12	21.780	44.52	44.681	20	nd	na	7.870	36.811	1.36	7.06	13.1	421	nm	nm	nm	Clear
G2-9B	G2-9B	18.9-21.9	20-Aug-12	21.760	44.52	44.681	10	nd	na	8.360	36.321	0.79	6.35	13.35	383	nm	nm	nm	Clear; DUP-11
G2-9B	G2-9B	18.9-21.9	8-May-13	21.770	44.52	44.681	nd	nd	na	7.920	36.761	1.15	7	14.36	400	nm	nm	nm	Sampled with downhole pump; Clear
G2-9B	G2-9B	18.9-21.9	23-Sep-13	21.760	44.52	44.681	5	nd	na	8.330	36.351	0.57	6.93	12.39	419	nm	nm	nm	Clear
G2-9B	G2-9B	18.9-21.9	26-May-14	21.740	44.52	44.681	15	nd	na	7.830	36.851	2.29	6.7	14.68	411	0.332	0.25	-41.4	Slight turbid; DUP-25
G2-9B	G2-9B	18.9-21.9	26-Aug-14	21.780	44.52	44.681	nm	nd	na	8.530	36.151	1.07	6.63	12.23	398	0.345	0.26	2.9	Clear
G2-9B	G2-9B	18.9-21.9	3-Mar-15	21.750	44.52	44.681	5	nd	na	7.790	36.891	3.63	6.74	12.74	396	0.335	0.25	-88	DUP-1
G2-9B	G2-9B	18.9-21.9	16-Sep-15	21.540	44.52	44.681	nd	nd	na	8.350	36.331	2.26	6.49	12.72	421	0.357	0.27	-28.1	Clear
G2-9B	G2-9B	18.9-21.9	9-Mar-16	21.780	44.52	44.681	5	nd	na	7.440	37.241	1.57	7.02	10.21	409	0.37	0.28	-5.6	Turbid
G2-9B	G2-9B	18.9-21.9	11-Aug-16	21.760	44.52	44.681	60	nd	na	8.310	36.371	2.54	5.72	13.1	401	0.337	0.25	37.2	---
G2-9B	G2-9B	18.9-21.9	28-Mar-17	21.750	44.52	44.681	nd	nd	na	7.450	37.231	0.38	6.99	11.78	391	0.338	0.25	-121.3	Clear
G2-9B	G2-9B	18.9-21.9	23-Aug-17	21.750	44.52	44.681	25	nd	na	8.560	36.121	2.8	7	14.22	426	0.348	0.26	14.4	Clear
G2-9B	G2-9B	18.9-21.9	2-May-18	21.746	44.52	44.681	nd	nd	na	7.733	36.948	3.96	6.49	13.37	479	0.4	0.3	41	Clear
G2-9B	G2-9B	18.9-21.9	27-Aug-18	21.946	44.52	44.681	20	nd	na	8.622	36.059	5.05	7.13	13.61	479	0.398	0.3	-3.8	Clear
G2-9B	G2-9B	18.9-21.9	20-Mar-19	21.774	44.52	44.681	10	nd	na	7.718	36.963	9.33	6.95	14.19	362	0.296	0.22	-22.7	Clear
G2-9B	G2-9B	18.9-21.9	12-Sep-19	21.818	44.52	44.681	nd	nd	na	8.493	36.188	3	3.73	12.54	366	0.312	0.23	161.1	Bailed 3x well volume, clear
G2-9B	G2-9B	18.9-21.9	2-Apr-20	21.779	44.52	44.681	nd	nd	na	7.475	37.206	5.09	6.93	12.51	512	0.437	0.33	-13.3	Bailed 3x well volume, clear
G2-9B	G2-9B	18.9-21.9	13-Aug-20	21.758	44.52	44.681	nd	nd	na	8.158	36.523	2.82	7.24	14.52	389	0.316	0.24	-37.4	Bailed 3x well volume, clear
G2-10	G2-10	4.9-6.4	26-Apr-04	6.120	45.16	45.349	150	nd	na	4.340	41.009	nm	5.72	11.6	191.1	nm	nm	nm	---
G2-10	G2-10	4.9-6.4	18-Oct-04	6.090	45.16	45.349	225	nd	na	4.130	41.219	nm	6.32	13.1	228	nm	nm	nm	---
G2-10	G2-10	4.9-6.4	12-Apr-05	6.090	45.16	45.349	nm	nd	na	3.510	41.839	nm	5.87	10.4	262	nm	nm	nm	---
G2-10	G2-10	4.9-6.4	12-Sep-05	6.140	45.16	45.349	nm	nd	na	5.950	39.399	nm	6.83	15.4	411	nm	nm	nm	Sample collected 13-Sept-05
G2-10	G2-10	4.9-6.4	20-Mar-06	6.140	45.16	45.349	130	nd	na	3.960	41.389	nm	5.65	10.2	137	nm	nm	nm	---
G2-10	G2-10	4.9-6.4	30-Aug-06	6.150	45.16	45.349	20	nd	na	6.140	39.209	nm	nm	nm	nm	nm	nm	nm	Trace groundwater; no sample
G2-10	G2-10	4.9-6.4	23-Apr-07	6.150	45.16	45.349	40	nd	na	3.755	41.594	NA	5.45	11.5	123	nm	nm	nm	---
G2-10	ns	4.9-6.4	11-Sep-07	6.150	45.16	45.349	60	nd	na	5.960	39.389	nm	nm	nm	nm	nm	nm	nm	Insufficient water to sample
G2-10	G2-10	4.9-6.4	1-Apr-08	6.150	45.16	45.349	75	nd	na	3.785	41.564	0.28	5.43	10.2	257	nm	nm	nm	---
G2-10	G2-10	4.9-6.4	2-Sep-08	6.300	45.16	45.349	25	nd	na	4.310	41.039	1	5.55	12.6	212	nm	nm	nm	Duplicate taken
G2-10	G2-10	4.9-6.4	28-Apr-09	6.137	45.16	45.349	125	nd	na	3.903	41.446	0.8	5.66	10.4	486	nm	nm	nm	Cloudy orange precipitate in first 2 L purged; Clear after
G2-10	ns	4.9-6.4	27-Aug-09	6.139	45.16	45.349	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; No sample
G2-10	G2-10	4.9-6.4	14-Apr-10	6.150	45.16	45.349	nd	nd	na	3.636	41.713	0.71	5.76	11	306	nm	nm	nm	Orange sediment
G2-10	G2-10	4.9-6.4	9-Sep-10	6.135	45.16	45.349	60	nd	na	5.539	39.810	0.3	5.78	13.3	363	nm	nm	nm	Clear
G2-10	G2-10	4.9-6.4	20-Apr-11	6.136	45.16	45.349	160	nd	na	3.447	41.902	0.47	5.83	10.7	249	nm	nm	nm	Clear
G2-10	G2-10	4.9-6.4	13-Sep-11	6.140	45.16	45.349	40	nd	na	5.440	39.909	3.07	5.64	13.09	257	nm	nm	nm	Clear
G2-10	G2-10	4.9-6.4	28-May-12	6.150	45.16	45.349	15	nd	na	4.380	40.969	0.58	5.04	10.39	174	nm	nm	nm	Clear
G2-10	G2-10	4.9-6.4	20-Aug-12	6.135	45.16	45.349	10	nd	na	5.240	40.109	2.77	5.24	11.46	202	nm	nm	nm	Clear
G2-10	G2-10	4.9-6.4	22-Apr-13	6.150	45.16	45.349	90	nd	na	3.290	42.059	2.5	5.51	10.3	197	nm	nm	nm	Orange biofoul in well - purged until Clear
G2-10	G2-10	4.9-6.4	22-Aug-13	6.120	45.16	45.349	75	nd	na	5.480	39.869	1.2	5.21	13.23	250	nm	nm	nm	Clear
G2-10	G2-10	4.9-6.4	15-May-14	6.130	45.16	45.349	10	nd	na	3.500	41.849	15.72	4.75	10.66	219	0.196	0.14	-281.3	Clear
G2-10	G2-10	4.9-6.4	20-Aug-14	6.140	45.16	45.349	25	nd	na	5.430	39.919	1.5	4.84	13.04	224	0.189	0.14	152.7	Clear
G2-10	G2-10	4.9-6.4	3-Mar-15	6.140	45.16	45.349	360	nd	na	3.790	41.559	0.27	5.41	11.09	236	0.209	0.15	177.7	---
G2-10	G2-10	4.9-6.4	16-Sep-15	6.160	45.16	45.349	75	nd	na	5.610	39.739	0.53	5.57	13.36	290	0.242	0.18	138.7	Clear
G2-10	G2-10	4.9-6.4	7-Mar-16	6.150	45.16	45.349	200	nd	na	3.055	42.294	1.43	4.27	10.75	231	0.206	0.15	276.4	Clear
G2-10	G2-10	4.9-6.4	10-Aug-16	6.140	45.16	45.349	35	nd	na	4.970	40.379	1.96	10.38	13.9	212	0.175	0.13	150.8	Clear
G2-10	G2-10	4.9-6.4	28-Mar-17	6.120	45.16	45.349	140	nd	na	2.830	42.519	0.18	5.87	9.46	228	0.211	0.16	-85.9	Clear
G2-10	G2-10	4.9-6.4	23-Aug-17	6.150	45.16	45.349	70	nd	na	5.080	40.269	2.8	7	14.22	426	0.348	0.26	14.4	Clear
G2-10	G2-10	4.9-6.4	1-May-18	6.127	45.16	45.349	30	nd	na	3.439	41.910	1.88	5.54	10.79	391	0.349	0.26	107.2	Bailed; silty and grey
G2-10	G2-10	4.9-6.4	27-Aug-18	6.121	45.16	45.349	80	nd	na	5.855	39.494	3.88	5.79	13.56	318	0.265	0.2	158.2	Clear
G2-10	G2-10	4.9-6.4	21-Mar-19	6.118	45.16	45.349	nd	nd	na	3.643	41.706	0.25	5.28	11.02	335	0.297	0.22	-33.8	silty; slightly orange tinged
G2-10	G2-10	4.9-6.4	17-Sep-19	6.130	45.16	45.349	140	nd	na	4.720	40.629	2.01	6.7	12.09	380	0.328	0.25	5.6	clear
G2-10	G2-10	4.9-6.4	2-Apr-20	6.142	45.16	45.349	5	nd	na	3.123	42.226	1.25	5.52	9.66	564	0.519	0.39	-4.5	slightly cloudy, orange
G2-10	G2-10	4.9-6.4	12-Aug-20	6.122	45.16	45.349	nd	nd	na	4.961	40.388	0.77	5.28	11.94	344	0.298	0.22	185.9	clear
G2-11A	G2-11A	4.6-6.1	29-Apr-04	5.990	50.46	50.341	2750	nd	na	5.550	44.791	nm	6.08	12.2	424	nm	nm	nm	---
G2-11A	G2-11A	4.6-6.1	12-Oct-04	6.007	50.46	50.341	8250	nd	na	5.439	44.902	nm	6.01	14.1	2500	nm	nm	nm	---
G2-11A	G2-11A	4.6-6.1	11-Apr-05	6.007	50.46	50.341	nm	nd	na	5.450	44.891	nm	6.18	12.2	3400	nm	nm	nm	---
G2-11A	G2-11A	4.6-6.1	20-Sep-05	6.000	50.46	50.341	nm	nd	na	5.650	44.691	nm	6.17	16.2	4060	nm	nm	nm	Sample collected 21-Sept-05; Samples collected before parameters
G2-11A	G2-11A	4.6-6.1	27-Mar-06	5.950	50.46	50.341	550	nd	na	5.470	44.871	nm	5.95	12.1	103.2	nm	nm	nm	---
G2-11A	ns	4.6-6.1	30-Aug-06	5.950	50.46	50.341	nm	nd	na	5.780	44.561	nm	nm	nm	nm	nm	nm	nm	Insufficient water to sample
G2-11A	G2-11A	4.6-6.1	17-Apr-07	6.000	50.46	50.341	260	nd	na	5.500	44.841	0.14	nm	9.9	3480	nm	nm	nm	DUP (G2-11AX)
G2-11A	G2-11A	4.6-6.1	4-Sep-07	6.020	50.46	50.341	6600	nd	na	5.630	44.711	0.53	6.08	15.2	3590	nm	nm	nm	---
G2-11A	G2-11A	4.6-6.1	8-Apr-08	6.011	50.46	50.341	250	nd	na	5.055	45.286	0.62	6.04	11.5	2280	nm	nm	nm	---
G2-11A	G2-11A	4.6-6.1	8-Sep-08	6.010	50.46	50.341	500	nd	na	5.472	44.869	0.4	6.14	15.1	3360	nm	nm	nm	Slow recharge
G2-11A	ns	4.6-6.1	29-Apr-09	6.005	50.46	50.341	>11000	nd	na	5.519	44.822	0.6	nm	nm	nm	nm	nm	nm	Well dry during purging and didn't recharge in 24 hour period
G2-11A	ns	4.6-6.1	31-Aug-09	6.010	50.46	50.341	>11000	nd	na	5.608	44.733	0.2	nm	nm	nm	nm	nm	nm	No recharge; Dry; No sample
G2-11A	G2-11A	4.6-6.1	21-Apr-10	6.010	50.46	50.341	15	nd	na	5.515	44.826	0.99	6.19	11.3	4230	nm	nm	nm	Low turbid and low sediment
G2-11A	G2-11A	4.6-6.1	15-Sep-10	6.003	50.46	50.341	70	nd	na	5.474	44.867	0.17	6.27	14.8	3520	nm	nm	nm	Clear
G2-11A	G2-11A	4.6-6.1	5-May-11	6.000	50.46	50.341	100	nd	na	5.470	44.871	0.32	6.38	11.4	3510	nm	nm	nm	Clear
G2-11A	G2-11A	4.6-6.1	8-Sep-11	6.000	50.46	50.341	130	nd	na	5.620	44.721	3.35	5.38	16.69	2247	nm	nm	nm	Clear
G2-11A	G2-11A	4.6-6.1	24-May-12	6.020	50.46	50.341	130	nd	na	5.560	44.781	0.75	6.15	12.82	1601	nm	nm	nm	Clear
G2-11A	G2-11A	4.6-6.1	29-Aug-12	6.005	50.46	50.341	>11000	nd	na	5.630	44.711	0.33	5.94	13.19	1983	nm	nm	nm	Clear

TABLE 2-1
AREA 2 GROUNDWATER MONITORING DATA
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY

Well ID	Sample ID	Screened Interval (mbgs)	Date Monitored	Total Depth of Well (m from TOC)	Ground Elevation (mASL)[1]	Top of Casing Elevation (TOC, mASL)[1]	Headspace Vapour Concentration (ppmv)	Depth to Product (m from TOC)	Apparent Product Thickness (mm)	Depth to Water (DTW, m from TOC)	Groundwater Elevation (mASL)[1]	Dissolved Oxygen (mg/L)	pH	Temperature (°C)	Electrical Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	ORP (mV)	Observations
G2-11A	G2-11A	4.6-6.1	17-Apr-13	6.000	50.46	50.341	75	nd	na	5.460	44.881	0.78	6.3	11.37	1625	nm	nm	nm	Sulfur odour; Clear; DUP-26
G2-11A	G2-11A	4.6-6.1	20-Aug-13	6.005	50.46	50.341	200	nd	na	5.675	44.666	2.15	6.15	13.4	1591	nm	nm	nm	Clear with some particulates; Ran dry during BTEX collection; DUP-10
G2-11A	G2-11A	4.6-6.1	12-May-14	6.000	50.46	50.341	35	nd	na	5.650	44.691	1.73	6.26	13.23	110	0.93	0.72	-92.8	Clear
G2-11A	G2-11A	4.6-6.1	18-Aug-14	6.010	50.46	50.341	95	nd	na	5.650	44.691	1.16	6.25	14.63	1267	1.027	0.8	-25.3	Clear
G2-11A	G2-11A	4.6-6.1	11-May-15	6.005	50.46	50.341	50	nd	na	5.600	44.741	2.49	6.17	13.39	1224	1.022	0.8	21.2	Clear
G2-11A	G2-11A	4.6-6.1	16-Sep-15	6.030	50.46	50.341	>11000	nd	na	5.510	44.831	0.54	6.15	14.74	1135	0.918	0.71	-7.4	Clear; Hydrocarbon odour; DUP-16
G2-11A	G2-11A	4.6-6.1	4-Apr-16	5.990	5.48	50.341	110	nd	na	5.480	44.861	0.37	6.41	12.52	1265	1.08	0.84	-19.8	Clear
G2-11A	G2-11A	4.6-6.1	1-Sep-16	6.010	5.48	50.341	180	nd	na	5.810	44.531	1.87	6.34	14.48	1110	0.903	0.7	21.2	Clear
G2-11A	G2-11A	4.6-6.1	12-Apr-17	6.020	5.48	50.341	690	nd	na	5.390	44.951	2.43	6.43	11.09	2610	2.04	1.63	-117.3	Dup-9
G2-11A	G2-11A	4.6-6.1	28-Aug-17	6.000	5.48	50.341	420	nd	na	5.630	44.711	0.29	6.11	15.65	950	0.79	0.49	16.4	Clear; Purged dry
G2-11A	G2-11A	4.6-6.1	30-Apr-18	6.011	5.48	50.341	140	nd	na	5.518	44.823	0.32	6.16	12.15	1977	1.715	1.37	6.1	Clear; DUP-12
G2-11A	G2-11A	4.6-6.1	28-Aug-18	6.008	5.48	50.341	220	nd	na	5.230	45.111	1.5	5.99	13.48	1492	1.243	0.98	55.9	clear
G2-11A	G2-11A	4.6-6.1	26-Mar-19	6.009	5.48	50.341	110	nd	na	5.563	44.778	1.98	6.21	12.28	1639	1.407	1.12	-14.1	Clear; PAHs bottles sampled on recharge; DUP-06
G2-11A	G2-11A	4.6-6.1	17-Sep-19	6.010	5.48	50.341	10	nd	na	5.538	44.803	1.04	6.56	13.56	3141	2.613	2.14	-7.9	Clear;
G2-11A	G2-11A	4.6-6.1	6-Apr-20	6.017	5.48	50.341	45	nd	na	5.451	44.890	1.25	6.17	12.43	2031	1.734	1.39	-47.3	Clear; DUP-11
G2-11A	G2-11A	4.6-6.1	17-Aug-20	6.021	5.48	50.341	15	nd	na	5.608	44.733	3.21	5.29	14.08	1330	1.092	0.85	54.2	Clear
G2-11B	G2-11B	7.0-8.5	29-Apr-04	8.380	50.54	50.347	250	nd	na	5.660	44.687	nm	6.12	12.5	664	nm	nm	nm	---
G2-11B	G2-11B	7.0-8.5	12-Oct-04	8.305	50.54	50.347	225	nd	na	5.570	44.777	nm	6.1	13.6	4560	nm	nm	nm	---
G2-11B	G2-11B	7.0-8.5	11-Apr-05	8.305	50.54	50.347	nm	nd	na	5.578	44.769	nm	6.19	12.6	4990	nm	nm	nm	---
G2-11B	G2-11B	7.0-8.5	20-Sep-05	8.350	50.54	50.347	nm	nd	na	5.770	44.577	nm	6.33	13.5	4680	nm	nm	nm	Sample collected 21-Sept-05
G2-11B	G2-11B	7.0-8.5	4-Apr-06	8.350	50.54	50.347	100	nd	na	5.620	44.727	1.67	6.23	14.7	37.7	nm	nm	nm	---
G2-11B	G2-11B	7.0-8.5	30-Aug-06	8.300	50.54	50.347	nm	nd	na	5.790	44.557	1.48	6.22	13.95	3977	nm	nm	nm	---
G2-11B	G2-11B	7.0-8.5	17-Apr-07	8.400	50.54	50.347	30	nd	na	5.620	44.727	3.05	nm	11	3250	nm	nm	nm	DUP (G2-11BX)
G2-11B	G2-11B	7.0-8.5	4-Sep-07	8.400	50.54	50.347	150	nd	na	5.800	44.547	0.29	6.18	40.4	4000	nm	nm	nm	---
G2-11B	G2-11B	7.0-8.5	8-Apr-08	8.421	50.54	50.347	52	nd	na	5.653	44.694	0.97	5.97	10.4	2270	nm	nm	nm	---
G2-11B	G2-11B	7.0-8.5	8-Sep-08	8.413	50.54	50.347	80	nd	na	5.625	44.722	0.4	6.17	14.2	2350	nm	nm	nm	---
G2-11B	G2-11B	7.0-8.5	30-Apr-09	8.401	50.54	50.347	50	nd	na	5.643	44.704	0.5	6.42	12	9850	nm	nm	nm	1st Bailer Clear mostly, second Cloudy; Duplicate taken
G2-11B	G2-11B	7.0-8.5	31-Aug-09	8.400	50.54	50.347	100	nd	na	6.780	43.567	0.9	6.01	14.1	4730	nm	nm	nm	Clear
G2-11B	G2-11B	7.0-8.5	21-Apr-10	8.400	50.54	50.347	nd	nd	na	5.665	44.682	0.26	6.42	11.3	3240	nm	nm	nm	Low turbid and low sediment
G2-11B	G2-11B	7.0-8.5	21-Sep-10	8.397	50.54	50.347	nd	nd	na	5.602	44.745	0.22	6.27	16.7	3290	nm	nm	nm	Clear; : DUP-17
G2-11B	G2-11B	7.0-8.5	5-May-11	8.395	50.54	50.347	65	nd	na	5.623	44.724	0.2	6.11	11.7	2590	nm	nm	nm	Clear; DUP-28
G2-11B	G2-11B	7.0-8.5	8-Sep-11	8.395	50.54	50.347	15	nd	na	5.760	44.587	2.22	4.77	14.51	53	nm	nm	nm	Clear (2 BTEX and 1 PAH collected)
G2-11B	G2-11B	7.0-8.5	24-May-12	8.410	50.54	50.347	15	nd	na	5.660	44.687	1.17	6.14	12.74	1614	nm	nm	nm	Clear, DUP-15
G2-11B	G2-11B	7.0-8.5	29-Aug-12	8.390	50.54	50.347	30	nd	na	5.740	44.607	0.87	6.01	12.77	1690	nm	nm	nm	Clear
G2-11B	G2-11B	7.0-8.5	17-Apr-13	8.390	50.54	50.347	15	nd	na	5.550	44.797	0.88	6.35	11.63	1309	nm	nm	nm	Sulfur odour; Clear
G2-11B	G2-11B	7.0-8.5	20-Aug-13	8.390	50.54	50.347	15	nd	na	5.800	44.547	1.32	6.13	13.18	1727	nm	nm	nm	Clear
G2-11B	G2-11B	7.0-8.5	12-May-14	8.380	50.54	50.347	5	nd	na	5.630	44.717	1.11	5.68	13.25	1400	1.173	0.92	-231	Clear; DUP-19
G2-11B	G2-11B	7.0-8.5	18-Aug-14	8.400	50.54	50.347	nd	nd	na	5.780	44.567	1.07	5.68	13.39	1613	1.347	1.07	-79.7	Clear
G2-11B	G2-11B	7.0-8.5	11-May-15	8.400	50.54	50.347	15	nd	na	5.720	44.627	1.42	6.13	12.93	990	0.86	0.68	20.4	Clear
G2-11B	G2-11B	7.0-8.5	16-Sep-15	8.425	50.54	50.347	nd	nd	na	5.620	44.727	0.13	6.32	15.48	15.72	1.248	0.98	-15.7	Clear
G2-11B	G2-11B	7.0-8.5	4-Apr-16	8.370	50.54	50.347	5	nd	na	5.620	44.727	0.81	6.44	12.83	1237	1.047	0.82	-55.9	Clear
G2-11B	G2-11B	7.0-8.5	1-Sep-16	8.370	50.54	50.347	50	nd	na	5.770	44.577	0.45	6.37	13.71	1337	1.108	0.87	-0.1	Clear
G2-11B	G2-11B	7.0-8.5	12-Apr-17	8.400	50.54	50.347	5	nd	na	5.550	44.797	1.22	6.25	11.82	1066	0.926	0.72	-39.5	Clear
G2-11B	G2-11B	7.0-8.5	28-Aug-17	8.390	50.54	50.347	nd	nd	na	5.780	44.567	0.45	6.11	14.17	1350	1.107	0.87	15.4	Clear
G2-11B	G2-11B	7.0-8.5	30-Apr-18	8.381	50.54	50.347	nd	nd	na	5.650	44.697	1.77	6.23	12.39	1977	1.694	1.36	23.4	Clear
G2-11B	G2-11B	7.0-8.5	28-Aug-18	8.411	50.54	50.347	20	nd	na	5.758	44.589	0.53	6.07	13.46	1680	1.401	1.11	59.2	Clear
G2-11B	G2-11B	7.0-8.5	26-Mar-19	8.387	50.54	50.347	nd	nd	na	5.646	44.701	1.13	6.2	12.49	1569	1.341	1.05	62.7	Clear
G2-11B	G2-11B	7.0-8.5	17-Sep-19	8.402	50.54	50.347	10	nd	na	5.703	44.644	1.22	7.36	12.59	1403	1.196	0.94	-40.2	Clear; DUP-4
G2-11B	G2-11B	7.0-8.5	6-Apr-20	8.370	50.54	50.347	15	nd	na	5.592	44.755	0.22	6.25	12.69	1824	1.551	1.24	-1	Clear with trace orange suspended solids
G2-11B	G2-11B	7.0-8.5	17-Aug-20	8.420	50.54	50.347	45	nd	na	5.772	44.575	0.16	6.32	14.97	1197	0.962	0.75	-2.7	Clear
PW03-1A	PW03-1A	2.4-4.0	22-Apr-04	4.030	38.27	38.159	10450	nd	na	1.660	36.499	nm	6.55	10.8	402	nm	nm	nm	---
PW03-1A	PW03-1A	2.4-4.0	15-Oct-04	4.050	38.27	38.159	10450	nd	na	1.757	36.402	nm	6.84	15	631	nm	nm	nm	---
PW03-1A	PW03-1A	2.4-4.0	15-Apr-05	4.050	38.27	38.159	460	nd	na	1.510	36.649	nm	6.72	10.4	559	nm	nm	nm	---
PW03-1A	A2-PW03-1A	2.4-4.0	13-Sep-05	4.050	38.27	38.159	nm	nd	na	3.030	35.129	nm	6.8	14.7	591	nm	nm	nm	Sample collected 13-Sept
PW03-1A	A2-PW03-1A	2.4-4.0	23-Mar-06	4.050	38.27	38.159	6600	nd	na	1.750	36.409	1.76	6.74	10.3	200	nm	nm	nm	---
PW03-1A	A2-PW03-1A	2.4-4.0	23-Aug-06	4.050	38.27	38.159	6050	nd	na	2.910	35.249	0.29	6.86	13.9	362	nm	nm	nm	Odour
PW03-1A	A2-PW03-1A	2.4-4.0	13-Apr-07	4.050	38.27	38.159	2750	nd	na	1.770	36.389	nm	6.71	7.7	453	nm	nm	nm	---
PW03-1A	A2-PW03-1A	2.4-4.0	6-Sep-07	4.050	38.27	38.159	7700	nd	na	3.190	34.969	0.13	6.79	13.8	573	nm	nm	nm	---
PW03-1A	PW03-1A	2.4-4.0	1-Apr-08	4.050	38.27	38.159	280	nd	na	1.805	36.354	0.15	6.81	9.9	251	nm	nm	nm	---
PW03-1A	PW03-1A	2.4-4.0	3-Sep-08	4.051	38.27	38.159	90	nd	na	3.489	34.670	0.2	6.89	13.1	167.4	nm	nm	nm	Slow recharge
PW03-1A	PW03-1A	2.4-4.0	4-May-09	4.044	38.27	38.159	nd	nd	na	3.139	35.020	0.7	7.36	11.7	569	nm	nm	nm	Cloudy; low sediment; Dry again
PW03-1A	ns	2.4-4.0	27-Aug-09	4.050	38.27	38.159	10	nd	na	3.520	34.639	0.2	6.52	14.5	268	nm	nm	nm	Very silty, no recharge, no Sample
PW03-1A	ns	2.4-4.0	14-Apr-10	4.050	38.27	38.159	nd	nd	na	2.080	36.079	0.1	6.91	11.3	300	nm	nm	nm	---
PW03-1A	PW03-1A	2.4-4.0	15-Sep-10	3.068	38.27	38.159	15	nd	na	2.782	35.377	0.15	7.07	16.1	270	nm	nm	nm	Clear, slow recharge
PW03-1A	PW03-1A	2.4-4.0	19-Apr-11	4.040	38.27	38.159	40	nd	na	1.565	36.594	0.36	6.92	9.9	275	nm	nm	nm	Clear
PW03-1A	PW03-1A	2.4-4.0	22-Aug-11	4.040	38.27	38.159	5	nd	na	2.810	35.349	0.19	7.1	12.62	205	nm	nm	nm	Clear
PW03-1A	PW03-1A	2.4-4.0	9-May-12	4.040	38.27	38.159	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-1A	ns	2.4-4.0	13-Aug-12	4.040	38.27	38.159	90	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; Not sampled
PW03-1A	ns	2.4-4.0	3-Apr-13	4.050	38.27	38.159	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-1A	ns	2.4-4.0	15-Aug-13	4.050	38.27	38.159	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-1A	PW03-1A	2.4-4.0	29-Apr-14	4.030	38.27	38.159	15	nd	na	2.100	36.059	0.43	6.08	9.09	131	0.123	0.09	201.4	---
PW03-1A	ns	2.4-4.0	12-Aug-14	4.030	38.27	38.159	530	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-1A	ns	2.4-4.0	6-May-15	4.040	38.27	38.159	170	nd	na	3.945	34.214	nm	nm	nm	nm	nm	nm	nm	Dry; Insufficient water to sample
PW03-1A	ns	2.4-4.0	24-Aug-15	4.040	38.27	38.159	140	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-1A	PW03-1A	2.4-4.0	9-Mar-16	3.040	38.27	38.159	20	nd	na	2.060	36.099	0.78	5.68	10.37	88	0.079	0.06	235.4	Clear
PW03-1A	ns	2.4-4.0	16-Sep-16	4.040	38.27	38.159	85	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-1A	PW03-1A	2.4-4.0	3-Apr-17	4.040	38.27	38.159	75	nd	na	1.910	36.249	0.26	5.6	8.73	71	0.067	0.05	-66	Clear
PW03-1A	ns	2.4-4.0	6-Sep-17	4.050	38.27	38.159	170	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-1A	PW03-1A	2.4-4.0	30-Apr-18	4.045	38.27	38.159	135	nd	na	3.380	34.779	10.23	5.78	9.54	90	0.084	0.06	135.6	Grey silty, purged dry
PW03-1A	ns	2.4-4.0	21-Aug-18	4.080	38.27	38.159	120	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-1A	PW03-1A	2.4-4.0	26-Mar-19	4.030	38.27	38.159	100	nd	na	3.825	34.334	1.53	6.06	9.76	120	0.11	0.08	67.4	very silty/cloudy; sampled on recharge
PW03-1A	ns	2.4-4.0	17-Sep-19	4.050	38.27	38.159	100	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	dry, silt on probe
PW03-1A	ns	2.4-4.0	26-Mar-20	4.039	38.27	38.159	65	nd	na	3.913	34.246	nm	nm	nm	nm	nm	nm	nm	Not enough water column to sample
PW03-1A	PW03-1A	2.4-4.0	8-Apr-20	3.990	38.27	38.159	35	nd	na	2.531	35.628	0.4	5.8	9.15	61	0.057	0.04	-324.4	Clear
PW03-1A	ns	2.4-4.0	10-Aug-20	4.034	38.27	38.159	25	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-1B	PW03-1B	1.1-3.7	22-Apr-04	nm	38.20	38.129	520	nd	na	1.930	36.199	nm	6.91	10.5	352	nm	nm	nm	---
PW03-1B	PW03-1B	1.1-3.7	15-Oct-04	3.082	38.20	38.129	175	nd	na	1.443	36.686	nm	7.24	14.8	358	nm	nm	nm	---
PW03-1B	PW03-1B	1.1-3.7	15-Apr-05	3.080	38.20	38.129	140	nd	na	1.380	36.749	nm	7.16	10.3	360	nm	nm	nm	---
PW03-1B	ns	1.1-3.7	13-Sep-05	3.075	38.20	38.129	nm	nd	na	2.995	35.134	nm	nm	nm	nm	nm	nm	nm	Not enough water to sample
PW03-1B	PW03-1B	1.1-3.7	21-Mar-06	3.080	38.20	38.129	130	nd	na	1.480	36.649	6.85	6.88	9.5	155	nm	nm	nm	---
PW03-1B	ns	1.1-3.7	23-Aug-06	3.060	38.20	38.129	40	nd	na	2.890	35.239	nm	nm	nm	nm	nm	nm	nm	Not enough water to sample
PW03-1B	PW03-1B	1.1-3.7	13-Apr-07	3.100	38.20	38.129	2750	nd	na	1.690	36.439	0.65	7.45	9.5	316	nm	nm	nm	---
PW03-1B	ns	1.1-3.7	6-Sep-07	3.070	38.20	38.129	75	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-1B	PW03-1B	1.1-3.7	1-Apr-08	3.080	38.20	38.129	50	nd	na	1.455	36.674	5.29	6.48	9.8	129.2	nm	nm	nm	---
PW03-1B	PW03-1B	1.1-3.7	3-Sep-08	3.080	38.20	38.129	450	nd	na	2.128	36.001	5.3	7.73	14.4	155.5	nm	nm	nm	Duplicate sample
PW03-1B	PW03-1B	1.1-3.7	22-Apr-09	3.065	38.20	38.129	0	nd	na	1.444	36.685	1.4	6.86	9	276	nm	nm	nm	High turbidity; medium sediment
PW03-1B	PW03-1B	1.1-3.7	31-Aug-09	3.180	38.20	38.129	10	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-1B	PW03-1B	1.1-3.7	14-Apr-10	3.090	38.20	38.129	nd	nd	na	1.610	36.519	nm	7.37	10.3	158	nm	nm	nm	white translucent
PW03-1B	PW03-1B	1.1-3.7	15-Sep-10	4.430	38.20	38.129	15	nd	na	3.232	34.897	0.15	7.35	15.1	291	nm	nm	nm	Clear to slightly turbid (1 jar for LEPH/HEPH only)
PW03-1B	PW03-1B	1.1-3.7	19-Apr-11	3.076	38.20	38.129	20	nd	na	1.484	36.645	2.46	7.32	9.2	183	nm	nm	nm	Slightly silty; Note: Did not shut down Air Sparge System before sampling PW wells. Next time, shut down to reduce silty samples.
PW03-1B	ns	1.1-3.7	13-Sep-11	3.070	38.20	38.129	0	nd	na	2.755	35.374	2.08	7.55	12.87	251	nm	nm	nm	Purged dry at 0.6 L
PW03-1B	PW03-1B	1.1-3.7	10-May-12	3.080	38.20	38.129	20	nd	na	1.410	36.719	8.43	6.69	9.93	106	nm	nm	nm	Clear; DUP-7
PW03-1B	ns	1.1-3.7	13-Aug-12	3.075	38.20	38.129	35	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; Not sampled
PW03-1B	PW03-1B	1.1-3.7	3-Apr-13	3.080	38.20	38.129	5	nd	na	2.340	35.789	10.37	7.42	9.94	113	nm	nm	nm	Silty
PW03-1B	ns	1.1-3.7	15-Aug-13	3.070	38.20	38.129	5	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-1B	PW03-1B	1.1-3.7	29-Apr-14	3.060	38.20	38.129	35	nd	na	1.620	36.509	9.15	5.55	8.75	88	0.083	0.06	212	Clear
PW03-1B	ns	1.1-3.7	12-Aug-14	3.060	38.20	38.129	120	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-1B	ns	1.1-3.7	6-May-15	3.070	38.20	38.129	25	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; Silt on probe
PW03-1B	ns	1.1-3.7	24-Aug-15	3.060	38.20	38.129	60	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-1B	PW03-1B	1.1-3.7	9-Mar-16	3.080	38.20	38.129	30	nd	na	1.410	36.719	4.95	4.82	9.69	57	0.053	0.04	293.9	Bentonite on probe tip
PW03-1B	ns	1.1-3.7	16-Sep-16	3.090	38.20	38.129	65	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-1B	PW03-1B	1.1-3.7	3-Apr-17	3.080	38.20	38.129	50	nd	na	1.440	36.689	5.8	5.13	8.24	52	0.05	0.04	-19.7	Clear
PW03-1B	ns	1.1-3.7	6-Sep-17	3.070	38.20	38.129	20	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-1B	PW03-1B	1.1-3.7	30-Apr-18	3.080	38.20	38.129	nd	nd	na	2.740	35.389	0.72	5.38	9.56	72	0.066	0.05	125.3	Clear
PW03-1B	ns	1.1-3.7	21-Aug-18	3.088	38.20	38.129	35	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-1B	ns	1.1-3.7	26-Mar-19	3.078	38.20	38.129	5	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-1B	ns	1.1-3.7	27-Mar-19	3.073	38.20	38.129	5	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; second sampling attempt of 2019 wet season PMP
PW03-1B	PW03-1B	1.1-3.7	16-Apr-19	3.073	38.20	38.129	nm	nd	na	1.642	36.487	8.12	4.32	8.73	33	0.033	0.02	234.2	Clear
PW03-1B	ns	1.1-3.7	17-Sep-19	3.091	38.20	38.129	35	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-1B	ns	1.1-3.7	26-Mar-20	3.075	38.20	38.129	nd	nd	na	3.048	35.081	nm	nm	nm	nm	nm	nm	nm	Not enough water to sample, silt on probe
PW03-1B	PW03-1B	1.1-3.7	8-Apr-20	3.079	38.20	38.129	nd	nd	na	1.961	36.168	8.33	6.67	8.77	88	0.083	0.06	27.1	Clear, DUP-12
PW03-1B	ns	1.1-3.7	10-Aug-20	3.075	38.20	38.129	5	nd	na	2.974	35.155	nm	nm	nm	nm	nm	nm	mn	silt on probe, insufficient water to sample
PW03-2A	PW03-2A	1.8-4.6	22-Apr-04	4.510	37.82	37.644	550	nd	na	2.060	35.584	nm	6.57	11.4	403	nm	nm	nm	---
PW03-2A	PW03-2A	1.8-4.6	14-Oct-04	4.533	37.82	37.644	225	nd	na	1.833	35.811	nm	6.59	15	1504	nm	nm	nm	---
PW03-2A	PW03-2A	1.8-4.6	15-Apr-05	4.530	37.82	37.644	160	nd	na	1.570	36.074	nm	6.32	10.7	243	nm	nm	nm	---
PW03-2A	A2-PW03-2A	1.8-4.6	13-Sep-05	4.530	37.82	37.644	nm	nd	na	2.670	34.974	nm	6.64	14.3	1126	nm	nm	nm	Sample collected 13-Sept-05.
PW03-2A	PW03-2A	1.8-4.6	21-Mar-06	4.550	37.82	37.644	220	nd	na	1.960	35.684	1.88	6.2	10.4	126	nm	nm	nm	---
PW03-2A	PW03-2A	1.8-4.6	23-Aug-06	4.520	37.82	37.644	10	nd	na	2.540	35.104	0.77	6.64	14.2	777	nm	nm	nm	---
PW03-2A	PW03-2A	1.8-4.6	13-Apr-07	3.450	37.82	37.644	60	nd	na	1.950	35.694	0.18	6.64	12.7	228	nm	nm	nm	---
PW03-2A	PW03-2A	1.8-4.6	6-Sep-07	4.550	37.82	37.644	175	nd	na	2.790	34.854	0.29	6.6	13.7	977	nm	nm	nm	---
PW03-2A	PW03-2A	1.8-4.6	1-Apr-08	4.520	37.82	37.644	10	nd	na	1.930	35.714	0.2	7.06	11	250	nm	nm	nm	---
PW03-2A	PW03-2A	1.8-4.6	3-Sep-08	4.530	37.82	37.644	10	nd	na	2.665	34.979	8.1	7.04	13.9	594	nm	nm	nm	---
PW03-2A	PW03-2A	1.8-4.6	22-Apr-09	4.428	37.82	37.644	nd	nd	na	1.875	35.769	7	7.04	10	363	nm	nm	nm	High turbidity; medium sediment; could hear air sparging
PW03-2A	PW03-2A	1.8-4.6	27-Aug-09	4.430	37.82	37.644	nm	nd	na	2.868	34.776	0.9	7.19	14.2	908	nm	nm	nm	Clear
PW03-2A	PW03-2A	1.8-4.6	14-Apr-10	4.470	37.82	37.644	nm	nd	na	2.415	35.229	6	6.57	11.4	142.8	nm	nm	nm	J-plug open; Clear
PW03-2A	PW03-2A	1.8-4.6	15-Sep-10	4.375	37.82	37.644	10	nd	na	2.852	34.792	0.09	7.54	14.5	782	nm	nm	nm	Clear
PW03-2A	PW03-2A	1.8-4.6	19-Apr-11	4.330	37.82	37.644	60	nd	na	2.230	35.414	11.27	6.56	10.1	103	nm	nm	nm	Clear; Note: Did not shut down Air Sparge System while sampling PW wells (Lower Ponds). Next time, shut down to reduce silty samples.
PW03-2A	PW03-2A	1.8-4.6	22-Aug-11	4.335	37.82	37.644	nd	nd	na	3.000	34.644	10.35	8.09	15.08	2	nm	nm	nm	Clear; DUP-8
PW03-2A	PW03-2A	1.8-4.6	10-May-12	4.410	37.82	37.644	nd	nd	na	3.320	34.324	nm	nm	nm	nm	nm	nm	nm	Purged dry at 1.0 L, very silty on bottom
PW03-2A	ns	1.8-4.6	13-Aug-12	4.470	37.82	37.644	15	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; Not sampled
PW03-2A	ns	1.8-4.6	3-Apr-13	4.480	37.82	37.644	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-2A	ns	1.8-4.6	15-Aug-13	4.440	37.82	37.644	10	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-2A	PW03-2A	1.8-4.6	29-Apr-14	4.440	37.82	37.644	100	nd	na	2.630	35.014	1.35	5.05	9.07	94	0.088	0.06	183.6	Clear
PW03-2A	ns	1.8-4.6	12-Aug-14	4.440	37.82	37.644	10	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-2A	ns	1.8-4.6	6-May-15	4.435	37.82	37.644	180	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; Silt on probe
PW03-2A	ns	1.8-4.6	24-Aug-15	4.440	37.82	37.644	65	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-2A	PW03-2A	1.8-4.6	9-Mar-16	4.450	37.82	37.644	25	nd	na	3.120	34.524	3.46	5.45	9.45	85	0.078	0.06	-4.1	Clear
PW03-2A	ns	1.8-4.6	16-Sep-16	4.450	37.82	37.644	110	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-2A	PW03-2A	1.8-4.6	3-Apr-17	4.460	37.82	37.644	130	nd	na	2.180	35.464	4.9	5.26	8.6	77	0.073	0.05	-10.4	Clear
PW03-2A	ns	1.8-4.6	6-Sep-17	4.460	37.82	37.644	10	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-2A	ns	1.8-4.6	30-Apr-18	4.475	37.82	37.644	5	nd	na	4.420	33.224	nm	nm	nm	nm	nm	nm	nm	Dry; brownish silty bottom
PW03-2A	ns	1.8-4.6	21-Aug-18	4.463	37.82	37.644	30	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-2A	ns	1.8-4.6	26-Mar-19	4.468	37.82	37.644	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-2A	ns	1.8-4.6	27-Mar-19	4.464	37.82	37.644	5	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	'Dry; second sampling attempt of 2019 wet season PMP
PW03-2A	PW03-2A	1.8-4.6	16-Apr-19	4.457	37.82	37.644	nm	nd	na	3.265	34.379	1.63	4.13	9.53	70	0.064	0.05	281.4	Clear; issues with RKI Eagle, could not monitor for headspace vapour
PW03-2A	ns	1.8-4.6	17-Sep-19	4.467	37.82	37.644	100	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-2A	ns	1.8-4.6	26-Mar-20	4.464	37.82	37.644	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-2A	PW03-2A	1.8-4.6	8-Apr-20	4.476	37.82	37.644	5	nd	na	3.752	33.892	4.54	5.31	9.76	68	0.063	0.05	109.4	Sample clear with trace orange solids; went dry after filling BTEX vials, amber bottles sampled on recharge
PW03-2A	ns	1.8-4.6	10-Aug-20	4.461	37.82	37.644	5	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry, silt on probe
PW03-2B	PW03-2B	1.1-3.7	22-Apr-04	3.130	37.88	37.809	660	nd	na	2.210	35.599	nm	6.72	11	456	nm	nm	nm	---
PW03-2B	PW03-2B	1.1-3.7	14-Oct-04	3.141	37.88	37.809	100	nd	na	1.982	35.827	nm	6.73	15.3	914	nm	nm	nm	---
PW03-2B	PW03-2B	1.1-3.7	15-Apr-05	3.140	37.88	37.809	175	nd	na	1.670	36.139	nm	6.88	10.8	564	nm	nm	nm	---
PW03-2B	ns	1.1-3.7	13-Sep-05	3.130	37.88	37.809	nm	nd	na	2.900	34.909	nm	nm	nm	nm	nm	nm	nm	Not enough water to sample
PW03-2B	PW03-2B	1.1-3.7	21-Mar-06	3.150	37.88	37.809	110	nd	na	2.055	35.754	1.82	6.9	10.2	254	nm	nm	nm	---
PW03-2B	PW03-2B	1.1-3.7	23-Aug-06	3.150	37.88	37.809	130	nd	na	2.670	35.139	1.68	6.92	15.8	575	nm	nm	nm	---
PW03-2B	PW03-2B	1.1-3.7	13-Apr-07	3.150	37.88	37.809	175	nd	na	2.750	35.059	0.24	6.83	11.4	636	nm	nm	nm	---
PW03-2B	ns	1.1-3.7	6-Sep-07	3.150	37.88	37.809	180	nd	na	2.940	34.869	nm	nm	nm	nm	nm	nm	nm	Not enough water to sample
PW03-2B	PW03-2B	1.1-3.7	1-Apr-08	3.150	37.88	37.809	75	nd	na	1.830	35.979	4.47	6.82	10.7	271	nm	nm	nm	---
PW03-2B	PW03-2B	1.1-3.7	3-Sep-08	3.150	37.88	37.809	90	nd	na	2.819	34.990	3.2	7.32	14.2	428	nm	nm	nm	Slow recharge
PW03-2B	PW03-2B	1.1-3.7	22-Apr-09	3.325	37.88	37.809	5	nd	na	1.800	36.009	10.2	7.06	9.9	795	nm	nm	nm	Clear
PW03-2B	PW03-2B	1.1-3.7	27-Aug-09	3.147	37.88	37.809	30	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-2B	PW03-2B	1.1-3.7	14-Apr-10	3.150	37.88	37.809	nd	nd	na	2.210	35.599	8.08	7.97	11.2	259	nm	nm	nm	Clear
PW03-2B	ns	1.1-3.7	15-Sep-10	3.135	37.88	37.809	10	nd	na	3.025	34.784	1.32	nm	nm	nm	nm	nm	nm	Not enough water to sample
PW03-2B	PW03-2B	1.1-3.7	19-Apr-11	3.140	37.88	37.809	5	nd	na	1.446	36.363	7.85	7.22	10	254	nm	nm	nm	Clear; Note: Did not shut down Air Sparge System while sampling PW wells. Next time, shut down to reduce silty samples.
PW03-2B	PW03-2B	1.1-3.7	22-Aug-11	3.135	37.88	37.809	nd	nd	na	2.680	35.129	5.46	7.76	13.23	227	nm	nm	nm	Clear
PW03-2B	PW03-2B	1.1-3.7	10-May-12	3.140	37.88	37.809	5	nd	na	2.320	35.489	9.84	7.65	10.39	205	nm	nm	nm	Clear
PW03-2B	ns	1.1-3.7	13-Aug-12	3.130	37.88	37.809	55	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; Not sampled
PW03-2B	PW03-2B	1.1-3.7	3-Apr-13	3.140	37.88	37.809	nd	nd	na	2.565	35.244	8.9	7.87	10.97	185	nm	nm	nm	Silty; Apr.3 collected BTEX and ambers; Apr.4 - Dry; Metals sample not collected
PW03-2B	ns	1.1-3.7	15-Aug-13	3.140	37.88	37.809	20	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-2B	PW03-2B	1.1-3.7	29-Apr-14	3.110	37.88	37.809	45	nd	na	2.550	35.259	9.4	6.09	9.31	303	0.282	0.21	222.9	Clear
PW03-2B	ns	1.1-3.7	12-Aug-14	3.130	37.88	37.809	120	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-2B	ns	1.1-3.7	6-May-15	3.135	37.88	37.809	85	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; Silt on probe
PW03-2B	ns	1.1-3.7	24-Aug-15	3.130	37.88	37.809	25	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-2B	PW03-2B	1.1-3.7	9-Mar-16	3.140	37.88	37.809	70	nd	na	1.260	36.549	5.35	6.23	9.12	151	0.141	0.1	-41.9	Clear

TABLE 2-1
AREA 2 GROUNDWATER MONITORING DATA
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY

Well ID	Sample ID	Screened Interval (mbgs)	Date Monitored	Total Depth of Well (m from TOC)	Ground Elevation (mASL)[1]	Top of Casing Elevation (TOC, mASL)[1]	Headspace Vapour Concentration (ppmv)	Depth to Product (m from TOC)	Apparent Product Thickness (mm)	Depth to Water (DTW, m from TOC)	Groundwater Elevation (mASL)[1]	Dissolved Oxygen (mg/L)	pH	Temperature (°C)	Electrical Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	ORP (mV)	Observations
PW03-2B	ns	1.1-3.7	16-Sep-16	3.110	37.88	37.809	115	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-2B	PW03-2B	1.1-3.7	3-Apr-17	3.120	37.88	37.809	55	nd	na	1.360	36.449	4.6	6.3	8.38	167	0.16	0.12	-29.8	Clear
PW03-2B	ns	1.1-3.7	6-Sep-17	3.130	37.88	37.809	30	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-2B	ns	1.1-3.7	30-Apr-18	3.141	37.88	37.809	95	nd	na	3.083	34.726	nm	nm	nm	nm	nm	nm	nm	Dry; brownish silty bottom
PW03-2B	ns	1.1-3.7	21-Aug-18	3.141	37.88	37.809	35	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-2B	PW03-2B	1.1-3.7	26-Mar-19	3.150	37.88	37.809	95	nd	na	2.880	34.929	7.52	6.45	9.19	350	0.326	0.24	58.8	very silty/cloudy
PW03-2B	ns	1.1-3.7	17-Sep-19	3.152	37.88	37.809	65	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	dry, silt on probe
PW03-2B	ns	1.1-3.7	26-Mar-20	3.125	37.88	37.809	10	nd	na	2.839	34.970	nm	nm	nm	nm	nm	nm	nm	Not enough water to sample
PW03-2B	PW03-2B	1.1-3.7	8-Apr-20	3.124	37.88	37.809	10	nd	na	1.681	36.128	3.38	6.58	8.77	129	0.121	0.09	-0.2	Clear
PW03-2B	ns	1.1-3.7	10-Aug-20	3.137	37.88	37.809	10	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-3	PW03-3	1.2-4.1	22-Apr-04	4.170	39.21	39.162	770	nd	na	2.520	36.642	nm	6.82	11.8	639	nm	nm	nm	---
PW03-3	PW03-3	1.2-4.1	15-Oct-04	4.195	39.21	39.162	200	nd	na	2.270	36.892	nm	7.02	15.4	1181	nm	nm	nm	---
PW03-3	PW03-3	1.2-4.1	15-Apr-05	4.200	39.21	39.162	170	nd	na	1.960	37.202	nm	6.71	11.2	592	nm	nm	nm	---
PW03-3	A2-PW03-3	1.2-4.1	13-Sep-05	4.200	39.21	39.162	nm	nd	na	3.520	35.642	nm	6.9	14.3	1210	nm	nm	nm	Sample collected 13-Sept-05.
PW03-3	PW03-3	1.2-4.1	23-Mar-06	4.200	39.21	39.162	105	nd	na	2.110	37.052	1.55	6.7	11	205	nm	nm	nm	---
PW03-3	PW03-3	1.2-4.1	23-Aug-06	4.200	39.21	39.162	100	nd	na	3.490	35.672	2.07	6.94	14.8	815	nm	nm	nm	---
PW03-3	PW03-3	1.2-4.1	13-Apr-07	4.200	39.21	39.162	150	nd	na	3.360	35.802	0.16	6.29	10.8	405	nm	nm	nm	---
PW03-3	ns	1.2-4.1	6-Sep-07	4.200	39.21	39.162	100	nd	na	4.000	35.162	nm	nm	nm	nm	nm	nm	nm	Not enough water to collect sample
PW03-3	PW03-3	1.2-4.1	1-Apr-08	4.200	39.21	39.162	100	nd	na	2.160	37.002	0.22	6.14	10.3	242	nm	nm	nm	DUP-4
PW03-3	PW03-3	1.2-4.1	3-Sep-08	4.195	39.21	39.162	125	nd	na	3.743	35.419	0.6	6.56	12.9	656	nm	nm	nm	---
PW03-3	PW03-3	1.2-4.1	22-Apr-09	4.198	39.21	39.162	100	nd	na	2.062	37.100	0.8	6.64	10.3	492	nm	nm	nm	Clear
PW03-3	PW03-3	1.2-4.1	27-Aug-09	4.194	39.21	39.162	75	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-3	PW03-3	1.2-4.1	14-Apr-10	4.200	39.21	39.162	nd	nd	na	1.880	37.282	0.44	5.89	9.4	135.8	nm	nm	nm	Clear
PW03-3	ns	1.2-4.1	15-Sep-10	4.188	39.21	39.162	15	nd	na	4.052	35.110	0.16	nm	nm	nm	nm	nm	nm	Not enough water to collect sample
PW03-3	PW03-3	1.2-4.1	19-Apr-11	4.195	39.21	39.162	65	nd	na	1.905	37.257	0.33	5.64	9.9	127	nm	nm	nm	Clear
PW03-3	PW03-3	1.2-4.1	22-Aug-11	4.190	39.21	39.162	95	nd	na	3.150	36.012	4.19	6.42	13.27	3	nm	nm	nm	Clear
PW03-3	PW03-3	1.2-4.1	10-May-12	4.165	39.21	39.162	15	nd	na	3.810	35.352	3.02	6.450	10.78	195	nm	nm	nm	Dry/limited LEPH/HEPH
PW03-3	ns	1.2-4.1	13-Aug-12	4.190	39.21	39.162	5	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; Not sampled
PW03-3	ns	1.2-4.1	3-Apr-13	4.190	39.21	39.162	10	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-3	ns	1.2-4.1	15-Aug-13	4.180	39.21	39.162	20	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-3	PW03-3	1.2-4.1	29-Apr-14	4.160	39.21	39.162	5	nd	na	3.110	36.052	4.37	5.05	9.58	78	0.072	0.05	48.9	Clear
PW03-3	ns	1.2-4.1	12-Aug-14	4.170	39.21	39.162	40	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-3	ns	1.2-4.1	6-May-15	4.175	39.21	39.162	40	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; Silt on the probe
PW03-3	ns	1.2-4.1	24-Aug-15	4.180	39.21	39.162	35	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-3	PW03-3	1.2-4.1	9-Mar-16	4.180	39.21	39.162	55	nd	na	2.800	36.362	3.67	5.67	10.14	65	0.058	0.04	-79.7	Bentonite on probe tip
PW03-3	ns	1.2-4.1	16-Sep-16	4.120	39.21	39.162	75	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-3	PW03-3	1.2-4.1	31-Mar-17	4.170	39.21	39.162	15	nd	na	1.880	37.282	7.3	5.49	9.25	38	0.036	0.02	-32.4	Clear
PW03-3	ns	1.2-4.1	6-Sep-17	4.180	39.21	39.162	45	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-3	PW03-3	1.2-4.1	30-Apr-18	4.197	39.21	39.162	20	nd	na	3.423	35.739	0.52	4.71	9.88	69	0.062	0.04	166	Low turbidity and sediment
PW03-3	ns	1.2-4.1	21-Aug-18	4.151	39.21	39.162	25	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-3	PW03-3	1.2-4.1	26-Mar-19	4.192	39.21	39.162	30	nd	na	3.582	35.580	0.9	5.84	10	219	0.2	0.15	5.8	slightly silty (brown+grey)
PW03-3	PW03-3	1.2-4.1	17-Sep-19	4.155	39.21	39.162	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dr, silt on probe
PW03-3	ns	1.2-4.1	26-Mar-20	4.167	39.21	39.162	25	nd	na	3.641	35.521	nm	nm	nm	nm	nm	nm	nm	Purged dry at 2L, poor recharge, couldn't sample
PW03-3	ns	1.2-4.1	7-Apr-20	4.174	39.21	39.162	40	nd	na	3.008	36.154	nm	nm	nm	nm	nm	nm	nm	2nd sampling attempt of 2020 wet season PMP, could not sample next day, will return to sample
PW03-3	PW03-3	1.2-4.1	9-Apr-20	4.184	39.21	39.162	nd	nd	na	3.164	35.998	0.29	5.82	9.73	48	0.044	0.03	20.2	Silt on probe, sample clear, 3rd sampling attempt of 2020 wet season PMP
PW03-3	ns	1.2-4.1	10-Aug-20	4.168	39.21	39.162	10	nd	na	nd	na	nm	nm	mn	nm	nm	nm	nm	Dry
PW03-4	PW03-4	1.8-4.0	22-Apr-04	3.900	37.17	37.028	485	nd	na	1.940	35.088	nm	7.05	10.8	410	nm	nm	nm	---
PW03-4	PW03-4	1.8-4.0	14-Oct-04	3.919	37.17	37.028	120	nd	na	1.338	35.690	nm	7.22	14.4	496	nm	nm	nm	---
PW03-4	PW03-4	1.8-4.0	14-Apr-05	3.920	37.17	37.028	150	nd	na	1.820	35.208	nm	6.89	10.3	560	nm	nm	nm	---
PW03-4	A2-PW03-4	1.8-4.0	13-Sep-05	3.925	37.17	37.028	nm	nd	na	2.230	34.798	nm	7.08	14.1	703	nm	nm	nm	Sample collected 13-Sept-05.
PW03-4	PW03-4	1.8-4.0	21-Mar-06	3.900	37.17	37.028	20	nd	na	1.295	35.733	3.11	6.85	10.4	474	nm	nm	nm	---
PW03-4	PW03-4	1.8-4.0	23-Aug-06	3.920	37.17	37.028	110	nd	na	2.190	34.838	1.1	7.08	13.5	531	nm	nm	nm	DUP-4
PW03-4	PW03-4	1.8-4.0	13-Apr-07	3.950	37.17	37.028	30	nd	na	1.310	35.718	0.3	6.5	10.5	507	nm	nm	nm	DUP (PW03-4X)
PW03-4	PW03-4	1.8-4.0	6-Sep-07	3.920	37.17	37.028	50	nd	na	2.190	34.838	0.23	7.15	13.6	518	nm	nm	nm	---
PW03-4	PW03-4	1.8-4.0	1-Apr-08	3.920	37.17	37.028	50	nd	na	1.195	35.833	0.91	6.94	9.5	444	nm	nm	nm	---
PW03-4	PW03-4	1.8-4.0	3-Sep-08	3.895	37.17	37.028	10	nd	na	1.872	35.156	1.7	6.94	13.4	329	nm	nm	nm	---
PW03-4	PW03-4	1.8-4.0	22-Apr-09	3.905	37.17	37.028	nd	nd	na	1.365	35.663	11.6	7.15	9.5	357	nm	nm	nm	Sample Cloudy
PW03-4	PW03-4	1.8-4.0	27-Aug-09	3.900	37.17	37.028	nd	nd	na	2.353	34.675	0.3	7.82	13.7	406	nm	nm	nm	Low turbidity, minor sediment
PW03-4	PW03-4	1.8-4.0	14-Apr-10	3.920	37.17	37.028	5	nd	na	1.260	35.768	11	7.25	10.2	390	nm	nm	nm	Clear
PW03-4	PW03-4	1.8-4.0	15-Sep-10	3.885	37.17	37.028	45	nd	na	1.950	35.078	8.57	7.69	14.1	699	nm	nm	nm	Clear
PW03-4	PW03-4	1.8-4.0	19-Apr-11	3.887	37.17	37.028	5	nd	na	0.995	36.033	2.23	6	9.5	210	nm	nm	nm	Slightly silty (1 LEPH only)
PW03-4	PW03-4	1.8-4.0	22-Aug-11	3.880	37.17	37.028	5	nd	na	1.600	35.428	10.21	7.98	15.68	1	nm	nm	nm	Silty (BTEX only) (DUP-7)
PW03-4	PW03-4	1.8-4.0	13-Sep-11	3.880	37.17	37.028	60	nd	na	1.775	35.253	9.59	7.67	13.88	220	nm	nm	nm	Clear (PAH's only) (DUP-7)
PW03-4	ns	1.8-4.0	10-May-12	3.900	37.17	37.028	60	nd	na	2.520	34.508	10.19	8.12	10.17	172	nm	nm	nm	Dropped BTEX vial in well, too silty for ambers
PW03-4	ns	1.8-4.0	13-Aug-12	3.860	37.17	37.028	10	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; Not sampled
PW03-4	ns	1.8-4.0	3-Apr-13	3.900	37.17	37.028	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-4	ns	1.8-4.0	15-Aug-13	3.850	37.17	37.028	10	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-4	PW03-4	1.8-4.0	29-Apr-14	3.890	37.17	37.028	55	nd	na	1.700	35.328	3.93	7.07	8.78	111	0.111	0.08	140.6	Slightly turbid
PW03-4	ns	1.8-4.0	12-Aug-14	3.870	37.17	37.028	50	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-4	ns	1.8-4.0	6-May-15	3.795	37.17	37.028	75	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; Silt on probe
PW03-4	ns	1.8-4.0	24-Aug-15	3.800	37.17	37.028	30	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-4	PW03-4	1.8-4.0	9-Mar-16	3.810	37.17	37.028	30	nd	na	2.590	34.438	6.72	7.29	9.69	182	0.167	0.12	-34.9	Clear
PW03-4	ns	1.8-4.0	16-Sep-16	3.800	37.17	37.028	120	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-4	PW03-4	1.8-4.0	3-Apr-17	3.790	37.17	37.028	10	nd	na	2.660	34.368	8.06	7.11	9.19	190	0.176	0.13	36.2	Clear
PW03-4	ns	1.8-4.0	6-Sep-17	3.840	37.17	37.028	15	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-4	ns	1.8-4.0	30-Apr-18	3.842	37.17	37.028	nd	nd	na	3.710	33.318	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-4	ns	1.8-4.0	21-Aug-18	3.852	37.17	37.028	20	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-4	ns	1.8-4.0	26-Mar-19	3.838	37.17	37.028	nd	nd	na	3.804	33.224	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-4	ns	1.8-4.0	27-Mar-19	3.838	37.17	37.028	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	'Dry; second sampling attempt of 2019 wet season PMP
PW03-4	PW03-4	1.8-4.0	16-Apr-19	3.848	37.17	37.028	nm	nd	na	2.770	34.258	8.48	6.18	9.28	145	0.134	0.1	233.1	Very silty; issues with RKI Eagle, could not monitor for headspace vapour
PW03-4	ns	1.8-4.0	17-Sep-19	3.857	37.17	37.028	nm	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-4	ns	1.8-4.0	26-Mar-20	3.851	37.17	37.028	5	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-4	ns	1.8-4.0	7-Apr-20	3.839	37.17	37.028	5	nd	na	2.810	34.218	nm	nm	nm	nm	nm	nm	nm	2nd sampling attempt of 2020 wet season PMP, could not sample next day, will return to sample
PW03-4	PW03-4	1.8-4.0	9-Apr-20	3.852	37.17	37.028	35	nd	na	2.977	34.051	8.73	7.26	9.27	177	0.165	0.12	161.2	3rd sampling attempt of 2020 wet season PMP, sample clear
PW03-4	ns	1.8-4.0	10-Aug-20	3.885	37.17	37.028	5	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-5	PW03-5	7.6-8.5	22-Apr-04	8.480	37.79	37.647	370	nd	na	2.050	35.597	nm	6.46	12.9	809	nm	nm	nm	---
PW03-5	PW03-5	7.6-8.5	14-Oct-04	8.509	37.79	37.647	170	nd	na	1.855	35.792	nm	6.68	14.7	962	nm	nm	nm	---
PW03-5	PW03-5	7.6-8.5	15-Apr-05	8.510	37.79	37.647	175	nd	na	1.590	36.057	nm	6.58	12.6	1113	nm	nm	nm	---
PW03-5	A2-PW03-5	7.6-8.5	13-Sep-05	8.520	37.79	37.647	nm	nd	na	2.580	35.067	nm	6.82	14	1090	nm	nm	nm	Sample collected 13-Sept-05.
PW03-5	PW03-5	7.6-8.5	21-Mar-06	8.500	37.79	37.647	100	nd	na	2.000	35.647	1.7	6.61	12.2	271	nm	nm	nm	---
PW03-5	PW03-5	7.6-8.5	23-Aug-06	8.500	37.79	37.647	5	nd	na	2.540	35.107	1.83	6.76	14.1	798	nm	nm	nm	---
PW03-5	PW03-5	7.6-8.5	13-Apr-07	8.500	37.79	37.647	110	nd	na	1.980	35.667	0.16	6.63	13.2	1402	nm	nm	nm	---
PW03-5	PW03-5	7.6-8.5	6-Sep-07	8.500	37.79	37.647	170	nd	na	2.790	34.857	0.27	6.63	13.5	1496	nm	nm	nm	---
PW03-5	PW03-5	7.6-8.5	1-Apr-08	8.500	37.79	37.647	60	nd	na	1.960	35.687	0.27	6.2	11.7	158.2	nm	nm	nm	---
PW03-5	PW03-5	7.6-8.5	3-Sep-08	8.489	37.79	37.647	25	nd	na	2.605	35.042	0.9	6.53	13.1	1207	nm	nm	nm	---
PW03-5	PW03-5	7.6-8.5	22-Apr-09	8.500	37.79	37.647	25	nd	na	1.965	35.682	0.5	6.48	12.4	1614	nm	nm	nm	Sample cloudy
PW03-5	PW03-5	7.6-8.5	27-Aug-09	8.490	37.79	37.647	nd	nd	na	2.880	34.767	0.2	6.42	13.8	1872	nm	nm	nm	Clear
PW03-5	PW03-5	7.6-8.5	14-Apr-10	8.500	37.79	37.647	nd	nd	na	2.430	35.217	0.08	6.41	12.3	1904	nm	nm	nm	Clear
PW03-5	PW03-5	7.6-8.5	15-Sep-10	8.485	37.79	37.647	10	nd	na	2.842	34.805	0.21	6.32	14.9	1972	nm	nm	nm	Clear; DUP-16
PW03-5	PW03-5	7.6-8.5	19-Apr-11	8.494	37.79	37.647	nd	nd	na	1.959	35.688	0.29	6.38	11.5	1522	nm	nm	nm	Clear; Note: Did not shut down Air Sparge System while sampling PW wells. Next time, shut down to reduce silty samples.
PW03-5	PW03-5	7.6-8.5	22-Aug-11	8.480	37.79	37.647	5	nd	na	3.110	34.537	10.47	7.31	14.02	1000	nm	nm	nm	Clear
PW03-5	PW03-5	7.6-8.5	10-May-12	8.480	37.79	37.647	nd	nd	na	6.560	31.087	0.5	6.67	11.97	734	nm	nm	nm	Clear
PW03-5	ns	7.6-8.5	13-Aug-12	8.475	37.79	37.647	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; Not sampled
PW03-5	PW03-5	7.6-8.5	4-Apr-13	8.460	37.79	37.647	5	nd	na	7.230	30.417	1.43	6.42	12.12	1112	nm	nm	nm	Clear
PW03-5	ns	7.6-8.5	19-Aug-13	8.470	37.79	37.647	80	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-5	PW03-5	7.6-8.5	29-Apr-14	6.450	37.79	37.647	55	nd	na	2.870	34.777	1.54	5.95	10.27	190	0.172	0.13	114.2	Slightly turbid
PW03-5	ns	7.6-8.5	12-Aug-14	8.450	37.79	37.647	5	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-5	PW03-5	7.6-8.5	6-May-15	8.470	37.79	37.647	25	nd	na	7.420	30.227	2.48	6.18	11.69	501	0.437	0.33	224.7	---
PW03-5	ns	7.6-8.5	24-Aug-15	8.460	37.79	37.647	nm	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-5	PW03-5	7.6-8.5	9-Mar-16	8.460	37.79	37.647	15	nd	na	4.500	33.147	0.58	6.01	11.6	143	0.125	0.09	184.1	Biofoul on the probe; DUP-3
PW03-5	ns	7.6-8.5	16-Sep-16	8.470	37.79	37.647	200	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-5	PW03-5	7.6-8.5	3-Apr-17	8.450	37.79	37.647	10	nd	na	4.100	33.547	0.77	5.93	10.22	100	0.091	0.07	-36	Clear
PW03-5	ns	7.6-8.5	6-Sep-17	8.430	37.79	37.647	10	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-5	PW03-5	7.6-8.5	30-Apr-18	8.472	37.79	37.647	15	nd	na	5.831	31.816	1.49	6.09	10.83	158	0.14	0.1	124.5	Silty; DUP-11
PW03-5	ns	7.6-8.5	21-Aug-18	8.482	37.79	37.647	35	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-5	PW03-5	7.6-8.5	26-Mar-19	8.461	37.79	37.647	nd	nd	na	6.834	30.813	0.82	6.34	11.21	262	0.232	0.17	40.2	slightly silty (light brown); DUP-05
PW03-5	ns	7.6-8.5	17-Sep-19	8.468	37.79	37.647	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry, silt on probe
PW03-5	PW03-5	7.6-8.5	26-Mar-20	8.463	37.79	37.647	5	nd	na	6.758	30.889	0.56	6.4	11	205	0.185	0.14	64.7	clear
PW03-5	ns	7.6-8.5	10-Aug-20	8.474	37.79	37.647	35	nd	na	8.372	29.275	nm	nm	nm	nm	mn	nm	nm	Silt on probe, insufficient water to sample
PW03-6	PW03-06	1.1-3.0	22-Apr-04	2.890	38.31	38.141	475	nd	na	2.080	36.061	nm	6.34	10.3	119	nm	nm	nm	---
PW03-6	PW03-06	1.1-3.0	15-Oct-04	2.918	38.31	38.141	190	nd	na	1.045	37.096	nm	7.32	14.9	248	nm	nm	nm	---
PW03-6	PW03-06	1.1-3.0	15-Apr-05	2.910	38.31	38.141	130	nd	na	1.130	37.011	nm	6.57	9.9	166	nm	nm	nm	---
PW03-6	ns	1.1-3.0	13-Sep-05	2.920	38.31	38.141	nm	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-6	PW03-06	1.1-3.0	21-Mar-06	2.920	38.31	38.141	75	nd	na	1.520	36.621	8.68	6.61	9.3	97	nm	nm	nm	---
PW03-6	ns	1.1-3.0	23-Aug-06	2.910	38.31	38.141	170	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-6	PW03-06	1.1-3.0	13-Apr-07	2.900	38.31	38.141	60	nd	na	1.900	36.241	4.56	6.51	9.8	150.2	nm	nm	nm	---
PW03-6	ns	1.1-3.0	6-Sep-07	2.900	38.31	38.141	80	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-6	PW03-06	1.1-3.0	1-Apr-08	2.900	38.31	38.141	10	nd	na	1.500	36.641	9.23	6.87	9	85.3	nm	nm	nm	---
PW03-6	ns	1.1-3.0	3-Sep-08	2.903	38.31	38.141	nd	nd	na	nd	na	12.3	nm	nm	nm	nm	nm	nm	No sample
PW03-6	PW03-06	1.1-3.0	22-Apr-09	2.799	38.31	38.141	25	nd	na	1.327	36.814	12.2	6.9	8.9	161	nm	nm	nm	Smokey colour; Reduced flow to clear up sample.
PW03-6	ns	1.1-3.0	25-Aug-09	2.788	38.31	38.141	25	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-6	PW03-06	1.1-3.0	14-Apr-10	2.810	38.31	38.141	nd	nd	na	1.300	36.841	9.55	7.24	9.8	73.5	nm	nm	nm	Clear
PW03-6	ns	1.1-3.0	15-Sep-10	2.785	38.31	38.141	10	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-6	PW03-06	1.1-3.0	19-Apr-11	2.784	38.31	38.141	30	nd	na	1.271	36.870	4.57	6.61	9.5	84	nm	nm	nm	Clear
PW03-6	ns	1.1-3.0	22-Aug-11	2.780	38.31	38.141	nd	nd	na	2.625	35.516	7.01	6.57	12.24	94	nm	nm	nm	Dry - No sample
PW03-6	PW03-06	1.1-3.15	10-May-12	2.785	38.31	38.141	5	nd	na	2.160	35.981	7.33	7.02	9.76	73	nm	nm	nm	1 silty BTEX vial; Dry at 1.5 L on May.10
PW03-6	ns	1.1-3.15	13-Aug-12	2.810	38.31	38.141	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; Not sampled
PW03-6	ns	1.1-3.15	3-Apr-13	2.780	38.31	38.141	nd	nd	na	2.760	35.381	nm	nm	nm	nm	nm	nm	nm	Too shallow to sample
PW03-6	ns	1.1-3.15	15-Aug-13	2.830	38.31	38.141	nm	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-6	PW03-6	1.1-3.15	23-Apr-14	2.830	38.31	38.141	100	nd	na	1.810	36.331	0.43	5.46	8.69	95	0.083	0.06	201.4	Clear
PW03-6	ns	1.1-3.15	12-Aug-14	2.830	38.31	38.141	70	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-6	ns	1.1-3.15	6-May-15	2.840	38.31	38.141	70	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; Silt on the probe
PW03-6	ns	1.1-3.15	24-Aug-15	2.820	38.31	38.141	10	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-6	PW03-6	1.1-3.15	9-Mar-16	2.840	38.31	38.141	20	nd	na	1.860	36.281	5.55	5.9	9.63	100	0.092	0.07	259.2	Clear
PW03-6	ns	1.1-3.15	16-Sep-16	2.820	38.31	38.141	80	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-6	PW03-6	1.1-3.15	31-Mar-17	2.880	38.31	38.141	5	nd	na	1.190	36.951	9.24	5.59	7.85	45	0.044	0.03	-27.5	Clear; DUP-5
PW03-6	ns	1.1-3.15	6-Sep-17	2.830	38.31	38.141	15	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-6	ns	1.1-3.15	30-Apr-18	2.843	38.31	38.141	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry, brownish silty bottom
PW03-6	ns	1.1-3.15	21-Aug-18	2.854	38.31	38.141	5	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-6	ns	1.1-3.15	26-Mar-19	2.831	38.31	38.141	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-6	ns	1.1-3.15	27-Mar-19	2.847	38.31	38.141	5	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; second sampling attempt of 2019 wet season PMP
PW03-6	PW03-6	1.1-3.15	16-Apr-19	2.832	38.31	38.141	nm	nd	na	2.493	35.648	8.11	5.01	9.3	52	0.048	0.03	195.5	Silty; sampled on recharge
PW03-6	ns	1.1-3.15	17-Sep-19	2.845	38.31	38.141	nm	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
PW03-6	ns	1.1-3.15	26-Mar-20	2.841	38.31	38.141	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry, silt on probe
PW03-6	ns	1.1-3.15	7-Apr-20	2.841	38.31	38.141	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry, 2nd sampling attempt of 2020 wet season PMP
PW03-6	ns	1.1-3.15	10-Aug-20	2.843	38.31	38.141	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
U8	U8	3.22-6.22	12-Jul-05	6.220	38.49	39.205	400	nd	na	3.920	35.285	nm	6.55	12.4	607	nm	nm	nm	Cloudy, silty
U8	A2-U8	3.22-6.22	13-Sep-05	6.220	38.49	39.205	nm	nd	na	4.580	34.625	nm	6.6	12.8	506	nm	nm	nm	Sample collected 13-Sept-05.
U8	U8	3.22-6.22	22-Mar-06	6.220	38.49	39.205	660	nd	na	3.260	35.945	1.75	6.46	10.6	125.5	nm	nm	nm	---
U8	U8	3.22-6.22	21-Aug-06	6.220	38.49	39.205	330	nd	na	4.615	34.590	1.28	7.66	13.2	566	nm	nm	nm	---
U8	U8	3.22-6.22	13-Apr-07	6.220	38.49	39.205	125	nd	na	3.470	35.735	0.42	nm	9.8	221	nm	nm	nm	DUP (U8X)
U8	U8	3.22-6.22	6-Sep-07	6.180	38.49	39.205	80	nd	na	4.930	34.275	0.27	6.56	13.5	1496	nm	nm	nm	---
U8	U8	3.22-6.22	2-Apr-08	6.220	38.49	39.205	110	nd	na	3.220	35.985	0.22	6.32	11	201	nm	nm	nm	---
U8	U8	3.22-6.22	4-Sep-08	6.241	38.49	39.205	100	nd	na	4.612	34.593	0.5	6.37	11.9	427	nm	nm	nm	Clear
U8	U8	3.22-6.22	22-Apr-09	6.219	38.49	39.205	nd	nd	na	3.197	36.008	0.6	6.45	11.4	270	nm	nm	nm	Clear
U8	U8	3.22-6.22	31-Aug-09	6.220	38.49	39.205	75	nd	na	4.955	34.250	0.3	6.72	16.4	600	nm	nm	nm	Clear
U8	U8	3.22-6.22	2-Feb-10	6.230	38.49	39.205	nm	nd	na	3.410	35.795	nm	6.23	10.2	185.9	nm	nm	nm	Trace sediment (minimal turbidity)
U8	U8	3.22-6.22	21-Apr-10	6.225	38.49	39.205	nd	nd	na	3.435	35.770	1.24	6.08	10..3	100.7	nm	nm	nm	Clear
U8	U8	3.22-6.22	14-Sep-10	6.205	38.49	39.205	10	nd	na	4.738	34.467	0.2	6.43	13.2	314	nm	nm	nm	Clear
U8	U8	3.22-6.22	5-Apr-11	6.220	38.49	39.205	10	nd	na	2.036	37.169	4.45	6.45	10.3	114	nm	nm	nm	Clear
U8		3.22-6.22	13-Jul-11	nm	38.49	39.205	nm	nd	na	4.140	35.065	nm	nm	nm	nm	nm	nm	nm	BC: No sheen
U8	U8	3.22-6.22	1-Sep-11	6.250	38.49	39.205	65	nd	na	4.650	34.555	0.93	6.13	11.5	241	nm	nm	nm	Clear (DUP-18)
U8	U8	3.22-6.22	9-May-12	6.245	38.49	39.205	35	nd	na	4.890	34.315	0.82	5.64	10.12	96	nm	nm	nm	Turbid
U8	ns	3.22-6.22	13-Aug-12	6.220	38.49	39.205	10	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; Not sampled
U8	U8	3.22-6.22	25-Mar-13	6.220	38.49	39.205	55	nd	na	4.030	35.175	3.7	4.77	10.18	44	nm	nm	nm	Clear
U8	U8	3.22-6.22	15-Aug-13	6.230	38.49	39.205	nm	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
U8	U8	3.22-6.22	29-Apr-14	6.210	38.49	39.205	45	nd	na	4.080	35.125	1.76	5.38	11	78	0.048	0.03	111.1	Clear
U8	ns	3.22-6.22	12-Aug-14	6.230	38.49	39.205	50	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
U8	ns	3.22-6.22	6-May-15	6.215	38.49	39.205	60	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; Silt on the probe
U8	ns	3.22-6.22	24-Aug-15	6.220	38.49	39.205	20	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
U8	U8	3.22-6.22	22-Mar-16	6.220	38.49	39.205	nd	nd	na	4.320	34.885	0.3	5.44	10.96	51	0.046	0.03	82.9	Clear
U8	ns	3.22-6.22	16-Sep-16	6.220	38.49	39.205	100	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
U8	U8	3.22-6.22	11-Apr-17	6.220	38.49	39.205	55	nd	na	3.730	35.475	2.41	7.41	9.82	38	0.034	0.02	-62.4	Clear
U8	ns	3.22-6.22	6-Sep-17	6.230	38.49	39.205	25	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
U8	U8	3.22-6.22	30-Apr-18	6.230	38.49	39.205	20	nd	na	5.223	33.982	0.65	5.52	10.23	61	0.055	0.04	90.6	Clear; sampled on the following day

TABLE 2-1
AREA 2 GROUNDWATER MONITORING DATA
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY

Well ID	Sample ID	Screened Interval (mbgs)	Date Monitored	Total Depth of Well (m from TOC)	Ground Elevation (mASL)[1]	Top of Casing Elevation (TOC, mASL)[1]	Headspace Vapour Concentration (ppmv)	Depth to Product (m from TOC)	Apparent Product Thickness (mm)	Depth to Water (DTW, m from TOC)	Groundwater Elevation (mASL)[1]	Dissolved Oxygen (mg/L)	pH	Temperature (°C)	Electrical Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	ORP (mV)	Observations
U8	ns	3.22-6.22	21-Aug-18	6.238	38.49	39.205	10	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
U8	U8	3.22-6.22	21-Mar-19	6.230	38.49	39.205	25	nd	na	5.232	33.973	2.29	3.97	11.73	46	0.04	0.03	-29	clear
U8	ns	3.22-6.22	10-Sep-19	15.224	38.49	39.205	15	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	dry
U8	U8	3.22-6.22	25-Mar-20	6.218	38.49	39.205	nd	nd	na	5.406	33.799	3.64	4.79	10.75	116	0.103	0.08	19.7	Clear
U8	ns	3.22-6.22	11-Aug-20	6.209	38.49	39.205	15	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
U9	U9	3.3-6.3	12-Jul-05	6.300	38.59	39.424	550	nd	na	4.230	35.194	nm	6.41	12	651	nm	nm	nm	Low turbidity and sediment
U9	A2-U9	3.3-6.3	13-Sep-05	6.300	38.59	39.424	nm	nd	na	4.560	34.864	nm	6.61	12.3	691	nm	nm	nm	Sample collected 13-Sept-05.
U9	U9	3.3-6.3	22-Mar-06	6.300	38.59	39.424	1760	nd	na	3.700	35.724	1.16	6.44	10.6	168	nm	nm	nm	---
U9	U9	3.3-6.3	21-Aug-06	6.300	38.59	39.424	660	nd	na	4.550	34.874	1.7	7.47	13.5	540	nm	nm	nm	---
U9	U9	3.3-6.3	13-Apr-07	6.300	38.59	39.424	85	nd	na	3.920	35.504	0.62	nm	9.6	277	nm	nm	nm	---
U9	U9	3.3-6.3	6-Sep-07	6.320	38.59	39.424	60	nd	na	5.780	33.644	0.18	6.64	12.9	686	nm	nm	nm	---
U9	U9	3.3-6.3	2-Apr-08	6.300	38.59	39.424	60	nd	na	3.660	35.764	0.23	6.1	12	246	nm	nm	nm	---
U9	U9	3.3-6.3	4-Sep-08	6.312	38.59	39.424	50	nd	na	4.498	34.926	0.4	6.27	12.2	217	nm	nm	nm	---
U9	U9	3.3-6.3	22-Apr-09	6.308	38.59	39.424	10	nd	na	3.662	35.762	0.7	6.28	10.5	230	nm	nm	nm	Clear
U9	U9	3.3-6.3	31-Aug-09	6.310	38.59	39.424	100	nd	na	4.965	34.459	0.4	6.38	12.3	683	nm	nm	nm	Clear
U9	U9	3.3-6.3	21-Apr-10	6.250	38.59	39.424	nd	nd	na	3.750	35.674	0.37	5.86	9.8	154.3	nm	nm	nm	Clear
U9	U9	3.3-6.3	14-Sep-10	6.270	38.59	39.424	nd	nd	na	4.880	34.544	0.24	5.85	13	483	nm	nm	nm	Clear; : DUP-13
U9	U9	3.3-6.3	31-Mar-11	6.270	38.59	39.424	nd	nd	na	2.293	37.131	1.03	5.64	10.2	101.3	nm	nm	nm	pm - Clear; DUP-8
U9	U9	3.3-6.3	1-Sep-11	6.290	38.59	39.424	nd	nd	na	4.930	34.494	0.8	6.06	11.11	246	nm	nm	nm	am - Clear
U9	U9	3.3-6.3	9-May-12	6.270	38.59	39.424	40	nd	na	4.810	34.614	0.9	5.62	10.22	63	nm	nm	nm	Slightly turbid
U9	U9	3.3-6.3	13-Aug-12	6.280	38.59	39.424	5	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; Not sampled
U9	U9	3.3-6.3	25-Mar-13	6.270	38.59	39.424	60	nd	na	4.265	35.159	0.79	4.75	9.9	46	nm	nm	nm	Clear
U9	U9	3.3-6.3	15-Aug-13	6.300	38.59	39.424	10	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
U9	U9	3.3-6.3	29-Apr-14	6.290	38.59	39.424	45	nd	na	4.120	35.304	1.1	5.46	9.36	53	0.05	0.04	147.3	Clear
U9	ns	3.3-6.3	12-Aug-14	6.290	38.59	39.424	10	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
U9	ns	3.3-6.3	6-May-15	6.290	38.59	39.424	55	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; Silt on the probe
U9	ns	3.3-6.3	24-Aug-15	6.280	38.59	39.424	10	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
U9	U9	3.3-6.3	22-Mar-16	6.280	38.59	39.424	nd	nd	na	4.680	34.744	1.1	5.23	10.42	41	0.037	0.03	128.3	Clear
U9	ns	3.3-6.3	16-Sep-16	6.290	38.59	39.424	110	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
U9	U9	3.3-6.3	11-Apr-17	6.280	38.59	39.424	35	nd	na	3.690	35.734	1.68	4.55	9.67	33	0.05	0.02	103.5	Clear
U9	ns	3.3-6.3	6-Sep-17	6.295	38.59	39.424	5	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
U9	U9	3.3-6.3	30-Apr-18	6.294	38.59	39.424	nd	nd	na	5.894	33.530	2.81	4.84	9.79	43	0.039	0.03	192.8	purged dry; sampled on recharge; cloudy orange
U9	ns	3.3-6.3	21-Aug-18	6.293	38.59	39.424	10	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
U9	U9	3.3-6.3	21-Mar-19	6.280	38.59	39.424	15	nd	na	6.080	33.344	1.43	5.4	11.99	42	0.036	0.03	137.6	silty; orange tinged
U9	U9	3.3-6.3	10-Sep-19	6.212	38.59	39.424	5	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
U9	ns	3.3-6.3	25-Mar-20	6.291	38.59	39.424	nd	nd	na	6.183	33.241	nm	nm	nm	nm	nm	nm	nm	Minor biofoul, orange; not enough water to sample
U9	U9	3.3-6.3	7-Apr-20	6.300	38.59	39.424	nd	nd	na	4.993	34.431	1.69	4.75	9.65	65	0.06	0.04	30.5	Silt on probe, sample clear, Dup-9
U9	ns	3.3-6.3	11-Aug-20	6.294	38.59	39.424	5	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry, silt on probe
MW02-02	MW02-02	1.2-4.3	7-May-04	5.200	41.24	42.258	150	nd	na	3.510	38.748	nm	7.84	10.9	206	nm	nm	nm	---
MW02-02	MW02-02	1.2-4.3	14-Oct-04	5.213	41.24	42.258	175	nd	na	3.329	38.929	nm	7.39	13.3	962	nm	nm	nm	---
MW02-02	MW02-02	1.2-4.3	21-Apr-05	5.200	41.24	42.258	nm	nd	na	3.266	38.992	nm	6.35	12.9	192	nm	nm	nm	---
MW02-02	A2-MW02-02	1.2-4.3	20-Sep-05	5.200	41.24	42.258	nm	nd	na	3.470	38.788	nm	7.98	13	1196	nm	nm	nm	Sample collected 20-Sept-05.
MW02-02	A2-MW02-02	1.2-4.3	27-Mar-06	5.220	41.24	42.258	10	nd	na	3.260	38.998	nm	7.65	10.3	493	nm	nm	nm	---
MW02-02	A2-MW02-02	1.2-4.3	28-Aug-06	5.200	41.24	42.258	nm	nd	na	3.490	38.768	0.75	7.46	12.09	930	nm	nm	nm	---
MW02-02	MW02-02	1.2-4.3	16-Apr-07	5.200	41.24	42.258	10	nd	na	3.350	38.908	0.2	nm	12.7	415	nm	nm	nm	---
MW02-02	A2-MW02-02	1.2-4.3	4-Sep-07	5.200	41.24	42.258	20	nd	na	3.440	38.818	0.11	7.6	13.7	7.52	nm	nm	nm	---
MW02-02	A2-MW02-02	1.2-4.3	8-Apr-08	5.117	41.24	42.258	35	nd	na	3.285	38.973	0.31	6.95	8.7	401	nm	nm	nm	---
MW02-02	A2-MW02-02	1.2-4.3	8-Sep-08	5.223	41.24	42.258	25	nd	na	3.985	38.273	0.2	7.43	12.1	996	nm	nm	nm	Missing J-plug
MW02-02	A2-MW02-02	1.2-4.3	30-Apr-09	5.218	41.24	42.258	15	nd	na	3.348	38.910	0.6	7.69	11.2	200	nm	nm	nm	---
MW02-02	A2-MW02-02	1.2-4.3	8-Sep-09	5.213	41.24	42.258	nd	nd	na	2.395	39.863	0.3	7.43	13.7	162	nm	nm	nm	Clear
MW02-02	A2-MW02-02	1.2-4.3	11-May-10	5.210	41.24	42.258	100	nd	na	3.370	38.888	0.18	7.55	11.2	756	nm	nm	nm	Clear with trace organic particles - slow recharge
MW02-02	MW02-02	1.2-4.3	13-Sep-10	5.205	41.24	42.258	nd	nd	na	3.235	39.023	0.17	7.82	12.9	848	nm	nm	nm	Purged dry at 3.5L, brown, low turbidity
MW02-02	A2-MW02-02	1.2-4.3	11-Apr-11	5.210	41.24	42.258	40	nd	na	3.233	39.025	0.24	7.53	10.2	790	nm	nm	nm	Clear and yellowish; Purged dry at 3 L at 12:00
MW02-02	MW02-02	1.2-4.3	1-Sep-11	5.215	41.24	42.258	10	nd	na	4.420	37.838	3.62	6.96	12.46	516	nm	nm	nm	Silty; Collected BTEX and 1 PAH only
MW02-02	MW02-02	1.2-4.3	23-May-12	5.220	41.24	42.258	10	nd	na	4.500	37.758	0.86	7.33	9.93	767	nm	nm	nm	Clear
MW02-02	ns	1.2-4.3	13-Aug-12	5.210	41.24	42.258	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; Not sampled
MW02-02	MW02-02	1.2-4.3	26-Mar-13	5.205	41.24	42.258	5	nd	na	4.190	38.068	0.76	6.62	10.5	962	nm	nm	nm	Clear
MW02-02	MW02-02	1.2-4.3	8-Aug-13	5.210	41.24	42.258	nm	nd	na	5.010	37.248	nm	nm	nm	nm	nm	nm	nm	Purged dry on Aug.12, tried Aug.13, no recovery
MW02-02	MW02-02	1.2-4.3	1-May-14	5.200	41.24	42.258	25	nd	na	4.450	37.808	2.42	6.52	11.1	907	0.796	0.62	50.9	Clear
MW02-02	ns	1.2-4.3	7-Aug-14	5.210	41.24	42.258	60	nd	na	5.190	37.068	nm	nm	nm	nm	nm	nm	nm	Dry
MW02-02	MW02-02	1.2-4.3	11-May-15	5.200	41.24	42.258	25	nd	na	4.870	37.388	7.8	6.82	12.07	881	0.76	0.59	-60.2	Clear
MW02-02	ns	1.2-4.3	22-Sep-15	5.220	41.24	42.258	15	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
MW02-02	MW02-02	1.2-4.3	31-Mar-16	5.220	41.24	42.258	5	nd	na	4.470	37.788	0.9	7.05	12.34	671	0.575	0.44	-1.9	Clear
MW02-02	ns	1.2-4.3	9-Sep-16	5.220	41.24	42.258	95	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
MW02-02	MW02-02	1.2-4.3	5-Apr-17	5.220	41.24	42.258	45	nd	na	4.400	37.858	nm	6.12	10.15	149	0.152	0.11	179.9	Clear
MW02-02	ns	1.2-4.3	6-Sep-17	5.100	41.24	42.258	25	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
MW02-02	ns	1.2-4.3	26-Apr-18	4.680	41.24	42.258	45	nd	na	4.600	37.658	nm	nm	nm	nm	nm	nm	nm	Dry
MW02-02	ns	1.2-4.3	21-Aug-18	5.221	41.24	42.258	5	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
MW02-02	MW02-02	1.2-4.3	19-Mar-19	5.221	41.24	42.258	5	nd	na	4.640	37.618	5.95	5.94	10.78	357	0.318	0.24	-26.3	clear; well cap was missing, replaced
MW02-02	ns	1.2-4.3	10-Sep-19	5.222	41.24	42.258	nm	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry, silt on probe
MW02-02	MW02-02	1.2-4.3	6-Apr-20	5.222	41.24	42.258	nd	nd	na	4.324	37.934	4.69	5.91	10.9	855	0.761	0.59	57.4	Clear
MW02-02	ns	1.2-4.3	12-Aug-20	5.214	41.24	42.258	10	nd	na	nd	na	nm	nm	nm	mn	mn	nm	nm	Dry, silt on probe
MW02-03	MW02-03	1.5-4.6	29-Apr-04	6.000	41.43	41.387	175	nd	na	3.510	37.877	nm	6.55	11.2	62.8	nm	nm	nm	---
MW02-03	MW02-03	1.5-4.6	13-Oct-04	5.984	41.43	41.387	175	nd	na	3.480	37.907	nm	6.51	13.6	353	nm	nm	nm	Purged dry
MW02-03	MW02-03	1.5-4.6	21-Apr-05	6.000	41.43	41.387	nm	nd	na	3.336	38.051	nm	6.51	11.7	274	nm	nm	nm	Purged dry
MW02-03	A2-MW02-03	1.5-4.6	19-Sep-05	6.060	41.43	41.387	nm	nd	na	3.340	38.047	nm	6.67	13.4	319	nm	nm	nm	Purged dry; Sample collected 20-Sept-05.
MW02-03	MW02-03	1.5-4.6	27-Mar-06	6.030	41.43	41.387	100	nd	na	2.790	38.597	nm	6.56	11	169.7	nm	nm	nm	---
MW02-03	MW02-03	1.5-4.6	28-Aug-06	6.040	41.43	41.387	nm	nd	na	3.120	38.267	0.11	6.65	16.2	88.1	nm	nm	nm	---
MW02-03	MW02-03	1.5-4.6	16-Apr-07	6.050	41.43	41.387	10	nd	na	2.910	38.477	0.18	nm	10	223	nm	nm	nm	---
MW02-03	MW02-03	1.5-4.6	4-Sep-07	6.050	41.43	41.387	90	nd	na	3.010	38.377	0.15	6.5	12.9	204	nm	nm	nm	---
MW02-03	MW02-03	1.5-4.6	8-Apr-08	6.018	41.43	41.387	50	nd	na	2.730	38.657	0.22	6.36	8.9	251	nm	nm	nm	---
MW02-03	MW02-03	1.5-4.6	8-Sep-08	6.043	41.43	41.387	60	nd	na	2.955	38.432	0.4	7.03	12.3	230	nm	nm	nm	---
MW02-03	MW02-03	1.5-4.6	30-Apr-09	6.025	41.43	41.387	20	nd	na	2.917	38.470	0.6	6.55	10.4	60	nm	nm	nm	Clear
MW02-03	MW02-03	1.5-4.6	8-Sep-09	6.030	41.43	41.387	nd	nd	na	2.990	38.397	0.4	6.81	12.7	512	nm	nm	nm	Clear
MW02-03	MW02-03	1.5-4.6	11-May-10	6.040	41.43	41.387	140	nd	na	2.950	38.437	0.12	6.45	11.5	210	nm	nm	nm	Clear - collected Duplicate MW02-03X
MW02-03	MW02-03	1.5-4.6	13-Sep-10	6.040	41.43	41.387	nd	nd	na	2.660	38.727	0.14	6.45	13	222	nm	nm	nm	Clear
MW02-03	MW02-03	1.5-4.6	7-Apr-11	6.045	41.43	41.387	70	nd	na	2.605	38.782	0.33	6.35	12.1	227	nm	nm	nm	Clear
MW02-03	MW02-03	1.5-4.6	1-Sep-11	6.025	41.43	41.387	30	nd	na	4.880	36.507	3.73	6.33	12.86	210	nm	nm	nm	Silty; BTEX and 1 amber only collected; DUP-19
MW02-03	MW02-03	1.5-4.6	23-May-12	6.040	41.43	41.387	nm	nd	na	4.800	36.587	0.5	6.53	12.71	373	nm	nm	nm	Clear
MW02-03	ns	1.5-4.6	13-Aug-12	6.020	41.43	41.387	170	nd	na	6.020	35.367	nm	nm	nm	nm	nm	nm	nm	Dry; Not sampled
MW02-03	MW02-03	1.5-4.6	26-Mar-13	6.030	41.43	41.387	35	nd	na	4.085	37.302	0.19	5.54	11.27	701	nm	nm	nm	Clear
MW02-03	MW02-03	1.5-4.6	8-Aug-13	6.050	41.43	41.387	25	nd	na	4.970	36.417	0.54	5.77	13.92	509	nm	nm	nm	DUP-5
MW02-03	MW02-03	1.5-4.6	1-May-14	6.040	41.43	41.387	20	nd	na	3.780	37.607	0.36	5.91	10.88	317	0.282	0.21	18.9	Clear; DUP-13
MW02-03	MW02-03	1.5-4.6	7-Aug-14	6.040	41.43	41.387	110	nd	na	4.370	37.017	0.72	5.83	12.79	157	0.133	0.10	-4.2	Clear; DUP-4
MW02-03	MW02-03	1.5-4.6	11-May-15	6.040	41.43	41.387	220	nd	na	5.075	36.312	0.59	5.39	11.89	146	0.127	0.09	82.7	Clear; DUP-13
MW02-03	ns	1.5-4.6	22-Sep-15	6.055	41.43	41.387	250	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; Sediment on probe
MW02-03	MW02-03	1.5-4.6	31-Mar-16	6.040	41.43	41.387	75	nd	na	4.430	36.957	0.59	5.74	12.52	315	0.268	0.2	126.1	Clear
MW02-03	ns	1.5-4.6	9-Sep-16	6.030	41.43	41.387	80	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
MW02-03	MW02-03	1.5-4.6	5-Apr-17	6.030	41.43	41.387	85	nd	na	4.150	37.237	0.32	5.37	10.1	217.4	0.196	0.15	124.2	Clear
MW02-03	ns	1.5-4.6	6-Sep-17	5.980	41.43	41.387	15	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
MW02-03	MW02-03	1.5-4.6	26-Apr-18	6.050	41.43	41.387	10	nd	na	4.704	36.683	0.46	4.82	11.98	379	0.328	0.25	199.6	Clear
MW02-03	ns	1.5-4.6	21-Aug-18	6.051	41.43	41.387	30	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
MW02-03	MW02-03	1.5-4.6	19-Mar-19	6.053	41.43	41.387	100	nd	na	4.903	36.484	0.93	4.76	11.28	261	0.231	0.17	-22.4	clear; slightly orange tinged
MW02-03	ns	1.5-4.6	10-Sep-19	6.055	41.43	41.387	5	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry, silt on probe
MW02-03	MW02-03	1.5-4.6	6-Apr-20	6.056	41.43	41.387	nd	nd	na	4.525	36.862	2.21	4.68	10.9	1001	0.89	0.69	78.2	Clear Dup-7
MW02-03	ns	1.5-4.6	12-Aug-20	6.041	41.43	41.387	60	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry, silt on probe
MW02-04	MW02-04	1.5-4.6	29-Apr-04	5.960	41.71	41.685	100	nd	na	3.190	38.495	nm	6.66	11.7	211	nm	nm	nm	---
MW02-04	MW02-04	1.5-4.6	13-Oct-04	6.955	41.71	41.685	175	nd	na	3.162	38.523	nm	6.96	13.6	777	nm	nm	nm	Purged dry
MW02-04	MW02-04	1.5-4.6	21-Apr-05	6.650	41.71	41.685	nm	nd	na	2.939	38.746	nm	6.61	12.9	1136	nm	nm	nm	---
MW02-04	A2-MW02-04	1.5-4.6	19-Sep-05	6.000	41.71	41.685	nm	nd	na	3.620	38.065	nm	6.96	12.9	1054	nm	nm	nm	Sample collected 20-Sept-05.
MW02-04	A2-MW02-04	1.5-4.6	27-Mar-06	5.950	41.71	41.685	5	nd	na	2.850	38.835	nm	6.76	11.1	258	nm	nm	nm	---
MW02-04	A2-MW02-04	1.5-4.6	28-Aug-06	6.010	41.71	41.685	nm	nd	na	3.390	38.295	0.8	6.53	12.19	1407	nm	nm	nm	---
MW02-04	A2-MW02-04	1.5-4.6	16-Apr-07	6.020	41.71	41.685	10	nd	na	2.950	38.735	0.2	nm	12.4	1350	nm	nm	nm	---
MW02-04	A2-MW02-04	1.5-4.6	4-Sep-07	6.040	41.71	41.685	170	nd	na	3.280	38.405	0.14	6.95	12.7	1495	nm	nm	nm	---
MW02-04	A2-MW02-04	1.5-4.6	8-Apr-08	6.038	41.71	41.685	75	nd	na	2.697	38.988	0.26	6.23	8.5	873	nm	nm	nm	---
MW02-04	A2-MW02-04	1.5-4.6	8-Sep-08	6.039	41.71	41.685	120	nd	na	3.298	38.387	0.4	6.72	12.6	1542	nm	nm	nm	Duplicate
MW02-04	A2-MW02-04	1.5-4.6	30-Apr-09	6.039	41.71	41.685	50	nd	na	3.192	38.493	0.5	6.44	10.9	290	nm	nm	nm	Clear minor sediment
MW02-04	A2-MW02-04	1.5-4.6	8-Sep-09	6.038	41.71	41.685	nd	nd	na	3.530	38.155	0.3	6.46	12.3	1871	nm	nm	nm	Clear
MW02-04	A2-MW02-04	1.5-4.6	11-May-10	6.030	41.71	41.685	160	nd	na	3.260	38.425	0.13	6.35	11.8	1268	nm	nm	nm	Clear
MW02-04	MW02-04	1.5-4.6	13-Sep-10	6.015	41.71	41.685	130	nd	na	3.795	37.890	0.15	6.5	13.7	2040	nm	nm	nm	Clear, QA/QC; DUP-10
MW02-04	MW02-04	1.5-4.6	7-Apr-11	6.030	41.71	41.685	120	nd	na	3.755	37.930	0.52	6.33	11.5	1485	nm	nm	nm	pm - Clear
MW02-04	ns	1.5-4.6	1-Sep-11	6.030	41.71	41.685	25	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; No sample
MW02-04	ns	1.5-4.6	23-May-12	6.030	41.71	41.685	100	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
MW02-04	ns	1.5-4.6	13-Aug-12	6.010	41.71	41.685	120	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; Not sampled
MW02-04	MW02-04	1.5-4.6	26-Mar-13	6.000	41.71	41.685	70	nd	na	3.240	38.445	0.43	6.04	10.91	387	nm	nm	nm	Clear
MW02-04	MW02-04	1.5-4.6	8-Aug-13	6.030	41.71	41.685	30	nd	na	5.530	36.155	1.22	5.9	13.38	444	nm	nm	nm	Dry at 0.8 L; Sampled BTEX on Aug.8; Purged dry on Aug.12; No recovery
MW02-04	MW02-04	1.5-4.6	1-May-14	6.010	41.71	41.685	50	nd	na	3.070	38.615	2.38	6.41	10.87	371	0.33	0.25	27.6	Clear
MW02-04	MW02-04	1.5-4.6	7-Aug-14	6.020	41.71	41.685	nm	nd	na	3.845	37.840	0.83	6.3	11.54	420	0.368	0.28	72.7	Clear
MW02-04	ns	1.5-4.6	11-May-15	6.010	41.71	41.685	65	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
MW02-04	ns	1.5-4.6	22-Sep-15	6.025	41.71	41.685	95	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; Sediment on probe
MW02-04	MW02-04	1.5-4.6	31-Mar-16	6.010	41.71	41.685	40	nd	na	4.250	37.435	0.93	6.09	11.96	217	0.187	0.14	153.3	Clear
MW02-04	ns	1.5-4.6	7-Sep-16	nm	41.71	41.685	85	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
MW02-04	MW02-04	1.5-4.6	5-Apr-17	6.000	41.71	41.685	45	nd	na	3.000	38.685	0.32	6.29	9.5	427.3	0.3939	0.3	25.5	Clear
MW02-04	ns	1.5-4.6	6-Sep-17	6.000	41.71	41.685	10	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
MW02-04	MW02-04	1.5-4.6	19-Apr-18	6.002	41.71	41.685	85	nd	na	3.915	37.770	2.47	5.87	10.23	371	0.336	0.25	171	Silty
MW02-04	ns	1.5-4.6	21-Aug-18	6.015	41.71	41.685	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
MW02-04	ns	1.5-4.6	19-Mar-19	6.022	41.71	41.685	45	nd	na	5.803	35.882	nm	nm	nm	nm	nm	nm	nm	tried to sample; insufficient water
MW02-04	ns	1.5-4.6	27-Mar-19	6.016	41.71	41.685	nd	nd	na	5.907	35.778	nm	nm	nm	nm	nm	nm	nm	tried to sample; insufficient water; second sampling attempt of 2019 wet PMP
MW02-04	ns	1.5-4.6	16-Apr-19	6.012	41.71	41.685	nm	nd	na	5.803	35.882	nm	nm	nm	nm	nm	nm	nm	tried to sample; insufficient water; third sampling attempt of 2019 wet PMP; issues with RKI Eagle, could not monitor for headspace vapour
MW02-04	ns	1.5-4.6	10-Sep-19	6.014	41.71	41.685	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry, silt on probe
MW02-04	MW02-04	1.5-4.6	7-Apr-20	6.022	41.71	41.685	25	nd	na	4.846	36.839	6.01	5.64	9.25	677	0.628	0.48	59.8	Went dry at 2.5L on 04/06/20, sampled on recharge next day; clear
MW02-04	ns	1.5-4.6	12-Aug-20	6.019	41.71	41.685	5	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
MW03-02	MW03-02	3.7-7.6	28-Apr-04	8.590	40.79	41.756	nm	nd	na	3.160	38.596	nm	6.09	10.9	129	nm	nm	nm	---
MW03-02	MW03-02	3.7-7.6	13-Oct-04	8.621	40.79	41.756	200	nd	na	3.144	38.612	nm	6.48	12.4	562	nm	nm	nm	---
MW03-02	MW03-02	3.7-7.6	12-Apr-05	8.621	40.79	41.756	100	nd	na	2.502	39.254	nm	6.29	10.7	470	nm	nm	nm	---
MW03-02	A2-MW03-02	3.7-7.6	13-Sep-05	8.600	40.79	41.756	nm	nd	na	4.570	37.186	nm	6.56	12	422	nm	nm	nm	Sample collected 13-Sept-05.
MW03-02	MW03-02	3.7-7.6	22-Mar-06	8.450	40.79	41.756	110	nd	na	2.612	39.144	1.61	6.59	10.1	275	nm	nm	nm	---
MW03-02	MW03-02	3.7-7.6	28-Aug-06	8.550	40.79	41.756	nm	nd	na	5.500	36.256	1.3	6.12	12.8	452	nm	nm	nm	---
MW03-02	MW03-02	3.7-7.6	16-Apr-07	8.500	40.79	41.756	140	nd	na	3.000	38.756	NA	nm	12.6	590	nm	nm	nm	---
MW03-02	MW03-02	3.7-7.6	4-Sep-07	8.480	40.79	41.756	125	nd	na	3.950	37.806	0.21	6.3	12.4	707	nm	nm	nm	---
MW03-02	MW03-02	3.7-7.6	2-Apr-08	8.520	40.79	41.756	55	nd	na	2.761	38.995	0.87	6.13	12.7	541	nm	nm	nm	---
MW03-02	MW03-02	3.7-7.6	8-Sep-08	8.838	40.79	41.756	100	nd	na	2.982	38.774	0.4	6.32	11.3	440	nm	nm	nm	---
MW03-02	MW03-02	3.7-7.6	30-Apr-09	8.620	40.79	41.756	50	nd	na	2.880	38.876	0.5	6.29	10.5	1175	nm	nm	nm	Clear
MW03-02	MW03-02	3.7-7.6	31-Aug-09	8.630	40.79	41.756	30	nd	na	4.630	37.126	0.2	6.45	11.8	430	nm	nm	nm	Clear
MW03-02	MW03-02	3.7-7.6	20-Apr-10	8.638	40.79	41.756	nd	nd	na	2.930	38.826	0.08	4.63	9.9	312	nm	nm	nm	Clear
MW03-02	MW03-02	3.7-7.6	14-Sep-10	8.620	40.79	41.756	50	nd	na	4.565	37.191	0.15	6.04	11.9	437	nm	nm	nm	Clear
MW03-02	MW03-02	3.7-7.6	31-Mar-11	8.467	40.79	41.756	75	nd	na	2.795	38.961	3.78	5.98	11.6	217	nm	nm	nm	Clear; DUP-7
MW03-02	MW03-02	3.7-7.6	1-Sep-11	8.625	40.79	41.756	nd	nd	na	6.870	34.886	1.17	6.32	10.57	627	nm	nm	nm	Clear
MW03-02	MW03-02	3.7-7.6	9-May-12	8.560	40.79	41.756	50	nd	na	4.530	37.226	1.04	6.07	10.12	189	nm	nm	nm	Clear
MW03-02	ns	3.7-7.6	13-Aug-12	8.570	40.79	41.756	50	nd	na	8.530	33.226	nm	nm	nm	nm	nm	nm	nm	Dry; Not sampled
MW03-02	MW03-02	3.7-7.6	26-Mar-13	8.620	40.79	41.756	15	nd	na	4.820	36.936	1.45	5.28	10.08	159	nm	nm	nm	Clear; DUP-3
MW03-02	MW03-02	3.7-7.6	19-Aug-13	8.630	40.79	41.756	nd	nd	na	8.140	33.616	1.64	5.87	13.31	247	nm	nm	nm	Sample collected Aug.20; Clear
MW03-02	MW03-02	3.7-7.6	30-Apr-14	8.620	40.79	41.756	nm	nd	na	4.740	37.016	1.82	5.89	10.05	198	0.18	0.13	163.4	Clear
MW03-02	MW03-02	3.7-7.6	12-Aug-14	8.630	40.79	41.756	nd	nd	na	7.675	34.081	1.55	4.54	12.25	200	0.171	0.13	116.5	Clear
MW03-02	MW03-02	3.7-7.6	7-May-15	8.620	40.79	41.756	45	nd	na	6.060	35.696	3.28	5.91	10.8	216	0.193	0.14	149.8	Clear
MW03-02	MW03-02	3.7-7.6	25-Aug-15	8.625	40.79	41.756	50	nd	na	8.200	33.556	0.55	6.01	13.6	186	0.155	0.11	71	DUP-5
MW03-02	MW03-02	3.7-7.6	22-Mar-16	8.610	40.79	41.756	120	nd	na	5.435	36.321	1.51	6.77	10.65	173	0.155	0.11	13.2	Clear
MW03-02	ns	3.7-7.6	16-Sep-16	8.560	40.79	41.756	95	nd	na	8.460	33.296	nm	nm	nm	nm	nm	nm	nm	Dry
MW03-02	MW03-02	3.7-7.6	10-Apr-17	8.580	40.79	41.756	120	nd	na	4.530	37.226	2.56	5.45	9.92	1.7	0.107	0.08	162.5	Clear
MW03-02	ns	3.7-7.6	6-Sep-17	8.590	40.79	41.756	10	nd	na	8.540	33.216	nm	nm	nm	nm	nm	nm	nm	Dry
MW03-02	MW03-02	3.7-7.6	26-Apr-18	8.630	40.79	41.756	65	nd	na	6.420	35.336	4.95	5.78	10.95	175	0.155	0.11	181.4	Clear
MW03-02	ns	3.7-7.6	21-Aug-18	8.631	40.79	41.756	50	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
MW03-02	MW03-02	3.7-7.6	20-Mar-19	8.635	40.79	41.756	80	nd	na	7.400	34.356	1.93	5.14	10.42	125	0.113	0.08	0	clear
MW03-02	ns	3.7-7.6	10-Sep-19	8.619	40.79	41.756	nm	nd	na	8.563	33.193	nm	nm	nm	nm	nm	nm	nm	Dry
MW03-02	MW03-02	3.7-7.6	26-Mar-20	8.484	40.79	41.756	5	nd	na	7.453	34.303	6.1	5.97	10.66	181	0.162	0.12	-3.9	clear
MW03-02	ns	3.7-7.6	11-Aug-20	8.611	40.79	41.756	35	nd	na	8.548	33.208	nm	nm	nm	nm	nm	nm	nm	Insufficient water for sampling
MW03-03	MW03-03	6.1-13.7	29-Apr-04	13.910	44.65	45.392	200	nd	na	8.970	36.422	nm	6.59	13.2	68.9	nm	nm	nm	---
MW03-03	MW03-03	6.1-13.7	12-Oct-04	13.846	44.65	45.392	175	nd	na	9.168	36.224	nm	6.58	13.8	260	nm	nm	nm	---
MW03-03	MW03-03	6.1-13.7	21-Apr-05	13.910	44.65	45.392	nm	nd	na	7.614	37.778	nm	6.41	12.9	327	nm	nm	nm	---
MW03-03	A2-MW03-03	6.1-13.7	19-Sep-05	14.000	44.65	45.392	nm	nd	na	9.710	35.682	nm	6.6	13.2	350	nm	nm	nm	Sample collected 20-Sept-05.
MW03-03	MW03-03	6.1-13.7	27-Mar-06	13.900	44.65	45.392	90	nd	na	8.020	37.372	nm	6.25	12.6	159.2	nm	nm	nm	---
MW03-03	MW03-03	6.1-13.7	28-Aug-06	13.840	44.65	45.392	nm	nd	na	9.290	36.102	1.8	6.27	13.2	370	nm	nm	nm	---
MW03-03	MW03-03	6.1-13.7	16-Apr-07	13.900	44.65	45.392	125	nd	na	8.340	37.052	0.2	nm	12	232	nm	nm	nm	---

TABLE 2-1
AREA 2 GROUNDWATER MONITORING DATA
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY

Well ID	Sample ID	Screened Interval (mbgs)	Date Monitored	Total Depth of Well (m from TOC)	Ground Elevation (mASL)[1]	Top of Casing Elevation (TOC, mASL)[1]	Headspace Vapour Concentration (ppmv)	Depth to Product (m from TOC)	Apparent Product Thickness (mm)	Depth to Water (DTW, m from TOC)	Groundwater Elevation (mASL)[1]	Dissolved Oxygen (mg/L)	pH	Temperature (°C)	Electrical Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	ORP (mV)	Observations
MW03-03	MW03-03	6.1-13.7	4-Sep-07	13.900	44.65	45.392	175	nd	na	9.160	36.232	0.32	6.41	13.6	265	nm	nm	nm	---
MW03-03	MW03-03	6.1-13.7	8-Apr-08	13.888	44.65	45.392	100	nd	na	8.250	37.142	0.37	6.09	10.3	287	nm	nm	nm	---
MW03-03	MW03-03	6.1-13.7	8-Sep-08	13.908	44.65	45.392	60	nd	na	8.489	36.903	0.3	6.46	13	369	nm	nm	nm	---
MW03-03	MW03-03	6.1-13.7	30-Apr-09	13.875	44.65	45.392	50	nd	na	8.275	37.117	0.4	6.43	12.6	629	nm	nm	nm	---
MW03-03	MW03-03	6.1-13.7	8-Sep-09	13.900	44.65	45.392	nd	nd	na	8.990	36.402	0.2	7.31	12.6	13900	nm	nm	nm	Clear first bailer, second cloudy
MW03-03	MW03-03	6.1-13.7	11-May-10	13.880	44.65	45.392	35	nd	na	8.340	37.052	0.19	6.29	15.1	307	nm	nm	nm	Clear with trace silt (Bailer ball jammed - tried twice before obtaining sample)
MW03-03	MW03-03	6.1-13.7	14-Sep-10	14.860	44.65	45.392	5	nd	na	8.560	36.832	0.15	6.8	14	289	nm	nm	nm	Silty
MW03-03	MW03-03	6.1-13.7	7-Apr-11	13.863	44.65	45.392	70	nd	na	7.145	38.247	0.53	6.09	14.4	205	nm	nm	nm	Clear
MW03-03	MW03-03	6.1-13.7	17-Aug-11	13.900	44.65	45.392	nd	nd	na	10.235	35.157	3.42	6.55	17.58	2	nm	nm	nm	Clear
MW03-03	ns	6.1-13.7	23-May-12	13.910	44.65	45.392	20	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry at 13.910 m
MW03-03	ns	6.1-13.7	14-Aug-12	13.880	44.65	45.392	5	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; Not sampled
MW03-03	MW03-03	6.1-13.7	18-Apr-13	13.900	44.65	45.392	75	nd	na	11.650	33.742	1.79	6.39	11.69	301	nm	nm	nm	Silty/cloudy
MW03-03	MW03-03	6.1-13.7	7-Aug-13	13.920	44.65	45.392	nm	nd	na	13.450	31.942	nm	nm	nm	nm	nm	nm	nm	Too shallow to sample on Aug.8
MW03-03	MW03-03	6.1-13.7	1-May-14	13.920	44.65	45.392	10	nd	na	5.980	39.412	1.22	6.05	12.91	260	0.22	0.16	-26.8	Clear
MW03-03	MW03-03	6.1-13.7	13-Aug-14	13.915	44.65	45.392	25	nd	na	9.775	35.617	1.48	6.26	13.61	262	0.217	0.16	-65.4	Clear
MW03-03	ns	6.1-13.7	11-May-15	13.910	44.65	45.392	65	nd	na	13.890	31.502	nm	nm	nm	nm	nm	nm	nm	Dry
MW03-03	ns	6.1-13.7	22-Sep-15	13.955	44.65	45.392	5	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
MW03-03	MW03-03	6.1-13.7	31-Mar-16	13.900	44.65	45.392	5	nd	na	9.240	36.152	8.77	6.72	13.76	251	0.21	0.16	-20	Clear
MW03-03	ns	6.1-13.7	7-Sep-16	13.930	44.65	45.392	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
MW03-03	MW03-03	6.1-13.7	5-Apr-17	13.910	44.65	45.392	40	nd	na	9.560	35.832	1.37	6.35	12	261	0.227	0.17	-43.3	Clear
MW03-03	ns	6.1-13.7	15-Aug-17	13.920	44.65	45.392	10	nd	na	13.530	31.862	nm	nm	nm	nm	nm	nm	nm	Purged 2L dry on Aug 15
MW03-03	MW03-03	6.1-13.7	19-Apr-18	13.910	44.65	45.392	nd	nd	na	9.520	35.872	1.65	6.19	13.57	293	0.244	0.18	-11.3	Clear; Bailed
MW03-03	ns	6.1-13.7	21-Aug-18	13.918	44.65	45.392	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
MW03-03	ns	6.1-13.7	19-Mar-19	13.922	44.65	45.392	65	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
MW03-03	ns	6.1-13.7	27-Mar-19	13.920	44.65	45.392	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; second sampling attempt of 2019 wet season PMP
MW03-03	ns	6.1-13.7	16-Apr-19	13.908	44.65	45.392	nm	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; third sampling attempt of 2019 wet season PMP; issues with RKI Eagle, could not monitor for headspace vapour
MW03-03	ns	6.1-13.7	10-Sep-19	13.936	44.65	45.392	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
MW03-03	ns	6.1-13.7	7-Apr-20	13.922	44.65	45.392	35	nd	na	13.761	31.631	nm	nm	nm	nm	nm	nm	nm	Not enough water to sample
MW03-03	ns	6.1-13.7	13-Aug-20	13.891	44.65	45.392	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-05I	MW09-05I	9.18-10.68	20-Apr-10	11.410	38.67	39.32	25	nd	na	3.820	35.500	0.07	6.88	10.4	715	nm	nm	nm	Clear
A2MW09-05I	MW09-05I	9.18-10.68	14-Sep-10	11.390	38.67	39.32	5	nd	na	4.837	34.483	0.09	6.62	13.2	658	nm	nm	nm	Clear
A2MW09-05I	MW09-05I	9.18-10.68	31-Mar-11	11.408	38.67	39.32	10	nd	na	2.818	36.502	0.29	6.73	11.7	653	nm	nm	nm	Clear
A2MW09-05I	MW09-05I	9.18-10.68	1-Sep-11	11.420	38.67	39.32	nd	nd	na	5.010	34.310	3.95	6.62	11.72	442	nm	nm	nm	Clear
A2MW09-05I	MW09-05I	9.18-10.68	9-May-12	11.430	38.67	39.32	30	nd	na	5.300	34.020	0.52	6.59	10.97	331	nm	nm	nm	Clear
A2MW09-05I	MW09-05I	9.18-10.68	13-Aug-12	11.420	38.67	39.32	70	nd	na	8.280	31.040	0.61	6.95	13.21	434	nm	nm	nm	Clear; DUP-6
A2MW09-05I	MW09-05I	9.18-10.68	25-Mar-13	11.420	38.67	39.32	5	nd	na	4.895	34.425	0.33	6.23	11.17	284	nm	nm	nm	Clear; DUP-2
A2MW09-05I	MW09-05I	9.18-10.68	23-Oct-13	11.400	38.67	39.32	35	nd	na	8.590	30.730	0.36	6.36	11.32	577	nm	nm	nm	Clear
A2MW09-05I	MW09-05I	9.18-10.68	30-Apr-14	11.380	38.67	39.32	nd	nd	na	4.760	34.560	0.62	6.19	10.37	321	0.29	0.22	-18.6	Clear
A2MW09-05I	MW09-05I	9.18-10.68	12-Aug-14	11.410	38.67	39.32	nd	nd	na	8.180	31.140	2.42	6.85	13.69	426	0.353	0.26	-117.7	DUP-6
A2MW09-05I	MW09-05I	9.18-10.68	6-May-15	11.400	38.67	39.32	5	nd	na	6.990	32.330	2.70	6.63	11.33	317	0.279	0.21	75	DUP-12; Slightly turbid; Sampled May.7
A2MW09-05I	MW09-05I	9.18-10.68	24-Aug-15	11.390	38.67	39.32	nd	nd	na	9.140	30.180	2.57	6.85	12.49	364	0.313	0.23	12.1	Turbid; Purged 15 L
A2MW09-05I	MW09-05I	9.18-10.68	22-Mar-16	11.390	38.67	39.32	nd	nd	na	5.145	34.175	0.23	6.44	11.45	189	0.175	0.13	18.3	Clear
A2MW09-05I	MW09-05I	9.18-10.68	25-Aug-16	11.410	38.67	39.32	5	nd	na	8.450	30.870	1.10	6.9	11.92	381	0.33	0.25	-51.1	Clear
A2MW09-05I	A2MW09-05I	9.18-10.68	12-Apr-17	11.380	38.67	39.32	nd	nd	na	4.480	34.840	0.39	7.2	10.69	200	0.179	0.13	-149.7	Clear
A2MW09-05I	A2MW09-05I	9.18-10.68	6-Sep-17	11.410	38.67	39.32	nd	nd	na	10.110	29.210	3.15	7.29	12.27	317	0.272	0.2	4.4	Clear; DUP-6
A2MW09-05I	MW09-05I	9.18-10.68	26-Apr-18	11.407	38.67	39.32	nd	nd	na	5.561	33.759	0.22	6.46	11.45	234	0.205	0.15	-29.2	Clear; DUP-10
A2MW09-05I	MW09-05I	9.18-10.68	30-May-18	11.411	38.67	39.32	nd	nd	na	8.434	30.886	0.22	6.22	12.21	227	0.195	0.14	-20.3	Clear; DUP-14
A2MW09-05I	MW09-05I	9.18-10.68	21-Aug-18	11.492	38.67	39.32	5	nd	na	9.518	29.802	2.38	6.75	12.31	276	0.229	0.17	44.6	Clear
A2MW09-05I	MW09-05I	9.18-10.68	26-Mar-19	11.400	38.67	39.32	nd	nd	na	6.883	32.437	0.32	6.31	10.51	289	0.26	0.19	63.2	Silty; slightly cloudy; sampled on recharge; sampled for NSA+Methane; DUP-04
A2MW09-05I	MW09-05I	9.18-10.68	10-Sep-19	11.432	38.67	39.32	10	nd	na	9.231	30.089	0.29	6.83	13.08	317	0.266	0.2	25.1	Clear, HC odour; DUP-2
A2MW09-05I	ns	9.18-10.68	25-Mar-20	11.394	38.67	39.32	nd	nd	na	6.741	32.579	nm	nm	nm	nm	nm	nm	nm	Could not sample, will return
A2MW09-05I	A2MW09-05I	9.18-10.68	8-Apr-20	11.406	38.67	39.32	nd	nd	na	5.758	33.562	2.60	6.48	11.41	218	0.192	0.14	-19.4	Sample clear, 2nd sampling attempt of 2020 wet season PMP
A2MW09-05I	A2MW09-05I	9.18-10.68	11-Aug-20	11.396	38.67	39.32	nd	nd	na	8.821	30.499	0.45	6.71	13.45	267	0.222	0.16	-59.2	Clear, DUP-01
A2MW09-06S	MW09-06S	2.44-5.44	21-Apr-10	6.120	38.36	39.049	25	nd	na	2.715	36.334	0.45	5.83	10.1	919	nm	nm	nm	Clear
A2MW09-06S	MW09-06S	2.44-5.44	14-Sep-10	6.125	38.36	39.049	10	nd	na	3.883	35.166	0.22	6.93	13.1	1007	nm	nm	nm	Clear
A2MW09-06S	MW09-06S	2.44-5.44	6-Apr-11	6.127	38.36	39.049	60	nd	na	1.678	37.371	7.53	5.83	8.8	57.6	nm	nm	nm	Clear
A2MW09-06S	MW09-06S	2.44-5.44	1-Sep-11	6.120	38.36	39.049	60	nd	na	3.227	35.822	1.5	6.76	12.66	656	nm	nm	nm	Clear; DUP-17
A2MW09-06S	ns	2.44-5.44	9-May-12	6.125	38.36	39.049	45	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; Not sampled
A2MW09-06S	ns	2.44-5.44	13-Aug-12	6.125	38.36	39.049	5	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; Not sampled
A2MW09-06S	ns	2.44-5.44	25-Mar-13	6.120	38.36	39.049	85	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-06S	ns	2.44-5.44	15-Aug-13	6.030	38.36	39.049	10	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-06S	A2MW09-06S	2.44-5.44	30-Apr-14	6.120	38.36	39.049	nd	nd	na	4.260	34.789	3.63	5.52	9.34	89	0.086	0.06	92.4	Clear
A2MW09-06S	ns	2.44-5.44	12-Aug-14	6.130	38.36	39.049	35	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-06S	ns	2.44-5.44	6-May-15	6.120	38.36	39.049	35	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-06S	ns	2.44-5.44	24-Aug-15	6.120	38.36	39.049	15	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-06S	ns	2.44-5.44	22-Mar-16	6.130	38.36	39.049	nd	nd	na	6.070	32.979	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-06S	ns	2.44-5.44	23-Aug-16	6.100	38.36	39.049	nm	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-06S	A2MW09-06S	2.44-5.44	11-Apr-17	6.120	38.36	39.049	40	nd	na	5.060	33.989	5.61	4.39	9.04	63	0.059	0.04	116.7	Clear
A2MW09-06S	ns	2.44-5.44	6-Sep-17	6.350	38.36	39.049	10	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-06S	A2MW09-06S	2.44-5.44	26-Apr-18	6.160	38.36	39.049	nd	nd	na	5.934	33.115	7.48	6.08	11.84	77	0.066	0.05	288.6	Dry after parameter; no recharge water
A2MW09-06S	ns	2.44-5.44	21-Aug-18	6.137	38.36	39.049	10	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-06S	ns	2.44-5.44	26-Mar-19	6.150	38.36	39.049	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-06S	ns	2.44-5.44	27-Mar-19	6.128	38.36	39.049	5	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; second sampling attempt of 2019 wet season PMP
A2MW09-06S	ns	2.44-5.44	16-Apr-19	6.121	38.36	39.049	nm	nd	na	5.974	33.075	nm	nm	nm	nm	nm	nm	nm	Insufficient water water to sample; third sampling attempt of 2019 wet season PMP; issues with RKI Eagle, could not monitor for headspace vapour
A2MW09-06S	ns	2.44-5.44	10-Sep-19	6.134	38.36	39.049	15	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-06S	ns	2.44-5.44	25-Mar-20	6.124	38.36	39.049	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-06S	ns	2.44-5.44	7-Apr-20	6.133	38.36	39.049	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry, silt on probe, second sampling attempt of 2020 wet season PMP
A2MW09-06S	ns	2.44-5.44	11-Aug-20	6.122	38.36	39.049	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-06I	MW09-06D	9.33-10.83	21-Apr-10	11.620	38.59	39.366	nd	nd	na	3.040	36.326	0.08	6.94	10.7	919	nm	nm	nm	Clear
A2MW09-06I	MW09-06I	9.33-10.83	14-Sep-10	11.613	38.59	39.366	5	nd	na	4.168	35.198	0.09	6.73	12.9	816	nm	nm	nm	Clear
A2MW09-06I	MW09-06I	9.33-10.83	6-Apr-11	11.578	38.59	39.366	90	nd	na	2.145	37.221	0.7	6.47	10.2	536	nm	nm	nm	Clear
A2MW09-06I	MW09-06I	9.33-10.83	1-Sep-11	11.568	38.59	39.366	15	nd	na	3.529	35.837	2.62	6.63	12.01	444	nm	nm	nm	Clear
A2MW09-06I	A2MW09-06I	9.33-10.83	9-May-12	11.570	38.59	39.366	110	nd	na	8.310	31.056	7.12	6.83	11.38	353	nm	nm	nm	Clear
A2MW09-06I	A2MW09-06I	9.33-10.83	13-Aug-12	11.570	38.59	39.366	nm	nd	na	9.575	29.791	0.57	7.02	13.38	475	nm	nm	nm	Clear
A2MW09-06I	MW09-06I	9.33-10.83	25-Mar-13	11.590	38.59	39.366	620	nd	na	7.130	32.236	0.34	6.07	10.44	195	nm	nm	nm	Clear; DUP-1
A2MW09-06I	MW09-06I	9.33-10.83	19-Aug-13	11.565	38.59	39.366	1430	nd	na	10.380	28.986	1.58	6.8	12.57	476	nm	nm	nm	Silty; odour, BTEX and metals on Aug.19, ambers on Aug.20
A2MW09-06I	MW09-06I	9.33-10.83	30-Apr-14	11.560	38.59	39.366	nd	nd	na	5.660	33.706	2.1	6.53	10.15	188	0.17	0.13	-123.5	Clear; DUP-12
A2MW09-06I	MW09-06I	9.33-10.83	12-Aug-14	11.580	38.59	39.366	35	nd	na	8.970	30.396	1.71	6.86	13.67	380	0.315	0.24	-100	Clear
A2MW09-06I	MW09-06I	9.33-10.83	6-May-15	11.570	38.59	39.366	nd	nd	na	8.820	30.546	1.82	6.66	11.51	290	0.254	0.19	39.8	Clear
A2MW09-06I	MW09-06I	9.33-10.83	24-Aug-15	11.570	38.59	39.366	650	nd	na	10.220	29.146	1.58	6.86	12.51	384	0.328	0.25	-2.1	DUP-4; Turbid; Purged 8 L
A2MW09-06I	MW09-06I	9.33-10.83	22-Mar-16	11.580	38.59	39.366	nd	nd	na	6.775	32.591	0.17	6.44	11.06	168	0.148	0.11	-42.2	Clear
A2MW09-06I	MW09-06I	9.33-10.83	25-Aug-16	11.580	38.59	39.366	75	nd	na	9.950	29.416	0.64	6.87	13.9	321	0.264	0.2	-65	Clear
A2MW09-06I	MW09-06I	9.33-10.83	11-Apr-17	11.570	38.59	39.366	20	nd	na	5.980	33.386	0.34	7.12	10.51	134	0.12	0.09	-151.3	Clear
A2MW09-06I	MW09-06I	9.33-10.83	6-Sep-17	11.590	38.59	39.366	nd	nd	na	10.110	29.256	3.1	5.86	12.62	269	0.229	0.17	13.6	Clear
A2MW09-06I	MW09-06I	9.33-10.83	26-Apr-18	11.580	38.59	39.366	10	nd	na	6.876	32.490	0.36	6.5	11.23	161	0.142	0.1	-108	Clear, went dry, sampled after recharged
A2MW09-06I	MW09-06I	9.33-10.83	21-Aug-18	11.657	38.59	39.366	5	nd	na	10.186	29.180	1.85	5.2	11.7	277	0.242	0.18	71.9	Clear
A2MW09-06I	MW09-06I	9.33-10.83	26-Mar-19	11.565	38.59	39.366	90	nd	na	8.454	30.912	0.41	6.37	10.42	239	0.215	0.16	-55.7	Clear
A2MW09-06I	MW09-06I	9.33-10.83	10-Sep-19	11.597	38.59	39.366	nd	nd	na	10.006	29.360	0.46	7.16	14.62	279	0.226	0.17	-105.8	Clear
A2MW09-06I	MW09-06I	9.33-10.83	26-Mar-20	11.570	38.59	39.366	nd	nd	na	8.099	31.267	0.77	6.47	10.43	196	0.177	0.13	-71.5	clear
A2MW09-06I	MW09-06I	9.33-10.83	11-Aug-20	11.569	38.59	39.366	nd	nd	na	9.535	29.831	0.7	6.37	14.18	224	0.183	0.14	-20	clear, DUP-02
A2MW09-10	MW09-10	2.22-5.22	20-Apr-10	6.080	38.98	39.835	>11000	nd	na	4.010	35.825	0.2	6.29	10.3	878	nm	nm	nm	Clear
A2MW09-10	MW09-10	2.22-5.22	14-Sep-10	6.650	38.98	39.835	320	nd	na	5.200	34.635	0.29	5.87	12.9	858	nm	nm	nm	Clear
A2MW09-10	MW09-10	2.22-5.22	31-Mar-11	6.072	38.98	39.835	>11000	nd	na	3.284	36.551	0.45	6.32	11.4	769	nm	nm	nm	Clear
A2MW09-10	A2MW09-10	2.22-5.22	9-May-12	6.070	38.98	39.835	1210	nd	na	4.800	35.035	1.54	6.24	10.23	458	nm	nm	nm	Clear; DUP-6
A2MW09-10	ns	2.22-5.22	13-Aug-12	6.070	38.98	39.835	35	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; Not sampled
A2MW09-10	MW09-10	2.22-5.22	25-Mar-13	6.070	38.98	39.835	300	nd	na	5.100	34.735	0.37	5.81	10.4	701	nm	nm	nm	Clear
A2MW09-10	ns	2.22-5.22	15-Aug-13	6.070	38.98	39.835	200	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-10	A2MW09-10	2.22-5.22	30-Apr-14	6.070	38.98	39.835	400	nd	na	4.970	34.865	0.42	6.1	10.32	516	0.467	0.35	-33.2	---
A2MW09-10	ns	2.22-5.22	12-Aug-14	6.070	38.98	39.835	>11000	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-10	ns	2.22-5.22	6-May-15	6.070	38.98	39.835	45	nd	na	5.890	33.945	nm	nm	nm	nm	nm	nm	nm	Dry; Purged 150 mL; No recovery
A2MW09-10	ns	2.22-5.22	25-Aug-15	6.070	38.98	39.835	75	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-10	A2MW09-10	2.22-5.22	22-Mar-16	6.070	38.98	39.835	40	nd	na	5.280	34.555	1.6	6.68	10.78	434	0.387	0.29	-23.2	Clear
A2MW09-10	ns	2.22-5.22	9-Sep-16	6.080	38.98	39.835	100	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-10	A2MW09-10	2.22-5.22	18-Apr-17	6.080	38.98	39.835	100	nd	na	4.960	34.875	0.31	5.98	10.57	385	0.345	0.26	-79.3	Clear; Strong hydrocarbon odour
A2MW09-10	ns	2.22-5.22	6-Sep-17	6.080	38.98	39.835	5	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-10	ns	2.22-5.22	26-Apr-18	6.007	38.98	39.835	15	nd	na	5.918	33.917	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-10	ns	2.22-5.22	21-Aug-18	6.083	38.98	39.835	10	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-10	ns	2.22-5.22	21-Mar-19	6.086	38.98	39.835	40	nd	na	6.036	33.799	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-10	ns	2.22-5.22	27-Mar-19	6.078	38.98	39.835	15	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; second sampling attempt of 2019 wet season PMP
A2MW09-10	ns	2.22-5.22	16-Apr-19	6.056	38.98	39.835	nm	nd	na	5.973	33.862	nm	nm	nm	nm	nm	nm	nm	Insufficient water water to sample; third sampling attempt of 2019 wet season PMP; issues with RKI Eagle, could not monitor for headspace vapour
A2MW09-10	ns	2.22-5.22	10-Sep-19	6.075	38.98	39.835	350	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-10	ns	2.22-5.22	25-Mar-20	6.064	38.98	39.835	5	nd	na	6.064	33.771	nm	nm	nm	nm	nm	nm	nm	Not enough water to sample, silt on probe
A2MW09-10	ns	2.22-5.22	7-Apr-20	6.074	38.98	39.835	nd	nd	na	5.825	34.010	nm	nm	nm	nm	nm	nm	nm	Not enough water to sample, silt on probe, 2nd sampling attempt of 2020 wet season PMP
A2MW09-10	ns	2.22-5.22	9-Apr-20	6.071	38.98	39.835	nd	nd	na	5.923	33.912	nm	nm	nm	nm	nm	nm	nm	Not enough water to sample, orange biofoul on probe, 3rd sampling attempt of 2020 wet season PMP
A2MW09-10	ns	2.22-5.22	11-Aug-20	6.060	38.98	39.835	10	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry, No signs of NAPL, silt on probe
A2MW09-11	MW09-11	2.05-5.05	20-Apr-10	6.070	39.13	40.162	>11000	nd	na	2.120	38.042	0.09	5.01	10.5	1021	nm	nm	nm	Clear
A2MW09-11	ns	2.05-5.05	14-Sep-10	nm	39.13	40.162	9240	3.500	450	3.950	36.212	nm	nm	nm	nm	nm	nm	nm	NAPL, not sampled
A2MW09-11	ns	2.05-5.05	31-Mar-11	nm	39.13	40.162	2970	1.924	13	1.937	38.225	nm	nm	nm	nm	nm	nm	nm	Product; Not sampled
A2MW09-11	A2MW09-11	2.05-5.05	9-May-12	5.150	39.13	40.162	1100	nd	na	2.510	37.652	1.17	6.64	10.36	610	nm	nm	nm	Clear
A2MW09-11	ns	2.05-5.05	13-Aug-12	5.170	39.13	40.162	4950	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; Not sampled
A2MW09-11	MW09-11	2.05-5.05	26-Mar-13	nm	39.13	40.162	5	nd	na	2.830	37.332	0.54	6.04	9.61	435	nm	nm	nm	BC: Globules; Potentially "HOT" Sample
A2MW09-11	MW09-11	2.05-5.05	15-Aug-13	6.060	39.13	40.162	1100	nd	na	6.010	34.152	nm	nm	nm	nm	nm	nm	nm	Too shallow to purge
A2MW09-11	A2MW09-11	2.05-5.05	30-Apr-14	6.050	39.13	40.162	870	nd	na	3.140	37.022	1.97	6.33	9.39	399	0.37	0.28	-97.2	Sheen; Clear
A2MW09-11	ns	2.05-5.05	12-Aug-14	6.060	39.13	40.162	1050	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-11	MW09-11	2.05-5.05	6-May-15	6.060	39.13	40.162	900	nd	na	4.870	35.292	0.93	6.04	10.98	466	0.413	0.31	-234.4	Clear; Hydrocarbon odour. Sampled May.7
A2MW09-11	ns	2.05-5.05	25-Aug-15	6.055	39.13	40.162	1320	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-11	MW09-11	2.05-5.05	22-Mar-16	6.060	39.13	40.162	1210	nd	na	3.395	36.767	0.09	6.68	10.46	307	0.276	0.21	-417	Sheen in the sample; DUP-11
A2MW09-11	ns	2.05-5.05	9-Sep-16	6.060	39.13	40.162	200	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-11	A2MW09-11	2.05-5.05	18-Apr-17	6.050	39.13	40.162	70	nd	na	2.760	37.402	0.23	6.23	9.62	188	0.173	0.13	-242.8	Clear; DUP-11; Hydrocarbon odour
A2MW09-11	ns	2.05-5.05	6-Sep-17	6.065	39.13	40.162	4070	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-11	A2MW09-11	2.05-5.05	26-Apr-18	6.060	39.13	40.162	140	nd	na	3.050	37.112	0.2	6.2	10.07	262	0.238	0.18	-38.7	Clear; historical depth of the well is wrong
A2MW09-11	ns	2.05-5.05	21-Aug-18	6.064	39.13	40.162	4510	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-11	A2MW09-11	2.05-5.05	19-Mar-19	6.068	39.13	40.162	640	nd	na	3.103	37.059	0.5	5.83	9.82	268	0.246	0.18	-39.9	Clear; Strong hydrocarbon odour; orange stain on tubing; DUP-02
A2MW09-11	A2MW09-11	2.05-5.05	21-Mar-19	6.065	39.13	40.162	890	nd	na	3.235	36.927	0.32	6.33	9.89	277	0.253	0.19	-39.8	Sheen especially on BTEX vial; hydrocarbon odour; sampled for methane and NSA
A2MW09-11	A2MW09-11	2.05-5.05	17-Apr-19	6.056	39.13	40.162	nd	nd	na	2.553	37.609	0.72	5.36	9.92	189	0.172	0.13	50.1	Clear; second sample of 2019 wet season PMP
A2MW09-11	ns	2.05-5.05	10-Sep-19	6.092	39.13	40.162	9% LEL	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-11	ns	2.05-5.05	25-Mar-20	6.054	39.13	40.162	75	nd	na	3.421	36.741	nm	nm	nm	nm	nm	nm	nm	Could not sample, will return
A2MW09-11	A2MW09-11	2.05-5.05	8-Apr-20	6.069	39.13	40.162	80	nd	na	2.881	37.281	5	6.25	9.19	220	0.205	0.15	-24.5	Clear, DUP-10
A2MW09-11	ns	2.05-5.05	11-Aug-20	6.055	39.13	40.162	1750	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry, no signs of NAPl
A2MW09-12	MW09-12	2.14-5.14	20-Apr-10	6.080	39.62	40.561	200	nd	na	3.150	37.411	0.19	4.77	9.9	484	nm	nm	nm	Clear
A2MW09-12	MW09-12	2.14-5.14	14-Sep-10	6.035	39.62	40.561	280	nd	na	4.960	35.601	0.3	5.99	12.4	500	nm	nm	nm	Clear, trace fine sediment, LEPH/HEPH one jar only
A2MW09-12	MW09-12	2.14-5.14	31-Mar-11	6.067	39.62	40.561	nd	nd	na	2.428	38.133	4.55	6.12	11.6	111.4	nm	nm	nm	Turbid
A2MW09-12	ns	2.14-5.14	8-Sep-11	6.067	39.62	40.561	45	nd	na	5.710	34.851	nm	nm	nm	nm	nm	nm	nm	Purged dry at 0.6 L; Insufficient water to collect sample
A2MW09-12	MW09-12	2.14-5.14	9-May-12	6.060	39.62	40.561	5	nd	na	3.570	36.991	5.14	5.74	9.75	125	nm	nm	nm	Turbid
A2MW09-12	ns	2.14-5.14	13-Aug-12	6.065	39.62	40.561	35	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; Not sampled
A2MW09-12	MW09-12	2.14-5.14	25-Mar-13	6.060	39.62	40.561	>11000	nd	na	2.770	37.791	2.13	4.92	9.6	70	nm	nm	nm	Clear
A2MW09-12	ns	2.14-5.14	6-Aug-13	6.060	39.62	40.561	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-12	A2MW09-12	2.14-5.14	30-Apr-14	6.060	39.62	40.561	nd	nd	na	2.980	37.581	1.95	5.54	9.39	74	0.068	0.05	111.2	Clear
A2MW09-12	ns	2.14-5.14	12-Aug-14	6.060	39.62	40.561	25	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-12	MW09-12	2.14-5.14	7-May-15	6.060	39.62	40.561	30	nd	na	4.590	35.971	5.73	5.55	11.26	62	0.055	0.04	-75.6	Clear
A2MW09-12	ns	2.14-5.14	25-Aug-15	6.050	39.62	40.561	5	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; Sediment on probe
A2MW09-12	MW09-12	2.14-5.14	22-Mar-16	6.075	39.62	40.561	10	nd	na	2.810	37.751	2.29	5.39	10.63	66	0.059	0.041	201.8	Clear
A2MW09-12	ns	2.14-5.14	9-Sep-16	6.070	39.62	40.561	90	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-12	A2MW09-12	2.14-5.14	18-Apr-17	6.080	39.62	40.561	nd	nd	na	2.750	37.811	1.7	4.99	9.7	60	0.055	0.04	134.2	---
A2MW09-12	ns	2.14-5.14	6-Sep-17	6.050	39.62	40.561	5	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-12	A2MW09-12	2.14-5.14	26-Apr-18	6.080	39.62	40.561	nd	nd	na	3.010	37.551	3.42	5.46	10.7	69	0.061	0.04	168.6	Clear
A2MW09-12	ns	2.14-5.14	21-Aug-18	6.068	39.62	40.561	5	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-12	A2MW09-12	2.14-5.14	19-Mar-19	6.080	39.62	40.561	5	nd	na	3.663	36.898	7.3	5.55	10.74	43	0.039	0.03	173.9	Clear
A2MW09-12	A2MW09-12	2.14-5.14	21-Mar-19	6.083	39.62	40.561	10	nd	na	3.924	36.637	6.3	4.7	10.85	43	0.038	0.03	2.9	Clear, sample for methane + NSA
A2MW09-12	ns	2.14-5.14	10-Sep-19	6.068	39.62	40.561	5	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-12	A2MW09-12	2.14-5.14	26-Mar-20	6.065	39.62	40.561	5	nd	na	3.890	36.671	9.06	5.63	9.57	63	0.058	0.04	-7.9	Clear
A2MW09-12	ns	2.14-5.14	11-Aug-20	6.064	39.62	40.561	5	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry, silt on probe
A2MW09-13	MW09-13	2.02-5.02	20-Apr-10	6.150	41.54	42.575	45	nd	na	3.815	38.760	0.22	4.79	10.6	537	nm	nm	nm	Slight turbidity
A2MW09-13	MW09-13	2.02-5.02	14-Sep-10	6.040	41.54	42.575	40	nd	na	3.660	38.915	0.4	5.4	13.3	699	nm	nm	nm	Clear
A2MW09-13	ns	2.02-5.02	5-May-11	6.020	41.54	42.575	55	nd	na	3.085	39.490	0.23	6.02	11.8	189	nm	nm	nm	Very silty; MFG indicated should be sampled again tomorrow due too silt. Did not submit sample.
A2MW09-13	ns	2.02-5.02	1-Sep-11	6.005	41.54	42.575	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; No sample
A2MW09-13	ns	2.02-5.02	23-May-12	6.010	41.54	42.575	10	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-13	ns	2.02-5.02	13-Aug-12	6.010	41.54	42.575	15	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; Not sampled
A2MW09-13	MW09-13	2.02-5.02	26-Mar-13	6.005	41.54	42.575	20	nd	na	3.335	39.240	6.31	4.92	9.44	51	nm	nm	nm	Clear
A2MW09-13	ns	2.02-5.02	8-Aug-13	6.010	41.54	42.575	5	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-13	A2MW09-13	2.02-5.02	1-May-14	6.010	41.54	42.575	nd	nd	na	2.630	39.945	2.62	5.13	8.41	63	0.06	0.04	159.1	Clear

TABLE 2-1
AREA 2 GROUNDWATER MONITORING DATA
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY

Well ID	Sample ID	Screened Interval (mbgs)	Date Monitored	Total Depth of Well (m from TOC)	Ground Elevation (mASL)[1]	Top of Casing Elevation (TOC, mASL)[1]	Headspace Vapour Concentration (ppmv)	Depth to Product (m from TOC)	Apparent Product Thickness (mm)	Depth to Water (DTW, m from TOC)	Groundwater Elevation (mASL)[1]	Dissolved Oxygen (mg/L)	pH	Temperature (°C)	Electrical Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	ORP (mV)	Observations
A2MW09-13	ns	2.02-5.02	7-Aug-14	6.015	41.54	42.575	140	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-13	MW09-13	2.02-5.02	11-May-15	6.000	41.54	42.575	65	nd	na	4.000	38.575	2.52	4.54	10.58	74	0.066	0.05	157.7	Clear
A2MW09-13	ns	2.02-5.02	25-Aug-15	6.010	41.54	42.575	25	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; Sediment on probe
A2MW09-13	MW09-13	2.02-5.02	22-Mar-16	6.030	41.54	42.575	5	nd	na	2.835	39.740	0.93	5.47	9.58	49	0.045	0.03	166.9	Clear
A2MW09-13	ns	2.02-5.02	9-Sep-16	6.030	41.54	42.575	80	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-13	A2MW09-13	2.02-5.02	10-Apr-17	6.020	41.54	42.575	5	nd	na	2.730	39.845	1.11	5.12	8.31	91	0.087	0.06	159.1	Clear
A2MW09-13	ns	2.02-5.02	6-Sep-17	6.020	41.54	42.575	5	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-13	A2MW09-13	2.02-5.02	26-Apr-18	6.040	41.54	42.575	5	nd	na	2.810	39.765	1.33	5.22	10.43	124	0.112	0.08	210.1	Clear
A2MW09-13	ns	2.02-5.02	21-Aug-18	6.021	41.54	42.575	5	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-13	A2MW09-13	2.02-5.02	19-Mar-19	6.037	41.54	42.575	nd	nd	na	5.178	37.397	9.05	4.86	10.47	39	0.035	0.02	9.7	silty; slightly orange tinged
A2MW09-13	ns	2.02-5.02	10-Sep-19	6.032	41.54	42.575	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-13	ns	2.02-5.02	26-Mar-20	6.026	41.54	42.575	nd	nd	na	5.298	37.277	nm	nm	nm	nm	nm	nm	nm	Purged dry at 1.5L, poor recharge, no sample taken
A2MW09-13	ns	2.02-5.02	7-Apr-20	6.033	41.54	42.575	nd	nd	na	4.323	38.252	nm	nm	nm	nm	nm	nm	nm	Purged dry at 2L, poor recharge, no sample taken, 2nd sampling attempt of 2020 wet season PMP
A2MW09-13	ns	2.02-5.02	12-Aug-20	6.026	41.54	42.575	70	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry, silt on probe
A2MW09-14	MW09-14	2.03-5.03	20-Apr-10	6.110	41.07	42.164	nd	nd	na	3.643	38.521	0.08	5.05	11.2	370	nm	nm	nm	Clear
A2MW09-14	MW09-14	2.03-5.03	14-Sep-10	6.110	41.07	42.164	50	nd	na	3.030	39.134	0.17	6	14.9	508	nm	nm	nm	Clear
A2MW09-14	MW09-14	2.03-5.03	5-May-11	6.110	41.07	42.164	65	nd	na	3.297	38.867	0.27	6.21	10.8	455	nm	nm	nm	Clear; DUP-29
A2MW09-14	ns	2.03-5.03	1-Sep-11	6.105	41.07	42.164	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; No sample
A2MW09-14	ns	2.03-5.03	23-May-12	6.120	41.07	42.164	5	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-14	ns	2.03-5.03	13-Aug-12	6.105	41.07	42.164	5	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; Not sampled
A2MW09-14	MW09-14	2.03-5.03	26-Mar-13	6.100	41.07	42.164	60	nd	na	4.225	37.939	1.69	4.78	11.36	407	nm	nm	nm	Biofoul in the beginning of purge water - purged Clear
A2MW09-14	ns	2.03-5.03	8-Aug-13	6.110	41.07	42.164	15	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-14	A2MW09-14	2.03-5.03	1-May-14	6.180	41.07	42.164	5	nd	na	3.180	38.984	0.2	5.84	9.9	231	0.21	0.16	33.2	Clear; Biofoul
A2MW09-14	A2MW09-14	2.03-5.03	7-Aug-14	6.110	41.07	42.164	40	nd	na	5.680	36.484	1.28	6.00	15.09	250	0.20	0.08	-13.5	Biofoul
A2MW09-14	MW09-14	2.03-5.03	11-May-15	6.105	41.07	42.164	90	nd	na	4.105	38.059	0.57	5.81	11.04	186	0.17	0.12	-14.3	Clear
A2MW09-14	ns	2.03-5.03	25-Aug-15	6.095	41.07	42.164	5	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-14	MW09-14	2.03-5.03	31-Mar-16	6.110	41.07	42.164	10	nd	na	3.940	38.224	0.78	5.79	10.3	236	0.21	0.16	131.7	Clear
A2MW09-14	ns	2.03-5.03	9-Sep-16	6.110	41.07	42.164	85	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-14	A2MW09-14	2.03-5.03	10-Apr-17	6.110	41.07	42.164	nd	nd	na	3.970	38.194	1	5.15	8.61	171	0.16	0.12	63	Clear
A2MW09-14	ns	2.03-5.03	6-Sep-17	6.120	41.07	42.164	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-14	A2MW09-14	2.03-5.03	26-Apr-18	6.110	41.07	42.164	10	nd	na	3.950	38.214	0.13	5.51	10.41	361	0.32	0.24	87.5	Clear
A2MW09-14	ns	2.03-5.03	21-Aug-18	6.113	41.07	42.164	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-14	ns	2.03-5.03	19-Mar-19	6.117	41.07	42.164	25	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-14	ns	2.03-5.03	27-Mar-19	6.108	41.07	42.164	25	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; second sampling attempt of 2019 wet season PMP
A2MW09-14	ns	2.03-5.03	16-Apr-19	6.106	41.07	42.164	nm	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; third sampling attempt of 2019 wet season PMP; issues with RKI Eagle, could not monitor for headspace vapour
A2MW09-14	ns	2.03-5.03	10-Sep-19	6.108	41.07	42.164	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-14	ns	2.03-5.03	7-Apr-20	6.113	41.07	42.164	nd	nd	na	5.913	36.251	nm	nm	nm	nm	nm	nm	nm	Not enough water to sample, silt on probe
A2MW09-14	ns	2.03-5.03	9-Apr-20	6.101	41.07	42.164	nd	nd	na	6.019	36.145	nm	nm	nm	nm	nm	nm	nm	Not enough water to sample, 2nd sampling attempt of 2020 wet season PMP
A2MW09-14	ns	2.03-5.03	12-Aug-20	6.108	41.07	42.164	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry, silt on probe
A2MW09-15	MW09-15	1.35-4.35	20-Apr-10	5.570	40.23	41.448	nd	nd	na	3.000	38.448	0.09	nm	12.4	718	nm	nm	nm	Clear
A2MW09-15	MW09-15	1.35-4.35	14-Sep-10	5.560	40.23	41.448	15	nd	na	2.715	38.733	0.25	7.04	13	758	nm	nm	nm	Clear
A2MW09-15	A2MW09-15	1.35-4.35	11-Apr-11	5.565	40.23	41.448	75	nd	na	2.820	38.628	0.2	7.28	10.6	695	nm	nm	nm	Clear; Purged dry at 6 L at 11:55
A2MW09-15	MW09-15	1.35-4.35	1-Sep-11	5.560	40.23	41.448	15	nd	na	5.235	36.213	6.52	6.87	12.79	597	nm	nm	nm	Silty; BTEX only - Dry
A2MW09-15	MW09-15	1.35-4.35	23-May-12	5.550	40.23	41.448	10	nd	na	5.030	36.418	5.24	7.06	11.64	466	nm	nm	nm	Purged dry; muddy, May.24 - 2 BTEX collected
A2MW09-15	ns	1.35-4.35	13-Aug-12	5.495	40.23	41.448	450	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; Not sampled
A2MW09-15	MW09-15	1.35-4.35	26-Mar-13	5.520	40.23	41.448	25	nd	na	2.720	38.728	0.31	6.65	11.26	945	nm	nm	nm	Clear
A2MW09-15	MW09-15	1.35-4.35	8-Aug-13	5.400	40.23	41.448	10	nd	na	3.400	38.048	0.26	7.28	15.72	584	nm	nm	nm	Clear
A2MW09-15	MW09-15	1.35-4.35	1-May-14	5.510	40.23	41.448	10	nd	na	2.300	39.148	1.4	7.39	10.97	578	0.513	0.39	-174.6	Clear
A2MW09-15	MW09-15	1.35-4.35	7-Aug-14	5.525	40.23	41.448	45	nd	na	2.560	38.888	0.58	7.38	12.33	480	0.412	0.31	-144.1	Clear
A2MW09-15	MW09-15	1.35-4.35	11-May-15	5.552	40.23	41.448	100	nd	na	2.650	38.798	0.37	7.21	12.37	410	0.35	0.26	-117.6	Clear
A2MW09-15	ns	1.35-4.35	25-Aug-15	5.490	40.23	41.448	15	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-15	A2MW09-15	1.35-4.35	10-May-16	5.500	40.23	41.448	65	nd	na	2.570	38.878	5.89	7.61	14.45	419	0.341	0.26	26.3	Discussed safety concerns with Gary Cheung (AECOM) and Chris Boys (CCL) to devise a critical procedure for sampling; Clear
A2MW09-15	A2MW09-15	1.35-4.35	1-Sep-16	5.500	40.23	41.448	90	nd	na	2.880	38.568	0.35	7.32	13.63	375	0.311	0.23	-32.2	Clear
A2MW09-15	A2MW09-15	1.35-4.35	10-Apr-17	5.490	40.23	41.448	10	nd	na	4.220	37.228	1.63	5.64	10.71	201	0.18	0.13	99.7	Clear
A2MW09-15	ns	1.35-4.35	6-Sep-17	5.490	40.23	41.448	5	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-15	A2MW09-15	1.35-4.35	26-Apr-18	5.490	40.23	41.448	45	nd	na	4.020	37.428	3.9	4.39	13.22	299	0.251	0.19	225.8	From orange to clear; purged dry
A2MW09-15	ns	1.35-4.35	21-Aug-18	5.499	40.23	41.448	5	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-15	ns	1.35-4.35	19-Mar-19	5.465	40.23	41.448	10	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-15	ns	1.35-4.35	27-Mar-19	5.479	40.23	41.448	35	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; second sampling attempt of 2019 wet season PMP
A2MW09-15	ns	1.35-4.35	16-Apr-19	5.473	40.23	41.448	nm	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; third sampling attempt of 2019 wet season PMP; issues with RKI Eagle, could not monitor for headspace vapour
A2MW09-15	ns	1.35-4.35	10-Sep-19	5.482	40.23	41.448	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
A2MW09-15	ns	1.35-4.35	7-Apr-20	5.492	40.23	41.448	nd	nd	na	5.367	36.081	nm	nm	nm	nm	nm	nm	nm	Not enough water to sample, silt on probe
A2MW09-15	ns	1.35-4.35	9-Apr-20	5.487	40.23	41.448	nd	nd	na	5.220	36.228	nm	nm	nm	nm	nm	nm	nm	Orange biofoul on probe, purged dry at 0.5L, no sample taken
A2MW09-15	ns	1.35-4.35	12-Aug-20	5.478	40.23	41.448	nd	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
MW11-3S	MW11-3S	5.0-8.0	21-Jul-11	8.116	42.68	42.59	100	nd	na	5.230	37.360	0.23	5.63	9.35	616	nm	nm	nm	Clear
MW11-3S	MW11-3S	5.0-8.0	22-May-12	8.110	42.68	42.59	60	nd	na	5.230	37.360	4.14	5.99	11.79	708	nm	nm	nm	Clear
MW11-3S	MW11-3S	5.0-8.0	14-Aug-12	8.100	42.68	42.59	25	nd	na	5.850	36.740	1.79	4.85	12.79	577	nm	nm	nm	Clear
MW11-3S	MW11-3S	5.0-8.0	11-Apr-13	8.100	42.68	42.59	15	nd	na	3.820	38.770	2.51	5.55	10.83	419	nm	nm	nm	Clear
MW11-3S	MW11-3S	5.0-8.0	7-Aug-13	8.100	42.68	42.59	50	nd	na	6.060	36.530	1.11	5.08	15.09	496	nm	nm	nm	Monitored on Aug.6
MW11-3S	MW11-3S	5.0-8.0	7-May-14	6.200	42.68	42.59	50	nd	na	4.280	38.310	2.46	5.01	11.84	375	0.325	0.24	-139	Clear
MW11-3S	MW11-3S	5.0-8.0	13-Aug-14	8.120	42.68	42.59	120	nd	na	5.800	36.790	0.92	5.38	12.79	431	0.365	0.27	93.2	Clear
MW11-3S	MW11-3S	5.0-8.0	11-May-15	8.110	42.68	42.59	190	nd	na	5.430	37.160	1.62	5.28	12.52	346	0.296	0.22	108.1	Clear
MW11-3S	MW11-3S	5.0-8.0	25-Aug-15	8.110	42.68	42.59	110	nd	na	6.800	35.790	1.17	5.31	13.51	464	0.386	0.29	231.6	Clear
MW11-3S	MW11-3S	5.0-8.0	21-Sep-15	8.130	42.68	42.59	25	nd	na	5.571	37.019	2.29	5.18	12.19	498	0.428	0.32	148.4	Clear; PHCs obtained earlier in Fall PMP
MW11-3S	MW11-3S	5.0-8.0	22-Mar-16	8.110	42.68	42.59	110	nd	na	3.570	39.020	2.14	5.66	11.79	308	0.255	0.16	147.3	Clear
MW11-3S	MW11-3S	5.0-8.0	22-Aug-16	8.120	42.68	42.59	45	nd	na	5.750	36.840	0.92	5.34	13.02	434	0.366	0.27	210.7	Clear; DUP-5
MW11-3S	MW11-3S	5.0-8.0	4-Apr-17	8.110	42.68	42.59	55	nd	na	3.300	39.290	8.23	5.93	11.66	339	0.296	0.22	-39.1	Clear; DUP-6
MW11-3S	MW11-3S	5.0-8.0	15-Aug-17	8.140	42.68	42.59	55	nd	na	6.140	36.450	1.76	5.42	13.66	455	0.377	0.28	97.7	Clear
MW11-3S	MW11-3S	5.0-8.0	19-Apr-18	8.120	42.68	42.59	45	nd	na	3.295	39.295	3.25	5.25	10.65	257	0.23	0.17	227.3	Clear
MW11-3S	ns	5.0-8.0	21-Aug-18	8.129	42.68	42.59	130	nd	na	6.748	35.842	1.92	5.13	12.45	429	0.366	0.27	212.1	Dup-1
MW11-3S	MW11-3S	5.0-8.0	18-Mar-19	8.047	42.68	42.59	nd	nd	na	5.162	37.428	1.34	4.87	11.58	394	0.345	0.26	-36.3	Clear
MW11-3S	MW11-3S	5.0-8.0	9-Sep-19	8.129	42.68	42.59	115	nd	na	6.728	35.862	1.52	5.62	12.7	612	0.52	0.39	81.6	slightly cloudy
MW11-3S	MW11-3S	5.0-8.0	1-Apr-20	8.113	42.68	42.59	15	nd	na	3.721	38.869	0.97	5.49	11.03	668	0.592	0.45	78.2	Clear
MW11-3S	MW11-3S	5.0-8.0	17-Aug-20	8.116	42.68	42.59	15	nd	na	6.071	36.519	1.59	5.4	14.29	729	0.596	0.43	155.9	Clear
MW11-3I	MW11-3I	11.0-12.5	21-Jul-11	12.230	42.68	42.58	35	nd	na	5.383	37.197	0.54	5.96	10.04	778	nm	nm	nm	Clear
MW11-3I	MW11-3I	11.0-12.5	22-May-12	12.230	42.68	42.58	90	nd	na	5.580	37.000	2.27	6.04	11.18	395	nm	nm	nm	Clear
MW11-3I	MW11-3I	11.0-12.5	14-Aug-12	12.225	42.68	42.58	10	nd	na	6.000	36.580	0.88	5.51	13.01	667	nm	nm	nm	Clear
MW11-3I	ns	11.0-12.5	11-Apr-13	12.220	42.68	42.58	45	nd	na	4.440	38.140	0.51	5.85	11.34	616	nm	nm	nm	Clear
MW11-3I	MW11-3I	11.0-12.5	7-Aug-13	12.230	42.68	42.58	15	nd	na	6.260	36.320	0.45	5.63	14.31	614	nm	nm	nm	Monitored on Aug.6; headspace Aug.7
MW11-3I	MW11-3I	11.0-12.5	7-May-14	12.210	42.68	42.58	55	nd	na	4.510	38.070	0.42	5.43	12.34	562	0.482	0.36	-160.9	Clear
MW11-3I	MW11-3I	11.0-12.5	13-Aug-14	12.220	42.68	42.58	45	nd	na	5.900	36.680	5.19	5.59	13.35	566	0.473	0.36	99.6	---
MW11-3I	MW11-3I	11.0-12.5	11-May-15	12.210	42.68	42.58	110	nd	na	5.575	37.005	1.12	5.63	12.64	455	0.388	0.29	85.9	Clear
MW11-3I	MW11-3I	11.0-12.5	26-Aug-15	12.230	42.68	42.58	5	nd	na	7.055	35.525	0.33	5.86	13.80	516	0.427	0.32	225.9	Clear
MW11-3I	MW11-3I	11.0-12.5	21-Sep-15	12.280	42.68	42.58	5	nd	na	6.220	36.360	0.23	6.08	13.01	544	0.459	0.35	70.3	Clear; PHCs obtained earlier in Fall PMP
MW11-3I	MW11-3I	11.0-12.5	22-Mar-16	12.210	42.68	42.58	nd	nd	na	3.820	38.760	1.9	5.89	12.29	349	0.299	0.22	121.2	Clear
MW11-3I	MW11-3I	11.0-12.5	22-Aug-16	12.150	42.68	42.58	15	nd	na	5.810	36.770	0.68	5.78	13.1	482	0.405	0.31	161.8	Clear
MW11-3I	MW11-3I	11.0-12.5	4-Apr-17	12.210	42.68	42.58	nd	nd	na	3.600	38.980	1.67	5.85	12.54	458	0.391	0.29	-51.4	Clear
MW11-3I	MW11-3I	11.0-12.5	15-Aug-17	12.250	42.68	42.58	nd	nd	na	6.270	36.310	0.33	5.79	13.25	473	0.396	0.3	69.3	Clear
MW11-3I	MW11-3I	11.0-12.5	19-Apr-18	12.223	42.68	42.58	95	nd	na	3.684	38.896	0.82	5.6	12.03	536	0.463	0.35	230	Clear
MW11-3I	ns	11.0-12.5	21-Aug-18	12.348	42.68	42.58	10	nd	na	7.057	35.523	0.73	5.41	12.89	506	0.428	0.32	222	Clear
MW11-3I	MW11-3I	11.0-12.5	18-Mar-19	12.152	42.68	42.58	nd	nd	na	5.273	37.307	1.02	5.44	11.82	373	0.324	0.24	-59.5	Clear
MW11-3I	MW11-3I	11.0-12.5	9-Sep-19	12.207	42.68	42.58	10	nd	na	7.082	35.498	0.44	7.04	12.17	448	0.386	0.29	-95.3	Clear
MW11-3I	MW11-3I	11.0-12.5	1-Apr-20	12.231	42.68	42.58	10	nd	na	4.338	38.242	0.78	5.65	11.54	780	0.682	0.52	75.1	Clear
MW11-3I	MW11-3I	11.0-12.5	17-Aug-20	12.230	42.68	42.58	5	nd	na	6.365	36.215	0.38	5.81	13.97	605	0.498	0.38	133.4	Clear
MW11-3D	MW11-3D	18.5-20	21-Jul-11	20.570	42.68	42.59	200	nd	na	5.925	36.665	0.08	6.24	9.78	555	nm	nm	nm	Clear
MW11-3D	MW11-3D	18.5-20	22-May-12	20.560	42.68	42.59	45	nd	na	7.110	35.480	0.43	6.87	12.37	638	nm	nm	nm	Clear
MW11-3D	MW11-3D	18.5-20	14-Aug-12	20.530	42.68	42.59	5	nd	na	7.075	35.515	0.24	6.1	13.31	659	nm	nm	nm	Clear
MW11-3D	MW11-3D	18.5-20	11-Apr-13	20.520	42.68	42.59	30	nd	na	5.780	36.810	2.28	6.58	11.68	730	nm	nm	nm	Clear
MW11-3D	MW11-3D	18.5-20	7-Aug-13	20.570	42.68	42.59	nd	nd	na	8.550	34.040	4.1	5.44	13.02	764	nm	nm	nm	Monitored on Aug.6; headspace Aug.7
MW11-3D	MW11-3D	18.5-20	7-May-14	20.520	42.68	42.59	40	nd	na	5.550	37.040	1.65	6.2	12.43	815	0.697	0.54	18.9	Retrieved/pulled out tubing and bailer from the well
MW11-3D	MW11-3D	18.5-20	13-Aug-14	20.550	42.68	42.59	40	nd	na	6.540	36.050	0.39	6.24	13.06	834	0.702	0.56	37	---
MW11-3D	MW11-3D	18.5-20	12-May-15	20.480	42.68	42.59	75	nd	na	6.570	36.020	0.43	6.38	13.97	806	0.665	0.51	37.5	Clear
MW11-3D	MW11-3D	18.5-20	26-Aug-15	20.800	42.68	42.59	5	nd	na	7.815	34.775	0.43	6.44	14.09	862	0.708	0.54	85.1	Clear
MW11-3D	MW11-3D	18.5-20	21-Sep-15	20.590	42.68	42.59	30	nd	na	6.970	35.620	0.99	6.61	13.05	845	0.711	0.55	21.5	Clear; PHCs obtained earlier in Fall PMP
MW11-3D	MW11-3D	18.5-20	22-Mar-16	20.780	42.68	42.59	40	nd	na	5.180	37.410	0.3	6.65	12	784	0.678	0.52	2.7	Clear
MW11-3D	MW11-3D	18.5-20	22-Aug-16	20.540	42.68	42.59	20	nd	na	6.820	35.770	0.13	6.55	13.07	802	0.691	0.52	3.5	Clear
MW11-3D	MW11-3D	18.5-20	4-Apr-17	20.530	42.68	42.59	30	nd	na	9.990	32.600	0.23	6.47	12.52	794	0.677	0.52	-80	Clear
MW11-3D	MW11-3D	18.5-20	15-Aug-17	20.560	42.68	42.59	5	nd	na	6.870	35.720	1.09	6.41	14.27	787	0.644	0.49	24.5	Clear
MW11-3D	MW11-3D	18.5-20	19-Apr-18	20.543	42.68	42.59	50	nd	na	5.110	37.480	0.29	6.36	12.41	846	0.724	0.56	47	Clear
MW11-3D	ns	18.5-20	21-Aug-18	20.583	42.68	42.59	nd	nd	na	7.927	34.663	2.71	6.34	12.96	795	0.672	0.51	83.8	---
MW11-3D	MW11-3D	18.5-20	18-Mar-19	20.506	42.68	42.59	nd	nd	na	6.610	35.980	1.04	6.18	12.06	704	0.608	0.46	-51.4	Clear
MW11-3D	MW11-3D	18.5-20	9-Sep-19	20.652	42.68	42.59	10	nd	na	7.789	34.801	0.23	6.55	13.07	741	0.623	0.48	52.9	Clear
MW11-3D	MW11-3D	18.5-20	1-Apr-20	20.557	42.68	42.59	nd	nd	na	5.553	37.037	0.24	6.44	11.48	1077	0.943	0.73	-3.6	Clear
MW11-3D	MW11-3D	18.5-20	13-Aug-20	20.533	42.68	42.59	5	nd	na	6.991	35.599	0.41	6.38	13.37	825	0.69	0.53	26.8	Clear
MW11-4S	MW11-4S	5 - 8.0	21-Jul-11	7.905	41.89	41.89	10	nd	na	5.805	36.085	1.87	5.36	7.79	1926	nm	nm	nm	Clear
MW11-4S	MW11-4S	5 - 8.0	22-May-12	7.900	41.89	41.89	10	nd	na	5.570	36.320	1.12	5.93	10.35	1106	nm	nm	nm	Clear
MW11-4S	MW11-4S	5 - 8.0	14-Aug-12	7.900	41.89	41.89	20	nd	na	5.970	35.920	0.87	5.55	11.43	1169	nm	nm	nm	Clear
MW11-4S	MW11-4S	5 - 8.0	11-Apr-13	7.880	41.89	41.89	nd	nd	na	4.750	37.140	0.34	5.6	10.08	969	nm	nm	nm	Clear
MW11-4S	MW11-4S	5 - 8.0	7-Aug-13	7.900	41.89	41.89	15	nd	na	6.250	35.640	0.66	4.8	11.43	927	nm	nm	nm	Monitored Aug.6; headspace Aug.7; DUP-1
MW11-4S	MW11-4S	5 - 8.0	7-May-14	7.900	41.89	41.89	10	nd	na	5.400	36.490	1.68	5.44	10.57	798	0.691	0.53	196.4	Clear
MW11-4S	MW11-4S	5 - 8.0	13-Aug-14	7.890	41.89	41.89	50	nd	na	6.180	35.710	4.35	5.63	13.48	875	0.729	0.56	121	---
MW11-4S	MW11-4S	5 - 8.0	12-May-15	7.810	41.89	41.89	35	nd	na	5.820	36.070	4.92	5.38	11.26	754	0.664	0.51	109.3	Clear
MW11-4S	MW11-4S	5 - 8.0	26-Aug-15	7.900	41.89	41.89	30	nd	na	6.510	35.380	1.76	5.50	12.16	832	0.717	0.55	193.9	Clear
MW11-4S	MW11-4S	5 - 8.0	21-Sep-15	7.930	41.89	41.89	45	nd	na	5.540	36.350	2.30	5.43	10.91	788	0.701	0.54	128.1	Clear; PHCs obtained earlier in Fall PMP
MW11-4S	MW11-4S	5 - 8.0	22-Mar-16	7.910	41.89	41.89	10	nd	na	4.900	36.990	0.18	6.69	10.84	729	0.649	0.5	39.4	Clear
MW11-4S	MW11-4S	5 - 8.0	22-Aug-16	7.850	41.89	41.89	15	nd	na	5.890	36.000	1.95	5.67	11.69	821	0.716	0.55	105.2	Clear
MW11-4S	MW11-4S	5 - 8.0	4-Apr-17	7.900	41.89	41.89	nd	nd	na	4.540	37.350	0.42	5.75	10.59	645	0.624	0.48	-89.4	Clear
MW11-4S	MW11-4S	5 - 8.0	15-Aug-17	7.910	41.89	41.89	nd	nd	na	6.190	35.700	0.77	5.62	12.46	864	0.74	0.57	38.7	Clear; some grey silt
MW11-4S	MW11-4S	5 - 8.0	19-Apr-18	7.837	41.89	41.89	10	nd	na	4.293	37.597	0.25	5.52	11.05	966	0.856	0.66	151.1	Clear
MW11-4S	ns	5 - 8.0	20-Aug-18	7.823	41.89	41.89	60	nd	na	6.429	35.461	2.30	5.46	12.18	1035	0.891	0.69	135.7	Clear
MW11-4S	MW11-4S	5 - 8.0	18-Mar-19	7.922	41.89	41.89	nd	nd	na	5.473	36.417	1.23	5.33	11.34	815	0.717	0.55	-56.3	Clear
MW11-4S	MW11-4S	5 - 8.0	9-Sep-19	7.915	41.89	41.89	15	nd	na	6.360	35.530	4.12	7.04	11.25	861	0.759	0.58	-15.8	Clear
MW11-4S	MW11-4S	5 - 8.0	1-Apr-20	7.899	41.89	41.89	5	nd	na	4.433	37.457	0.91	5.7	10.28	1148	1.039	0.81	5.9	Clear, DUP-8
MW11-4S	MW11-4S	5 - 8.0	13-Aug-20	7.905	41.89	41.89	70	nd	na	5.918	35.972	0.19	5.69	11.27	927	0.856	0.66	163.1	Clear
MW11-4I	MW11-4I	11.0-12.5	21-Jul-11	12.301	41.89	41.82	25	nd	na	6.618	35.202	3.5	5.84	8.35	1273	nm	nm	nm	Clear
MW11-4I	MW11-4I	11.0-12.5	22-May-12	12.310	41.89	41.82	5	nd	na	6.480	35.340	0.23	6.07	11.16	1200	nm	nm	nm	Clear
MW11-4I	MW11-4I	11.0-12.5	14-Aug-12	12.285	41.89	41.82	nd	nd	na	6.825	34.995	0.79	5.6	12.66	1219	nm	nm	nm	Clear; DUP-8
MW11-4I	MW11-4I	11.0-12.5	11-Apr-13	12.290	41.89	41.82	nd	nd	na	5.670	36.150	0.32	5.48	10.12	1050	nm	nm	nm	Clear; DUP-20
MW11-4I	MW11-4I	11.0-12.5	7-Aug-13	12.300	41.89	41.82	5	nd	na	6.910	34.910	1.22	5.37	11.78	1025	nm	nm	nm	Monitored Aug.6; headspace Aug.7; DUP-2
MW11-4I	MW11-4I	11.0-12.5	7-May-14	12.290	41.89	41.82	nd	nd	na	6.210	35.610	1.2	5.49	11.19	948	0.837	0.65	138.1	Clear; DUP-16
MW11-4I	MW11-4I	11.0-12.5	13-Aug-14	12.300	41.89	41.82	10	nd	na	7.000	34.820	2.93	5.39	12.3	948	0.813	0.63	107.9	Slightly turbid; DUP-8
MW11-4I	MW11-4I	11.0-12.5	12-May-15	12.220	41.89	41.82	10	nd	na	6.600	35.220	0.25	5.43	11.59	789	0.69	0.53	110.7	---
MW11-4I	MW11-4I	11.0-12.5	26-Aug-15	12.290	41.89	41.82	5	nd	na	7.520	34.300	0.24	5.59	13.39	899	0.751	0.58	153.8	Clear; DUP-6
MW11-4I	MW11-4I	11.0-12.5	21-Sep-15	12.335	41.89	41.82	nd	nd	na	6.720	35.100	0.34	5.76	12.06	856	0.739	0.57	168.2	Clear; PHCs obtained earlier in Fall PMP
MW11-4I	MW11-4I	11.0-12.5	22-Mar-16	12.410	41.89	41.82	5	nd	na	5.850	35.970	0.52	6.69	11.08	793	0.702	0.54	38.9	Clear
MW11-4I	MW11-4I	11.0-12.5	22-Aug-16	12.250	41.89	41.82	nd	nd	na	6.750	35.070	0.25	5.65	11.63	837	0.731	0.56	41.9	Clear
MW11-4I	MW11-4I	11.0-12.5	4-Apr-17	12.280	41.89	41.82	nd	nd	na	5.450	36.370	0.51	5.66	11.3	767	0.676	0.52	-108.5	Clear
MW11-4I	MW11-4I	11.0-12.5	15-Aug-17	12.300	41.89	41.82	nd	nd	na	7.080	34.740	0.45	5.55	12.54	809	0.69	0.53	89.7	Clear
MW11-4I	MW11-4I	11.0-12.5	19-Apr-18	12.233	41.89	41.82	nd	nd	na	5.327	36.493	1.38	5.09	11.13	964	0.852	0.66	173.4	Clear; DUP-9
MW11-4I	ns	11.0-12.5	20-Aug-18	12.368	41.89	41.82	35	nd	na	7.247	34.573	3.43	5.63	12.6	976	0.831	0.64	50	Clear
MW11-4I	MW11-4I	11.0-12.5	18-Mar-19	12.302	41.89	41.82	nd	nd	na	6.323	35.497	0.24	5.29	11.54	808	0.707	0.54	-56.9	Clear; DUP-01
MW11-4I	MW11-4I	11.0-12.5	9-Sep-19	12.225	41.89	41.82	nd	nd	na	7.283	34.537	0.81	6.91	11.74	853	0.742	0.57	-34.2	clear
MW11-4I	MW11-4I	11.0-12.5	1-Apr-20	12.288	41.89	41.82	nd	nd	na	5.491	36.329	0.66	5.64	10.9	1185	1.054	0.82	-15.4	clear
MW11-4I	MW11-4I	11.0-12.5	13-Aug-20	12.293	41.89	41.82	nd	nd	na	6.805	35.015	0.82	5.74	12.15	933	0.804	0.62	116.9	clear
MW11-4D	MW11-4D	18.5-20	21-Jul-11	20.470	41.89	41.9	nd	nd	na	7.360	34.540	2.37	5.6	8.73	1283	nm	nm	nm	Clear
MW11-4D	MW11-4D	18.5-20	22-May-12	20.470	41.89	41.9	35	nd	na	7.740	34.160	0.39	5.7	11.18	1179	nm	nm	nm	Clear; DUP-13
MW11-4D	MW11-4D	18.5-20	14-Aug-12	20.450	41.89	41.9	5	nd	na	8.035	33.865	0.37	5.78	14.66	1251	nm	nm	nm	Clear
MW11-4D	MW11-4D	18.5-20	11-Apr-13	20.450	41.89	41.9	110	nd	na	6.930	34.970	2.94	6.12	10.67	1216	nm	nm	nm	Clear; Silty ambers
MW11-4D	MW11-4D	18.5-20	7-Aug-13	20.460	41.89	41.9	60	nd	na	8.170	33.730	3.76	5.71	14.32	1179	nm	nm	nm	Monitored on Aug.6; headspace Aug.7
MW11-4D	MW11-4D	18.5-20	7-May-14	20.430	41.89	41.9	40	nd	na	6.650	35.250	2.21	5.55	11.82	1002	nm	nm	nm	Clear
MW11-4D	MW11-4D	18.5-20	13-Aug-14	20.480	41.89	41.9	50	nd	na	7.460	34.440	0.48	5.54	13.01	974	0.822	0.64	101.2	---
MW11-4D	MW11-4D	18.5-20	12-May-15	20.360	41.89	41.9	100	nd	na	7.050	34.850	0.38	5.47	11.93	783	0.678	0.52	107.3	Clear
MW11-4D	MW11-4D	18.5-20	26-Aug-15	20.455	41.89	41.9	25	nd	na	7.990	33.910	0.14	5.55	12.56	871	0.742	0.57	180.7	Clear
MW11-4D	MW11-4D	18.5-20	22-Mar-16	20.720	41.89	41.9	120	nd	na	6.430	35.470	0.24	6.64	11.13	791	0.7	0.54	42.5	Clear, DUP-12
MW11-4D	MW11-4D	18.5-20	22-Aug-16	20.530	41.89	41.9	nd	nd	na	7.220	34.680	0.32	5.37	12.15	882	0.76	0.59	92.7	Clear
MW11-4D	MW11-4D	18.5-20	4-Apr-17	20.520	41.89	41.9	10	nd	na	6.060	35.840	0.35	5.8	11.63	780	0.681	0.52	-83.5	Clear
MW11-4D	MW11-4D	18.5-20	15-Aug-17	20.440	41.89	41.9	5	nd	na	7.540	34.360	1.96	5.8	13.26	897	0.752	0.58	68.1	Clear; DUP-1
MW11-4D	MW11-4D	18.5-20	19-Apr-18	20.393	41.89	41.9	nd	nd	na	6.004	35.896	0.14	5.77	11.6	913	0.798	0.62	118.1	Clear
MW11-4D	ns	18.5-20	20-Aug-18	20.698	41.89	41.9	nd	nd	na	7.670	34.230	6.7	5.92	12.1	986	0.85	0.66	92.7	Clear
MW11-4D	MW11-4D	18.5-20	18-Mar-19	20.522	41.89	41.9	nd	nd	na	6.908	34.992	0.62	5.13	11.35	784	0.693	0.53	-57.4	Clear
MW11-4D	MW11-4D	18.5-20	9-Sep-19	20.490	41.89	41.9	nd	nd	na	7.850	34.050	1.11	6.98	11.39	820	0.72	0.55	-34.9	clear; DUP-1
MW11-4D	MW11-4D	18.5-20	1-Apr-20	20.476	41.89	41.9	nd	nd	na	6.200	35.700	6.81	5.77	10.76	1141	1.019	0.79	-11.5	clear

TABLE 2-1
AREA 2 GROUNDWATER MONITORING DATA
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY

Well ID	Sample ID	Screened Interval (mbgs)	Date Monitored	Total Depth of Well (m from TOC)	Ground Elevation (mASL) [1]	Top of Casing Elevation (TOC, mASL) [1]	Headspace Vapour Concentration (ppmv)	Depth to Product (m from TOC)	Apparent Product Thickness (mm)	Depth to Water (DTW, m from TOC)	Groundwater Elevation (mASL) [1]	Dissolved Oxygen (mg/L)	pH	Temperature (°C)	Electrical Conductivity (µS/cm)	TDS (g/L)	Salinity (ppt)	ORP (mV)	Observations
MW11-4D	MW11-4D	18.5-20	13-Aug-20	20.490	41.89	41.9	5	nd	na	7.343	34.557	0.32	5.83	12.35	907	0.778	0.6	97.4	clear
WS2-D	WS2-D	4.6-7.6	21-Apr-04	7.710	40.34	40.256	125	nd	na	5.215	35.041	nm	6.27	10.6	266	nm	nm	nm	---
WS2-D	WS-2D	4.6-7.6	18-Oct-04	7.710	40.34	40.256	140	nd	na	6.108	34.148	nm	6.76	12.3	409	nm	nm	nm	---
WS2-D	WS-2D	4.6-7.6	14-Apr-05	7.710	40.34	40.256	75	nd	na	4.140	36.116	nm	6.63	10.7	375	nm	nm	nm	---
WS2-D	A2-WS-2D	4.6-7.6	14-Sep-05	7.714	40.34	40.256	nm	nd	na	6.560	33.696	nm	7.31	12.6	350	nm	nm	nm	---
WS2-D	WS2-D	4.6-7.6	20-Mar-06	7.700	40.34	40.256	75	nd	na	5.200	35.056	1.86	6.86	10.7	230	nm	nm	nm	---
WS2-D	WS2-D	4.6-7.6	21-Aug-06	7.700	40.34	40.256	15	nd	na	7.015	33.241	1.83	6.92	12.9	388	nm	nm	nm	---
WS2-D	WS2-D	4.6-7.6	10-Apr-07	7.710	40.34	40.256	100	nd	na	5.380	34.876	0.11	6.63	10.1	377	nm	nm	nm	---
WS2-D	WS2-D	4.6-7.6	29-Aug-07	7.700	40.34	40.256	250	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry
WS2-D	WS2-D	4.6-7.6	1-Apr-08	7.632	40.34	40.256	55	nd	na	6.081	34.175	0.72	6.52	10.3	188	nm	nm	nm	---
WS2-D	ns	4.6-7.6	27-Aug-08	nm	40.34	40.256	100	nd	na	nd	na	0.4	nm	nm	nm	nm	nm	nm	Dry no sample
WS2-D	WS2-D	4.6-7.6	29-Apr-09	7.708	40.34	40.256	100	nd	na	7.282	32.974	0.9	nm	nm	nm	nm	nm	nm	Silty; one jar very little water could not take parameters
WS2-D	WS2-D	4.6-7.6	26-Aug-09	7.710	40.34	40.256	150	nd	na	7.238	40.338	0.2	6.23	11.6	259	nm	nm	nm	Low turbidity and sediment
WS2-D	WS2-D	4.6-7.6	12-Apr-10	7.715	40.34	40.256	nd	nd	na	4.342	35.914	0.89	6.55	10	180.9	nm	nm	nm	Translucent pale yellow; Some brown sediment
WS2-D	ns	4.6-7.6	8-Sep-10	7.700	40.34	40.256	100	nd	na	nd	na	nm	nm	nm	nm	nm	nm	nm	Dry; No samples
WS2-D	WS2-D	4.6-7.6	12-Apr-11	7.705	40.34	40.256	110	nd	na	4.331	35.925	0.54	7.37	10.8	199	nm	nm	nm	Clear; DUP-13
WS2-D	WS2-D	4.6-7.6	24-Aug-11	7.695	40.34	40.256	120	nd	na	7.090	33.166	0.58	6.54	10.37	152	nm	nm	nm	Clear
WS2-D	WS2-D	4.6-7.6	29-May-12	7.710	40.34	40.256	20	nd	na	6.370	33.886	0.29	6.28	10.51	101	nm	nm	nm	Clear
WS2-D	WS2-D	4.6-7.6	21-Aug-12	7.705	40.34	40.256	10	nd	na	7.060	33.196	0.55	5.67	13.75	161	nm	nm	nm	Clear
WS2-D	WS2-D	4.6-7.6	23-Apr-13	7.700	40.34	40.256	35	nd	na	4.130	36.126	2.25	6.21	10.78	126	nm	nm	nm	Clear; DUP-27
WS2-D	WS2-D	4.6-7.6	20-Aug-13	7.700	40.34	40.256	95	nd	na	7.050	33.206	0.95	6.32	11.65	158	nm	nm	nm	Clear
WS2-D	WS2-D	4.6-7.6	22-May-14	7.695	40.34	40.256	nd	nd	na	5.555	34.701	0.94	6.04	10.21	110	0.1	0.07	54.1	Clear
WS2-D	WS2-D	4.6-7.6	22-Aug-14	7.700	40.34	40.256	170	nd	na	7.060	33.196	1.02	5.73	12.09	134	0.116	0.08	103.7	Clear
WS2-D	WS2-D	4.6-7.6	5-Mar-15	7.700	40.34	40.256	nd	nd	na	5.095	35.161	6.61	6.22	11.27	105	0.093	0.07	126.3	Purged dry at 12 L
WS2-D	WS2-D	4.6-7.6	18-Aug-15	7.695	40.34	40.256	90	nd	na	6.745	33.511	0.25	6.29	12.85	111	0.094	0.07	265.7	Clear
WS2-D	WS2-D	4.6-7.6	8-Mar-16	7.710	40.34	40.256	25	nd	na	3.440	36.816	1.34	6.56	10.72	147	0.131	0.1	212.2	Clear
WS2-D	WS2-D	4.6-7.6	8-Aug-16	7.700	40.34	40.256	25	nd	na	6.370	33.886	0.72	5.85	12.27	118	0.101	0.07	138.2	Clear
WS2-D	WS2-D	4.6-7.6	8-Mar-17	7.700	40.34	40.256	5	nd	na	3.160	37.096	6.59	6.18	10.05	98	0.089	0.07	-149.6	Clear
WS2-D	WS2-D	4.6-7.6	23-Aug-17	7.710	40.34	40.256	30	nd	na	6.540	33.716	1.07	6.06	12.17	95	0.082	0.06	95.6	Clear
WS2-D	WS2-D	4.6-7.6	2-May-18	7.715	40.34	40.256	10	nd	na	4.346	33.511	2.51	5.31	10.51	83	0.075	0.05	204.6	Clear
WS2-D	WS2-D	4.6-7.6	27-Aug-18	8.710	40.34	40.256	75	nd	na	6.788	36.816	1.79	5.13	11.75	92	0.08	0.06	236.4	---
WS2-D	WS2-D	4.6-7.6	25-Mar-19	7.708	40.34	40.256	25	nd	na	4.478	35.778	5	5.03	10.85	82	0.074	0.05	250.9	Clear
WS2-D	WS2-D	4.6-7.6	12-Sep-19	7.724	40.34	40.256	10	nd	na	6.662	33.594	4.69	6.85	11.44	78	0.068	0.05	18.3	Clear
WS2-D	WS2-D	4.6-7.6	2-Apr-20	7.704	40.34	40.256	nd	nd	na	3.369	36.887	2.1	5.4	10.12	85	0.077	0.06	76.8	Clear
WS2-D	WS2-D	4.6-7.6	12-Aug-20	7.701	40.34	40.256	35	nd	na	6.070	34.186	0.28	5.77	11.89	62	0.053	0.04	55.1	Clear
WS2-D2	WS-2D2	10.7-12.2	18-Oct-04	12.050	40.34	40.317	125	nd	na	6.340	33.977	nm	7.32	12.2	591	nm	nm	nm	---
WS2-D2	WS-2D2	10.7-12.2	14-Apr-05	12.000	40.34	40.317	80	nd	na	4.870	35.447	nm	6.71	11.1	308	nm	nm	nm	---
WS2-D2	A2-WS-2D2	10.7-12.2	14-Sep-05	12.010	40.34	40.317	nm	nd	na	7.096	33.221	nm	7.27	12.7	381	nm	nm	nm	Sample collected Sept.14
WS2-D2	WS2-D2	10.7-12.2	20-Mar-06	11.820	40.34	40.317	75	nd	na	5.200	35.117	1.58	6.35	10.4	252	nm	nm	nm	---
WS2-D2	WS2-D2	10.7-12.2	21-Aug-06	11.690	40.34	40.317	70	nd	na	7.330	32.987	1.38	7.51	12.7	332	nm	nm	nm	---
WS2-D2	WS2-D2	10.7-12.2	10-Apr-07	11.750	40.34	40.317	105	nd	na	6.090	34.227	0.11	7.99	10.8	280	nm	nm	nm	---
WS2-D2	WS2-D2	10.7-12.2	29-Aug-07	11.850	40.34	40.317	20	nd	na	10.090	30.227	0.15	8.11	14.2	410	nm	nm	nm	---
WS2-D2	WS2-D2	10.7-12.2	1-Apr-08	11.754	40.34	40.317	50	nd	na	7.023	33.294	0.2	7.05	10	393	nm	nm	nm	---
WS2-D2	WS2-D2	10.7-12.2	27-Aug-08	11.762	40.34	40.317	50	nd	na	9.795	30.522	0.1	7.79	11.1	424	nm	nm	nm	---
WS2-D2	WS2-D2	10.7-12.2	29-Apr-09	11.882	40.34	40.317	10	nd	na	8.699	31.618	0.4	8.79	11.6	810	nm	nm	nm	Clear
WS2-D2	WS2-D2	10.7-12.2	26-Aug-09	11.900	40.34	40.317	nd	nd	na	7.850	32.467	0.3	6.7	11	358	nm	nm	nm	Clear
WS2-D2	WS2-D2	10.7-12.2	12-Apr-10	11.910	40.34	40.317	nd	nd	na	5.300	35.017	2.19	7.32	10.2	292.9	nm	nm	nm	Clear; Pale yellow; trace sediment
WS2-D2	WS2-D2	10.7-12.2	9-Sep-10	11.880	40.34	40.317	40	nd	na	9.110	31.207	0.1	7.33	11.4	391	nm	nm	nm	Clear
WS2-D2	WS2-D2	10.7-12.2	13-Apr-11	11.900	40.34	40.317	75	nd	na	6.480	33.837	7.17	6.92	10.7	270	nm	nm	nm	Clear
WS2-D2	WS2-D2	10.7-12.2	24-Aug-11	11.900	40.34	40.317	10	nd	na	7.620	32.697	5.34	7.	10.32	204	nm	nm	nm	Dry; No sample
WS2-D2	WS2-D2	10.7-12.2	30-May-12	11.780	40.34	40.317	nd	nd	na	7.050	33.267	0.23	7.14	10.81	186	nm	nm	nm	Clear
WS2-D2	WS2-D2	10.7-12.2	21-Aug-12	11.730	40.34	40.317	5	nd	na	7.635	32.682	0.86	6.52	11.79	226	nm	nm	nm	Clear
WS2-D2	WS2-D2	10.7-12.2	23-Apr-13	11.760	40.34	40.317	90	nd	na	5.465	34.852	1.11	7.14	11.32	170	nm	nm	nm	Clear
WS2-D2	WS2-D2	10.7-12.2	21-Aug-13	11.720	40.34	40.317	nd	nd	na	7.670	32.647	0.8	7.08	12.64	231	nm	nm	nm	Clear
WS2-D2	WS2-D2	10.7-12.2	22-May-14	11.730	40.34	40.317	5	nd	na	6.400	33.917	0.73	6.79	10.86	189	0.168	0.12	51.3	Clear
WS2-D2	WS2-D2	10.7-12.2	22-Aug-14	11.740	40.34	40.317	nd	nd	na	8.100	32.217	0.61	7.23	12.89	229	0.194	0.14	-54.7	Clear
WS2-D2	WS2-D2	10.7-12.2	5-Mar-15	11.760	40.34	40.317	nd	nd	na	5.955	34.362	8.44	7.07	12.36	198	0.17	0.12	50	Clear
WS2-D2	WS2-D2	10.7-12.2	17-Aug-15	11.810	40.34	40.317	nd	nd	na	7.190	33.127	0.15	7.20	13.41	201	0.168	0.12	68.7	Clear
WS2-D2	WS2-D2	10.7-12.2	10-Mar-16	11.920	40.34	40.317	15	nd	na	4.500	35.817	1.16	7.01	10.11	140	0.128	0.09	-111.3	Clear
WS2-D2	WS2-D2	10.7-12.2	8-Aug-16	11.820	40.34	40.317	10	nd	na	6.900	33.417	0.51	6.85	13.15	200	0.168	0.12	76.3	Clear
WS2-D2	WS2-D2	10.7-12.2	8-Mar-17	11.870	40.34	40.317	10	nd	na	4.700	35.617	1	7.02	10.86	158	0.141	0.1	-226.7	---
WS2-D2	WS2-D2	10.7-12.2	23-Aug-17	11.810	40.34	40.317	20	nd	na	7.120	33.197	0.45	7.10	12.11	203	0.175	0.13	90.7	Clear
WS2-D2	WS2-D2	10.7-12.2	2-May-18	11.831	40.34	40.317	15	nd	na	5.410	34.362	4.9	7.19	11.32	213	0.188	0.14	141	Bailed; cloudy grey; DUP-13
WS2-D2	WS2-D2	10.7-12.2	27-Aug-18	11.834	40.34	40.317	25	nd	na	7.356	33.127	0.42	7.01	12.4	231	0.197	0.15	222.4	---
WS2-D2	WS2-D2	10.7-12.2	25-Mar-19	11.936	40.34	40.317	25	nd	na	5.523	34.794	1.09	7.05	11.33	210	0.185	0.14	115.6	Clear; DUP-03
WS2-D2	WS2-D2	10.7-12.2	12-Sep-19	11.821	40.34	40.317	5	nd	na	7.240	33.077	0.73	7.02	12.05	160	0.139	0.1	66.1	Clear; DUP-03
WS2-D2	WS2-D2	10.7-12.2	2-Apr-20	11.841	40.34	40.317	5	nd	na	4.756	35.561	0.5	6.94	10.75	229	0.205	0.15	73.9	Clear
WS2-D2	WS2-D2	10.7-12.2	12-Aug-20	11.906	40.34	40.317	5	nd	na	6.796	33.521	0.55	7.13	13.35	176	0.147	0.11	62	Clear

Abbreviations:

BC	Bailer confirmed
°C	Degree Celsius
DUP	Duplicate
g/L	Grams per litre
L	Litre
m	Metres
mASL	Metres above sea level
mbgs	Metres below ground surface
mg/L	Milligrams per litre
mm	Millimetres
mV	Millivolts
µS/cm	Microsiemens per centimetre
na	Not available/applicable
nd	Not detected
nm	Not monitored
ns	Not sampled
ORP	Oxidation reduction potential
ppmv	Parts per million by volume
ppt	Parts per thousand
TDS	Total dissolved solids
TOC	Top of casing
---	No observations noted

Notes:

1 Elevations are in Parkland Datum - Geodetic Datum + 91.51 feet (27.895 m)

TABLE 2-2
AREA 2 CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY
µg/L (ppb)

					LEPHw [3]	HEPHw [3]	EPHw (C10-C19) [2,3]	EPHw (C19-C32) [3]	VHw (C6-C10)	VPHw	Benzene	Toluene	Ethylbenzene	Xylenes	Styrene	MTBE	Groundwater Classification
Generic Numerical Water Standards [4]																	
CSR	Schedule 3.2 - Marine Aquatic Life			(AW)	500	NS	5000[1]	NS	15000[1]	1500	1000	2000	2500	300	720	4400	
	Site-Specific Screening Levels (SSSLs)				3000	NS	5000	NS	15000	15000	21000	7700	3200	3300	NS	NS	
Well ID	**Sample ID**	**Screened Interval (mbgs)**	**ALS Laboratory Report #**	**Sample Date**													
G2-3B	G2-3B	10.1-13.1	---	28-Apr-04	<300.	<1000.	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
G2-3B	G2-3B	10.1-13.1	---	15-Oct-04	<300.	<1000.	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
G2-3B	G2-3B	10.1-13.1	---	12-Apr-05	<300.	<1000.	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
G2-3B	G2-3B	10.1-13.1	---	13-Sep-05	<300.	<1000.	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
G2-3B	G2-3B	10.1-13.1	---	23-Mar-06	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
G2-3B	G2-3B	10.1-13.1	---	24-Aug-06	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
G2-3B	G2-3B	10.1-13.1	---	12-Apr-07	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
G2-3B	G2-3B	10.1-13.1	---	10-Sep-07	270.	<250.	270.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
G2-3B	G2-3B	10.1-13.1	---	1-Apr-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
G2-3B	G2-3B	10.1-13.1	---	2-Sep-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
G2-3B	G2-3B	10.1-13.1	---	28-Apr-09	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
G2-3B	G2-3B	10.1-13.1	---	1-Sep-09	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
G2-3B	G2-3B	10.1-13.1	---	14-Apr-10	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
G2-3B	G2-3B	10.1-13.1	---	9-Sep-10	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	---	AW-
G2-3B	G2-3B	10.1-13.1	---	18-Apr-11	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	---	AW-
G2-3B	G2-3B	10.1-13.1	---	9-Aug-11	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
G2-3B	G2-3B	10.1-13.1	---	18-May-12	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	1.46	<0.5	<0.75	---	---	AW-
G2-3B	G2-3B	10.1-13.1	---	22-Aug-12	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
G2-3B	G2-3B	10.1-13.1	L1299117-2	8-May-13	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
G2-3B	G2-3B	10.1-13.1	L1367083-1	23-Sep-13	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
G2-3B	G2-3B	10.1-13.1	L1461112-1	27-May-14	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
G2-3B	G2-3B	10.1-13.1	L1508365-3	26-Aug-14	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
G2-3B	G2-3B	10.1-13.1	L1583423-1	3-Mar-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	11.7	AW-
G2-3B	G2-3B	10.1-13.1	L1674072-3	16-Sep-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
G2-3B	G2-3B	10.1-13.1	L1743509-2	9-Mar-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	15.8	AW-
G2-3B	G2-3B	10.1-13.1	L1812426-5	11-Aug-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	19.	AW-
G2-3B	G2-3B	10.1-13.1	L1904760-5	23-Mar-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	16.6	AW-
G2-3B	G2-3B	10.1-13.1	L2153915-6	27-Aug-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	41.5	AW-
G2-3B	G2-3B	10.1-13.1	L2247729-4	21-Mar-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	30.3	AW-
G2-3B	G2-3B	10.1-13.1	L2346508-3	12-Sep-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	26.8	AW-
G2-3B	G2-3B	10.1-13.1	/A20A4358-00	2-Apr-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	22.4	AW-
G2-3B	G2-3B	10.1-13.1	/A20B2619-00	13-Aug-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	27.7	AW-
G2-3C	G2-3C	18.3-22.9	---	28-Apr-04	<300.	<1000.	<300.	<1000.	140.	<100.	91.1	<1.	0.72	1.1	---	---	AW-
G2-3C	G2-3C	18.3-22.9	---	15-Oct-04	<300.	<1000.	<300.	<1000.	130.	<100.	84.7	<1.	<0.5	1.6	---	---	AW-
G2-3C	G2-3C	18.3-22.9	---	12-Apr-05	300.	<1000.	300.	<1000.	150.	<100.	96.6	1.7	0.82	2.7	---	---	AW-
G2-3C	G2-3C	18.3-22.9	---	13-Sep-05	<300.	<1000.	<300.	<1000.	200.	<100.	141.	1.3	<0.5	2.	---	---	AW-
G2-3C	G2-3C	18.3-22.9	---	23-Mar-06	---	---	<250.	<250.	160.	<100.	129.	1.1	<0.5	2.	---	---	AW-
G2-3C	G2-3C	18.3-22.9	---	22-Aug-06	---	---	<250.	<250.	100.	<100.	82.8	<1.	<0.5	1.1	---	---	AW-
G2-3C	G2-3C	18.3-22.9	---	12-Apr-07	---	---	<250.	<250.	<100.	<100.	46.6	<1.	<0.5	<1.	---	---	AW-
G2-3C	G2-3C	18.3-22.9	---	10-Sep-07	---	---	<250.	<250.	<100.	<100.	29.9	<1.	<0.5	<1.	---	---	AW-
G2-3C	G2-3C	18.3-22.9	---	1-Apr-08	---	---	<250.	<250.	<100.	<100.	21.7	<1.	<0.5	<1.	---	---	AW-
G2-3C	G2-3C	18.3-22.9	---	2-Sep-08	---	---	250.	270.	<100.	<100.	16.1	<1.	<0.5	<1.	---	---	AW-
G2-3C	G2-3C	18.3-22.9	---	28-Apr-09	---	---	<250.	<250.	<100.	<100.	8.91	<1.	<0.5	<1.	---	---	AW-
G2-3C	G2-3C	18.3-22.9	---	1-Sep-09	---	---	<250.	<250.	<100.	<100.	7.73	<1.	<0.5	<1.	---	---	AW-
G2-3C	G2-3C	18.3-22.9	---	14-Apr-10	---	---	<250.	<250.	<100.	<100.	4.77	<1.	<0.5	<1.	---	---	AW-
G2-3C	G2-3C	18.3-22.9	---	9-Sep-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	---	AW-
G2-3C	G2-3C	18.3-22.9	---	18-Apr-11	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	---	AW-
G2-3C	G2-3C	18.3-22.9	---	9-Aug-11	---	---	<250.	<250.	<100.	<100.	0.51	<0.5	<0.5	<0.75	---	---	AW-
G2-3C	G2-3C	18.3-22.9	---	18-May-12	---	---	<250.	280.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
G2-3C	G2-3C	18.3-22.9	---	22-Aug-12	---	---	<250.	<250.	<100.	<100.	0.59	<0.5	<0.5	<0.75	---	---	AW-
G2-3C	G2-3C	18.3-22.9	L1299117-3	8-May-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
G2-3C	G2-3C	18.3-22.9	L1367083-2	23-Sep-13	---	---	<250.	<250.	<100.	<100.	1.17	<0.5	<0.5	<0.75	---	---	AW-
G2-3C	G2-3C	18.3-22.9	L1461112-2	27-May-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
G2-3C	G2-3C	18.3-22.9	L1508365-4	26-Aug-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
G2-3C	G2-3C	18.3-22.9	L1583423-2	3-Mar-15	<250.	<250.	<250.	<250.	<100.	<100.	0.69	<0.5	<0.5	<0.75	---	22.2	AW-
G2-3C	G2-3C	18.3-22.9	L1675019-2	17-Sep-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
G2-3C	G2-3C	18.3-22.9	L1743509-1	9-Mar-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	21.4	AW-
G2-3C	G2-3C	18.3-22.9	L1812426-6	11-Aug-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	19.7	AW-
G2-3C	G2-3C	18.3-22.9	L1904760-6	23-Mar-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	11.2	AW-
G2-3C	G2-3C	18.3-22.9	L1906194-3	28-Mar-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	13.7	AW-
G2-3C	G2-3C	18.3-22.9	L2153915-7	27-Aug-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	13.70	AW-
G2-3C	G2-3C	18.3-22.9	L2247729-3	21-Mar-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	12.2	AW-
G2-3C	G2-3C	18.3-22.9	L2349075-1	17-Sep-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	11.3	AW-
G2-3C	G2-3C	18.3-22.9	/A20A4358-00	2-Apr-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	9.44	AW-
G2-3C	G2-3C	18.3-22.9	/A20B2619-00	13-Aug-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	9.46	AW-
G2-9A	G2-9A	6.1-9.1	---	7-May-04	---	---	<300.	<1000.	<100.	<100.	1.09	<1.	<0.5	<1.	---	---	AW-
G2-9A	G2-9A	6.1-9.1	---	15-Oct-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
G2-9A	G2-9A	6.1-9.1	---	12-Apr-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
G2-9A	G2-9A	6.1-9.1	---	13-Sep-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
G2-9A	G2-9A	6.1-9.1	---	22-Mar-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
G2-9A	G2-9A	6.1-9.1	---	24-Aug-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
G2-9A	G2-9A	6.1-9.1	---	18-Apr-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
G2-9A	G2-9A	6.1-9.1	---	10-Sep-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
G2-9A	G2-9A	6.1-9.1	---	1-Apr-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
G2-9A	G2-9A	6.1-9.1	---	2-Sep-08	---	---	<250.	<250.	<100.	<100.	1.86	<1.	<0.5	<1.	---	---	AW-
G2-9A	G2-9A	6.1-9.1	---	28-Apr-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
G2-9A	G2-9A	6.1-9.1	---	27-Aug-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
G2-9A	G2-9A	6.1-9.1	---	14-Apr-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
G2-9A	G2-9A	6.1-9.1	---	9-Sep-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	---	AW-
G2-9A	G2-9A	6.1-9.1	---	19-Apr-11	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	---	AW-
G2-9A	G2-9A	6.1-9.1	---	9-Aug-11	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
G2-9A	G2-9A	6.1-9.1	---	28-May-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
G2-9A	G2-9A	6.1-9.1	---	22-Aug-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
G2-9A	G2-9A	6.1-9.1	L1301575-1	14-May-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
G2-9A	G2-9A	6.1-9.1	L1367083-3	23-Sep-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
G2-9A	G2-9A	6.1-9.1	L1460380-1	26-May-14	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
G2-9A	G2-9A	6.1-9.1	L1461112-3	27-May-14	---	---	<250.	<250.	---	---	---	---	---	---	---	---	AW-
G2-9A	G2-9A	6.1-9.1	L1508365-1	26-Aug-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
G2-9A	G2-9A	6.1-9.1	L1583423-3	3-Mar-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	3.43	AW-
G2-9A	G2-9A	6.1-9.1	L1674072-2	16-Sep-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
G2-9A	G2-9A	6.1-9.1	L1743509-3	9-Mar-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	1.31	AW-
G2-9A	G2-9A	6.1-9.1	L1812426-3	11-Aug-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	2.55	AW-
G2-9A	G2-9A	6.1-9.1	L1906194-1	28-Mar-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	1.33	AW-
G2-9A	G2-9A	6.1-9.1	L1980058-5	23-Aug-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	2.68	AW-
G2-9A	G2-9A	6.1-9.1	L2087549-2	1-May-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	2.25	AW-
G2-9A	G2-9A	6.1-9.1	L2153915-4	27-Aug-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	2.26	AW-
G2-9A	G2-9A	6.1-9.1	L2247729-1	21-Mar-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	2.26	AW-
G2-9A	G2-9A	6.1-9.1	L2346508-4	12-Sep-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	1.96	AW-
G2-9A	G2-9A	6.1-9.1	/A20A4358-00	2-Apr-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	1.45	AW-
G2-9A	G2-9A	6.1-9.1	/A20B2619-00	13-Aug-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	1.85	AW-

TABLE 2-2
AREA 2 CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY
µg/L (ppb)

					LEPHw [3]	HEPHw [3]	EPHw (C10-C19) [2,3]	EPHw (C19-C32) [3]	VHw (C6-C10)	VPHw	Benzene	Toluene	Ethylbenzene	Xylenes	Styrene	MTBE	Groundwater Classification
Generic Numerical Water Standards [4]																	
CSR	Schedule 3.2 - Marine Aquatic Life			(AW)	500	NS	5000[1]	NS	15000[1]	1500	1000	2000	2500	300	720	4400	
	Site-Specific Screening Levels (SSSLs)				3000	NS	5000	NS	15000	15000	21000	7700	3200	3300	NS	NS	
Well ID	**Sample ID**	**Screened Interval (mbgs)**	**ALS Laboratory Report #**	**Sample Date**													
G2-9B	G2-9B	18.9-21.9	---	7-May-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
G2-9B	G2-9B	18.9-21.9	---	15-Oct-04	---	---	<300.	<1000.	<100.	<100.	3.53	<1.	<0.5	<1.	---	---	AW-
G2-9B	G2-9B	18.9-21.9	---	12-Apr-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
G2-9B	G2-9B	18.9-21.9	---	13-Sep-05	---	---	<300.	<1000.	<100.	<100.	4.56	<1.	<0.5	<1.	---	---	AW-
G2-9B	G2-9B	18.9-21.9	---	22-Mar-06	---	---	<250.	<250.	<100.	<100.	0.8	<1.	<0.5	<1.	---	---	AW-
G2-9B	G2-9B	18.9-21.9	---	24-Aug-06	---	---	<250.	<250.	<100.	<100.	3.54	<1.	<0.5	<1.	---	---	AW-
G2-9B	G2-9B	18.9-21.9	---	18-Apr-07	---	---	<250.	<250.	<100.	<100.	0.94	<1.	<0.5	<1.	---	---	AW-
G2-9B	G2-9B	18.9-21.9	---	10-Sep-07	---	---	<250.	<250.	<100.	<100.	4.86	<1.	<0.5	<1.	---	---	AW-
G2-9B	G2-9B	18.9-21.9	---	1-Apr-08	---	---	<250.	<250.	<100.	<100.	1.1	<1.	<0.5	<1.	---	---	AW-
G2-9B	G2-9B	18.9-21.9	---	2-Sep-08	---	---	<250.	<250.	<100.	<100.	4.03	<1.	<0.5	<1.	---	---	AW-
G2-9B	G2-9B	18.9-21.9	---	28-Apr-09	---	---	<250.	<250.	<100.	<100.	1.48	<1.	<0.5	<1.	---	---	AW-
G2-9B	G2-9B	18.9-21.9	---	27-Aug-09	---	---	<250.	<250.	<100.	<100.	3.71	<1.	<0.5	<1.	---	---	AW-
G2-9B	G2-9B	18.9-21.9	---	14-Apr-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
G2-9B	G2-9B	18.9-21.9	---	9-Sep-10	---	---	<250.	<250.	<100.	<100.	2.67	<1.	<0.5	<0.71	---	---	AW-
G2-9B	G2-9B	18.9-21.9	---	19-Apr-11	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	---	AW-
G2-9B	G2-9B	18.9-21.9	---	9-Aug-11	---	---	<250.	<250.	<100.	<100.	0.75	<0.5	<0.5	<0.75	---	---	AW-
G2-9B	G2-9B	18.9-21.9	---	18-May-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
G2-9B	G2-9B	18.9-21.9	---	20-Aug-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
G2-9B	G2-9B	18.9-21.9	L1299117-1	8-May-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
G2-9B	G2-9B	18.9-21.9	L1367083-4	23-Sep-13	---	---	<250.	<250.	<100.	<100.	0.86	<0.5	<0.5	<0.75	---	---	AW-
G2-9B	G2-9B	18.9-21.9	L1460380-2	26-May-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
G2-9B	G2-9B	18.9-21.9	L1508365-2	26-Aug-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
G2-9B	G2-9B	18.9-21.9	L1583423-6	3-Mar-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	0.68	AW-
G2-9B	G2-9B	18.9-21.9	L1675019-1	17-Sep-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
G2-9B	G2-9B	18.9-21.9	L1743813-9	10-Mar-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	1.03	AW-
G2-9B	G2-9B	18.9-21.9	L1812426-4	11-Aug-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	<0.5	AW-
G2-9B	G2-9B	18.9-21.9	L1906194-2	28-Mar-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	0.83	AW-
G2-9B	G2-9B	18.9-21.9	L1980058-3	23-Aug-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	0.58	AW-
G2-9B	G2-9B	18.9-21.9	L2088139-3	2-May-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.71	<0.5	0.88	AW-
G2-9B	G2-9B	18.9-21.9	L2153915-5	27-Aug-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	1.31	AW-
G2-9B	G2-9B	18.9-21.9	L2247147-2	20-Mar-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	---	AW-
G2-9B	G2-9B	18.9-21.9	L2346508-5	12-Sep-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	1.62	AW-
G2-9B	G2-9B	18.9-21.9	/A20A4358-00	2-Apr-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	1.92	AW-
G2-9B	G2-9B	18.9-21.9	/A20B2619-00	13-Aug-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	2.64	AW-
G2-10	G2-10	4.9-6.4	---	26-Apr-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
G2-10	G2-10	4.9-6.4	---	18-Oct-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
G2-10	G2-10	4.9-6.4	---	12-Apr-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
G2-10	G2-10	4.9-6.4	---	13-Sep-05	---	---	<300.	<1000.	<100.	<100.	0.53	<1.	<0.5	<1.	---	---	AW-
G2-10	G2-10	4.9-6.4	---	21-Mar-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
G2-10	G2-10	4.9-6.4	---	23-Apr-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
G2-10	G2-10	4.9-6.4	---	1-Apr-08	---	---	<250.	270.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
G2-10	G2-10	4.9-6.4	---	2-Sep-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
G2-10	G2-10	4.9-6.4	---	28-Apr-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
G2-10	G2-10	4.9-6.4	---	14-Apr-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
G2-10	G2-10	4.9-6.4	---	9-Sep-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	---	AW-
G2-10	G2-10	4.9-6.4	---	20-Apr-11	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	---	AW-
G2-10	G2-10	4.9-6.4	---	13-Sep-11	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
G2-10	G2-10	4.9-6.4	---	28-May-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
G2-10	G2-10	4.9-6.4	---	20-Aug-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
G2-10	G2-10	4.9-6.4	L1292853-1	22-Apr-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
G2-10	G2-10	4.9-6.4	L1352072-1	22-Aug-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
G2-10	G2-10	4.9-6.4	L1456248-1	15-May-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	<0.5	AW-
G2-10	G2-10	4.9-6.4	L1505541-1	20-Aug-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
G2-10	G2-10	4.9-6.4	L1583423-4	3-Mar-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	<0.5	AW-
G2-10	G2-10	4.9-6.4	L1674072-1	16-Sep-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
G2-10	G2-10	4.9-6.4	L1742176-1	7-Mar-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	<0.5	AW-
G2-10	G2-10	4.9-6.4	L1811986-4	10-Aug-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	<0.5	AW-
G2-10	G2-10	4.9-6.4	L1906194-4	28-Mar-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	<0.5	AW-
G2-10	G2-10	4.9-6.4	L1980058-6	23-Aug-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	<0.5	AW-
G2-10	G2-10	4.9-6.4	L2087549-1	1-May-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	<0.5	AW-
G2-10	G2-10	4.9-6.4	L2153915-3	27-Aug-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	<0.5	AW-
G2-10	G2-10	4.9-6.4	L2247729-5	21-Mar-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	<0.5	AW-
G2-10	G2-10	4.9-6.4	L2349075-2	17-Sep-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	<0.5	AW-
G2-10	G2-10	4.9-6.4	/A20A4358-00	2-Apr-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	<0.5	AW-
G2-10	G2-10	4.9-6.4	/A20B2611-00	12-Aug-20	<250.	<250.	<250.	<250.	<100.	<70.	<0.5	<0.5	<0.5	<0.71	<0.5	<0.5	AW-
G2-11A	G2-11A	4.6-6.1	---	29-Apr-04	460.	<1000.	460.	<1000.	<100.	<100.	0.7	<1.	<0.5	<1.	---	---	AW-
G2-11A	G2-11A	4.6-6.1	---	12-Oct-04	480.	<1000.	480.	<1000.	<100.	<100.	1.03	<1.	<0.5	<1.	---	---	AW-
G2-11A	G2-11A	4.6-6.1	---	11-Apr-05	460.	<1000.	460.	<1000.	<100.	<100.	1.37	<1.	<0.5	<1.	---	---	AW-
G2-11A	A2-G2-11A	4.6-6.1	---	20-Sep-05	530.	<1000.	530.	<1000.	<100.	<100.	0.94	<1.	<0.5	<1.	---	---	**AW+**
G2-11A	G2-11A	4.6-6.1	---	28-Mar-06	380.	<250.	380.	<250.	<100.	<100.	1.3	<1.	<0.5	<1.	---	---	AW-
G2-11A	G2-11A	4.6-6.1	---	17-Apr-07	340.	<250.	340.	<250.	<100.	<100.	1.19	<1.	<0.5	<1.	---	---	AW-
G2-11A	G2-11A	4.6-6.1	---	5-Sep-07	400.	<250.	400.	<250.	<100.	<100.	2.71	<1.	<0.5	<1.	---	---	AW-
G2-11A	G2-11A	4.6-6.1	---	8-Apr-08	330.	<250.	330.	<250.	<100.	<100.	1.59	<1.	<0.5	<1.	---	---	AW-
G2-11A	G2-11A	4.6-6.1	---	8-Sep-08	320.	<250.	320.	<250.	<100.	<100.	1.67	<1.	<0.5	<1.	---	---	AW-
G2-11A	G2-11A	4.6-6.1	---	21-Apr-10	380.	<250.	380.	<250.	<100.	<100.	1.47	<1.	<0.5	<1.	---	---	AW-
G2-11A	G2-11A	4.6-6.1	---	15-Sep-10	460.	<250.	460.	<250.	<100.	<100.	1.86	<1.	<0.5	<0.71	---	---	AW-
G2-11A	G2-11A	4.6-6.1	---	5-May-11	410.	<250.	410.	<250.	<100.	<100.	1.67	<1.	<0.5	<0.71	---	---	AW-
G2-11A	G2-11A	4.6-6.1	---	8-Sep-11	360.	<250.	360.	<250.	<100.	<100.	1.39	<0.5	<0.5	<0.75	---	---	AW-
G2-11A	G2-11A	4.6-6.1	---	24-May-12	740.	<250.	760.	<250.	120.	110.	1.34	<0.5	0.77	2.38	---	---	**AW+**
G2-11A	G2-11A	4.6-6.1	---	29-Aug-12	460.	<250.	460.	<250.	<100.	<100.	1.58	<0.5	<0.5	<0.75	---	---	AW-
G2-11A	G2-11A	4.6-6.1	L1290904-1	17-Apr-13	420.	<250.	420.	<250.	<100.	<100.	1.76	<0.5	<0.5	<0.75	---	---	AW-
G2-11A	G2-11A	4.6-6.1	L1350566-1	20-Aug-13	330.	<250.	330.	<250.	<100.	<100.	1.32	<0.5	<0.5	<0.75	---	---	AW-
G2-11A	G2-11A	4.6-6.1	L1454047-1	12-May-14	260.	<250.	260.	<250.	<100.	<100.	1.85	<0.5	<0.5	<0.75	---	---	AW-
G2-11A	G2-11A	4.6-6.1	L1503989-1	18-Aug-14	370.	<250.	370.	<250.	<100.	<100.	1.92	<0.5	<0.5	<0.75	---	---	AW-
G2-11A	G2-11A	4.6-6.1	L1610763-1	11-May-15	<250.	<250.	<250.	<250.	<100.	<100.	1.54	<0.5	<0.5	<0.75	---	---	AW-
G2-11A	G2-11A	4.6-6.1	L1674072-4	16-Sep-15	<250.	<250.	<250.	<250.	<100.	<100.	1.88	<0.5	<0.5	<0.75	---	---	AW-
G2-11A	G2-11A	4.6-6.1	L1752248-1	4-Apr-16	<250.	<250.	<250.	<250.	<100.	<100.	1.52	<0.5	<0.5	<0.75	---	---	AW-
G2-11A	G2-11A	4.6-6.1	L1822946-2	1-Sep-16	<250.	<250.	<250.	<250.	<100.	<100.	2.11	<0.5	<0.5	<0.75	---	---	AW-
G2-11A	G2-11A	4.6-6.1	L1912573-1	12-Apr-17	340.	<250.	350.	<250.	<100.	<100.	2.16	<0.5	0.55	1.1	<0.5	---	AW-
G2-11A	G2-11A	4.6-6.1	L1982266-1	28-Aug-17	<250.	<250.	<250.	<250.	<100.	<100.	1.98	<0.5	<0.5	<0.75	<0.5	---	AW-
G2-11A	G2-11A	4.6-6.1	L2086842-1	30-Apr-18	<250.	<250.	<250.	<250.	<100.	<100.	1.23	<0.5	<0.5	<0.75	<0.5	---	AW-
G2-11A	G2-11A	4.6-6.1	L2154663-1	28-Aug-18	<250.	<250.	<250.	<250.	<100.	<100.	1.6	<0.5	<0.5	<0.75	<0.5	---	AW-
G2-11A	G2-11A	4.6-6.1	L2249476-6	26-Mar-19	<250.	<250.	<250.	<250.	<100.	<100.	0.99	<0.5	<0.5	<0.75	<0.5	---	AW-
G2-11A	G2-11A	4.6-6.1	L2349075-3	17-Sep-19	<250.	<250.	<250.	<250.	<100.	<100.	1.74	<0.5	<0.5	<0.75	<0.5	---	AW-
G2-11A	G2-11A	4.6-6.1	/A20A4448-00	6-Apr-20	<250.	<250.	<250.	<250.	<100.	<100.	1.16	<0.5	<0.5	<0.75	<0.5	---	AW-
G2-11A	DUP-11	4.6-6.1	/A20A4448-00	6-Apr-20	<250.	<250.	<250.	<250.	<100.	<100.	1.15	<0.5	<0.5	<0.75	<0.5	---	AW-
QA/QC RPD				6-Apr-20	---	---	---	---	---	---	---	---	---	---	---	---	
G2-11A	G2-11A	4.6-6.1	/A20B2849-00	17-Aug-20	<250.	<250.	<250.	<250.	<100.	<100.	1.12	<0.5	<0.5	<0.75	<0.5	---	AW-

TABLE 2-2
AREA 2 CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY
µg/L (ppb)

					LEPHw [3]	HEPHw [3]	EPH_W (C10-C19) [2,3]	EPH_W (C19-C32) [3]	VHw (C6-C10)	VPH_W	Benzene	Toluene	Ethylbenzene	Xylenes	Styrene	MTBE	Groundwater Classification
Generic Numerical Water Standards [4]																	
CSR	Schedule 3.2 - Marine Aquatic Life			(AW)	500	NS	5000[1]	NS	15000[1]	1500	1000	2000	2500	300	720	4400	
	Site-Specific Screening Levels (SSSLs)				3000	NS	5000	NS	15000	15000	21000	7700	3200	3300	NS	NS	
Well ID	**Sample ID**	**Screened Interval (mbgs)**	**ALS Laboratory Report #**	**Sample Date**													
G2-11B	G2-11B	7.0-8.5	---	29-Apr-04	470.	<1000.	470.	<1000.	<100.	<100.	1.02	<1.	<0.5	<1.	---	---	AW-
G2-11B	G2-11B	7.0-8.5	---	12-Oct-04	390.	<1000.	390.	<1000.	<100.	<100.	1.03	<1.	<0.5	<1.	---	---	AW-
G2-11B	G2-11B	7.0-8.5	---	11-Apr-05	400.	<1000.	400.	<1000.	<100.	<100.	1.19	<1.	<0.5	<1.	---	---	AW-
G2-11B	A2-G2-11B	7.0-8.5	---	20-Sep-05	400.	<1000.	400.	<1000.	<100.	<100.	1.27	<1.	<0.5	<1.	---	---	AW-
G2-11B	G2-11B	7.0-8.5	---	4-Apr-06	340.	<250.	340.	<250.	<100.	<100.	1.24	<1.	<0.5	<1.	---	---	AW-
G2-11B	G2-11B	7.0-8.5	---	29-Aug-06	270.	<250.	270.	<250.	<100.	<100.	0.89	<1.	<0.5	<1.	---	---	AW-
G2-11B	G2-11B	7.0-8.5	---	17-Apr-07	330.	<250.	330.	<250.	<100.	<100.	1.37	<1.	<0.5	<1.	---	---	AW-
G2-11B	G2-11B	7.0-8.5	---	5-Sep-07	330.	<250.	330.	<250.	<100.	<100.	2.31	<1.	<0.5	<1.	---	---	AW-
G2-11B	G2-11B	7.0-8.5	---	8-Apr-08	330.	<250.	330.	<250.	<100.	<100.	2.28	<1.	<0.5	<1.	---	---	AW-
G2-11B	G2-11B	7.0-8.5	---	8-Sep-08	300.	<250.	300.	<250.	<100.	<100.	1.84	<1.	<0.5	<1.	---	---	AW-
G2-11B	G2-11B	7.0-8.5	---	30-Apr-09	310.	<250.	310.	<250.	<100.	<100.	1.87	<1.	<0.5	<1.	---	---	AW-
G2-11B	G2-11B	7.0-8.5	---	1-Sep-09	---	---	310.	<250.	<100.	<100.	1.74	<1.	<0.5	<1.	---	---	AW-
G2-11B	G2-11B	7.0-8.5	---	21-Apr-10	---	---	320.	<250.	<100.	<100.	1.62	<1.	<0.5	<1.	---	---	AW-
G2-11B	G2-11B	7.0-8.5	---	21-Sep-10	---	---	370.	<250.	<100.	<100.	1.34	<1.	<0.5	<0.71	---	---	AW-
G2-11B	G2-11B	7.0-8.5	---	5-May-11	---	---	360.	<250.	<100.	<100.	1.36	<1.	<0.5	<0.71	---	---	AW-
G2-11B	G2-11B	7.0-8.5	---	8-Sep-11	---	---	310.	<250.	<100.	<100.	1.21	<0.5	<0.5	<0.75	---	---	AW-
G2-11B	G2-11B	7.0-8.5	---	24-May-12	---	---	390.	<250.	<100.	<100.	0.93	<0.5	<0.5	<0.75	---	---	AW-
G2-11B	G2-11B	7.0-8.5	---	29-Aug-12	---	---	270.	<250.	<100.	<100.	1.15	<0.5	<0.5	<0.75	---	---	AW-
G2-11B	G2-11B	7.0-8.5	L1290904-2	17-Apr-13	---	---	<250.	<250.	<100.	<100.	1.13	<0.5	<0.5	<0.75	---	---	AW-
G2-11B	G2-11B	7.0-8.5	L1350566-2	20-Aug-13	---	---	<250.	<250.	<100.	<100.	1.08	<0.5	<0.5	<0.75	---	---	AW-
G2-11B	G2-11B	7.0-8.5	L1454047-2	12-May-14	---	---	<250.	<250.	<100.	<100.	1.01	<0.5	<0.5	<0.75	---	---	AW-
G2-11B	G2-11B	7.0-8.5	L1503989-2	18-Aug-14	---	---	<250.	<250.	<100.	<100.	1.	<0.5	<0.5	<0.75	---	---	AW-
G2-11B	G2-11B	7.0-8.5	L1610763-2	11-May-15	<250.	<250.	<250.	<250.	<100.	<100.	1.11	<0.5	<0.5	<0.75	---	---	AW-
G2-11B	G2-11B	7.0-8.5	L1674072-5	16-Sep-15	<250.	<250.	<250.	<250.	<100.	<100.	1.03	<0.5	<0.5	<0.75	---	---	AW-
G2-11B	G2-11B	7.0-8.5	L1752248-2	4-Apr-16	<250.	<250.	<250.	<250.	<100.	<100.	1.01	<0.5	<0.5	<0.75	---	---	AW-
G2-11B	G2-11B	7.0-8.5	L1822946-3	1-Sep-16	<250.	<250.	<250.	<250.	<100.	<100.	1.06	<0.5	<0.5	<0.75	---	<0.5	AW-
G2-11B	G2-11B	7.0-8.5	L1912573-2	12-Apr-17	<250.	<250.	<250.	<250.	<100.	<100.	1.05	<0.5	<0.5	<0.75	<0.5	---	AW-
G2-11B	G2-11B	7.0-8.5	L1982266-2	28-Aug-17	<250.	<250.	<250.	<250.	<100.	<100.	1.06	<0.5	<0.5	<0.75	<0.5	---	AW-
G2-11B	G2-11B	7.0-8.5	L2086842-2	30-Apr-18	<250.	<250.	<250.	<250.	<100.	<100.	0.99	<0.5	<0.5	<0.75	<0.5	---	AW-
G2-11B	G2-11B	7.0-8.5	L2154663-2	28-Aug-18	<250.	<250.	<250.	<250.	<100.	<100.	1.03	<0.5	<0.5	<0.75	<0.5	---	AW-
G2-11B	G2-11B	7.0-8.5	L2249476-7	26-Mar-19	<250.	<250.	<250.	<250.	<100.	<100.	0.93	<0.5	<0.5	<0.75	<0.5	---	AW-
G2-11B	G2-11B	7.0-8.5	L2349075-4	17-Sep-19	<250.	<250.	<250.	<250.	<100.	<100.	0.86	<0.5	<0.5	<0.75	<0.5	---	AW-
G2-11B	G2-11B	7.0-8.5	/A20A4448-00	6-Apr-20	<250.	<250.	<250.	<250.	<100.	<100.	0.84	<0.5	<0.5	<0.75	<0.5	---	AW-
G2-11B	G2-11B	7.0-8.5	/A20B2849-00	17-Aug-20	<250.	<250.	<250.	<250.	<100.	<100.	0.96	<0.5	<0.5	<0.75	<0.5	---	AW-
PW03-1A	PW03-1A	2.4-4.0	---	22-Apr-04	**4870.**	<1000.	**5140.**	<1000.	2480.	1800.	6.51	<1.	344.	326.	---	---	**AW+**
PW03-1A	PW03-1A (sg)	2.4-4.0	---	22-Apr-04	---	---	1770.	<1000.	---	---	---	---	---	---	---	---	**AW+**
PW03-1A	PW03-1A	2.4-4.0	---	15-Oct-04	**4950.**	<1000.	**5230.**	<1000.	2660.	1950.	2.4	<2.	391.	320.	---	---	**AW+**
PW03-1A	PW03-1A	2.4-4.0	---	15-Apr-05	**5580.**	<1000.	**5980.**	<1000.	2320.	1630.	2.4	5.8	354.	329.	---	---	**AW+**
PW03-1A	PW03-1A	2.4-4.0	---	13-Sep-05	**4020.**	<1000.	4240.	<1000.	2130.	1700.	1.66	<1.	267.	164.	---	---	**AW+**
PW03-1A	PW03-1A	2.4-4.0	---	23-Mar-06	**3910.**	410.	4250.	410.	2300.	1630.	<2.5	<5.	376.	292.	---	---	**AW+**
PW03-1A	PW03-1A	2.4-4.0	---	23-Aug-06	**3870.**	540.	4030.	540.	1230.	1000.	<1.	<1.	188.	41.5	---	---	**AW+**
PW03-1A	PW03-1A	2.4-4.0	---	13-Apr-07	**5130.**	430.	**5510.**	430.	1900.	1400.	<5.	<10.	387.	93.	---	---	**AW+**
PW03-1A	PW03-1A	2.4-4.0	---	6-Sep-07	**4760.**	540.	4980.	540.	2060.	1740.	<4.	<6.	309.	15.4	---	---	**AW+**
PW03-1A	PW03-1A	2.4-4.0	---	14-Nov-07	**5510.**	470.	**5800.**	470.	1890.	1580.	<2.5	<5.	296.	21.6	---	---	**AW+**
PW03-1A	PW03-1A	2.4-4.0	---	1-Apr-08	<250.	<250.	<250.	<250.	1690.	1450.	<2.5	<5.	231.	12.5	---	---	AW-
PW03-1A	PW03-1A	2.4-4.0	---	4-Sep-08	**8130.**	610.	**8130.**	610.	680.	360.	<2.	<3.	274.	51.5	---	---	**AW+**
PW03-1A	PW03-1A	2.4-4.0	---	4-May-09	**3610.**	470.	3610.	470.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	**AW+**
PW03-1A	PW03-1A	2.4-4.0	---	14-Apr-10	**7940.**	1420.	**7940.**	1420.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	**AW+**
PW03-1A	PW03-1A	2.4-4.0	---	15-Sep-10	**7010.**	1390.	**7010.**	1390.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	---	**AW+**
PW03-1A	PW03-1A	2.4-4.0	---	19-Apr-11	**3280.**	700.	3280.	700.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	---	**AW+**
PW03-1A	PW03-1A	2.4-4.0	---	22-Aug-11	2670.	590.	2670.	590.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	**AW+**
PW03-1A	PW03-1A	2.4-4.0	L1448683-1	29-Apr-14	420.	340.	420.	340.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
PW03-1A	PW03-1A	2.4-4.0	L1743508-2	9-Mar-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
PW03-1A	PW03-1A	2.4-4.0	L1908948-1	3-Apr-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
PW03-1A	PW03-1A	2.4-4.0	L2086841-5	30-Apr-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
PW03-1A	PW03-1A	2.4-4.0	L2249476-11	26-Mar-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
PW03-1A	PW03-1A	2.4-4.0	/A20A4587-00	8-Apr-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.5	<0.5	---	AW-
PW03-1B	PW03-1B	1.1-3.7	---	22-Apr-04	<300.	<1000.	<300.	<1000.	<100.	<100.	3.01	<1.	1.16	<1.	---	---	AW-
PW03-1B	PW03-1B	1.1-3.7	---	15-Oct-04	<300.	<1000.	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
PW03-1B	PW03-1B	1.1-3.7	---	15-Apr-05	<300.	<1000.	<300.	<1000.	<100.	<100.	<0.5	<1.	3.23	3.2	---	---	AW-
PW03-1B	PW03-1B	1.1-3.7	---	21-Mar-06	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
PW03-1B	PW03-1B	1.1-3.7	---	13-Apr-07	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
PW03-1B	PW03-1B	1.1-3.7	---	1-Apr-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
PW03-1B	PW03-1B	1.1-3.7	---	3-Sep-08	1710.	440.	1710.	440.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	**AW+**
PW03-1B	PW03-1B	1.1-3.7	---	4-May-09	570.	<250.	570.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	**AW+**
PW03-1B	PW03-1B	1.1-3.7	---	14-Apr-10	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
PW03-1B	PW03-1B	1.1-3.7	---	15-Sep-10	340.	380.	340.	380.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	---	AW-
PW03-1B	PW03-1B	1.1-3.7	---	19-Apr-11	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	---	AW-
PW03-1B	PW03-1B	1.1-3.7	---	10-May-12	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
PW03-1B	PW03-1B	1.1-3.7	L1285748-1	3-Apr-13	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
PW03-1B	PW03-1B	1.1-3.7	L1448683-2	29-Apr-14	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
PW03-1B	PW03-1B	1.1-3.7	L1743508-1	9-Mar-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
PW03-1B	PW03-1B	1.1-3.7	L1908948-2	3-Apr-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
PW03-1B	PW03-1B	1.1-3.7	L2086841-7	30-Apr-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
PW03-1B	PW03-1B	1.1-3.7	L2259103-2	16-Apr-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
PW03-1B	PW03-1B	1.1-3.7	/A20A4587-00	8-Apr-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
PW03-1B	DUP-12	1.1-3.7	/A20A4586-00	8-Apr-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
QA/QC RPD				8-Apr-20	---	---	---	---	---	---	---	---	---	---	---	---	
PW03-2A	PW03-2A	1.8-4.6	---	22-Apr-04	**3320.**	<1000.	3340.	<1000.	690.	500.	112.	54.8	6.64	12.3	---	---	**AW+**
PW03-2A	PW03-2A (sg)	1.8-4.6	---	22-Apr-04	---	---	780.	<1000.	---	---	---	---	---	---	---	---	**AW+**
PW03-2A	PW03-2A	1.8-4.6	---	14-Oct-04	**4050.**	<1000.	4120.	<1000.	740.	690.	32.8	6.4	6.41	1.7	---	---	**AW+**
PW03-2A	PW03-2A	1.8-4.6	---	15-Apr-05	2050.	<1000.	2080.	<1000.	400.	380.	5.44	4.2	6.82	5.2	---	---	**AW+**
PW03-2A	PW03-2A	1.8-4.6	---	13-Sep-05	1070.	<1000.	1070.	<1000.	840.	670.	163.	3.	4.18	1.8	---	---	**AW+**
PW03-2A	PW03-2A	1.8-4.6	---	21-Mar-06	770.	410.	770.	410.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	**AW+**
PW03-2A	PW03-2A	1.8-4.6	---	23-Aug-06	1210.	300.	1210.	300.	220.	200.	22.9	<2.	1.1	<1.	---	---	**AW+**
PW03-2A	PW03-2A	1.8-4.6	---	13-Apr-07	1120.	380.	1130.	380.	130.	130.	<0.5	<1.	<0.5	<1.	---	---	**AW+**
PW03-2A	PW03-2A	1.8-4.6	---	6-Sep-07	1390.	300.	1390.	300.	<100.	<100.	9.62	<1.	<0.5	<1.	---	---	**AW+**
PW03-2A	PW03-2A	1.8-4.6	---	14-Nov-07	**3180.**	720.	3200.	720.	350.	350.	<0.5	<1.	<0.5	<1.	---	---	**AW+**
PW03-2A	PW03-2A	1.8-4.6	---	1-Apr-08	1010.	370.	1010.	370.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	**AW+**
PW03-2A	PW03-2A	1.8-4.6	---	3-Sep-08	290.	<250.	290.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
PW03-2A	PW03-2A	1.8-4.6	---	22-Apr-09	600.	390.	600.	390.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	**AW+**
PW03-2A	PW03-2A	1.8-4.6	---	27-Aug-09	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
PW03-2A	PW03-2A	1.8-4.6	---	14-Apr-10	460.	530.	460.	530.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
PW03-2A	PW03-2A	1.8-4.6	---	15-Sep-10	470.	300.	470.	300.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	---	AW-
PW03-2A	PW03-2A	1.8-4.6	---	19-Apr-11	330.	370.	330.	370.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	---	AW-
PW03-2A	PW03-2A	1.8-4.6	---	22-Aug-11	260.	<250.	260.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
PW03-2A	PW03-2A	1.8-4.6	L1448683-3	29-Apr-14	<250.	400.	<250.	400.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
PW03-2A	PW03-2A	1.8-4.6	L1743508-6	9-Mar-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
PW03-2A	PW03-2A	1.8-4.6	L1908948-3	3-Apr-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
PW03-2A	PW03-2A	1.8-4.6	L2259103-3	16-Apr-19	<250	<250	<250	<250	<100	<100	<0.50	<0.50	<0.50	<0.75	<0.50	---	AW-
PW03-2A	PW03-2A	1.8-4.6	/A20A4586-00	8-Apr-20	<250	<250	<250	<250	<100	<100	<0.50	<0.50	<0.50	<0.75	<0.50	---	AW-

TABLE 2-2
AREA 2 CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY
µg/L (ppb)

Well ID	Sample ID	Screened Interval (mbgs)	ALS Laboratory Report #	Sample Date	LEPHw [3]	HEPHw [3]	EPHw (C10-C19) [2,3]	EPHw (C19-C32) [3]	VHw (C6-C10)	VPHw	Benzene	Toluene	Ethylbenzene	Xylenes	Styrene	MTBE	Groundwater Classification
Generic Numerical Water Standards [4]																	
CSR	Schedule 3.2 - Marine Aquatic Life			(AW)	500	NS	5000[1]	NS	15000[1]	1500	1000	2000	2500	300	720	4400	
	Site-Specific Screening Levels (SSSLs)				3000	NS	5000	NS	15000	15000	21000	7700	3200	3300	NS	NS	
PW03-2B	PW03-2B	1.1-3.7	---	22-Apr-04	**3390.**	<1000.	3390.	<1000.	230.	210.	3.69	<1.	14.5	3.3	---	---	**AW+**
PW03-2B	PW03-2B (sg)	1.1-3.7	---	22-Apr-04	---	---	<300.	<1000.	---	---	---	---	---	---	---	---	AW-
PW03-2B	PW03-2B	1.1-3.7	---	14-Oct-04	1990.	<1000.	1990.	<1000.	<100.	<100.	0.72	<1.	1.77	<1.	---	---	**AW+**
PW03-2B	PW03-2B	1.1-3.7	---	15-Apr-05	1710.	<1000.	1730.	<1000.	<100.	<100.	<0.5	<1.	10.8	2.	---	---	**AW+**
PW03-2B	PW03-2B	1.1-3.7	---	21-Mar-06	660.	360.	660.	360.	<100.	<100.	<0.5	<1.	0.69	<1.	---	---	**AW+**
PW03-2B	PW03-2B	1.1-3.7	---	23-Aug-06	570.	330.	570.	330.	<100.	<100.	1.6	<1.	<0.5	<1.	---	---	**AW+**
PW03-2B	PW03-2B	1.1-3.7	---	13-Apr-07	1870.	450.	1870.	450.	<100.	<100.	<0.5	<1.	0.95	<1.	---	---	**AW+**
PW03-2B	PW03-2B	1.1-3.7	---	14-Nov-07	1030.	570.	1030.	570.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	**AW+**
PW03-2B	PW03-2B	1.1-3.7	---	1-Apr-08	320.	440.	320.	440.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
PW03-2B	PW03-2B	1.1-3.7	---	3-Sep-08	---	---	---	---	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
PW03-2B	PW03-2B	1.1-3.7	---	4-Sep-08	360.	400.	360.	400.	---	---	---	---	---	---	---	---	AW-
PW03-2B	PW03-2B	1.1-3.7	---	22-Apr-09	450.	470.	450.	470.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
PW03-2B	PW03-2B	1.1-3.7	---	14-Apr-10	650.	540.	650.	540.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	**AW+**
PW03-2B	PW03-2B	1.1-3.7	---	19-Apr-11	<250.	280.	<250.	280.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	---	AW-
PW03-2B	PW03-2B	1.1-3.7	---	22-Aug-11	360.	280.	360.	280.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
PW03-2B	PW03-2B	1.1-3.7	---	10-May-12	330.	370.	330.	370.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
PW03-2B	PW03-2B	1.1-3.7	L1285748-2	3-Apr-13	<250.	270.	<250.	270.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
PW03-2B	PW03-2B	1.1-3.7	L1448683-4	29-Apr-14	<250.	300.	<250.	300.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
PW03-2B	PW03-2B	1.1-3.7	L1743508-7	9-Mar-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
PW03-2B	PW03-2B	1.1-3.7	L1908948-4	3-Apr-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
PW03-2B	PW03-2B	1.1-3.7	L1908949-1	3-Apr-17	---	---	---	---	---	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	<0.5	AW-
PW03-2B	PW03-2B	1.1-3.7	L2249476-3	26-Mar-19	<250	<250	<250	<250	<100	<100	<0.50	<0.50	<0.50	<0.75	<0.50	---	AW-
PW03-2B	PW03-2B	1.1-3.7	VA20A4567-002	8-Apr-20	<250	<250	<250	<250	<100	<100	<0.50	<0.50	<0.50	<0.75	<0.50	---	AW-
PW03-3	PW03-3	1.2-4.1	---	22-Apr-04	1050.	<1000.	1150.	<1000.	5070.	3400.	1110.	313.	75.2	168.	---	---	**AW+**
PW03-3	PW03-3 (sg)	1.2-4.1	---	22-Apr-04	---	---	450.	<1000.	---	---	---	---	---	---	---	---	AW-
PW03-3	PW03-3	1.2-4.1	---	14-Oct-04	800.	<1000.	830.	<1000.	2420.	1670.	561.	73.2	38.6	71.	---	---	**AW+**
PW03-3	PW03-3	1.2-4.1	---	15-Apr-05	680.	<1000.	720.	<1000.	2300.	1230.	716.	183.	39.4	134.	---	---	**AW+**
PW03-3	PW03-3	1.2-4.1	---	13-Sep-05	480.	<1000.	480.	<1000.	1110.	780.	280.	7.8	23.5	23.5	---	---	AW-
PW03-3	PW03-3	1.2-4.1	---	23-Mar-06	<250.	<250.	<250.	<250.	150.	100.	41.5	3.9	3.2	3.3	---	---	AW-
PW03-3	PW03-3	1.2-4.1	---	23-Aug-06	800.	<250.	820.	<250.	1600.	<1000.	862.	110.	64.	75.	---	---	**AW+**
PW03-3	PW03-3	1.2-4.1	---	13-Apr-07	<250.	<250.	<250.	<250.	190.	<100.	85.9	5.	2.27	5.3	---	---	AW-
PW03-3	PW03-3	1.2-4.1	---	14-Nov-07	<250.	<250.	<250.	<250.	<100.	<100.	0.54	<1.	<0.5	<1.	---	---	AW-
PW03-3	PW03-3	1.2-4.1	---	1-Apr-08	<250.	<250.	<250.	<250.	<100.	<100.	0.75	<1.	<0.5	<1.	---	---	AW-
PW03-3	PW03-3	1.2-4.1	---	3-Sep-08	<250.	<250.	<250.	<250.	220.	<100.	146.	<2.	3.02	<1.5	---	---	AW-
PW03-3	PW03-3	1.2-4.1	---	22-Apr-09	<250.	<250.	<250.	<250.	110.	<100.	18.9	4.3	4.22	4.4	---	---	AW-
PW03-3	PW03-3	1.2-4.1	---	14-Apr-10	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
PW03-3	PW03-3	1.2-4.1	---	19-Apr-11	<250.	<250.	<250.	<250.	<100.	<100.	0.74	<1.	<0.5	<0.71	---	---	AW-
PW03-3	PW03-3	1.2-4.1	---	22-Aug-11	480.	<250.	500.	<250.	450.	230.	148.	12.6	39.8	18.1	---	---	AW-
PW03-3	PW03-3	1.2-4.1	---	10-May-12	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
PW03-3	PW03-3	1.2-4.1	L1448682-1	29-Apr-14	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
PW03-3	PW03-3	1.2-4.1	L1743508-3	9-Mar-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
PW03-3	PW03-3	1.2-4.1	L1907768-2	31-Mar-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
PW03-3	PW03-3	1.2-4.1	L2086841-3	30-Apr-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
PW03-3	PW03-3	1.2-4.1	L2249476-4	26-Mar-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
PW03-3	PW03-3	1.2-4.1	/A20A4665-00	9-Apr-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
PW03-4	PW03-4	1.8-4.0	---	22-Apr-04	<300.	<1000.	<300.	<1000.	<100.	<100.	2.77	<1.	<0.5	<1.	---	---	AW-
PW03-4	PW03-4	1.8-4.0	---	14-Oct-04	<300.	<1000.	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
PW03-4	PW03-4	1.8-4.0	---	15-Apr-05	<300.	<1000.	<300.	<1000.	<100.	<100.	1.51	1.3	<0.5	<1.	---	---	AW-
PW03-4	PW03-4	1.8-4.0	---	13-Sep-05	<300.	<1000.	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
PW03-4	PW03-4	1.8-4.0	---	21-Mar-06	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
PW03-4	PW03-4	1.8-4.0	---	23-Aug-06	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
PW03-4	PW03-4	1.8-4.0	---	13-Apr-07	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
PW03-4	PW03-4	1.8-4.0	---	6-Sep-07	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
PW03-4	PW03-4	1.8-4.0	---	1-Apr-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
PW03-4	PW03-4	1.8-4.0	---	3-Sep-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
PW03-4	PW03-4	1.8-4.0	---	22-Apr-09	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
PW03-4	PW03-4	1.8-4.0	---	27-Aug-09	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
PW03-4	PW03-4	1.8-4.0	---	14-Apr-10	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
PW03-4	PW03-4	1.8-4.0	---	15-Sep-10	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	---	AW-
PW03-4	PW03-4	1.8-4.0	---	19-Apr-11	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	---	AW-
PW03-4	PW03-4	1.8-4.0	---	13-Sep-11	<250.	<250.	<250.	<250.	---	---	---	---	---	---	---	---	AW-
PW03-4	PW03-4	1.8-4.0	---	22-Aug-11	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
PW03-4	PW03-4	1.8-4.0	---	10-May-12	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
PW03-4	PW03-4	1.8-4.0	L1448682-2	29-Apr-14	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
PW03-4	PW03-4	1.8-4.0	L1743508-9	9-Mar-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
PW03-4	PW03-4	1.8-4.0	L1908948-5	3-Apr-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
PW03-4	PW03-4	1.8-4.0	L1908949-2	3-Apr-17	---	---	---	---	---	---	<0.5	<0.5	<0.5	<0.75	<0.5	<0.5	AW-
PW03-4	PW03-4	1.8-4.0	L2259103-4	16-Apr-19	<250	<250	<250	<250	<100	<100	<0.50	<0.50	<0.50	<0.75	<0.50	---	AW-
PW03-4	PW03-4	1.8-4.0	VA20A4665-001	9-Apr-20	<250	<250	<250	<250	<100	<100	<0.50	<0.50	<0.50	<0.75	<0.50	---	AW-
PW03-5	PW03-5	7.6-8.5	---	22-Apr-04	340.	<1000.	340.	<1000.	<100.	<100.	27.8	<1.	<0.5	<1.	---	---	AW-
PW03-5	PW03-5	7.6-8.5	---	14-Oct-04	<300.	<1000.	<300.	<1000.	<100.	<100.	55.6	<1.	<0.5	<1.	---	---	AW-
PW03-5	PW03-5	7.6-8.5	---	15-Apr-05	390.	<1000.	390.	<1000.	<100.	<100.	12.8	1.	<0.5	<1.	---	---	AW-
PW03-5	PW03-5	7.6-8.5	---	13-Sep-05	330.	<1000.	330.	<1000.	<100.	<100.	0.7	<1.	<0.5	<1.	---	---	AW-
PW03-5	PW03-5	7.6-8.5	---	21-Mar-06	280.	<250.	280.	<250.	<100.	<100.	1.49	<1.	<0.5	<1.	---	---	AW-
PW03-5	PW03-5	7.6-8.5	---	23-Aug-06	310.	<250.	310.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
PW03-5	PW03-5	7.6-8.5	---	13-Apr-07	270.	<250.	270.	<250.	<100.	<100.	7.6	<5.	<2.5	<5.	---	---	AW-
PW03-5	PW03-5	7.6-8.5	---	6-Sep-07	340.	<250.	340.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
PW03-5	PW03-5	7.6-8.5	---	1-Apr-08	330.	<250.	330.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
PW03-5	PW03-5	7.6-8.5	---	3-Sep-08	260.	<250.	260.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
PW03-5	PW03-5	7.6-8.5	---	22-Apr-09	370.	<250.	370.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
PW03-5	PW03-5	7.6-8.5	---	27-Aug-09	320.	<250.	320.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
PW03-5	PW03-5	7.6-8.5	---	14-Apr-10	450.	<250.	450.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
PW03-5	PW03-5	7.6-8.5	---	15-Sep-10	430.	<250.	430.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	---	AW-
PW03-5	PW03-5	7.6-8.5	---	19-Apr-11	430.	<250.	430.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	---	AW-
PW03-5	PW03-5	7.6-8.5	---	22-Aug-11	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
PW03-5	PW03-5	7.6-8.5	---	10-May-12	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
PW03-5	PW03-5	7.6-8.5	L1286283-1	4-Apr-13	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
PW03-5	PW03-5	7.6-8.5	L1448683-5	29-Apr-14	<250.	290.	<250.	290.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
PW03-5	PW03-5	7.6-8.5	L1608317-1	6-May-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
PW03-5	PW03-5	7.6-8.5	L1743508-4	9-Mar-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
PW03-5	PW03-5	7.6-8.5	L1908948-6	3-Apr-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
PW03-5	PW03-5	7.6-8.5	L1908949-3	3-Apr-17	---	---	---	---	---	---	<0.5	<0.45	<0.5	<0.75	<0.5	<0.5	AW-
PW03-5	PW03-5	7.6-8.5	L2086841-4	30-Apr-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
PW03-5	PW03-5	7.6-8.5	L2249476-5	26-Mar-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
PW03-5	PW03-5	7.6-8.5	/A20A3974-00	26-Mar-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
PW03-6	PW03-6	1.1-3.0	---	22-Apr-04	<300.	<1000.	<300.	<1000.	<100.	<100.	7.44	1.2	<0.5	<1.	---	---	AW-
PW03-6	PW03-6	1.1-3.0	---	15-Oct-04	<300.	<1000.	<300.	<1000.	<100.	<100.	<0.5	<1.	1.93	1.8	---	---	AW-
PW03-6	PW03-6	1.1-3.0	---	15-Apr-05	<300.	<1000.	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
PW03-6	PW03-6	1.1-3.0	---	21-Mar-06	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
PW03-6	PW03-6	1.1-3.0	---	13-Apr-07	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
PW03-6	PW03-6	1.1-3.0	---	1-Apr-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-

TABLE 2-2
AREA 2 CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY
µg/L (ppb)

					LEPHw [3]	HEPHw [3]	EPHw (C10-C19) [2,3]	EPHw (C19-C32) [3]	VHw (C6-C10)	VPHw	Benzene	Toluene	Ethylbenzene	Xylenes	Styrene	MTBE	Groundwater Classification
Generic Numerical Water Standards [4]																	
CSR	Schedule 3.2 - Marine Aquatic Life			(AW)	500	NS	5000[1]	NS	15000[1]	1500	1000	2000	2500	300	720	4400	
	Site-Specific Screening Levels (SSSLs)				3000	NS	5000	NS	15000	15000	21000	7700	3200	3300	NS	NS	
Well ID	**Sample ID**	**Screened Interval (mbgs)**	**ALS Laboratory Report #**	**Sample Date**													
PW03-6	PW03-6	1.1-3.0	---	22-Apr-09	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
PW03-6	PW03-6	1.1-3.0	---	14-Apr-10	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
PW03-6	PW03-6	1.1-3.0	---	19-Apr-11	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	---	AW-
PW03-6	PW03-6	1.1-3.0	---	10-May-12	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
PW03-6	PW03-6	1.1-3.0	L1448682-3	29-Apr-14	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
PW03-6	PW03-6	1.1-3.0	L1743508-5	9-Mar-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
PW03-6	PW03-6	1.1-3.0	L1907768-1	31-Mar-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
PW03-6	PW03-6	1.1-3.0	L2259103-1	16-Apr-19	<250	<250	<250.	<250	<100.	<100	<0.5	<1	<0.5	<0.75	<0.5	---	AW-
U8	U8	3.22-6.22	---	12-Jul-05	1480.	<1000.	1480.	<1000.	<100.	<100.	7.2	<1.	<0.5	1.3	---	---	**AW+**
U8	U8	3.22-6.22	---	14-Sep-05	1190.	<1000.	1190.	<1000.	190.	170.	12.	<1.	<0.5	<1.	---	---	**AW+**
U8	U8	3.22-6.22	---	23-Mar-06	1410.	560.	1420.	560.	570.	540.	24.	<1.	7.6	4.6	---	---	**AW+**
U8	U8	3.22-6.22	---	23-Aug-06	1230.	430.	1230.	430.	360.	330.	24.5	<1.	1.77	<1.	---	---	**AW+**
U8	U8	3.22-6.22	---	13-Apr-07	940.	400.	940.	400.	430.	380.	25.2	<1.	15.2	7.6	---	---	**AW+**
U8	U8	3.22-6.22	---	6-Sep-07	980.	370.	980.	370.	130.	120.	11.	<1.	2.34	<1.	---	---	**AW+**
U8	U8	3.22-6.22	---	2-Apr-08	480.	600.	480.	600.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
U8	U8	3.22-6.22	---	4-Sep-08	1020.	290.	1020.	290.	140.	130.	3.81	<1.	<0.5	<1.	---	---	**AW+**
U8	U8	3.22-6.22	---	22-Apr-09	900.	850.	900.	850.	<100.	<100.	0.92	<1.	1.44	<1.	---	---	**AW+**
U8	U8	3.22-6.22	---	31-Aug-09	900.	380.	900.	380.	<100.	<100.	2.4	<1.	<0.5	<1.	---	---	**AW+**
U8	U8	3.22-6.22	---	21-Apr-10	470.	560.	470.	560.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
U8	U8	3.22-6.22	---	14-Sep-10	880.	600.	880.	600.	<100.	<100.	1.24	<1.	<0.5	<0.71	---	---	**AW+**
U8	U8	3.22-6.22	---	5-Apr-11	<250.	270.	<250.	270.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	---	AW-
U8	U8	3.22-6.22	---	1-Sep-11	530.	<250.	530.	<250.	<100.	<100.	3.87	<0.5	<0.5	<0.75	---	---	**AW+**
U8	U8	3.22-6.22	---	9-May-12	370.	520.	370.	520.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
U8	U8	3.22-6.22	L1282462-1	25-Mar-13	<250.	380.	<250.	380.	<100.	<100.	<0.5	1.17	<0.5	1.7	---	---	AW-
U8	U8	3.22-6.22	L1448682-4	29-Apr-14	<250.	370.	<250.	370.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
U8	U8	3.22-6.22	L1747964-1	22-Mar-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
U8	U8	3.22-6.22	L1911852-1	11-Apr-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
U8	U8	3.22-6.22	L1911853-1	11-Apr-17	---	---	---	---	---	---	<0.5	<0.45	<0.5	<0.75	<0.5	<0.5	AW-
U8	U8	3.22-6.22	L2086841-1	30-Apr-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
U8	U8	3.22-6.22	L2247729-2	21-Mar-19	<250	<250	<250.	<250	<100	<100	<0.5	<1	<0.5	<0.75	<0.5	---	AW-
U8	U8	3.22-6.22	/A20A3942-00	25-Mar-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
U9	U9	3.3-6.3	---	12-Jul-05	1170.	<1000.	1180.	<1000.	220.	210.	7.25	<1.	2.16	1.2	---	---	**AW+**
U9	U9	3.3-6.3	---	14-Sep-05	1240.	<1000.	1240.	<1000.	500.	490.	13.5	<1.	2.14	<1.	---	---	**AW+**
U9	U9	3.3-6.3	---	23-Mar-06	1220.	270.	1230.	270.	730.	700.	9.2	<1.	17.5	4.3	---	---	**AW+**
U9	U9	3.3-6.3	---	23-Aug-06	1150.	350.	1160.	350.	460.	440.	14.6	1.2	3.25	<1.	---	---	**AW+**
U9	U9	3.3-6.3	---	13-Apr-07	1440.	<250.	1450.	<250.	810.	790.	10.6	<1.	13.2	2.8	---	---	**AW+**
U9	U9	3.3-6.3	---	6-Sep-07	1190.	420.	1190.	420.	610.	590.	15.8	<1.	1.31	<1.	---	---	**AW+**
U9	U9	3.3-6.3	---	2-Apr-08	1610.	300.	1610.	300.	500.	490.	3.93	<1.	5.98	<1.	---	---	**AW+**
U9	U9	3.3-6.3	---	4-Sep-08	1070.	310.	1070.	310.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	**AW+**
U9	U9	3.3-6.3	---	22-Apr-09	1310.	360.	1320.	360.	470.	430.	24.5	1.1	6.09	<1.	---	---	**AW+**
U9	U9	3.3-6.3	---	31-Aug-09	1150.	340.	1150.	340.	2000.	<1000.	967.	502.	43.6	178.	---	---	**AW+**
U9	U9	3.3-6.3	---	21-Apr-10	1270.	<250.	1280.	<250.	360.	260.	56.4	27.7	4.74	8.8	---	---	**AW+**
U9	U9	3.3-6.3	---	14-Sep-10	1290.	550.	1290.	550.	<1000.	3800.	3610.	284.	159.	184.	---	---	**AW+**
U9	U9	3.3-6.3	---	31-Mar-11	630.	<250.	630.	<250.	<100.	<100.	2.67	<1.	1.1	1.69	---	---	**AW+**
U9	U9	3.3-6.3	---	1-Sep-11	670.	<250.	680.	<250.	890.	<500.	793.	<8.	2.8	5.7	---	---	**AW+**
U9	U9	3.3-6.3	---	9-May-12	380.	<250.	390.	<250.	550.	210.	63.9	106.	39.9	128.	---	---	AW-
U9	U9	3.3-6.3	L1282462-2	25-Mar-13	260.	<250.	260.	<250.	<100.	<100.	0.94	0.75	4.34	3.77	---	---	AW-
U9	U9	3.3-6.3	L1448682-5	29-Apr-14	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	0.81	<0.75	---	---	AW-
U9	U9	3.3-6.3	L1747964-2	22-Mar-16	<250.	<250.	<250.	<250.	110.	110.	<0.5	<0.5	0.98	1.34	---	---	AW-
U9	U9	3.3-6.3	L1911852-2	11-Apr-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
U9	U9	3.3-6.3	L1911853-2	11-Apr-17	---	---	---	---	---	---	<0.5	<0.45	<0.5	<0.75	<0.5	<0.5	AW-
U9	U9	3.3-6.3	L2086841-2	30-Apr-18	560.	480.	560.	480.	<100.	<100.	2.28	<0.5	<0.5	<0.75	<0.5	---	**AW+**
U9	U9	3.3-6.3	L2247729-6	21-Mar-19	<250.	<250.	<250.	<250.	<100.	<100.	9.14	<0.5	0.78	<0.75	<0.5	---	AW-
U9	U9	3.3-6.3	vA20A4490-001	7-Apr-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
U9	DUP-09	3.3-6.3	vA20A4490-002	7-Apr-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
QA/QC RPD				7-Apr-20	---	---	---	---	---	---	---	---	---	---	---	---	
MW02-02	MW02-02	1.2-4.3	---	7-May-04	470.	<1000.	470.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
MW02-02	MW02-02	1.2-4.3	---	14-Oct-04	490.	<1000.	500.	<1000.	<100.	<100.	0.72	<1.	<0.5	<1.	---	---	AW-
MW02-02	MW02-02	1.2-4.3	---	21-Apr-05	<300.	<1000.	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
MW02-02	A2-MW02-02	1.2-4.3	---	20-Sep-05	500.	<1000.	500.	<1000.	<100.	<100.	6.53	<1.	<0.5	<1.	---	---	AW-
MW02-02	MW02-02	1.2-4.3	---	28-Mar-06	<250.	<250.	<250.	<250.	270.	250.	17.	<1.	0.65	<1.	---	---	AW-
MW02-02	MW02-02	1.2-4.3	---	29-Aug-06	330.	<250.	330.	<250.	150.	140.	5.81	<1.	<0.5	<1.	---	---	AW-
MW02-02	MW02-02	1.2-4.3	---	17-Apr-07	<250.	<250.	<250.	<250.	110.	110.	4.44	<1.	<0.5	<1.	---	---	AW-
MW02-02	MW02-02	1.2-4.3	---	5-Sep-07	370.	<250.	370.	<250.	110.	<100.	16.6	<1.	<0.5	<1.	---	---	AW-
MW02-02	MW02-02	1.2-4.3	---	8-Apr-08	<250.	<250.	<250.	<250.	100.	<100.	3.59	<1.	<0.5	<1.	---	---	AW-
MW02-02	MW02-02	1.2-4.3	---	9-Sep-08	530.	<250.	530.	<250.	760.	740.	18.	<1.	<0.5	<1.	---	---	**AW+**
MW02-02	MW02-02	1.2-4.3	---	30-Apr-09	470.	<250.	480.	<250.	410.	390.	15.8	<1.	<0.5	<1.	---	---	AW-
MW02-02	MW02-02	1.2-4.3	---	8-Sep-09	450.	<250.	450.	<250.	500.	470.	25.2	1.	0.63	<1.	---	---	AW-
MW02-02	MW02-02	1.2-4.3	---	12-May-10	490.	<250.	490.	<250.	290.	280.	12.1	<1.	<0.5	<1.	---	---	AW-
MW02-02	MW02-02	1.2-4.3	---	13-Sep-10	560.	<250.	560.	<250.	490.	510.	28.4	<1.	0.68	<0.71	---	---	**AW+**
MW02-02	MW02-02	1.2-4.3	---	11-Apr-11	430.	<250.	430.	<250.	370.	360.	8.85	<1.	<0.5	<0.71	---	---	AW-
MW02-02	MW02-02	1.2-4.3	---	1-Sep-11	480.	720.	480.	720.	<100.	<100.	3.01	0.52	<0.5	<0.75	---	---	AW-
MW02-02	MW02-02	1.2-4.3	---	23-May-12	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW02-02	MW02-02	1.2-4.3	L1283010-6	26-Mar-13	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW02-02	MW02-02	1.2-4.3	L1449879-8	1-May-14	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW02-02	MW02-02	1.2-4.3	L1610017-4	11-May-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW02-02	MW02-02	1.2-4.3	L1751053-1	31-Mar-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW02-02	MW02-02	1.2-4.3	L1909647-1	5-Apr-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW02-02	MW02-02	1.2-4.3	L2246339-2	19-Mar-19	<250	<250	<250	<250	<100	<100	<0.50	<0.50	<0.50	<0.75	<0.50	---	AW-
MW02-02	MW02-02	1.2-4.3	/A20A4448-00	6-Apr-20	<250	<250	<250	<250	<100	<100	<0.50	<0.50	<0.50	<0.75	<0.50	---	AW-
MW02-03	MW02-03	1.5-4.6	---	29-Apr-04	460.	<1000.	460.	<1000.	<100.	<100.	1.91	<1.	<0.5	<1.	---	---	AW-
MW02-03	MW02-03	1.5-4.6	---	13-Oct-04	430.	<1000.	430.	<1000.	<100.	<100.	1.91	<1.	<0.5	<1.	---	---	AW-
MW02-03	MW02-03	1.5-4.6	---	21-Apr-05	510.	<1000.	510.	<1000.	<100.	<100.	1.57	<1.	<0.5	<1.	---	---	**AW+**
MW02-03	A2-MW02-03	1.5-4.6	---	20-Sep-05	390.	<1000.	400.	<1000.	<100.	<100.	1.34	<1.	<0.5	<1.	---	---	AW-
MW02-03	MW02-03	1.5-4.6	---	28-Mar-06	490.	<250.	500.	<250.	<100.	<100.	1.27	<1.	<0.5	<1.	---	---	AW-
MW02-03	MW02-03	1.5-4.6	---	29-Aug-06	420.	<250.	420.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
MW02-03	MW02-03	1.5-4.6	---	17-Apr-07	490.	<250.	500.	<250.	100.	<100.	3.99	<1.	<0.5	<1.	---	---	AW-
MW02-03	MW02-03	1.5-4.6	---	5-Sep-07	450.	<250.	460.	<250.	<100.	<100.	0.97	<1.	<0.5	<1.	---	---	AW-
MW02-03	MW02-03	1.5-4.6	---	8-Apr-08	390.	<250.	390.	<250.	110.	100.	1.49	<1.	<0.5	<1.	---	---	AW-
MW02-03	MW02-03	1.5-4.6	---	8-Sep-08	400.	<250.	400.	<250.	130.	130.	0.61	<1.	<0.5	<1.	---	---	AW-
MW02-03	MW02-03	1.5-4.6	---	30-Apr-09	550.	<250.	550.	<250.	120.	<100.	26.5	1.5	<0.5	<1.	---	---	**AW+**
MW02-03	MW02-03	1.5-4.6	---	8-Sep-09	400.	<250.	400.	<250.	<100.	<100.	0.81	<1.	<0.5	<1.	---	---	AW-
MW02-03	MW02-03	1.5-4.6	---	12-May-10	550.	<250.	550.	<250.	<100.	<100.	6.67	<1.	<0.5	<1.	---	---	**AW+**
MW02-03	MW02-03	1.5-4.6	---	13-Sep-10	510.	<250.	510.	<250.	<100.	<100.	1.65	<1.	<0.5	<0.71	---	---	**AW+**
MW02-03	MW02-03	1.5-4.6	---	7-Apr-11	350.	<250.	350.	<250.	<100.	<100.	1.23	<1.	<0.5	<0.71	---	---	AW-
MW02-03	MW02-03	1.5-4.6	---	1-Sep-11	350.	<250.	350.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW02-03	MW02-03	1.5-4.6	---	23-May-12	310.	<250.	310.	<250.	1200.	220.	110.	207.	85.9	581.	---	---	**AW+**
MW02-03	MW02-03	1.5-4.6	---	24-Sep-12	1640.	450.	1650.	460.	2420.	2330.	55.6	3.07	25.9	7.57	---	---	**AW+**
MW02-03	MW02-03	1.5-4.6	L1283010-7	26-Mar-13	460.	<250.	460.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW02-03	MW02-03	1.5-4.6	L1345378-11	8-Aug-13	340.	<250.	340.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW02-03	MW02-03	1.5-4.6	L1449879-9	1-May-14	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW02-03	MW02-03	1.5-4.6	L1498928-2	7-Aug-14	340.	<250.	340.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-

TABLE 2-2
AREA 2 CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY
µg/L (ppb)

					LEPHw [3]	HEPHw [3]	EPHw (C10-C19) [2,3]	EPHw (C19-C32) [3]	VHw (C6-C10)	VPHw	Benzene	Toluene	Ethylbenzene	Xylenes	Styrene	MTBE	Groundwater Classification
Generic Numerical Water Standards [4]																	
CSR	Schedule 3.2 - Marine Aquatic Life			(AW)	500	NS	5000[1]	NS	15000[1]	1500	1000	2000	2500	300	720	4400	
	Site-Specific Screening Levels (SSSLs)				3000	NS	5000	NS	15000	15000	21000	7700	3200	3300	NS	NS	
Well ID	**Sample ID**	**Screened Interval (mbgs)**	**ALS Laboratory Report #**	**Sample Date**													
MW02-03	MW02-03	1.5-4.6	L1610017-5	11-May-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW02-03	MW02-03	1.5-4.6	L1751053-2	31-Mar-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW02-03	MW02-03	1.5-4.6	L1909647-2	5-Apr-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW02-03	MW02-03	1.5-4.6	L1911182-3	10-Apr-17	---	---	---	---	---	---	<0.5	<0.45	<0.5	<0.75	<0.5	<0.5	AW-
MW02-03	MW02-03	1.5-4.6	L2085716-2	26-Apr-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW02-03	MW02-03	1.5-4.6	L2246339-1	19-Mar-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW02-03	MW02-03	1.5-4.6	/A20A4448-00	6-Apr-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW02-03	DUP-7	1.5-4.6	/A20A4448-00	6-Apr-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
QA/QC RPD				6-Apr-20	---	---	---	---	---	---	---	---	---	---	---	---	
MW02-04	MW02-04	1.5-4.6	---	28-Apr-04	1030.	<1000.	1030.	<1000.	250.	250.	2.21	<1.	<0.5	<1.	---	---	**AW+**
MW02-04	MW02-04	1.5-4.6	---	13-Oct-04	600.	<1000.	600.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	**AW+**
MW02-04	MW02-04	1.5-4.6	---	21-Apr-05	870.	<1000.	870.	<1000.	<100.	<100.	0.51	<1.	<0.5	<1.	---	---	**AW+**
MW02-04	A2-MW02-04	1.5-4.6	---	20-Sep-05	690.	<1000.	690.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	**AW+**
MW02-04	MW02-04	1.5-4.6	---	28-Mar-06	700.	<250.	700.	<250.	110.	110.	<0.5	<1.	<0.5	<1.	---	---	**AW+**
MW02-04	MW02-04	1.5-4.6	---	29-Aug-06	580.	<250.	580.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	**AW+**
MW02-04	MW02-04	1.5-4.6	---	17-Apr-07	630.	<250.	630.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	**AW+**
MW02-04	MW02-04	1.5-4.6	---	5-Sep-07	590.	<250.	590.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	**AW+**
MW02-04	MW02-04	1.5-4.6	---	8-Apr-08	420.	<250.	420.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
MW02-04	MW02-04	1.5-4.6	---	8-Sep-08	550.	<250.	550.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	**AW+**
MW02-04	MW02-04	1.5-4.6	---	30-Apr-09	410.	<250.	410.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
MW02-04	MW02-04	1.5-4.6	---	8-Sep-09	480.	<250.	480.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
MW02-04	MW02-04	1.5-4.6	---	12-May-10	470.	<250.	470.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
MW02-04	MW02-04	1.5-4.6	---	13-Sep-10	500.	<250.	500.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	---	**AW+**
MW02-04	MW02-04	1.5-4.6	---	7-Apr-11	340.	<250.	340.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---	---	AW-
MW02-04	MW02-04	1.5-4.6	L1283010-8	26-Mar-13	400.	<250.	400.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW02-04	MW02-04	1.5-4.6	L1345378-9	8-Aug-13	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW02-04	MW02-04	1.5-4.6	L1449879-1	1-May-14	340.	<250.	340.	<250.	150.	150.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW02-04	MW02-04	1.5-4.6	L1498928-3	7-Aug-14	650.	<250.	650.	<250.	170.	170.	<0.5	<0.5	<0.5	<0.75	---	---	**AW+**
MW02-04	MW02-04	1.5-4.6	L1751053-3	31-Mar-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW02-04	MW02-04	1.5-4.6	L1909647-3	5-Apr-17	310.	<250.	310.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW02-04	MW02-04	1.5-4.6	L1911182-2	10-Apr-17	---	---	---	---	---	---	<0.5	<0.45	<0.5	<0.75	<0.5	<0.5	AW-
MW02-04	MW02-04	1.5-4.6	L2082551-1	19-Apr-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW02-04	MW02-04	1.5-4.6	vA20A4503-001	7-Apr-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW03-02	MW03-02	3.7-7.6	---	28-Apr-04	510.	<1000.	510.	<1000.	<100.	<100.	1.5	<1.	<0.5	<1.	---	---	**AW+**
MW03-02	MW03-02	3.7-7.6	---	13-Oct-04	550.	<1000.	550.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	**AW+**
MW03-02	MW03-02	3.7-7.6	---	12-Apr-05	390.	<1000.	390.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
MW03-02	MW03-02	3.7-7.6	---	14-Sep-05	460.	<1000.	460.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
MW03-02	MW03-02	3.7-7.6	---	23-Mar-06	330.	<250.	330.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
MW03-02	MW03-02	3.7-7.6	---	29-Aug-06	430.	<250.	430.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
MW03-02	MW03-02	3.7-7.6	---	17-Apr-07	340.	<250.	340.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
MW03-02	MW03-02	3.7-7.6	---	5-Sep-07	650.	280.	650.	280.	<100.	<100.	31.7	<1.	<0.5	<1.	---	---	**AW+**
MW03-02	MW03-02	3.7-7.6	---	2-Apr-08	360.	<250.	360.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
MW03-02	MW03-02	3.7-7.6	---	8-Sep-08	470.	280.	470.	280.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
MW03-02	MW03-02	3.7-7.6	---	30-Apr-09	---	---	380.	260.	<100.	<100.	25.	<1.	<0.5	<1.	---	---	AW-
MW03-02	MW03-02	3.7-7.6	---	31-Aug-09	---	---	420.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
MW03-02	MW03-02	3.7-7.6	---	22-Apr-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---	---	AW-
MW03-02	MW03-02	3.7-7.6	---	14-Sep-10	---	---	420.	320.	<100.	<100.	0.53	<1.	<0.5	<0.71	---	---	AW-
MW03-02	MW03-02	3.7-7.6	---	31-Mar-11	---	---	<250.	<250.	<100.	<100.	0.61	<1.	<0.5	<0.71	---	---	AW-
MW03-02	MW03-02	3.7-7.6	---	1-Sep-11	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW03-02	MW03-02	3.7-7.6	---	9-May-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW03-02	MW03-02	3.7-7.6	L1283010-5	26-Mar-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW03-02	MW03-02	3.7-7.6	L1350199-1	19-Aug-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW03-02	MW03-02	3.7-7.6	L1449337-6	30-Apr-14	---	---	<250.	<250.	<100.	<100.	<0.5	0.61	<0.5	<0.75	---	---	AW-
MW03-02	MW03-02	3.7-7.6	L1501099-4	12-Aug-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW03-02	MW03-02	3.7-7.6	L1608929-5	7-May-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW03-02	MW03-02	3.7-7.6	L1662936-3	25-Aug-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW03-02	MW03-02	3.7-7.6	L1747969-8	22-Mar-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW03-02	MW03-02	3.7-7.6	L1911588-1	10-Apr-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW03-02	MW03-02	3.7-7.6	L2085716-1	26-Apr-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW03-02	MW03-02	3.7-7.6	L2247147-1	20-Mar-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.50	<0.50	<0.50	<0.75	<0.50	---	AW-
MW03-02	MW03-02	3.7-7.6	/A20A3974-00	26-Mar-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.50	<0.50	<0.50	<0.75	<0.50	---	AW-
MW03-03	MW03-03	6.1-13.7	---	29-Apr-04	620.	<1000.	620.	<1000.	2630.	2580.	19.4	<2.	23.1	10.2	---	---	**AW+**
MW03-03	MW03-03	6.1-13.7	---	12-Oct-04	650.	<1000.	650.	<1000.	890.	880.	2.62	<1.	4.22	<1.	---	---	**AW+**
MW03-03	MW03-03	6.1-13.7	---	21-Apr-05	1100.	<1000.	1110.	<1000.	780.	710.	14.4	3.5	42.9	14.9	---	---	**AW+**
MW03-03	A2-MW03-03	6.1-13.7	---	20-Sep-05	1220.	<1000.	1220.	<1000.	590.	590.	<1.5	<1.	<0.5	<1.	---	---	**AW+**
MW03-03	MW03-03	6.1-13.7	---	28-Mar-06	800.	<250.	800.	<250.	570.	500.	21.8	3.4	36.3	15.8	---	---	**AW+**
MW03-03	MW03-03	6.1-13.7	---	29-Aug-06	1340.	400.	1340.	400.	1840.	1840.	<3.	<2.	2.4	<2.	---	---	**AW+**
MW03-03	MW03-03	6.1-13.7	---	17-Apr-07	760.	<250.	770.	<250.	1460.	1400.	21.2	<10.	30.9	8	---	---	**AW+**
MW03-03	MW03-03	6.1-13.7	---	5-Sep-07	630.	<250.	630.	<250.	1000.	990.	5.38	<1.	3.4	2.5	---	---	**AW+**
MW03-03	MW03-03	6.1-13.7	---	8-Apr-08	750.	<250.	760.	<250.	1440.	1370.	16.4	4.1	33.1	21.9	---	---	**AW+**
MW03-03	MW03-03	6.1-13.7	---	8-Sep-08	610.	<250.	620.	<250.	1630.	1610.	4.71	<2.	5.65	5.3	---	---	**AW+**
MW03-03	MW03-03	6.1-13.7	---	30-Apr-09	790.	<250.	800.	<250.	1280.	1220.	14.5	1.9	23.6	16.4	---	---	**AW+**
MW03-03	MW03-03	6.1-13.7	---	9-Sep-09	470.	<250.	470.	<250.	1230.	1220.	2.91	<1.	2.6	2.1	---	---	AW-
MW03-03	MW03-03	6.1-13.7	---	12-May-10	980.	<250.	990.	<250.	1160.	1100.	14.1	2.8	25.6	9.4	---	---	**AW+**
MW03-03	MW03-03	6.1-13.7	---	14-Sep-10	610.	<250.	610.	<250.	710.	720.	4.23	1.1	2.96	2.75	---	---	**AW+**
MW03-03	MW03-03	6.1-13.7	---	7-Apr-11	370.	<250.	370.	<250.	640.	620.	6.18	1.1	9.2	1.97	---	---	AW-
MW03-03	MW03-03	6.1-13.7	---	17-Aug-11	460.	<250.	460.	<250.	1730.	1730.	<7.	<2.	3.01	1.84	---	---	**AW+**
MW03-03	MW03-03	6.1-13.7	L1291408-1	18-Apr-13	440.	<250.	440.	<250.	1150.	1150.	<2.	<0.5	0.5	<0.75	---	---	AW-
MW03-03	MW03-03	6.1-13.7	L1451660-1	6-May-14	980.	<250.	1010.	<250.	2140.	2090.	<6.	1.02	50.	4.76	---	---	**AW+**
MW03-03	MW03-03	6.1-13.7	L1501939-1	13-Aug-14	450.	<250.	450.	<250.	1230.	1230.	<3.	<0.5	3.58	<0.75	---	---	AW-
MW03-03	MW03-03	6.1-13.7	L1751053-4	31-Mar-16	370.	<250.	370.	<250.	1020.	1020.	1.66	<0.5	0.7	<0.75	---	---	AW-
MW03-03	MW03-03	6.1-13.7	L1909647-4	5-Apr-17	950.	<250.	970.	<250.	1950.	1880.	<2.5	<2.3	61.	4.6	<2.5	---	**AW+**
MW03-03	MW03-03	6.1-13.7	L1911182-1	10-Apr-17	---	---	---	---	---	---	<2.5	<2.3	48.4	<3.5	<2.5	<2.5	AW-
MW03-03	MW03-03	6.1-13.7	L2082551-2	19-Apr-18	650.	<250.	650.	<250.	730.	730.	<0.5	<0.5	4.25	<0.75	<0.5	---	**AW+**
A2MW09-05I	MW09-05I	9.18-10.68	---	21-Apr-10	550.	<250.	560.	<250.	320.	160.	125.	10.5	13.1	15.6	---	---	**AW+**
A2MW09-05I	MW09-05I	9.18-10.68	---	14-Sep-10	500.	<250.	500.	<250.	<100.	400.	366.	1.3	20.1	4.57	---	---	AW-
A2MW09-05I	A2MW09-5I	9.18-10.68	---	31-Mar-11	680.	<250.	690.	<250.	720.	370.	292.	4.	34.7	15.9	---	---	**AW+**
A2MW09-05I	MW09-05I	9.18-10.68	---	1-Sep-11	320.	<250.	330.	<250.	420.	100.	313.	1.03	5.87	0.81	---	---	AW-
A2MW09-05I	MW09-05I	9.18-10.68	---	9-May-12	840.	<250.	870.	<250.	6700.	**<5000.**	753.	1320.	450.	1920.	---	---	**AW+**
A2MW09-05I	MW09-05I	9.18-10.68	---	13-Aug-12	500.	<250.	510.	<250.	2260.	820.	903.	58.8	122.	357.	---	---	**AW+**
A2MW09-05I	MW09-05I	9.18-10.68	L1282461-1	25-Mar-13	**<1800.**	320.	<1800.	320.	550.	430.	66.9	3.2	33.7	7.97	---	---	**AW+**
A2MW09-05I	MW09-05I	9.18-10.68	L1382363-1	23-Oct-13	870.	<250.	870.	<250.	2250.	810.	1110.	7.3	182.	142.	---	---	**AW+**
A2MW09-05I	MW09-05I	9.18-10.68	L1449337-1	30-Apr-14	830.	<250.	840.	<250.	1160.	900.	174.	2.3	51.9	27.6	---	---	**AW+**
A2MW09-05I	MW09-05I	9.18-10.68	L1501099-1	12-Aug-14	2580.	1840.	2600.	1840.	3700.	1700.	1300.	19.6	217.	495.	---	---	**AW+**
A2MW09-05I	MW09-05I	9.18-10.68	L1608929-1	7-May-15	480.	<250.	490.	<250.	1010.	840.	106.	1.3	25.	36.8	---	---	AW-
A2MW09-05I	A2MW09-05I	9.18-10.68	L1662936-1	25-Aug-15	680.	<250.	690.	<250.	3400.	2000.	1050.	11.2	126.	250.	---	---	**AW+**
A2MW09-05I	A2MW09-05I	9.18-10.68	L1747969-4	22-Mar-16	450.	<250.	450.	<250.	490.	460.	22.7	<0.5	2.47	<0.75	---	---	AW-
A2MW09-05I	MW09-05I	9.18-10.68	L1819742-1	25-Aug-16	1090.	350.	1120.	350.	5220.	2480.	2010.	16.6	274.	446.	---	<5.	**AW+**
A2MW09-05I	A2MW09-05I	9.18-10.68	L1912573-4	12-Apr-17	400.	<250.	400.	<250.	360.	340.	14.5	<0.5	1.52	<0.75	<0.5	---	AW-
A2MW09-05I	A2MW09-05I	9.18-10.68	L1987046-1	6-Sep-17	1130.	460.	1140.	460.	2200.	1470.	658.	5.58	11.3	54.5	<0.5	---	**AW+**
A2 MW09-05I	MW09-05I	9.18-10.68	L2085717-1	26-Apr-18	920.	330.	920.	330.	380.	380.	3.69	<0.5	<0.5	<0.75	<0.5	---	**AW+**
A2 MW09-05I	MW09-05I	9.18-10.68	L2103253-1	30-May-18	360.	<250.	360.	<250.	140.	140.	<1.	<0.5	<0.5	<0.75	<0.5	---	AW-

TABLE 2-2
AREA 2 CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY
µg/L (ppb)

Well ID	Sample ID	Screened Interval (mbgs)	ALS Laboratory Report #	Sample Date	LEPHw [3]	HEPHw [3]	EPHw (C10-C19) [2,3]	EPHw (C19-C32) [3]	VHw (C6-C10)	VPHw	Benzene	Toluene	Ethylbenzene	Xylenes	Styrene	MTBE	Groundwater Classification
Generic Numerical Water Standards [4]																	
CSR	Schedule 3.2 - Marine Aquatic Life			(AW)	500	NS	5000[1]	NS	15000[1]	1500	1000	2000	2500	300	720	4400	
	Site-Specific Screening Levels (SSSLs)				3000	NS	5000	NS	15000	15000	21000	7700	3200	3300	NS	NS	
A2 MW09-05I	A2 MW09-05I	9.18-10.68	L2151626-1	22-Aug-18	420.	<250.	430.	<250.	540.	490.	48.8	0.58	<0.5	0.99	<0.5	---	AW-
A2 MW09-05I	A2 MW09-05I	9.18-10.68	L2249476-2	26-Mar-19	<250.	<250.	<250.	<250.	170.	170.	<1.	<0.5	<0.5	<0.75	<0.5	---	AW-
A2 MW09-05I	A2 MW09-05I	9.18-10.68	L2344655-1	10-Sep-19	350.	<250.	350.	<250.	780.	590.	181.	2.14	5.03	10.3	<0.5	---	AW-
A2 MW09-05I	MW09-05I	9.18-10.68	/A20A4587-00	8-Apr-20	310.	<250	310.	<250	260.	260.	<0.5	<0.5	<0.5	<0.75	<0.50	---	AW-
A2 MW09-05I	MW09-05I	9.18-10.68	/A20B2369-00	11-Aug-20	<250	<250	<250	<250	230.	220.	6.14	<0.5	<0.5	<0.75	<0.50	---	AW-
A2 MW09-05I	DUP-01	9.18-10.68	/A20B2369-00	11-Aug-20	<250	<250	<250	<250	190.	180.	6.34	<0.5	<0.5	<0.75	<0.50	---	AW-
QA/QC RPD				11-Aug-20	---	---	---	---	---	---	3.2%	---	---	---	---	---	
A2MW09-06I	MW09-06I	9.33-10.83	---	21-Apr-10	620.	<250.	620.	<250.	680.	<500.	381.	<5.	6.2	<5.	---	---	**AW+**
A2MW09-06I	MW09-06I	9.33-10.83	---	14-Sep-10	460.	<250.	460.	<250.	<110.	560.	479.	1.	1.47	1.3	---	---	AW-
A2MW09-06I	A2MW09-06I	9.33-10.83	---	6-Apr-11	930.	<250.	940.	<250.	870.	730.	99.1	7.4	14.6	17.2	---	---	**AW+**
A2MW09-06I	MW09-06I	9.33-10.83	---	1-Sep-11	440.	<250.	450.	<250.	5020.	<840.	1780.	1530.	170.	782.	---	---	**AW+**
A2MW09-06I	MW09-06I	9.33-10.83	---	9-May-12	1210.	<250.	1260.	<250.	4280.	1780.	996.	379.	251.	872.	---	---	**AW+**
A2MW09-06I	MW09-06I	9.33-10.83	---	13-Aug-12	390.	<250.	400.	<250.	1130.	480.	372.	75.8	40.9	154.	---	---	AW-
A2MW09-06I	MW09-06I	9.33-10.83	L1282461-2	25-Mar-13	940.	<250.	990.	<250.	2170.	1480.	199.	38.3	147.	301.	---	---	**AW+**
A2MW09-06I	MW09-6I	9.33-10.83	L1350199-2	19-Aug-13	---	---	---	---	1080.	550.	491.	1.5	14.2	16.8	---	---	AW-
A2MW09-06I	MW09-6I	9.33-10.83	L1350563-2	20-Aug-13	950.	270.	950.	270.	---	---	---	---	---	---	---	---	**AW+**
A2MW09-06I	MW09-6I	9.33-10.83	L1449337-3	30-Apr-14	1010.	<250.	1050.	<250.	1880.	1350.	95.8	14.	187.	230.	---	---	**AW+**
A2MW09-06I	MW09-6I	9.33-10.83	L1501099-2	12-Aug-14	690.	960.	700.	960.	1560.	800.	601.	3.	57.8	103.	---	---	**AW+**
A2MW09-06I	MW09-6I	9.33-10.83	L1608318-1	6-May-15	500.	<250.	500.	<250.	370.	300.	38.3	0.64	17.1	15.4	---	---	**AW+**
A2MW09-06I	MW09-6I	9.33-10.83	L1662936-2	25-Aug-15	350.	<250.	350.	<250.	800.	470.	315.	1.4	4.6	10.	---	---	AW-
A2MW09-06I	MW09-6I	9.33-10.83	L1747969-5	22-Mar-16	570.	<250.	570.	<250.	660.	570.	15.4	0.64	54.7	15.9	---	---	**AW+**
A2MW09-06I	MW09-6I	9.33-10.83	L1819742-2	25-Aug-16	<250.	<250.	<250.	<250.	<100.	<100.	24.2	<0.5	2.24	<0.75	---	2.71	AW-
A2MW09-06I	MW09-6I	9.33-10.83	L1912573-5	12-Apr-17	540.	<250.	540.	<250.	560.	520.	6.27	<0.5	27.6	4.08	<0.5	---	**AW+**
A2MW09-06I	MW09-6I	9.33-10.83	L1987046-2	6-Sep-17	350.	<250.	350.	<250.	350.	240.	116.	0.53	<0.5	<0.75	<0.5	---	AW-
A2MW09-06I	MW09-6I	9.33-10.83	L2085717-2	26-Apr-18	2230.	1410.	2230.	1410.	450.	440.	3.27	<0.5	6.26	<0.75	<0.5	---	**AW+**
A2MW09-06I	A2 MW09-06I	9.33-10.83	L2151626-2	22-Aug-18	<250.	<250.	<250.	<250.	310.	300.	13.4	<0.5	<0.5	<0.75	<0.5	---	AW-
A2 MW09-06I	MW09-06I	9.33-10.83	L2249476-1	26-Mar-19	<250.	<250.	<250.	<250.	<100.	<100.	---	<0.5	<0.5	<0.75	<0.5	---	AW-
A2 MW09-06I	MW09-06I	9.33-10.83	L2344655-2	10-Sep-19	1720.	1340.	1720.	1340.	<100.	<100.	---	<0.50	<0.50	<0.75	<0.50	---	**AW+**
A2 MW09-06I	MW09-06I	9.33-10.83	/A20A3974-00	26-Mar-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
A2 MW09-06I	MW09-06I	9.33-10.83	/A20B2369-00	11-Aug-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
A2 MW09-06I	DUP-02	9.33-10.83	/A20B2369-00	11-Aug-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
QA/QC RPD				11-Aug-20	---	---	---	---	---	---	---	---	---	---	---	---	
A2MW09-06S	MW09-06S	2.44-5.44	---	21-Apr-10	530.	<250.	540.	<250.	160.	150.	12.1	<1.	2.2	1.7	---	---	**AW+**
A2MW09-06S	MW09-06S	2.44-5.44	---	14-Sep-10	490.	<250.	490.	<250.	<100.	430.	320.	12.5	12.	5.92	---	---	AW-
A2MW09-06S	A2MW09-06S	2.44-5.44	---	6-Apr-11	<250.	<250.	<250.	<250.	910.	730.	138.	9.3	16.3	17.8	---	---	AW-
A2MW09-06S	MW09-06S	2.44-5.44	---	1-Sep-11	470.	<250.	490.	<250.	4000.	<1000.	1590.	1210.	122.	442.	---	---	**AW+**
A2MW09-06S	MW09-06S	2.44-5.44	L1449337-2	30-Apr-14	590.	<250.	600.	<250.	470.	300.	2.7	1.85	24.6	142.	---	---	**AW+**
A2MW09-06S	MW09-06S	2.44-5.44	L1911855-1	11-Apr-17	---	---	---	---	---	---	<0.5	<0.45	1.78	0.87	<0.5	<0.5	AW-
A2MW09-06S	MW09-06S	2.44-5.44	L1911856-1	11-Apr-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
A2MW09-10	MW09-10	2.22-5.22	---	21-Apr-10	1980.	310.	2010.	310.	9900.	**<5000.**	8280.	917.	190.	1350.	---	---	**AW+**
A2MW09-10	MW09-10	2.22-5.22	---	14-Sep-10	1530.	390.	1550.	390.	1060.	5090.	3920.	27.	38.	38.	---	---	**AW+**
A2MW09-10	A2MW09-10	2.22-5.22	---	31-Mar-11	2010.	<250.	2130.	<250.	13500.	3100.	6770.	524.	725.	2420.	---	---	**AW+**
A2MW09-10	MW09-10	2.22-5.22	---	9-May-12	1800.	300.	1860.	300.	**16900.**	4600.	7470.	826.	831.	3150.	---	---	**AW+**
A2MW09-10	MW09-10	2.22-5.22	L1282463-1	25-Mar-13	2630.	530.	2710.	530.	9700.	**<1900.**	7830.	127.	439.	856.	---	---	**AW+**
A2MW09-10	MW09-10	2.22-5.22	L1449336-1	30-Apr-14	2520.	480.	2620.	480.	8700.	**<5000.**	5250.	113.	672.	968.	---	---	**AW+**
A2MW09-10	MW09-10	2.22-5.22	L1747969-1	22-Mar-16	1090.	300.	1140.	300.	5800.	2500.	2520.	66.8	417.	291.	---	---	**AW+**
A2MW09-10	MW09-10	2.22-5.22	L1914178-1	18-Apr-17	1420.	370.	1490.	370.	4100.	1500.	1840.	50.1	387.	262.	<0.5	---	**AW+**
A2MW09-11	MW09-11	2.05-5.05	---	22-Apr-10	1730.	250.	1820.	250.	**32000.**	**<10000.**	9310.	**10900.**	1310.	**6300.**	---	---	**AW+**
A2MW09-11	MW09-11	2.05-5.05	---	9-May-12	2720.	1090.	2840.	1090.	**26300.**	**<4300.**	4150.	**9190.**	1700.	**8940.**	---	---	**AW+**
A2MW09-11	MW09-11	2.05-5.05	L1283007-1	26-Mar-13	2160.	<250.	2280.	<250.	**26000.**	**<10000.**	5190.	**10400.**	1480.	**8640.**	---	---	**AW+**
A2MW09-11	MW09-11	2.05-5.05	L1449336-2	30-Apr-14	**3090.**	490.	3240.	490.	**26400.**	**<5000.**	1950.	**7790.**	1940.	**10200.**	---	---	**AW+**
A2MW09-11	MW09-11	2.05-5.05	L1608929-3	7-May-15	1920.	<250.	2010.	<250.	**17000.**	5600.	1840.	773.	1410.	**7370.**	---	---	**AW+**
A2MW09-11	MW09-11	2.05-5.05	L1747969-6	22-Mar-16	2150.	270.	2250.	270.	14100.	6000.	648.	139.	1330.	**5960.**	---	---	**AW+**
A2MW09-11	A2MW09-11	2.05-5.05	L1914178-2	18-Apr-17	2140.	430.	2220.	430.	5600.	3000.	91.7	9.15	504.	2030.	<0.5	---	**AW+**
A2MW09-11	MW09-11	2.05-5.05	L2085717-7	26-Apr-18	1810.	300.	1910.	300.	9300.	3600.	167.	19.1	1180.	**4350.**	<0.5	---	**AW+**
A2MW09-11	A2MW09-11	2.05-5.05	L2246339-5	19-Mar-19	1880.	<250.	2000	<250	13300	6000.	118.0	9.73	1580	**5540.**	<0.5	---	**AW+**
MW09-11	MW09-11	2.05-5.05	L2259932-1	17-Apr-19	2270.	560.	2330.	560	8560	5800	38	3	565	2190	<2.5	---	**AW+**
A2MW09-11	MW09-11	2.05-5.05	002	8-Apr-20	1960	390	2050	390	12300	7820	66.7	6.12	1060	**3360**	<0.5	---	**AW+SSSL+**
A2MW09-11	DUP-10	2.05-5.05	004	8-Apr-20	1560	260	1650	260	10100	5480	62	6.48	1100	**3440**	<0.5	---	**AW+SSSL+**
QA/QC RPD				8-Apr-20	22.7%	---	21.6%	---	19.6%	35.2%	7.3%	5.7%	3.7%	2.4%	---	---	
A2MW09-12	MW09-12	2.14-5.14	---	22-Apr-10	940.	<250.	1020.	<250.	3700.	1800.	1730.	<10.	53.2	116.	---	---	**AW+**
A2MW09-12	MW09-12	2.14-5.14	---	14-Sep-10	1210.	590.	1230.	590.	860.	2320.	1260.	2.6	48.1	147.	---	---	**AW+**
A2MW09-12	A2MW09-12	2.14-5.14	---	31-Mar-11	<250.	<250.	<250.	<250.	<100.	<100.	0.64	<1.	<0.5	<0.71	---	---	AW-
A2MW09-12	MW09-12	2.14-5.14	---	9-May-12	<250.	<250.	<250.	<250.	<100.	<100.	7.2	0.55	<0.5	1.24	---	---	AW-
A2MW09-12	MW09-12	2.14-5.14	L1282461-3	25-Mar-13	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
A2MW09-12	MW09-12	2.14-5.14	L1449337-4	30-Apr-14	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
A2MW09-12	MW09-12	2.14-5.14	L1608929-4	7-May-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
A2MW09-12	MW09-12	2.14-5.14	L1747969-7	22-Mar-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
A2MW09-12	MW09-12	2.14-5.14	L1914178-3	18-Apr-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
A2MW09-12	MW09-12	2.14-5.14	L2085717-3	26-Apr-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
A2MW09-12	MW09-12	2.14-5.14	L2246339-4	19-Mar-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
A2MW09-12	MW09-12	2.14-5.14	/A20A3974-00	26-Mar-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
A2MW09-13	MW09-13	2.02-5.02	---	22-Apr-10	870.	<250.	870.	<250.	<100.	<100.	28.3	<1.	<0.5	<1.	---	---	**AW+**
A2MW09-13	MW09-13	2.02-5.02	---	14-Sep-10	840.	420.	840.	420.	<100.	<100.	0.76	<1.	<0.5	<0.71	---	---	**AW+**
A2MW09-13	A2MW09-13	2.02-5.02	---	5-May-11	---	---	---	---	<100.	<100.	4.73	<1.	<0.5	<0.71	---	---	AW-
A2MW09-13	MW09-13	2.02-5.02	L1283010-1	26-Mar-13	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
A2MW09-13	MW09-13	2.02-5.02	L1449879-5	1-May-14	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
A2MW09-13	MW09-13	2.02-5.02	L1610017-1	11-May-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
A2MW09-13	MW09-13	2.02-5.02	L1747969-2	22-Mar-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
A2MW09-13	MW09-13	2.02-5.02	L1911588-2	10-Apr-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
A2MW09-13	MW09-13	2.02-5.02	L2085717-4	26-Apr-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
A2MW09-13	MW09-13	2.02-5.02	L2246339-3	19-Mar-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
A2MW09-14	MW09-14	2.03-5.03	---	22-Apr-10	570.	<250.	580.	<250.	350.	300.	46.2	1.6	<0.5	3.5	---	---	**AW+**
A2MW09-14	MW09-14	2.03-5.03	---	14-Sep-10	1210.	470.	1210.	470.	220.	320.	97.3	<1.	<0.5	2.4	---	---	**AW+**
A2MW09-14	A2MW09-14	2.03-5.03	---	5-May-11	590.	<250.	590.	<250.	450.	340.	106.	1.4	<0.5	4.13	---	---	**AW+**
A2MW09-14	MW09-14	2.03-5.03	L1283010-2	26-Mar-13	800.	<250.	800.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	**AW+**
A2MW09-14	MW09-14	2.03-5.03	L1449879-6	1-May-14	490.	<250.	490.	<250.	110.	110.	1.39	<0.5	<0.5	<0.75	---	---	AW-
A2MW09-14	MW09-14	2.03-5.03	L1498925-1	7-Aug-14	360.	<250.	360.	<250.	<100.	<100.	1.27	1.24	<0.5	2.63	---	5.	AW-
A2MW09-14	MW09-14	2.03-5.03	L1610017-2	11-May-15	610.	<250.	620.	<250.	480.	420.	59.1	<2.	<0.5	2.19	---	---	**AW+**
A2MW09-14	MW09-14	2.03-5.03	L1751053-5	31-Mar-16	260.	<250.	260.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
A2MW09-14	MW09-14	2.03-5.03	L1911588-3	10-Apr-17	320.	<250.	320.	<250.	190.	190.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
A2MW09-14	MW09-14	2.03-5.03	L2085717-5	26-Apr-18	290.	<250.	290.	<250.	130.	130.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
A2MW09-15	MW09-15	1.35-4.35	---	22-Apr-10	1600.	<250.	1600.	<250.	260.	240.	9.13	<1.	2.96	1.9	---	---	**AW+**
A2MW09-15	MW09-15	1.35-4.35	---	14-Sep-10	2180.	430.	2180.	430.	580.	590.	5.11	<1.	1.75	1.46	---	---	**AW+**
A2MW09-15	A2MW09-15	1.35-4.35	---	11-Apr-11	1430.	<250.	1430.	<250.	420.	420.	1.86	<1.	1.37	1.27	---	---	**AW+**
A2MW09-15	MW09-15	1.35-4.35	---	1-Sep-11	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
A2MW09-15	MW09-15	1.35-4.35	---	24-May-12	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
A2MW09-15	MW09-15	1.35-4.35	L1283010-3	26-Mar-13	1020.	<250.	1020.	<250.	170.	160.	3.31	<0.5	0.87	<0.75	---	---	**AW+**

TABLE 2-2
AREA 2 CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY
µg/L (ppb)

Well ID	Sample ID	Screened Interval (mbgs)	ALS Laboratory Report #	Sample Date	LEPHw [3]	HEPHw [3]	EPHw (C10-C19) [2,3]	EPHw (C19-C32) [3]	VHw (C6-C10)	VPHw	Benzene	Toluene	Ethylbenzene	Xylenes	Styrene	MTBE	Groundwater Classification
Generic Numerical Water Standards [4]																	
CSR	Schedule 3.2 - Marine Aquatic Life			(AW)	500	NS	5000[1]	NS	15000[1]	1500	1000	2000	2500	300	720	4400	
	Site-Specific Screening Levels (SSSLs)				3000	NS	5000	NS	15000	15000	21000	7700	3200	3300	NS	NS	
A2MW09-15	MW09-15	1.35-4.35	L1345378-8	8-Aug-13	980.	<250.	980.	<250.	270.	260.	5.33	0.77	1.91	1.47	---	---	**AW+**
A2MW09-15	MW09-15	1.35-4.35	L1449879-7	1-May-14	770.	<250.	770.	<250.	220.	220.	2.44	<0.5	<0.5	<0.75	---	---	**AW+**
A2MW09-15	MW09-15	1.35-4.35	L1498925-2	7-Aug-14	760.	<250.	760.	<250.	430.	430.	<1.5	<0.5	<0.5	<0.75	---	12.4	**AW+**
A2MW09-15	MW09-15	1.35-4.35	L1610017-3	11-May-15	400.	<250.	400.	<250.	180.	180.	<0.6	<0.5	<0.5	<0.75	---	---	AW-
A2MW09-15	MW09-15	1.35-4.35	L1766653-1	10-May-16	540.	<250.	540.	<250.	300.	300.	<0.7	<0.5	<0.5	<0.75	---	---	**AW+**
A2MW09-15	MW09-15	1.35-4.35	L1822946-1	1-Sep-16	600.	<250.	600.	<250.	600.	600.	<1.	<0.5	<0.5	<0.75	---	---	**AW+**
A2MW09-15	MW09-15	1.35-4.35	L1911588-4	10-Apr-17	520.	<250.	520.	<250.	400.	400.	<0.5	<0.5	<0.5	<0.75	<0.5	---	**AW+**
A2MW09-15	MW09-15	1.35-4.35	L2085717-6	26-Apr-18	530.	<250.	530.	<250.	260.	260.	<0.5	<0.5	<0.5	<0.75	<0.5	---	**AW+**
WS2-D	WS2-D	4.6-7.6	---	21-Apr-04	---	---	---	---	---	---	---	---	---	---	---	49100.	**AW+**
WS2-D	WS-2D	4.6-7.6	---	18-Oct-04	---	---	---	---	---	---	---	---	---	---	---	15500.	**AW+**
WS2-D	WS-2D	4.6-7.6	---	14-Apr-05	---	---	---	---	---	---	---	---	---	---	---	23500.	**AW+**
WS2-D	A2-WS-2D	4.6-7.6	---	14-Sep-05	---	---	---	---	---	---	---	---	---	---	---	36300.	**AW+**
WS2-D	WS2D	4.6-7.6	---	20-Mar-06	---	---	---	---	---	---	---	---	---	---	---	3130.	AW-
WS2-D	WS2D	4.6-7.6	---	23-Aug-06	---	---	---	---	---	---	---	---	---	---	---	7200.	**AW+**
WS2-D	WS2D	4.6-7.6	---	10-Apr-07	---	---	---	---	---	---	---	---	---	---	---	278.	AW-
WS2-D	WS2D	4.6-7.6	---	1-Apr-08	---	---	---	---	---	---	---	---	---	---	---	893.	AW-
WS2-D	WS2D	4.6-7.6	---	29-Apr-09	---	---	---	---	---	---	---	---	---	---	---	74.8	AW-
WS2-D	WS2D	4.6-7.6	---	27-Aug-09	---	---	---	---	---	---	---	---	---	---	---	1090.	AW-
WS2-D	WS2D	4.6-7.6	---	13-Apr-10	---	---	---	---	---	---	---	---	---	---	---	7.55	AW-
WS2-D	WS2-D	4.6-7.6	---	12-Apr-11	---	---	---	---	---	---	---	---	---	---	---	2.	AW-
WS2-D	WS2-D	4.6-7.6	---	24-Aug-11	---	---	---	---	---	---	---	---	---	---	---	657.	AW-
WS2-D	WS2D	4.6-7.6	---	29-May-12	---	---	---	---	---	---	---	---	---	---	---	20.1	AW-
WS2-D	WS2-D	4.6-7.6	---	21-Aug-12	---	---	---	---	---	---	---	---	---	---	---	193.	AW-
WS2-D	WS2-D	4.6-7.6	L1292848-2	23-Apr-13	---	---	---	---	---	---	---	---	---	---	---	0.63	AW-
WS2-D	WS2-D	4.6-7.6	L1351356-2	21-Aug-13	---	---	---	---	---	---	---	---	---	---	---	449.	AW-
WS2-D	WS2-D	4.6-7.6	L1459120-2	22-May-14	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	2.72	AW-
WS2-D	WS2-D	4.6-7.6	L1506853-2	22-Aug-14	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	83.9	AW-
WS2-D	WS2-D	4.6-7.6	L1584769-1	5-Mar-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	1.65	AW-
WS2-D	WS2-D	4.6-7.6	L1659479-5	18-Aug-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	24.9	AW-
WS2-D	WS2-D	4.6-7.6	L1742377-2	8-Mar-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	<0.5	AW-
WS2-D	WS2-D	4.6-7.6	L1809959-3	8-Aug-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	5.92	AW-
WS2-D	WS2-D	4.6-7.6	L1898884-3	8-Mar-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	<0.5	AW-
WS2-D	WS2-D	4.6-7.6	L1980058-1	23-Aug-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	2.27	AW-
WS2-D	WS2-D	4.6-7.6	L2088139-1	2-May-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.71	<0.5	<0.5	AW-
WS2-D	WS2-D	4.6-7.6	L2153915-1	27-Aug-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	2.91	AW-
WS2-D	WS2-D	4.6-7.6	L2248814-1	25-Mar-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	<0.5	AW-
WS2-D	WS2-D	4.6-7.6	L2346508-1	12-Sep-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	1.96	AW-
WS2-D	WS2-D	4.6-7.6	/A20A4358-00	2-Apr-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	<0.5	AW-
WS2-D	WS2-D	4.6-7.6	/A20B2611-00	12-Aug-20	<250.	<250.	<250.	<250.	<100.	<70.	<0.5	<0.5	<0.5	<0.71	<0.5	2.23	AW-
WS2-D2	WS2-D2	10.7-12.2	---	21-Apr-04	---	---	---	---	---	---	---	---	---	---	---	12300.	**AW+**
WS2-D2	WS-2D2	10.7-12.2	---	18-Oct-04	---	---	---	---	---	---	---	---	---	---	---	7720.	**AW+**
WS2-D2	WS-2D2	10.7-12.2	---	14-Apr-05	---	---	---	---	---	---	---	---	---	---	---	18200.	**AW+**
WS2-D2	A2-WS-2D2	10.7-12.2	---	14-Sep-05	---	---	---	---	---	---	---	---	---	---	---	23100.	**AW+**
WS2-D2	WS2-D2	10.7-12.2	---	21-Mar-06	---	---	---	---	---	---	---	---	---	---	---	10100.	**AW+**
WS2-D2	WS2-D2	10.7-12.2	---	23-Aug-06	---	---	---	---	---	---	---	---	---	---	---	11300.	**AW+**
WS2-D2	WS2-D2	10.7-12.2	---	11-Apr-07	---	---	---	---	---	---	---	---	---	---	---	3460.	AW-
WS2-D2	WS2-D2	10.7-12.2	---	30-Aug-07	---	---	---	---	---	---	---	---	---	---	---	10400.	**AW+**
WS2-D2	WS2-D2	10.7-12.2	---	1-Apr-08	---	---	---	---	---	---	---	---	---	---	---	9230.	**AW+**
WS2-D2	WS2-D2	10.7-12.2	---	28-Aug-08	---	---	---	---	---	---	---	---	---	---	---	10500.	**AW+**
WS2-D2	WS2-D2	10.7-12.2	---	29-Apr-09	---	---	---	---	---	---	---	---	---	---	---	8240.	**AW+**
WS2-D2	WS2-D2	10.7-12.2	---	27-Aug-09	---	---	---	---	---	---	---	---	---	---	---	4070.	AW-
WS2-D2	WS2-D2	10.7-12.2	---	13-Apr-10	---	---	---	---	---	---	---	---	---	---	---	2000.	AW-
WS2-D2	WS2-D2	10.7-12.2	---	9-Sep-10	---	---	---	---	---	---	---	---	---	---	---	7160.	**AW+**
WS2-D2	WS2-D2	10.7-12.2	---	13-Apr-11	---	---	---	---	---	---	---	---	---	---	---	1590.	AW-
WS2-D2	WS2-D2	10.7-12.2	---	24-Aug-11	---	---	---	---	---	---	---	---	---	---	---	1560.	AW-
WS2-D2	WS2-D2	10.7-12.2	---	30-May-12	---	---	---	---	---	---	---	---	---	---	---	1160.	AW-
WS2-D2	WS2-D2	10.7-12.2	---	21-Aug-12	---	---	---	---	---	---	---	---	---	---	---	1560.	AW-
WS2-D2	WS2-D2	10.7-12.2	L1292848-3	23-Apr-13	---	---	---	---	---	---	---	---	---	---	---	546.	AW-
WS2-D2	WS2-D2	10.7-12.2	L1351356-3	21-Aug-13	---	---	---	---	---	---	---	---	---	---	---	1230.	AW-
WS2-D2	WS2-D2	10.7-12.2	L1459120-1	22-May-14	---	---	---	---	<100.	<100.	<1.	<1.	<1.	<1.4	---	616.	AW-
WS2-D2	WS2-D2	10.7-12.2	L1506853-3	22-Aug-14	---	---	---	---	<100.	<100.	<2.5	<2.5	<2.5	<3.5	---	881.	AW-
WS2-D2	WS2-D2	10.7-12.2	L1584769-4	5-Mar-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	402.	AW-
WS2-D2	WS2-D2	10.7-12.2	L1658732-2	17-Aug-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	327.	AW-
WS2-D2	WS2-D2	10.7-12.2	L1743813-2	10-Mar-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	146.	AW-
WS2-D2	WS2-D2	10.7-12.2	L1809959-4	8-Aug-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	315.	AW-
WS2-D2	WS2-D2	10.7-12.2	L1898884-4	8-Mar-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	150.	AW-
WS2-D2	WS2-D2	10.7-12.2	L1980058-2	23-Aug-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	229.	AW-
WS2-D2	WS2-D2	10.7-12.2	L2088139-2	2-May-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.71	<0.5	163.	AW-
WS2-D2	WS2-D2	10.7-12.2	L2153915-2	27-Aug-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	227.	AW-
WS2-D2	WS2-D2	10.7-12.2	L2248814-2	25-Mar-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	113.	AW-
WS2-D2	WS2-D2	10.7-12.2	L2346508-2	12-Sep-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	155.	AW-
WS2-D2	WS2-D2	10.7-12.2	/A20A4358-00	2-Apr-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	104.	AW-
WS2-D2	WS2-D2	10.7-12.2	/A20B2611-00	12-Aug-20	<250.	<250.	<250.	<250.	<100.	<70.	<0.5	<0.50	<0.5	<0.71	<0.5	122.	AW-
MW11-3S	MW11-3S	5.00-8.00	---	21-Jul-11	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-3S	MW11-3S	5.00-8.00	---	22-May-12	---	---	280.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-3S	MW11-3S	5.00-8.00	---	14-Aug-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-3S	MW11-3S	5.00-8.00	L1289006-5	11-Apr-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-3S	MW11-3S	5.00-8.00	L1344198-2	7-Aug-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-3S	MW11-3S	5.00-8.00	L1452404-3	7-May-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-3S	MW11-3S	5.00-8.00	L1501930-1	13-Aug-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-3S	MW11-3S	5.00-8.00	L1610017-7	11-May-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-3S	MW11-3S	5.00-8.00	L1663797-1	26-Aug-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-3S	MW11-3S	5.00-8.00	L1747945-1	22-Mar-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-3S	MW11-3S	5.00-8.00	L1817088-1	22-Aug-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-3S	MW11-3S	5.00-8.00	L1908950-1	4-Apr-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-3S	MW11-3S	5.00-8.00	L1975358-1	15-Aug-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-3S	MW11-3S	5.00-8.00	L2082551-3	19-Apr-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-3S	MW11-3S	5.00-8.00	L2150755-1	21-Aug-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-3S	MW11-3S	5.00-8.00	L2245599-4	18-Mar-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-3S	MW11-3S	5.00-8.00	L2343824-1	9-Sep-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-3S	MW11-3S	5.00-8.00	/A20A4276-00	1-Apr-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-3S	MW11-3S	5.00-8.00	/A20B2849-00	17-Aug-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-3I	MW11-3I	11-12.5	---	21-Jul-11	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-3I	MW11-3I	11-12.5	---	22-May-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-3I	MW11-3I	11-12.5	---	14-Aug-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-3I	MW11-3I	11-12.5	L1289006-4	11-Apr-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-3I	MW11-3I	11-12.5	L1344198-3	7-Aug-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-3I	MW11-3I	11-12.5	L1452404-4	7-May-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-3I	MW11-3I	11-12.5	L1501930-2	13-Aug-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-3I	MW11-3I	11-12.5	L1610017-8	11-May-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-3I	MW11-3I	11-12.5	L1663797-2	26-Aug-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-3I	MW11-3I	11-12.5	L1747945-2	22-Mar-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-

TABLE 2-2
AREA 2 CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY
µg/L (ppb)

					LEPHw [3]	HEPHw [3]	EPH_W (C10-C19) [2,3]	EPH_W (C19-C32) [3]	VHw (C6-C10)	VPH_W	Benzene	Toluene	Ethylbenzene	Xylenes	Styrene	MTBE	Groundwater Classification
Generic Numerical Water Standards [4]																	
CSR	Schedule 3.2 - Marine Aquatic Life			(AW)	500	NS	5000[1]	NS	15000[1]	1500	1000	2000	2500	300	720	4400	
	Site-Specific Screening Levels (SSSLs)				3000	NS	5000	NS	15000	15000	21000	7700	3200	3300	NS	NS	
Well ID	**Sample ID**	**Screened Interval (mbgs)**	**ALS Laboratory Report #**	**Sample Date**													
MW11-3I	MW11-3I	11-12.5	L1817088-2	22-Aug-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-3I	MW11-3I	11-12.5	L1908950-2	4-Apr-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-3I	MW11-3I	11-12.5	L1975358-2	15-Aug-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-3I	MW11-3I	11-12.5	L2082551-4	19-Apr-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-3I	MW11-3I	11-12.5	L2150755-2	21-Aug-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-3I	MW11-3I	11-12.5	L2245599-5	18-Mar-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-3I	MW11-3I	11-12.5	L2343824-2	9-Sep-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-3I	MW11-3I	11-12.5	/A20A4276-00	1-Apr-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-3I	MW11-3I	11-12.5	/A20B2849-00	17-Aug-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-3D	MW11-3D	18.5-20	---	21-Jul-11	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-3D	MW11-3D	18.5-20	---	22-May-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-3D	MW11-3D	18.5-20	---	14-Aug-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-3D	MW11-3D	18.5-20	L1289006-3	11-Apr-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-3D	MW11-3D	18.5-20	L1344198-4	7-Aug-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-3D	MW11-3D	18.5-20	L1452404-5	7-May-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-3D	MW11-3D	18.5-20	L1501930-3	13-Aug-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-3D	MW11-3D	18.5-20	L1610761-1	12-May-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-3D	MW11-3D	18.5-20	L1663797-3	26-Aug-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-3D	MW11-3D	18.5-20	L1747945-3	22-Mar-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-3D	MW11-3D	18.5-20	L1817088-3	22-Aug-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-3D	MW11-3D	18.5-20	L1908950-3	4-Apr-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-3D	MW11-3D	18.5-20	L1975358-3	15-Aug-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-3D	MW11-3D	18.5-20	L2082551-5	19-Apr-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-3D	MW11-3D	18.5-20	L2150755-3	21-Aug-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-3D	MW11-3D	18.5-20	L2245599-6	18-Mar-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-3D	MW11-3D	18.5-20	L2343824-3	9-Sep-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-3D	MW11-3D	18.5-20	/A20A4276-00	1-Apr-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-3D	MW11-3D	18.5-20	/A20B2619-00	13-Aug-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-4S	MW11-4S	5.00-8.00	---	21-Jul-11	480.	<250.	480.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-4S	MW11-4S	5.00-8.00	---	22-May-12	---	---	330.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-4S	MW11-4S	5.00-8.00	---	14-Aug-12	---	---	460.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-4S	MW11-4S	5.00-8.00	L1289006-6	11-Apr-13	---	---	330.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-4S	MW11-4S	5.00-8.00	L1344198-11	7-Aug-13	---	---	370.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-4S	MW11-4S	5.00-8.00	L1452404-6	7-May-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-4S	MW11-4S	5.00-8.00	L1501930-4	13-Aug-14	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-4S	MW11-4S	5.00-8.00	L1610761-2	12-May-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-4S	MW11-4S	5.00-8.00	L1663797-4	26-Aug-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-4S	MW11-4S	5.00-8.00	L1747945-4	22-Mar-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-4S	MW11-4S	5.00-8.00	L1817088-4	22-Aug-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-4S	MW11-4S	5.00-8.00	L1908950-4	4-Apr-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-4S	MW11-4S	5.00-8.00	L1975358-4	15-Aug-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-4S	MW11-4S	5.00-8.00	L2082551-6	19-Apr-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-4S	MW11-4S	5.00-8.00	L2149934-1	20-Aug-18	<250.	<250.	<250.	<250.	<100.	<100.	0.54	<0.45	<0.5	<0.75	<0.5	---	AW-
MW11-4S	MW11-4S	5.00-8.00	L2245599-1	18-Mar-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-4S	MW11-4S	5.00-8.00	L2343824-4	9-Sep-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-4S	MW11-4S	5.00-8.00	/A20A4276-00	1-Apr-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-4S	DUP-8	5.00-8.00	/A20A4276-00	1-Apr-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
QA/QC RPD				1-Apr-20	---	---	---	---	---	---	---	---	---	---	---	---	
MW11-4S	MW11-4S	5.00-8.00	/A20B2619-00	13-Aug-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-4I	MW11-4I	11-12.5	---	21-Jul-11	400.	<250.	400.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-4I	MW11-4I	11-12.5	---	22-May-12	---	---	530.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-4I	MW11-4I	11-12.5	---	14-Aug-12	---	---	460.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-4I	MW11-4I	11-12.5	L1289006-7	11-Apr-13	---	---	430.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-4I	MW11-4I	11-12.5	L1344198-10	7-Aug-13	---	---	320.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-4I	MW11-4I	11-12.5	L1452404-7	7-May-14	---	---	280.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-4I	MW11-4I	11-12.5	L1501930-5	13-Aug-14	---	---	340.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-4I	MW11-4I	11-12.5	L1610761-3	12-May-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-4I	MW11-4I	11-12.5	L1663797-5	26-Aug-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-4I	MW11-4I	11-12.5	L1747945-5	22-Mar-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-4I	MW11-4I	11-12.5	L1817088-5	22-Aug-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-4I	MW11-4I	11-12.5	L1908950-5	4-Apr-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-4I	MW11-4I	11-12.5	L1975358-5	15-Aug-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-4I	MW11-4I	11-12.5	L2082551-7	19-Apr-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-4I	MW11-4I	11-12.5	L2149934-2	20-Aug-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	---	AW-
MW11-4I	MW11-4I	11-12.5	L2245599-2	18-Mar-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-4I	MW11-4I	11-12.5	L2343824-5	9-Sep-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-4I	MW11-4I	11-12.5	/A20A4276-00	1-Apr-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-4I	MW11-4I	11-12.5	/A20B2619-00	13-Aug-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-4D	MW11-4D	18.5-20	---	21-Jul-11	390.	<250.	390.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-4D	MW11-4D	18.5-20	---	22-May-12	---	---	490.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-4D	MW11-4D	18.5-20	---	14-Aug-12	---	---	430.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-4D	MW11-4D	18.5-20	L1289006-8	11-Apr-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-4D	MW11-4D	18.5-20	L1344198-5	7-Aug-13	---	---	300.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-4D	MW11-4D	18.5-20	L1452404-8	7-May-14	---	---	280.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-4D	MW11-4D	18.5-20	L1501930-6	13-Aug-14	---	---	310.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-4D	MW11-4D	18.5-20	L1610761-4	12-May-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-4D	MW11-4D	18.5-20	L1663797-6	26-Aug-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-4D	MW11-4D	18.5-20	L1747945-6	22-Mar-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-4D	MW11-4D	18.5-20	L1817088-6	22-Aug-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---	---	AW-
MW11-4D	MW11-4D	18.5-20	L1908950-6	4-Apr-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-4D	MW11-4D	18.5-20	L1975358-6	15-Aug-17	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-4D	MW11-4D	18.5-20	L2082551-8	19-Apr-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-4D	MW11-4D	18.5-20	L2149934-3	20-Aug-18	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.45	<0.5	<0.75	<0.5	<7.	AW-
MW11-4D	MW11-4D	18.5-20	L2245599-3	18-Mar-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-4D	MW11-4D	18.5-20	L2343824-6	9-Sep-19	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-4D	MW11-4D	18.5-20	/A20A4276-00	1-Apr-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
MW11-4D	MW11-4D	18.5-20	/A20B2619-00	13-Aug-20	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5	---	AW-
Equipment Blank	R_BLANK-1		VA20A4924-00	16-Apr-20	<250	<250	<250	<250	<100	<100	<0.50	<0.50	<0.50	<0.75	<0.50	---	AW-
Travel Blank	TRAVEL BLANK-6		VA20A3942-00	25-Mar-20	---	---	---	---	<100	<100	<0.50	<0.50	<0.50	<0.75	<0.50	---	AW-
Travel Blank	TRAVEL BLANK-7		VA20A3974-00	26-Mar-20	---	---	---	---	<100	<100	<0.50	<0.50	<0.50	<0.75	<0.50	---	AW-
Travel Blank	TRAVEL BLANK-8		VA20A4276-00	1-Apr-20	---	---	---	---	<100	<100	<0.50	<0.50	<0.50	<0.75	<0.50	---	AW-
Travel Blank	TRAVEL BLANK-9		VA20A4358-00	2-Apr-20	---	---	---	---	<100	<100	<0.50	<0.50	<0.50	<0.75	<0.50	<0.50	AW-
Travel Blank	TRAVEL BLANK-10		VA20A4448-00	6-Apr-20	---	---	---	---	<100	<100	<0.50	<0.50	<0.50	<0.75	<0.50	---	AW-
Travel Blank	TRAVEL BLANK-11		VA20A4496-00	7-Apr-20	---	---	---	---	<100	<100	<0.50	<0.50	<0.50	<0.75	<0.50	---	AW-
Travel Blank	TRAVEL BLANK-12		VA20A4587-00	8-Apr-20	---	---	---	---	<100	<100	<0.50	<0.50	<0.50	<0.75	<0.50	---	AW-
Travel Blank	TRAVEL BLANK-12		VA20A4665-00	9-Apr-20	---	---	---	---	<100	<100	<0.50	<0.50	<0.50	<0.75	<0.50	---	AW-
Travel Blank	TRAVEL BLANK-1		VA20B2369-00	11-Aug-20	---	---	---	---	<100	<100	<0.50	<0.50	<0.50	<0.75	<0.50	---	AW-
Travel Blank	TRAVEL BLANK-2		VA20B2611-00	12-Aug-20	---	---	---	---	<100	<70	<0.50	<0.50	<0.50	<0.71	<0.50	---	AW-
Travel Blank	TRAVEL BLANK-3		VA20B2619-00	13-Aug-20	---	---	---	---	<100	<100	<0.50	<0.50	<0.50	<0.75	<0.50	---	AW-
Travel Blank	TRAVEL BLANK-4		VA20B2849-00	17-Aug-20	---	---	---	---	<100	<100	<0.50	<0.50	<0.50	<0.75	<0.50	---	AW-

TABLE 2-2
AREA 2 CONCENTRATIONS OF PETROLEUM HYDROCARBONS IN GROUNDWATER
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY
µg/L (ppb)

					LEPHw [3]	HEPHw [3]	EPHW (C10-C19) [2,3]	EPHW (C19-C32) [3]	VHw (C6-C10)	VPHW	Benzene	Toluene	Ethylbenzene	Xylenes	Styrene	MTBE	Groundwater Classification
Generic Numerical Water Standards [4]																	
CSR	Schedule 3.2 - Marine Aquatic Life			(AW)	500	NS	5000[1]	NS	15000[1]	1500	1000	2000	2500	300	720	4400	
	Site-Specific Screening Levels (SSSLs)				3000	NS	5000	NS	15000	15000	21000	7700	3200	3300	NS	NS	
Well ID	**Sample ID**	**Screened Interval (mbgs)**	**ALS Laboratory Report #**	**Sample Date**													
Reported Detection Limit					250	250	250	250	100	100	0.5	0.5	0.5	0.75	0.5	0.5	

Abbreviations:

CSR	Contaminated Sites Regulation (including Stage 12 amendments, January 2019)
EPH_W	Extractable petroleum hydrocarbons in water
$LEPH_W$	Light extractable petroleum hydrocarbons in water
$HEPH_W$	Heavy extractable petroleum hydrocarbons in water
MTBE	Methyl tert-butyl ether
VH	Volatile hydrocarbons
VPH_W	Volatile petroleum hydrocarbons in water
QA/QC	Quality Assurance/Quality Control
RPD	Relative percent difference
NS	No standard established for indicated parameter
mbgs	Metres below ground surface
µg/L	Micrograms per litre
ppb	Parts per billion
<	Sample concentration less than the detection limit indicated.
---	Sample not analyzed for indicated parameter or not calculated.

Sample concentration greater than CSR standard for aquatic life (AW).

BOLD Sample concentration greater than CSR standard for aquatic life (AW) and Site-Specific Screening Levels (SSSLs).

BOLD Reportable Detection Limit (RDL) exceeds the regulatory standard.

Notes:

1 CSR Standards are applicable at all sites, irrespective of water use

2 BC MoE groundwater AW standard (500 µg/L) is for LEPH corrected for PAHs;
EPHW (C10-C19) is LEPH uncorrected for PAHs and therefore conservative.

3 Some LEPH/HEPH and EPH10-19/EPH19-32 results from ALS were affected by laboratory contamination. The former values are available upon request.

4 Criterion concentration in µg/L.

TABLE 2-3
AREA 2 CONCENTRATIONS OF POLYCYCLIC AROMATIC HYDROCARBONS IN GROUNDWATER
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY
µg/L (ppb)

Well ID	Sample ID	Screened Interval	ALS Laboratory Report #	Sample Date	Acenaphthene	Acridine	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b+k)fluoranthene [3]	Benzo(b+j+k)fluoranthene [3]	Benzo(ghi)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	1-Methylnaphthalene [4]	2-Methylnaphthalene [4]	Naphthalene	Phenanthrene	Pyrene	Quinoline	Total PAHs [4]	Groundwater Classification
Generic Numerical Water Standards[2]																									
CSR	Schedule 3.2 - Marine Aquatic Life			(AW)[1]	60	0.5	1	1	0.1	NS	NS	NS	1	NS	2	120	NS	NS	NS	10	3	0.2	34	NS	
	Site Specific Screening Levels				60	30	40	1	2.8	NS	NS	NS	1	NS	40	120	NS	NS	NS	440	3	40	34	NS	
G2-3B	G2-3B	10.1-13.1	---	26-Apr-04	0.053	<0.09	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	0.41	<0.05	---	**AW+**
G2-3B	G2-3B	10.1-13.1	---	15-Oct-04	<0.05	<0.06	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	0.431	<0.05	---	**AW+**
G2-3B	G2-3B	10.1-13.1	---	12-Apr-05	0.053	0.055	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.054	<0.05	---	---	<0.05	<0.05	0.719	<0.05	---	**AW+**
G2-3B	G2-3B	10.1-13.1	---	13-Sep-05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	0.252	<0.05	---	**AW+**
G2-3B	G2-3B	10.1-13.1	---	23-Mar-06	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	0.108	<0.05	---	AW-
G2-3B	G2-3B	10.1-13.1	---	24-Aug-06	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.06	<0.05	0.273	<0.05	---	**AW+**
G2-3B	G2-3B	10.1-13.1	---	12-Apr-07	0.068	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.071	<0.05	---	---	<0.07	<0.05	0.217	<0.05	---	**AW+**
G2-3B	G2-3B	10.1-13.1	---	10-Sep-07	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	0.242	<0.05	---	**AW+**
G2-3B	G2-3B	10.1-13.1	---	1-Apr-08	0.052	<0.09	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.065	<0.05	---	---	<0.08	<0.05	0.218	<0.05	---	**AW+**
G2-3B	G2-3B	10.1-13.1	---	3-Sep-08	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	0.151	<0.05	---	AW-
G2-3B	G2-3B	10.1-13.1	---	28-Apr-09	0.07	<0.08	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.081	<0.05	---	---	<0.09	<0.05	0.198	<0.05	---	AW-
G2-3B	G2-3B	10.1-13.1	---	1-Sep-09	<0.05	<0.05	<0.05	<0.05	<0.01	<0.01	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	0.146	<0.05	---	AW-
G2-3B	G2-3B	10.1-13.1	---	14-Apr-10	0.068	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.098	<0.05	---	---	<0.05	<0.05	0.137	<0.05	---	AW-
G2-3B	G2-3B	10.1-13.1	---	9-Sep-10	<0.05	<0.06	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	0.268	<0.05	---	**AW+**
G2-3B	G2-3B	10.1-13.1	---	18-Apr-11	0.126	<0.15	<0.07	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.155	<0.05	---	---	<0.06	<0.05	0.34	<0.05	---	**AW+**
G2-3B	G2-3B	10.1-13.1	---	9-Aug-11	0.084	<0.1	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.095	<0.05	---	---	<0.05	<0.05	0.232	<0.05	---	**AW+**
G2-3B	G2-3B	10.1-13.1	---	18-May-12	0.051	<0.5	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.088	<0.05	---	---	<0.05	<0.05	0.155	<0.05	---	AW-
G2-3B	G2-3B	10.1-13.1	---	22-Aug-12	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	0.183	<0.05	---	AW-
G2-3B	G2-3B	10.1-13.1	L1299117-2	8-May-13	0.072	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.083	<0.05	---	---	<0.05	<0.05	0.293	<0.05	---	**AW+**
G2-3B	G2-3B	10.1-13.1	L1367083-1	23-Sep-13	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	0.082	<0.05	---	AW-
G2-3B	G2-3B	10.1-13.1	L1461112-1	27-May-14	0.1	<0.05	0.053	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.118	<0.05	---	---	<0.05	<0.05	0.272	<0.05	---	**AW+**
G2-3B	G2-3B	10.1-13.1	L1508365-3	26-Aug-14	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	0.158	<0.05	---	AW-
G2-3B	G2-3B	10.1-13.1	L1583423-1	3-Mar-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	0.07	<0.05	---	AW-
G2-3B	G2-3B	10.1-13.1	L1674072-3	16-Sep-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	0.14	<0.05	---	AW-
G2-3B	G2-3B	10.1-13.1	L1743509-2	9-Mar-16	0.061	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.082	<0.05	---	---	<0.05	<0.05	0.199	<0.05	---	AW-
G2-3B	G2-3B	10.1-13.1	L1812426-5	11-Aug-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	0.209	<0.05	---	**AW+**
G2-3B	G2-3B	10.1-13.1	L1904760-5	23-Mar-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	0.111	<0.05	---	---	<0.05	<0.05	0.159	<0.05	---	AW-
G2-3B	G2-3B	10.1-13.1	L2153915-6	27-Aug-18	<0.01	<0.2	<0.04	<0.01	<0.005	<0.015	---	<0.01	<0.01	<0.005	0.03	0.015	<0.01	<0.05	<0.05	<0.05	<0.02	0.334	<0.05	<0.11	**AW+**
G2-3B	G2-3B	10.1-13.1	L2247729-4	21-Mar-19	0.04	<0.080	<0.050	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	0.021	0.082	<0.010	<0.050	<0.050	<0.050	<0.020	0.189	<0.050	0.33	AW-
G2-3B	G2-3B	10.1-13.1	L2346508-3	12-Sep-19	0.013	<0.060	<0.030	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	0.022	0.026	<0.010	<0.050	<0.050	0.057	<0.020	0.235	<0.050	0.35	**AW+**
G2-3B	G2-3B	10.1-13.1	/A20A4358-00	2-Apr-20	0.116	<0.300	<0.090	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	0.041	0.198	<0.010	0.026	0.015	<0.090	<0.020	0.358	<0.060	0.714	**AW+**
G2-3B	G2-3B	10.1-13.1	/A20B2619-00	13-Aug-20	0.076	<0.010	<0.060	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	0.032	0.114	<0.010	0.018	0.015	<0.070	<0.020	0.283	<0.050	0.506	**AW+**
G2-3C	G2-3C	18.3-22.9	---	26-Apr-04	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-3C	G2-3C	18.3-22.9	---	15-Oct-04	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-3C	G2-3C	18.3-22.9	---	12-Apr-05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-3C	G2-3C	18.3-22.9	---	13-Sep-05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-3C	G2-3C	18.3-22.9	L1583423-2	3-Mar-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-3C	G2-3C	18.3-22.9	L1675019-2	17-Sep-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-3C	G2-3C	18.3-22.9	L1743509-1	9-Mar-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-3C	G2-3C	18.3-22.9	L1812426-6	11-Aug-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-3C	G2-3C	18.3-22.9	L1904760-6	23-Mar-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-3C	G2-3C	18.3-22.9	L1906194-3	28-Mar-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-3C	G2-3C	18.3-22.9	L2153915-7	27-Aug-18	<0.01	<0.01	<0.01	<0.01	<0.005	<0.015	---	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.02	<0.01	<0.05	<0.11	AW-
G2-3C	G2-3C	18.3-22.9	L2247729-3	21-Mar-19	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.050	<0.11	AW-
G2-3C	G2-3C	18.3-22.9	L2349075-1	17-Sep-19	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.050	<0.11	AW-
G2-3C	G2-3C	18.3-22.9	/A20A4358-00	2-Apr-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.020	<0.010	<0.050	<0.065	AW-
G2-3C	G2-3C	18.3-22.9	/A20B2619-00	13-Aug-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.020	<0.010	<0.050	<0.065	AW-
G2-9A	G2-9A	6.1-9.1	L1583423-3	3-Mar-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-9A	G2-9A	6.1-9.1	L1674072-2	16-Sep-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-9A	G2-9A	6.1-9.1	L1743509-3	9-Mar-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-9A	G2-9A	6.1-9.1	L1812426-3	11-Aug-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-9A	G2-9A	6.1-9.1	L1906194-1	28-Mar-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	0.056	<0.05	---	AW-
G2-9A	G2-9A	6.1-9.1	L1980058-5	23-Aug-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-9A	G2-9A	6.1-9.1	L2087549-2	1-May-18	<0.01	<0.04	<0.02	<0.01	<0.005	<0.015	---	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	<0.050	<0.050	<0.05	<0.02	0.184	<0.05	0.18	AW-
G2-9A	G2-9A	6.1-9.1	L2153915-4	27-Aug-18	<0.01	<0.02	<0.01	<0.01	<0.005	<0.015	---	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	<0.050	<0.050	<0.05	<0.02	0.077	<0.05	<0.11	AW-
G2-9A	G2-9A	6.1-9.1	L2247729-1	21-Mar-19	<0.010	<0.020	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	0.072	<0.050	<0.11	AW-
G2-9A	G2-9A	6.1-9.1	L2346508-4	12-Sep-19	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	0.053	<0.020	0.031	<0.050	<0.11	AW-
G2-9A	G2-9A	6.1-9.1	/A20A4358-00	2-Apr-20	<0.010	<0.030	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	0.01	0.016	<0.050	<0.020	0.065	<0.050	0.065	AW-
G2-9A	G2-9A	6.1-9.1	/A20B2619-00	13-Aug-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	0.011	0.018	<0.060	<0.020	0.026	<0.050	<0.072	AW-
G2-9B	G2-9B	18.9-21.9	L1583423-6	3-Mar-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-9B	G2-9B	18.9-21.9	L1675019-1	17-Sep-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-9B	G2-9B	18.9-21.9	L1743813-9	10-Mar-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-9B	G2-9B	18.9-21.9	L1812426-4	11-Aug-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-9B	G2-9B	18.9-21.9	L1906194-2	28-Mar-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-9B	G2-9B	18.9-21.9	L1980058-3	23-Aug-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-9B	G2-9B	18.9-21.9	L2088139-3	2-May-18	<0.01	<0.01	<0.01	<0.01	<0.005	<0.015	---	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.02	<0.01	<0.05	<0.11	AW-
G2-9B	G2-9B	18.9-21.9	L2153915-5	27-Aug-18	<0.01	<0.01	<0.01	<0.01	<0.005	<0.015	---	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.02	<0.01	<0.05	<0.11	AW-
G2-9B	G2-9B	18.9-21.9	L2247147-2	20-Mar-19	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.050	<0.11	AW-
G2-9B	G2-9B	18.9-21.9	L2346508-5	12-Sep-19	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.050	<0.11	AW-
G2-9B	G2-9B	18.9-21.9	/A20A4358-00	2-Apr-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.020	<0.010	<0.050	<0.065	AW-
G2-9B	G2-9B	18.9-21.9	/A20B2619-00	13-Aug-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.020	<0.010	<0.050	<0.065	AW-
G2-10	G2-10	4.9-6.4	L1583423-4	3-Mar-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-10	G2-10	4.9-6.4	L1674072-1	16-Sep-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-10	G2-10	4.9-6.4	L1742176-1	7-Mar-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.1	<0.05	<0.05	<0.05	---	AW-
G2-10	G2-10	4.9-6.4	L1811986-4	10-Aug-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-10	G2-10	4.9-6.4	L1906194-4	28-Mar-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-10	G2-10	4.9-6.4	L1980058-6	23-Aug-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-10	G2-10	4.9-6.4	L2087549-1	1-May-18	0.01	<0.4	<0.04	<0.01	<0.005	<0.015	---	<0.01	<0.01	<0.005	0.05	0.039	<0.01	<0.05	<0.05	<0.05	<0.03	0.296	<0.05	<0.42	**AW+**
G2-10	G2-10	4.9-6.4	L2153915-3	27-Aug-18	<0.01	<0.01	<0.01	<0.01	<0.005	<0.015	---	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.02	0.014	<0.05	<0.11	AW-
G2-10	G2-10	4.9-6.4	L2247729-5	21-Mar-19	<0.010	<0.20	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	0.024	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	0.136	<0.050	<0.23	AW-
G2-10	G2-10	4.9-6.4	L2349075-2	17-Sep-19	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.050	<0.11	AW-
G2-10	G2-10	4.9-6.4	/A20A4358-00	2-Apr-20	<0.010	<0.20	<0.020	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	0.021	0.016	<0.010	0.011	0.017	<0.050	<0.020	0.132	<0.050	0.169	AW-
G2-10	G2-10	4.9-6.4	/A20B2611-00	12-Aug-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.050	<0.065	AW-
G2-11A	G2-11A	4.6-6.1	---	29-Apr-04	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-11A	G2-11A	4.6-6.1	---	12-Oct-04	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-11A	G2-11A	4.6-6.1	---	11-Apr-05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-11A	A2-G2-11A	4.6-6.1	---	20-Sep-05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-11A	G2-11A	4.6-6.1	---	28-Mar-06	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-11A	G2-11A	4.6-6.1	---	17-Apr-07	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-11A	G2-11A	4.6-6.1	---	5-Sep-07	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-11A	G2-11A	4.6-6.1	---	8-Apr-08	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-11A	G2-11A	4.6-6.1	---	8-Sep-08	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-11A	G2-11A	4.6-6.1	---	21-Apr-10	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.09	<0.05	<0.05	<0.05	---	AW-
G2-11A	G2-11A	4.6-6.1	---	15-Sep-10	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-11A	G2-11A	4.6-6.1	---	5-May-11	0.127	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	0.098	0.069	<0.05	---	---	<0.25	0.219	<0.09	<0.05	---	AW-
G2-11A	G2-11A	4.6-6.1	---	8-Sep-11	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	0.27	<0.05	<0.05	<0.05	---	AW-
G2-11A	G2-11A	4.6-6.1	---	24-May-12	<0.2	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.55	<0.05	---	---	11.1	0.06	<0.05	<0.1	---	**AW+**
G2-11A	G2-11A	4.6-6.1	---	29-Aug-12	<0.08	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.263	<0.05	---	---	<0.3	<0.05	<0.05	<0.05	---	AW-
G2-11A	G2-11A	4.6-6.1	L1290904-1	17-Apr-13	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.089	<0.05	---	---	0.855	<0.05	<0.05	<0.05	---	AW-
G2-11A	G2-11A	4.6-6.1	L1350566-1	20-Aug-13	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.078	<0.05	---	---	0.199	<0.05	<0.05	<0.05	---	AW-
G2-11A	G2-11A	4.6-6.1	L1454047-1	12-May-14	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.081	<0.05	---	---	<0.08	<0.05	<0.05	<0.05	---	AW-
G2-11A	G2-11A	4.6-6.1	L1503989-1	18-Aug-14	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.068	<0.05	---	---	<0.07	<0.05	<0.05	<0.05	---	AW-
G2-11A	G2-11A	4.6-6.1	L1610763-1	11-May-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.08	<0.05	<0.05	<0.05	---	AW-
G2-11A	G2-11A	4.6-6.1	L1674072-4	16-Sep-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.08	<0.05	<0.05	<0.05	---	AW-
G2-11A	G2-11A	4.6-6.1	L1752248-1	4-Apr-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-11A	G2-11A	4.6-6.1	L1822946-2	1-Sep-16	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.07	<0.05	<0.05	<0.07	---	AW-
G2-11A	G2-11A	4.6-6.1	L1912573-1	12-Apr-17	<0.2	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	0.655	<0.05	---	---	8.48	0.084	<0.05	<0.6	---	AW-
G2-11A	G2-11A	4.6-6.1	L1982266-1	28-Aug-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	0.114	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-11A	G2-11A	4.6-6.1	L2086842-1	30-Apr-18	0.012	<0.01	<0.01	<0.01	<0.005	<0.015	---	<0.01	<0.01	<0.005	0.024	0.02	<0.01	0.087	<0.05	<0.05	<0.02	0.017	<0.05	0.16	AW-
G2-11A	G2-11A	4.6-6.1	L2154663-1	28-Aug-18	<0.01	<0.01	<0.01	<0.01	<0.005	<0.015	---	<0.01	<0.01	<0.005	<0.01	0.018	<0.01	<0.05	<0.05	<0.05	<0.02	<0.01	<0.05	<0.11	AW-
G2-11A	G2-11A	4.6-6.1	L2249476-6	26-Mar-19	<0.020	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.01	<0.01	<0.005	<0.01	0.03	<0.01	<0.05	<0.05	<0.05	<0.02	<0.01	<0.05	<0.11	AW-
G2-11A	G2-11A	4.6-6.1	L2349075-3	17-Sep-19	0.019	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	0.025	<0.010	0.066	<0.050	<0.10	<0.020	<0.010	<0.050	<0.14	AW-
G2-11A	G2-11A	4.6-6.1	/A20A4448-00	6-Apr-20	0.021	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	0.039	<0.010	0.061	0.031	<0.200	<0.020	<0.010	<0.050	<0.204	AW-
G2-11A	DUP-11	4.6-6.1	/A20A4448-00	6-Apr-20	0.022	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	0.032	<0.010	0.252	0.149	<0.200	<0.020	<0.010	<0.050	<0.204	AW-
QA/QC RPD				6-Apr-20	---	---	---	---	---	---	---	---	---	---	---	---	---	122.0%	---	---	---	---	---	---	
G2-11A	G2-11A	4.6-6.1	/A20B2849-00	17-Aug-20	0.015	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	0.012	<0.010	<0.020	0.015	<0.070	<0.020	<0.010	<0.050	<0.081	AW-
G2-11B	G2-11B	7.0-8.5	---	29-Apr-04	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.1	<0.05	<0.05	<0.05	---	AW-
G2-11B	G2-11B	7.0-8.5	---	12-Oct-04	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.08	<0.05	<0.05	<0.05	---	AW-
G2-11B	G2-11B	7.0-8.5	---	11-Apr-05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-11B	A2-G2-11B	7.0-8.5	---	20-Sep-05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-11B	G2-11B	7.0-8.5	---	4-Apr-06	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.06	<0.05	<0.05	<0.05	---	AW-
G2-11B	G2-11B	7.0-8.5	---	29-Aug-06	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-11B	G2-11B	7.0-8.5	---	17-Apr-07	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-11B	G2-11B	7.0-8.5	---	5-Sep-07	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-11B	G2-11B	7.0-8.5	---	8-Apr-08	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.06	<0.05	<0.05	<0.05	---	AW-
G2-11B	G2-11B	7.0-8.5	---	30-Apr-09	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-11B	G2-11B	7.0-8.5	L1610763-2	11-May-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-11B	G2-11B	7.0-8.5	L1674072-5	16-Sep-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-11B	G2-11B	7.0-8.5	L1752248-2	4-Apr-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-11B	G2-11B	7.0-8.5	L1822946-3	1-Sep-16	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-11B	G2-11B	7.0-8.5	L1912573-2	12-Apr-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-11B	G2-11B	7.0-8.5	L1982266-2	28-Aug-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
G2-11B	G2-11B	7.0-8.5	L2086842-2	30-Apr-18	<0.01	<0.01	<0.01	<0.01	<0.005	<0.015	---	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.02	<0.01	<0.05	<0.11	AW-
G2-11B	G2-11B	7.0-8.5	L2154663-2	28-Aug-18	<0.01	<0.01	<0.01	<0.01	<0.005	<0.015	---	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.02	<0.01	<0.05	<0.11	AW-
G2-11B	G2-11B	7.0-8.5	L2249476-7	26-Mar-19	<0.01	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.050	<0.11	AW-
G2-11B	G2-11B	7.0-8.5	L2349075-4	17-Sep-19	<0.01	<0.01	<0.01	<0.01	<0.005	---	<0.015	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	<0.05	<0.05	<0.06	<0.02	<0.01	<0.05	<0.11	AW-
G2-11B	G2-11B	7.0-8.5	/A20A4448-00	6-Apr-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	0.011	0.017	<0.100	<0.020	<0.010	<0.050	<0.108	AW-
G2-11B	G2-11B	7.0-8.5	/A20B2849-00	17-Aug-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	0.011	0.016	<0.050	<0.020	<0.010	<0.050	<0.065	AW-
PW03-1A	PW03-1A	2.4-4.0	---	22-Apr-04	<0.8	<0.08	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	1.69	<0.05	---	---	269.	0.904	<0.05	0.308	---	**AW+**

TABLE 2-3
AREA 2 CONCENTRATIONS OF POLYCYCLIC AROMATIC HYDROCARBONS IN GROUNDWATER
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY
µg/L (ppb)

Well ID	Sample ID	Screened Interval	ALS Laboratory Report #	Sample Date	Acenaphthene	Acridine	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b+k)fluoranthene [3]	Benzo(b+j+k)fluoranthene [3]	Benzo(ghi)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	1-Methylnaphthalene [4]	2-Methylnaphthalene [4]	Naphthalene	Phenanthrene	Pyrene	Quinoline	Total PAHs [4]	Groundwater Classification
Generic Numerical Water Standards[2]																									
CSR	Schedule 3.2 - Marine Aquatic Life			(AW)[1]	60	0.5	1	1	0.1	NS	NS	NS	1	NS	2	120	NS	NS	NS	10	3	0.2	34	NS	
	Site Specific Screening Levels				60	30	40	1	2.8	NS	NS	NS	1	NS	40	120	NS	NS	NS	440	3	40	34	NS	
PW03-1A	PW03-1A	2.4-4.0	---	15-Oct-04	1.08	<0.2	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	2.78	<0.05	---	---	273.	1.94	<0.05	<0.4	---	**AW+**
PW03-1A	PW03-1A	2.4-4.0	---	15-Apr-05	1.08	0.101	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	2.	<0.05	---	---	393.	1.44	<0.05	<0.3	---	**AW+**
PW03-1A	Dup 102	2.4-4.0	---	15-Apr-05	1.19	<0.05	1.5	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	2.06	<0.05	---	---	345.	1.51	<0.05	<0.05	---	**AW+**
PW03-1A	PW03-1A	2.4-4.0	---	13-Sep-05	0.846	<0.065	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	1.19	<0.05	---	---	222.	0.551	<0.05	<0.05	---	**AW+**
PW03-1A	PW03-1A	2.4-4.0	---	23-Mar-06	0.953	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	1.3	<0.05	---	---	335.	0.586	<0.05	<0.3	---	**AW+**
PW03-1A	PW03-1A	2.4-4.0	---	23-Aug-06	0.929	<0.08	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	1.5	<0.05	---	---	149.	0.631	<0.05	<0.6	---	**AW+**
PW03-1A	PW03-1A	2.4-4.0	---	13-Apr-07	1.6	<1.	<1.	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	2.4	<0.05	---	---	375.	1.1	<0.05	<1.	---	**AW+**
PW03-1A	PW03-1A	2.4-4.0	---	6-Sep-07	1.	<1.	<1.	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	1.5	<0.05	---	---	218.	<1.	<0.05	<1.	---	**AW+**
PW03-1A	PW03-1A	2.4-4.0	---	14-Nov-07	1.1	<1.	<1.	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	2.	<0.05	---	---	291.	<1.	<0.05	<1.	---	**AW+**
PW03-1A	PW03-1A	2.4-4.0	---	1-Apr-08	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-1A	PW03-1A	2.4-4.0	---	4-Sep-08	<1.	<1.	<1.	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.1	<1.	<0.05	---	---	3.7	<1.	0.072	<1.	---	AW-
PW03-1A	PW03-1A	2.4-4.0	---	4-May-09	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.2	<0.05	---	---	<0.5	1.06	<0.05	<0.05	---	AW-
PW03-1A	PW03-1A	2.4-4.0	---	14-Apr-10	<0.3	<0.1	<0.1	<0.1	<0.01	<0.1	---	<0.05	<0.1	<0.05	<0.1	<0.2	<0.05	---	---	<2.	<1.1	<0.1	<0.7	---	AW-
PW03-1A	PW03-1A	2.4-4.0	---	15-Sep-10	<0.5	<0.5	<0.5	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.1	<0.5	<0.05	---	---	1.04	<0.5	<0.05	<0.5	---	AW-
PW03-1A	PW03-1A	2.4-4.0	---	19-Apr-11	<0.18	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.12	<0.05	<0.05	<0.22	---	AW-
PW03-1A	PW03-1A	2.4-4.0	---	22-Aug-11	<0.14	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.15	<0.15	<0.05	<0.15	---	AW-
PW03-1A	PW03-1A	2.4-4.0	L1448683-1	29-Apr-14	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-1A	PW03-1A	2.4-4.0	L1743508-2	9-Mar-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-1A	PW03-1A	2.4-4.0	L1908948-1	3-Apr-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-1A	PW03-1A	2.4-4.0	L2086841-5	30-Apr-18	<0.01	<0.02	<0.01	<0.01	<0.005	<0.015	---	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	<0.050	<0.050	<0.05	<0.02	<0.01	<0.05	<0.11	AW-
PW03-1A	PW03-1A	2.4-4.0	L2249476-11	26-Mar-19	<0.01	<0.02	<0.01	<0.01	<0.005	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.050	<0.11	AW-
PW03-1A	PW03-1A	2.4-4.0	/A20A4587-00	8-Apr-20	<0.010	<0.020	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.010	<0.020	<0.050	<0.020	<0.010	<0.050	<0.065	AW-
PW03-1B	PW03-1B	1.1-3.7	---	22-Apr-04	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	2.42	<0.05	<0.05	<0.05	---	AW-
PW03-1B	PW03-1BX	1.1-3.7	---	22-Apr-04	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	2.29	<0.05	<0.05	<0.05	---	AW-
PW03-1B	PW03-1B	1.1-3.7	---	15-Oct-04	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-1B	PW03-1B	1.1-3.7	---	15-Apr-05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	1.11	<0.05	<0.05	<0.05	---	AW-
PW03-1B	PW03-1B	1.1-3.7	---	21-Mar-06	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-1B	PW03-1B	1.1-3.7	---	13-Apr-07	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-1B	PW03-1B	1.1-3.7	---	1-Apr-08	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-1B	PW03-1B	1.1-3.7	---	3-Sep-08	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.25	<0.05	0.172	---	AW-
PW03-1B	PW03-1BX	1.1-3.7	---	3-Sep-08	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.04	<0.05	<0.05	<0.25	---	AW-
PW03-1B	PW03-1B	1.1-3.7	---	4-May-09	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-1B	PW03-1B	1.1-3.7	---	14-Apr-10	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-1B	PW03-1B	1.1-3.7	---	15-Sep-10	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	0.197	<0.05	<0.05	<0.05	---	AW-
PW03-1B	PW03-1B	1.1-3.7	---	19-Apr-11	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-1B	PW03-1B	1.1-3.7	---	10-May-12	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-1B	DUP-7	1.1-3.7	---	10-May-12	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-1B	PW03-1B	1.1-3.7	L1285748-1	3-Apr-13	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-1B	PW03-1B	1.1-3.7	L1448683-2	29-Apr-14	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-1B	PW03-1B	1.1-3.7	L1743508-1	9-Mar-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-1B	PW03-1B	1.1-3.7	L1908948-2	3-Apr-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-1B	PW03-1B	1.1-3.7	L2086841-7	30-Apr-18	<0.01	<0.01	<0.01	<0.01	<0.005	<0.015	---	0.01	<0.01	<0.005	<0.01	<0.01	<0.01	<0.050	<0.050	<0.05	<0.02	<0.01	<0.05	<0.11	AW-
PW03-1B	PW03-1B	1.1-3.7	L2259103-2	16-Apr-19	<0.010	<0.010	<0.010	0.014	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	0.068	<0.010	<0.010	<0.050	<0.050	<0.050	0.045	0.051	<0.050	0.18	AW-
PW03-1B	PW03-1B	1.1-3.7	/A20A4587-00	8-Apr-20	<0.010	<0.010	<0.010	<0.010	<0.0069	---	<0.015	<0.010	<0.010	<0.0069	<0.010	<0.010	<0.010	0.011	<0.030	0.06	<0.020	<0.010	<0.050	<0.065	AW-
PW03-1B	DUP-12	1.1-3.7	/A20A4586-00	8-Apr-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.005	<0.010	<0.010	<0.010	<0.010	<0.020	<0.05	<0.020	<0.010	<0.050	<0.065	AW-
QA/QC RPD				8-Apr-20	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
PW03-2A	PW03-2A	1.8-4.6	---	22-Apr-04	0.54	<0.2	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	1.32	<0.05	---	---	21.3	0.817	<0.05	0.258	---	**AW+**
PW03-2A	PW03-2A	1.8-4.6	---	14-Oct-04	0.683	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	1.59	<0.05	---	---	61.4	1.05	<0.05	<0.3	---	**AW+**
PW03-2A	PW03-2A	1.8-4.6	---	15-Apr-05	0.745	0.105	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	1.62	<0.05	---	---	29.	1.06	<0.05	0.367	---	**AW+**
PW03-2A	PW03-2A	1.8-4.6	---	21-Mar-06	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-2A	Dup2	1.8-4.6	---	21-Mar-06	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-2A	PW03-2A	1.8-4.6	---	23-Aug-06	0.277	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.242	<0.05	---	---	<0.5	0.098	<0.05	<0.2	---	AW-
PW03-2A	PW03-2A	1.8-4.6	---	13-Apr-07	0.362	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.795	<0.05	---	---	5.07	0.439	<0.05	<0.05	---	AW-
PW03-2A	PW03-2A	1.8-4.6	---	6-Sep-07	0.247	<0.07	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.456	<0.05	---	---	<0.4	0.43	<0.05	<0.2	---	AW-
PW03-2A	PW03-2A	1.8-4.6	---	14-Nov-07	<0.7	<0.1	<0.09	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	1.32	<0.05	---	---	12.6	1.14	<0.05	<0.3	---	**AW+**
PW03-2A	PW03-2A	1.8-4.6	---	1-Apr-08	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.07	<0.05	---	---	<0.2	<0.2	<0.05	<0.05	---	AW-
PW03-2A	PW03-2A	1.8-4.6	---	3-Sep-08	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-2A	PW03-2A	1.8-4.6	---	22-Apr-09	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-2A	PW03-2A	1.8-4.6	---	27-Aug-09	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-2A	PW03-2A	1.8-4.6	---	14-Apr-10	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-2A	PW03-2A	1.8-4.6	---	15-Sep-10	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-2A	PW03-2A	1.8-4.6	---	19-Apr-11	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-2A	PW03-2A	1.8-4.6	---	22-Aug-11	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-2A	DUP-8	1.8-4.6	---	22-Aug-11	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-2A	PW03-2A	1.8-4.6	L1448683-3	29-Apr-14	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-2A	PW03-2A	1.8-4.6	L1743508-6	9-Mar-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-2A	PW03-2A	1.8-4.6	L1908948-3	3-Apr-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-2A	PW03-2A	1.8-4.6	L2259103-3	16-Apr-19	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.050	<0.11	AW-
PW03-2A	PW03-2A	1.8-4.6	/A20A4586-00	8-Apr-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.010	<0.020	<0.050	<0.020	<0.010	<0.050	<0.065	AW-
PW03-2B	PW03-2B	1.1-3.7	---	22-Apr-04	0.078	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.06	<0.05	---	---	<0.7	<0.07	<0.05	<0.08	---	AW-
PW03-2B	PW03-2B	1.1-3.7	---	14-Oct-04	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	0.287	0.061	<0.05	<0.05	---	AW-
PW03-2B	PW03-2B	1.1-3.7	---	15-Apr-05	0.084	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.077	<0.05	---	---	16.9	<0.05	<0.05	<0.05	---	**AW+**
PW03-2B	PW03-2B	1.1-3.7	---	13-Sep-05	0.429	<0.06	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.251	<0.05	---	---	<1.2	0.393	<0.05	<0.05	---	AW-
PW03-2B	PW03-2B	1.1-3.7	---	21-Mar-06	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	0.297	<0.05	<0.05	<0.05	---	AW-
PW03-2B	PW03-2B	1.1-3.7	---	23-Aug-06	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-2B	PW03-2B	1.1-3.7	---	13-Apr-07	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.5	<0.05	---	---	0.81	<0.5	<0.05	<0.5	---	AW-
PW03-2B	PW03-2B	1.1-3.7	---	14-Nov-07	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	0.117	<0.05	<0.05	<0.05	---	AW-
PW03-2B	PW03-2B	1.1-3.7	---	1-Apr-08	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-2B	PW03-2B	1.1-3.7	---	4-Sep-08	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-2B	PW03-2B	1.1-3.7	---	22-Apr-09	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-2B	PW03-2B	1.1-3.7	---	14-Apr-10	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-2B	PW03-2B	1.1-3.7	---	19-Apr-11	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-2B	PW03-2B	1.1-3.7	---	22-Aug-11	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-2B	PW03-2B	1.1-3.7	---	10-May-12	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-2B	PW03-2B	1.1-3.7	L1285748-2	3-Apr-13	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-2B	PW03-2B	1.1-3.7	L1448683-4	29-Apr-14	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-2B	PW03-2B	1.1-3.7	L1743508-7	9-Mar-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-2B	PW03-2B	1.1-3.7	L1908948-4	3-Apr-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-2B	PW03-2B	1.1-3.7	L2249476-3	26-Mar-19	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.050	<0.11	AW-
PW03-2B	PW03-2B	1.1-3.7	VA20A4587-003	8-Apr-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.01	0.014	<0.050	<0.020	<0.010	<0.050	<0065	AW-
PW03-3	PW03-3	1.2-4.1	---	22-Apr-04	0.187	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.143	<0.05	---	---	101.	<0.05	0.098	<0.4	---	**AW+**
PW03-3	PW03-3	1.2-4.1	---	14-Oct-04	0.185	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.069	<0.05	---	---	30.4	<0.05	0.103	<0.6	---	**AW+**
PW03-3	PW03-3	1.2-4.1	---	15-Apr-05	0.156	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.116	<0.05	---	---	42.9	0.084	<0.05	<0.5	---	**AW+**
PW03-3	PW03-3	1.2-4.1	---	13-Sep-05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.3	<0.05	0.068	<0.05	---	AW-
PW03-3	PW03-3	1.2-4.1	---	23-Mar-06	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	0.659	<0.05	<0.05	<0.05	---	AW-
PW03-3	PW03-3	1.2-4.1	---	23-Aug-06	0.136	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.083	<0.05	---	---	22.4	0.059	<0.05	<0.4	---	**AW+**
PW03-3	PW03-3	1.2-4.1	---	13-Apr-07	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	1.39	<0.05	<0.05	<0.05	---	AW-
PW03-3	PW03-3	1.2-4.1	---	14-Nov-07	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-3	PW03-3	1.2-4.1	---	1-Apr-08	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	0.078	<0.05	<0.05	<0.05	---	AW-
PW03-3	Dup 4	1.2-4.1	---	1-Apr-08	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	0.099	<0.05	<0.05	<0.05	---	AW-
PW03-3	PW03-3	1.2-4.1	---	3-Sep-08	<0.05	<0.05	<0.05	<0.05	<2.	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	1.24	0.062	<0.05	0.055	---	AW-
PW03-3	PW03-3	1.2-4.1	---	22-Apr-09	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	2.06	<0.05	<0.05	<0.05	---	AW-
PW03-3	PW03-3	1.2-4.1	---	14-Apr-10	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-3	PW03-3	1.2-4.1	---	19-Apr-11	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	0.124	<0.05	<0.05	<0.05	---	AW-
PW03-3	PW03-3	1.2-4.1	---	22-Aug-11	0.114	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.104	<0.05	---	---	25.3	<0.05	<0.05	<0.2	---	**AW+**
PW03-3	PW03-3	1.2-4.1	---	10-May-12	<0.05	<0.05	<0.05	<0.05	<0.02	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-3	PW03-3	1.2-4.1	L1448682-1	29-Apr-14	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-3	PW03-3	1.2-4.1	L1743508-3	9-Mar-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-3	PW03-3	1.2-4.1	L1907768-2	31-Mar-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-3	PW03-3	1.2-4.1	L2086841-3	30-Apr-18	<0.01	<0.01	<0.01	<0.01	<0.005	<0.015	---	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	<0.050	<0.050	<0.05	<0.02	<0.01	<0.05	<0.11	AW-
PW03-3	PW03-3	1.2-4.1	L2249476-4	26-Mar-19	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.050	<0.11	AW-
PW03-3	PW03-3	1.2-4.1	/A20A4665-00	9-Apr-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.010	<0.020	<0.050	<0.020	<0.010	<0.050	<0.065	AW-
PW03-4	PW03-4	1.8-4.0	---	22-Apr-04	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	0.078	<0.05	<0.05	<0.05	---	AW-
PW03-4	PW03-4	1.8-4.0	---	14-Oct-04	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-4	DUP5	1.8-4.0	---	14-Oct-04	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-4	PW03-4	1.8-4.0	---	15-Apr-05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	0.114	<0.05	<0.05	<0.05	---	AW-
PW03-4	Dup 103	1.8-4.0	---	15-Apr-05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	0.099	<0.05	<0.05	<0.05	---	AW-
PW03-4	PW03-4	1.8-4.0	---	13-Sep-05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-4	DUP2	1.8-4.0	---	13-Sep-05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-4	PW03-4	1.8-4.0	---	21-Mar-06	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-4	PW03-4	1.8-4.0	---	23-Aug-06	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-4	DUP4	1.8-4.0	---	23-Aug-06	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-4	PW03-4	1.8-4.0	---	13-Apr-07	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-4	PW03-4X	1.8-4.0	---	13-Apr-07	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-4	PW03-4	1.8-4.0	---	6-Sep-07	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-4	PW03-4	1.8-4.0	---	1-Apr-08	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-4	PW03-4	1.8-4.0	---	3-Sep-08	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-4	PW03-4	1.8-4.0	---	22-Apr-09	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-4	PW03-4	1.8-4.0	---	27-Aug-09	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-4	PW03-4X	1.8-4.0	---	27-Aug-09	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-4	PW03-4	1.8-4.0	---	14-Apr-10	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-4	PW03-4	1.8-4.0	---	15-Sep-10	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-4	PW03-4	1.8-4.0	---	19-Apr-11	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-4	PW03-4	1.8-4.0	---	13-Sep-11	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-4	DUP-7	1.8-4.0	---	13-Sep-11	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-4	PW03-4	1.8-4.0	L1448682-2	29-Apr-14	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-4	PW03-4	1.8-4.0	L1743508-9	9-Mar-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-4	PW03-4	1.8-4.0	L1908948-5	3-Apr-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-4	PW03-4	1.8-4.0	L2259103-4	16-Apr-19	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.050	<0.11	AW-
PW03-4	PW03-4	1.8-4.0	/A20A4665-00	9-Apr-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.010	<0.020	<0.050	<0.020	<0.010	<0.050	<0.065	AW-

TABLE 2-3
AREA 2 CONCENTRATIONS OF POLYCYCLIC AROMATIC HYDROCARBONS IN GROUNDWATER
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY
µg/L (ppb)

Well ID	Sample ID	Screened Interval	ALS Laboratory Report #	Sample Date	Acenaphthene	Acridine	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b+k)fluoranthene [3]	Benzo(b+j+k)fluoranthene [3]	Benzo(g,h,i)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	1-Methylnaphthalene [4]	2-Methylnaphthalene [4]	Naphthalene	Phenanthrene	Pyrene	Quinoline	Total PAHs [4]	Groundwater Classification
Generic Numerical Water Standards[2]																									
CSR	Schedule 3.2 - Marine Aquatic Life			(AW)[1]	60	0.5	1	1	0.1	NS	NS	NS	1	NS	2	120	NS	NS	NS	10	3	0.2	34	NS	
	Site Specific Screening Levels				60	30	40	1	2.8	NS	NS	NS	1	NS	40	120	NS	NS	NS	440	3	40	34	NS	
PW03-5	PW03-5	7.6-8.5	---	22-Apr-04	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	0.226	<0.05	<0.05	<0.05	---	AW-
PW03-5	PW03-5	7.6-8.5	---	14-Oct-04	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.15	<0.05	<0.05	<0.05	---	AW-
PW03-5	PW03-5	7.6-8.5	---	15-Apr-05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	0.182	<0.05	<0.05	<0.05	---	AW-
PW03-5	PW03-5	7.6-8.5	---	13-Sep-05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.2	<0.05	<0.05	<0.06	---	AW-
PW03-5	DUP4	7.6-8.5	---	13-Sep-05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	0.193	<0.05	<0.05	<0.05	---	AW-
PW03-5	PW03-5	7.6-8.5	---	21-Mar-06	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	0.132	<0.05	<0.05	<0.05	---	AW-
PW03-5	PW03-5	7.6-8.5	---	23-Aug-06	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.06	<0.05	<0.05	<0.05	---	AW-
PW03-5	PW03-5	7.6-8.5	---	13-Apr-07	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.2	<0.05	<0.05	<0.05	---	AW-
PW03-5	PW03-5	7.6-8.5	---	6-Sep-07	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.09	<0.05	<0.05	<0.05	---	AW-
PW03-5	PW03-5	7.6-8.5	---	1-Apr-08	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.2	<0.05	<0.05	<0.05	---	AW-
PW03-5	PW03-5	7.6-8.5	---	3-Sep-08	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.1	1.25	<0.05	<0.05	---	AW-
PW03-5	PW03-5	7.6-8.5	---	22-Apr-09	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.1	<0.05	<0.05	<0.05	---	AW-
PW03-5	PW03-5	7.6-8.5	---	27-Aug-09	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.1	<0.05	<0.05	<0.05	---	AW-
PW03-5	PW03-5	7.6-8.5	---	14-Apr-10	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.07	<0.05	<0.05	<0.05	---	AW-
PW03-5	PW03-5	7.6-8.5	---	15-Sep-10	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.07	<0.05	<0.05	<0.05	---	AW-
PW03-5	DUP-16	7.6-8.5	---	15-Sep-10	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	0.063	<0.05	<0.05	<0.05	---	AW-
PW03-5	PW03-5	7.6-8.5	---	19-Apr-11	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.085	<0.05	<0.05	<0.05	---	AW-
PW03-5	PW03-5	7.6-8.5	---	22-Aug-11	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.09	<0.05	<0.05	<0.05	---	AW-
PW03-5	PW03-5	7.6-8.5	---	10-May-12	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-5	PW03-5	7.6-8.5	L1286283-1	4-Apr-13	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-5	PW03-5	7.6-8.5	L1448683-5	29-Apr-14	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-5	PW03-5	7.6-8.5	L1608317-1	6-May-15	<0.01	<0.01	<0.01	<0.01	<0.01	<0.02	---	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	---	---	<0.05	<0.02	<0.01	<0.05	---	AW-
PW03-5	PW03-5	7.6-8.5	L1743508-4	9-Mar-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-5	DUP-3	7.6-8.5	L1743508-8	9-Mar-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-5	PW03-5	7.6-8.5	L1908948-6	3-Apr-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-5	PW03-5	7.6-8.5	L2086841-4	30-Apr-18	<0.01	<0.01	<0.01	<0.01	<0.005	<0.015	---	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.02	<0.01	<0.05	<0.11	AW-
PW03-5	PW03-5	7.6-8.5	L2249476-5	26-Mar-19	<0.010	<0.01	<0.010	<0.010	<0.0050	---	<0.015	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.02	<0.01	<0.05	<0.11	AW-
PW03-5	PW03-5	7.6-8.5	/A20A3974-00	26-Mar-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	0.01	0.019	0.05	<0.020	<0.010	<0.050	<0.065	AW-
PW03-6	PW03-6	1.1-3.0	---	22-Apr-04	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	0.171	<0.05	<0.05	<0.05	---	AW-
PW03-6	PW03-6	1.1-3.0	---	14-Oct-04	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	0.693	<0.05	<0.05	<0.05	---	AW-
PW03-6	PW03-6	1.1-3.0	---	15-Apr-05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-6	PW03-6	1.1-3.0	---	21-Mar-06	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-6	PW03-6	1.1-3.0	---	13-Apr-07	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-6	PW03-6	1.1-3.0	---	1-Apr-08	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-6	PW03-6	1.1-3.0	---	22-Apr-09	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-6	PW03-6	1.1-3.0	---	14-Apr-10	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-6	PW03-6	1.1-3.0	---	19-Apr-11	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-6	PW03-6	1.1-3.0	L1448682-3	29-Apr-14	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-6	PW03-6	1.1-3.0	L1743508-5	9-Mar-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-6	PW03-6	1.1-3.0	L1907768-1	31-Mar-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
PW03-6	PW03-6	1.1-3.7	L2259103-1	16-Apr-19	0.013	<0.010	<0.060	0.101	0.0215	---	0.053	0.019	0.064	<0.0050	0.445	0.147	<0.010	<0.050	<0.050	<0.050	0.897	0.28	<0.050	2.02	**AW+**
U8	U8	3.22-6.22	---	12-Jul-05	<0.15	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	0.884	<0.05	<0.05	<0.06	---	AW-
U8	U8	3.22-6.22	---	14-Sep-05	<0.2	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.3	<0.05	<0.05	<0.05	---	AW-
U8	U8	3.22-6.22	---	23-Mar-06	0.329	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.347	<0.05	---	---	3.05	0.134	<0.05	<0.05	---	AW-
U8	U8	3.22-6.22	---	23-Aug-06	0.375	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.165	<0.05	---	---	<2.	0.078	<0.05	<0.08	---	AW-
U8	U8	3.22-6.22	---	13-Apr-07	0.209	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.205	<0.05	---	---	<2.	<0.05	<0.05	<0.2	---	AW-
U8	U8	3.22-6.22	---	6-Sep-07	<0.2	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.2	<0.05	<0.05	<0.05	---	AW-
U8	U8	3.22-6.22	---	2-Apr-08	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U8	U8	3.22-6.22	---	4-Sep-08	0.086	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.086	<0.05	---	---	<0.6	<0.05	<0.05	<0.15	---	AW-
U8	U8	3.22-6.22	---	22-Apr-09	0.106	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.108	<0.05	---	---	<5.	<0.05	<0.05	<0.1	---	AW-
U8	U8	3.22-6.22	---	31-Aug-09	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.053	<0.05	---	---	<0.3	<0.05	<0.05	<0.05	---	AW-
U8	U8	3.22-6.22	---	2-Feb-10	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	0.267	<0.05	<0.05	<0.05	---	AW-
U8	U8	3.22-6.22	---	21-Apr-10	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.2	<0.05	<0.05	<0.05	---	AW-
U8	U8	3.22-6.22	---	14-Sep-10	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.111	<0.05	---	---	<0.13	<0.05	<0.05	<0.05	---	AW-
U8	U8	3.22-6.22	---	5-Apr-11	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U8	U8	3.22-6.22	---	1-Sep-11	<0.07	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.254	<0.05	---	---	<0.5	0.325	<0.05	<0.2	---	AW-
U8	U8	3.22-6.22	---	9-May-12	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U8	U8	3.22-6.22	L1265496-2	5-Feb-13	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U8	U8	3.22-6.22	L1282462-1	25-Mar-13	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	0.064	<0.05	<0.05	<0.05	---	AW-
U8	U8	3.22-6.22	L1405124-6	18-Dec-13	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U8	U8	3.22-6.22	L1448682-4	29-Apr-14	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U8	U8	3.22-6.22	L1747964-1	22-Mar-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U8	U8	3.22-6.22	L1873026-4	21-Dec-16	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U8	U8	3.22-6.22	L1911852-1	11-Apr-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
U8	U8	3.22-6.22	L2086841-1	30-Apr-18	<0.01	<0.01	<0.01	<0.01	<0.005	<0.015	---	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	<0.050	<0.050	<0.05	<0.02	<0.01	<0.05	<0.11	AW-
U8	U8	3.22-6.22	L2247729-2	21-Mar-19	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.050	<0.11	AW-
U8	U8	3.22-6.22	/A20A3942-00	25-Mar-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.010	0.012	<0.050	<0.020	<0.010	<0.050	<0.065	AW-
U9	U9	3.3-6.3	---	12-Jul-05	<0.55	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.414	<0.05	---	---	3.68	0.46	<0.05	<0.2	---	AW-
U9	U9	3.3-6.3	---	14-Sep-05	<0.6	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.126	<0.05	---	---	<0.9	0.235	<0.05	<0.1	---	AW-
U9	U9	3.3-6.3	---	23-Mar-06	0.812	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.689	<0.05	---	---	10.9	0.569	<0.05	<0.4	---	**AW+**
U9	U9	3.3-6.3	---	23-Aug-06	0.87	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.261	<0.05	---	---	<2.	0.183	<0.05	<0.3	---	AW-
U9	U9	3.3-6.3	---	13-Apr-07	1.03	<0.07	0.092	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	1.23	<0.05	---	---	9.95	0.794	<0.05	<0.5	---	AW-
U9	U9	3.3-6.3	---	6-Sep-07	<0.6	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.08	<0.05	---	---	<0.4	<0.05	<0.05	<0.2	---	AW-
U9	U9	3.3-6.3	---	2-Apr-08	<2.	<0.2	<0.09	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	1.33	<0.05	---	---	7.21	0.757	<0.05	<0.4	---	AW-
U9	U9	3.3-6.3	---	4-Sep-08	0.632	0.098	0.059	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.379	<0.05	---	---	<0.6	0.171	<0.05	<0.25	---	AW-
U9	U9	3.3-6.3	---	22-Apr-09	0.889	<0.1	<0.1	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	1.1	<0.05	---	---	<10.	0.645	<0.05	<0.5	---	AW-
U9	U9	3.3-6.3	---	31-Aug-09	0.59	<0.05	0.066	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.222	<0.05	---	---	4.02	0.157	<0.05	<0.25	---	AW-
U9	U9	3.3-6.3	---	2-Feb-10	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.176	<0.05	---	---	2.05	0.054	<0.05	<0.2	---	AW-
U9	U9	3.3-6.3	---	21-Apr-10	1.	<0.08	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	1.7	<0.05	---	---	6.22	1.1	<0.05	<0.75	---	AW-
U9	U9	3.3-6.3	---	14-Sep-10	<0.7	<0.07	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.912	<0.05	---	---	<3.2	0.296	<0.05	<0.26	---	AW-
U9	U9	3.3-6.3	---	31-Mar-11	0.432	<0.07	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.871	<0.05	---	---	2.	0.761	<0.05	<0.05	---	AW-
U9	U9	3.3-6.3	---	1-Sep-11	0.584	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.85	<0.05	---	---	3.56	0.411	<0.05	<0.2	---	AW-
U9	U9	3.3-6.3	---	9-May-12	0.131	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.152	<0.05	---	---	2.66	<0.06	<0.05	<0.08	---	AW-
U9	U9	3.3-6.3	---	5-Feb-13	0.328	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.445	<0.05	---	---	3.99	0.225	<0.05	<0.2	---	AW-
U9	U9	3.3-6.3	L1282462-2	25-Mar-13	<0.2	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.132	<0.05	---	---	1.23	<0.05	<0.05	<0.1	---	AW-
U9	U9	3.3-6.3	L1405682-9	19-Dec-13	0.704	<0.05	<0.1	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	1.07	<0.05	---	---	52.7	1.05	<0.05	<0.6	---	**AW+**
U9	U9	3.3-6.3	L1448682-5	29-Apr-14	0.068	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.062	<0.05	---	---	0.933	<0.05	<0.05	<0.07	---	AW-
U9	U9	3.3-6.3	L1747964-2	22-Mar-16	0.083	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.078	<0.05	---	---	0.611	<0.05	<0.05	<0.3	---	AW-
U9	U9	3.3-6.3	L1873026-5	21-Dec-16	0.296	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	0.389	<0.05	---	---	1.16	0.163	<0.05	<0.2	---	AW-
U9	U9	3.3-6.3	L1911852-2	11-Apr-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.2	<0.05	<0.05	<0.08	---	AW-
U9	U9	3.3-6.3	L2086841-2	30-Apr-18	<0.01	<0.07	<0.02	<0.01	<0.006	<0.015	---	<0.01	<0.03	<0.005	<0.01	0.011	<0.01	<0.050	<0.050	<0.05	<0.02	0.036	<0.05	<0.13	AW-
U9	U9	3.3-6.3	L2247729-6	21-Mar-19	0.027	<0.050	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.040	<0.0050	<0.010	0.027	<0.010	1.2	0.744	2.3	<0.020	0.038	<0.070	4.34	AW-
U9	U9	3.3-6.3	/A20A4496-00	7-Apr-20	0.088	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	0.108	<0.010	1.71	0.99	<0.500	0.068	<0.010	<0.300	<0.502	AW-
U9	DUP-09	3.3-6.3	/A20A4496-00	7-Apr-20	0.087	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	0.111	<0.010	1.71	0.984	<0.500	0.069	<0.010	<0.300	<0.502	AW-
QA/QC RPD				7-Apr-20	1.1%	---	---	---	---	---	---	---	---	---	---	2.7%	---	0.0%	0.6%	---	---	---	---	---	
MW02-02	MW02-02	1.2-4.3	---	7-May-04	<0.2	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW02-02	MW02-02	1.2-4.3	---	14-Oct-04	0.096	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW02-02	MW02-02	1.2-4.3	---	21-Apr-05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW02-02	A2-MW02-02	1.2-4.3	---	20-Sep-05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW02-02	MW02-02	1.2-4.3	---	28-Mar-06	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW02-02	MW02-02	1.2-4.3	---	29-Aug-06	<0.3	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.101	<0.05	---	---	<0.2	<0.05	<0.05	<0.1	---	AW-
MW02-02	MW02-02	1.2-4.3	---	17-Apr-07	0.054	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW02-02	MW02-02	1.2-4.3	---	5-Sep-07	0.213	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.111	<0.05	---	---	<0.2	<0.05	<0.05	<0.05	---	AW-
MW02-02	MW02-02	1.2-4.3	---	8-Apr-08	0.072	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.09	<0.05	<0.05	<0.05	---	AW-
MW02-02	MW02-02	1.2-4.3	---	9-Sep-08	0.439	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.331	<0.05	---	---	<0.4	<0.08	<0.05	0.199	---	AW-
MW02-02	MW02-02	1.2-4.3	---	30-Apr-09	0.344	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.267	<0.05	---	---	<0.5	<0.05	<0.05	<0.2	---	AW-
MW02-02	MW02-02	1.2-4.3	---	8-Sep-09	0.397	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.359	<0.05	---	---	<0.35	0.06	<0.05	<0.3	---	AW-
MW02-02	MW02-02	1.2-4.3	---	12-May-10	0.288	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.28	<0.05	---	---	<0.29	<0.05	<0.05	<0.2	---	AW-
MW02-02	MW02-02	1.2-4.3	---	13-Sep-10	0.348	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.328	<0.05	---	---	<0.25	0.057	<0.05	<0.05	---	AW-
MW02-02	MW02-02	1.2-4.3	---	11-Apr-11	0.37	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.308	<0.05	---	---	0.332	0.054	<0.05	<0.3	---	AW-
MW02-02	MW02-02	1.2-4.3	---	1-Sep-11	0.125	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.144	<0.05	---	---	0.35	0.061	<0.05	<0.08	---	AW-
MW02-02	MW02-02	1.2-4.3	---	23-May-12	<0.07	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.072	<0.05	---	---	<0.09	<0.05	<0.05	<0.07	---	AW-
MW02-02	MW02-02	1.2-4.3	---	5-Feb-13	0.088	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.079	<0.05	---	---	<0.2	<0.05	<0.05	<0.09	---	AW-
MW02-02	MW02-02	1.2-4.3	L1283010-6	26-Mar-13	<0.08	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.081	<0.05	---	---	<0.1	<0.05	<0.05	<0.08	---	AW-
MW02-02	MW02-02	1.2-4.3	L1405682-10	19-Dec-13	<0.1	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.2	<0.05	<0.05	<0.1	---	AW-
MW02-02	MW02-02	1.2-4.3	L1449879-8	1-May-14	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.066	<0.05	---	---	<0.1	<0.05	<0.05	<0.05	---	AW-
MW02-02	MW02-02	1.2-4.3	L1610017-4	11-May-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.1	<0.05	<0.05	<0.05	---	AW-
MW02-02	MW02-02	1.2-4.3	L1751053-1	31-Mar-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW02-02	MW02-02	1.2-4.3	L1909647-1	5-Apr-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW02-02	MW02-02	1.2-4.3	L2246339-2	19-Mar-19	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.050	<0.11	AW-
MW02-02	MW02-02	1.2-4.3	VA20A4448-001	6-Apr-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.010	0.016	<0.050	<0.020	<0.010	<0.050	<0.065	AW-
MW02-03	MW02-03	1.5-4.6	---	29-Apr-04	<0.06	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW02-03	MW02-03	1.5-4.6	---	13-Oct-04	0.398	<0.2	0.098	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.67	<0.05	---	---	<0.3	<0.05	<0.05	<0.15	---	AW-
MW02-03	MW02-03	1.5-4.6	---	21-Apr-05	0.347	0.136	0.086	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.576	<0.05	---	---	0.211	<0.05	<0.05	<0.15	---	AW-
MW02-03	A2-MW02-03	1.5-4.6	---	20-Sep-05	0.391	<0.3	<0.2	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.654	<0.05	---	---	<0.3	<0.05	<0.05	<0.05	---	AW-
MW02-03	MW02-03	1.5-4.6	---	28-Mar-06	0.34	<0.05	0.149	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.636	<0.05	---	---	<0.2	<0.05	<0.05	<0.2	---	AW-
MW02-03	MW02-03	1.5-4.6	---	29-Aug-06	0.512	<0.5	<0.2	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.716	<0.05	---	---	<0.5	<0.05	<0.05	<0.3	---	AW-
MW02-03	MW02-03	1.5-4.6	---	17-Apr-07	0.438	<0.5	<0.2	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.657	<0.05	---	---	<0.4	<0.05	<0.05	<0.08	---	AW-
MW02-03	MW02-03	1.5-4.6	---	5-Sep-07	0.409	<0.4	<0.2	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.685	<0.05	---	---	<0.2	<0.07	0.054	<0.3	---	AW-
MW02-03	MW02-03	1.5-4.6	---	8-Apr-08	0.302	<0.3	<0.2	<0.05	<0.02	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.421	<0.05	---	---	<0.4	<0.05	0.051	<0.06	---	AW-
MW02-03	MW02-03	1.5-4.6	---	8-Sep-08	0.426	0.391	<0.2	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.624	<0.05	---	---	<0.15	<0.25	0.055	0.196	---	AW-
MW02-03	MW02-03	1.5-4.6	---	30-Apr-09	0.445	<0.5	<0.5	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.535	<0.05	---	---	<0.5	<0.05	<0.05	<0.2	---	AW-
MW02-03	MW02-03	1.5-4.6	---	8-Sep-09	0.463	<0.05	<0.2	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.606	<0.05	---	---	<0.35	<0.05	0.05	<0.45	---	AW-
MW02-03	MW02-03	1.5-4.6	---	12-May-10	0.441	<0.31	<0.15	<0.05	<0.03	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.518	<0.05	---	---	<0.28	<0.05	<0.05	<0.18	---	AW-
MW02-03	MW02-03	1.5-4.6	---	13-Sep-10	0.448	<0.05	<0.17	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.597	<0.05	---	---	<0.24	<0.05	<0.05	<0.2	---	AW-

TABLE 2-3
AREA 2 CONCENTRATIONS OF POLYCYCLIC AROMATIC HYDROCARBONS IN GROUNDWATER
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY
µg/L (ppb)

Well ID	Sample ID	Screened Interval	ALS Laboratory Report #	Sample Date	Acenaphthene	Acridine	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b+k)fluoranthene [3]	Benzo(b+j+k)fluoranthene [3]	Benzo(ghi)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	1-Methylnaphthalene [4]	2-Methylnaphthalene [4]	Naphthalene	Phenanthrene	Pyrene	Quinoline	Total PAHs [4]	Groundwater Classification
Generic Numerical Water Standards[2]																									
CSR	Schedule 3.2 - Marine Aquatic Life			(AW)[1]	60	0.5	1	1	0.1	NS	NS	NS	1	NS	2	120	NS	NS	NS	10	3	0.2	34	NS	
	Site Specific Screening Levels				60	30	40	1	2.8	NS	NS	NS	1	NS	40	120	NS	NS	NS	440	3	40	34	NS	
MW02-03	MW02-03	1.5-4.6	---	7-Apr-11	0.457	<0.05	<0.2	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.569	<0.05	---	---	<0.3	<0.05	<0.05	<0.2	---	AW-
MW02-03	MW02-03	1.5-4.6	---	1-Sep-11	0.13	<0.5	<0.2	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.22	<0.05	---	---	<0.3	<0.07	0.064	<0.07	---	AW-
MW02-03	MW02-03	1.5-4.6	---	23-May-12	<0.05	<0.05	<0.09	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.067	<0.05	---	---	<0.2	<0.05	<0.05	<0.05	---	AW-
MW02-03	MW02-03	1.5-4.6	---	5-Feb-13	<0.05	<0.05	0.08	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.09	<0.05	<0.05	<0.05	---	AW-
MW02-03	MW02-03	1.5-4.6	L1283010-7	26-Mar-13	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.052	<0.05	---	---	<0.09	<0.05	<0.05	<0.09	---	AW-
MW02-03	MW02-03	1.5-4.6	L1345378-11	8-Aug-13	<0.05	<0.2	<0.06	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.08	<0.05	<0.05	<0.05	---	AW-
MW02-03	MW02-03	1.5-4.6	L1405681-1	19-Dec-13	<0.05	<0.09	0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.06	<0.05	<0.05	<0.07	---	AW-
MW02-03	MW02-03	1.5-4.6	L1449879-9	1-May-14	<0.05	<0.05	<0.06	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.069	<0.05	---	---	<0.2	<0.05	<0.05	<0.1	---	AW-
MW02-03	MW02-03	1.5-4.6	L1498928-2	7-Aug-14	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.081	<0.05	---	---	<0.3	<0.05	<0.05	<0.05	---	AW-
MW02-03	MW02-03	1.5-4.6	L1610017-5	11-May-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.2	<0.05	<0.05	<0.09	---	AW-
MW02-03	MW02-03	1.5-4.6	L1751053-2	31-Mar-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW02-03	MW02-03	1.5-4.6	L1909647-2	5-Apr-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW02-03	MW02-03	1.5-4.6	L2085716-2	26-Apr-18	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.050	<0.050	<0.05	<0.05	<0.05	<0.05	<0.21	AW-
MW02-03	MW02-03	1.5-4.6	L2246339-1	19-Mar-19	0.019	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	0.017	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.050	<0.11	AW-
MW02-03	MW02-03	1.5-4.6	/A20A4448-00	6-Apr-20	0.036	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	0.015	<0.010	0.05	0.026	<0.100	<0.020	<0.010	<0.050	<0.108	AW-
MW02-03	DUP-7	1.5-4.6	/A20A4448-00	6-Apr-20	0.029	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	0.014	<0.010	0.05	0.026	<0.100	<0.020	<0.010	<0.050	<0.108	AW-
QA/QC RPD				6-Apr-20	---	---	---	---	---	---	---	---	---	---	---	---	---	0.0%	---	---	---	---	---	---	
MW02-04	MW02-04	1.5-4.6	---	29-Apr-04	<0.4	<0.2	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.391	<0.05	---	---	<0.4	<0.05	<0.05	<0.1	---	AW-
MW02-04	MW02-04	1.5-4.6	---	13-Oct-04	<0.08	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW02-04	MW02-04	1.5-4.6	---	21-Apr-05	<0.1	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	0.088	<0.05	<0.05	<0.05	---	AW-
MW02-04	A2-MW02-04	1.5-4.6	---	20-Sep-05	<0.1	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.081	<0.05	---	---	<0.3	<0.05	<0.05	<0.05	---	AW-
MW02-04	MW02-04	1.5-4.6	---	28-Mar-06	<0.08	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.082	<0.05	---	---	<0.3	<0.05	<0.05	<0.05	---	AW-
MW02-04	MW02-04	1.5-4.6	---	29-Aug-06	<0.1	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.2	<0.05	<0.05	<0.05	---	AW-
MW02-04	MW02-04	1.5-4.6	---	17-Apr-07	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.2	<0.05	<0.05	<0.05	---	AW-
MW02-04	MW02-04	1.5-4.6	---	5-Sep-07	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.06	<0.05	<0.05	<0.05	---	AW-
MW02-04	MW02-04	1.5-4.6	---	8-Apr-08	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.2	<0.05	<0.05	<0.05	---	AW-
MW02-04	MW02-04	1.5-4.6	---	8-Sep-08	<0.15	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.102	<0.05	---	---	<0.4	<0.06	<0.05	<0.07	---	AW-
MW02-04	MW02-04	1.5-4.6	---	30-Apr-09	<0.1	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.5	<0.05	<0.05	<0.07	---	AW-
MW02-04	MW02-04	1.5-4.6	---	8-Sep-09	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.2	<0.05	<0.05	<0.05	---	AW-
MW02-04	MW02-04	1.5-4.6	---	12-May-10	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.1	<0.05	<0.05	<0.05	---	AW-
MW02-04	MW02-04	1.5-4.6	---	13-Sep-10	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.08	<0.05	<0.05	<0.05	---	AW-
MW02-04	MW02-04	1.5-4.6	---	7-Apr-11	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.2	<0.05	<0.05	<0.05	---	AW-
MW02-04	MW02-04	1.5-4.6	---	4-Feb-13	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW02-04	MW02-04	1.5-4.6	L1283010-8	26-Mar-13	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	0.112	<0.05	<0.05	<0.05	---	AW-
MW02-04	MW02-04	1.5-4.6	L1449879-1	1-May-14	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.3	<0.05	<0.05	<0.08	---	AW-
MW02-04	MW02-04	1.5-4.6	L1498928-3	7-Aug-14	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.6	<0.05	<0.05	<0.05	---	AW-
MW02-04	MW02-04	1.5-4.6	L1751053-3	31-Mar-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW02-04	MW02-04	1.5-4.6	L1909647-3	5-Apr-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.2	<0.05	<0.05	<0.2	---	AW-
MW02-04	MW02-04	1.5-4.6	L2082551-1	19-Apr-18	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW02-04	MW02-04	1.5-4.6	/A20A4503-00	7-Apr-20	<0.01	<0.01	<0.01	<0.01	<0.005	---	<0.015	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	0.011	0.02	<0.05	<0.02	<0.01	<0.05	<0.065	AW-
MW03-02	MW03-02	3.7-7.6	---	29-Apr-04	0.552	<0.3	<0.2	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.844	<0.05	---	---	<0.3	<0.7	<0.05	<0.2	---	AW-
MW03-02	MW03-02	3.7-7.6	---	13-Oct-04	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.2	<0.05	<0.05	<0.05	---	AW-
MW03-02	MW03-02	3.7-7.6	---	12-Apr-05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.15	<0.05	<0.05	<0.05	---	AW-
MW03-02	MW03-02	3.7-7.6	---	14-Sep-05	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	0.093	<0.06	---	AW-
MW03-02	MW03-02	3.7-7.6	---	23-Mar-06	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.1	<0.05	<0.05	<0.05	---	AW-
MW03-02	MW03-02	3.7-7.6	---	29-Aug-06	<0.06	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.2	<0.05	<0.05	<0.05	---	AW-
MW03-02	MW03-02	3.7-7.6	---	17-Apr-07	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW03-02	MW03-02	3.7-7.6	---	5-Sep-07	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW03-02	MW03-02	3.7-7.6	---	2-Apr-08	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.06	<0.05	<0.05	<0.05	---	AW-
MW03-02	MW03-02	3.7-7.6	---	9-Sep-08	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.17	<0.05	<0.05	<0.05	---	AW-
MW03-02	MW03-02	3.7-7.6	---	3-Feb-10	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.7	<0.05	<0.05	<0.05	---	AW-
MW03-02	MW03-02	3.7-7.6	---	5-Feb-13	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW03-02	MW03-02	3.7-7.6	L1405682-11	19-Dec-13	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW03-02	MW03-02	3.7-7.6	L1608929-5	7-May-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW03-02	MW03-02	3.7-7.6	L1662936-3	25-Aug-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW03-02	MW03-02	3.7-7.6	L1747969-8	22-Mar-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW03-02	MW03-02	3.7-7.6	L1911588-1	10-Apr-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW03-02	MW03-02	3.7-7.6	L2085716-1	26-Apr-18	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.050	<0.050	<0.05	<0.05	<0.05	<0.05	<0.21	AW-
MW03-02	MW03-02	3.7-7.6	L2247147-1	20-Mar-19	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.050	<0.11	AW-
MW03-02	MW03-02	3.7-7.6	/A20A3974-00	26-Mar-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	0.011	0.024	<0.050	<0.020	<0.010	<0.050	<0.065	AW-
MW03-03	MW03-03	6.1-13.7	---	29-Apr-04	0.369	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.126	<0.05	---	---	4.09	0.104	<0.05	<0.1	---	AW-
MW03-03	MW03-03	6.1-13.7	---	12-Oct-04	0.197	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.057	<0.05	---	---	<0.6	0.053	<0.05	<0.05	---	AW-
MW03-03	MW03-03	6.1-13.7	---	21-Apr-05	0.58	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.424	<0.05	---	---	7.6	0.241	<0.05	0.331	---	AW-
MW03-03	A2-MW03-03	6.1-13.7	---	20-Sep-05	0.367	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.3	0.091	<0.05	<0.05	---	AW-
MW03-03	MW03-03	6.1-13.7	---	28-Mar-06	0.351	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.24	<0.05	---	---	2.96	0.054	<0.05	<0.2	---	AW-
MW03-03	MW03-03	6.1-13.7	---	29-Aug-06	0.34	<0.2	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.133	<0.05	---	---	<1.	0.118	<0.05	<0.1	---	AW-
MW03-03	MW03-03	6.1-13.7	---	17-Apr-07	0.478	<0.07	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.305	<0.05	---	---	2.87	0.096	<0.05	<0.2	---	AW-
MW03-03	MW03-03	6.1-13.7	---	5-Sep-07	0.381	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.152	<0.05	---	---	<0.5	<0.05	<0.05	<0.2	---	AW-
MW03-03	MW03-03	6.1-13.7	---	8-Apr-08	0.647	<0.06	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.484	<0.05	---	---	12.	0.314	<0.05	<0.2	---	**AW+**
MW03-03	MW03-03	6.1-13.7	---	8-Sep-08	0.274	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.143	<0.05	---	---	1.26	0.064	<0.05	<0.05	---	AW-
MW03-03	MW03-03	6.1-13.7	---	30-Apr-09	0.499	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.391	<0.05	---	---	5.26	0.156	<0.05	<0.05	---	AW-
MW03-03	MW03-03	6.1-13.7	---	9-Sep-09	0.295	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.172	<0.05	---	---	<0.95	0.069	<0.05	<0.25	---	AW-
MW03-03	MW03-03	6.1-13.7	---	12-May-10	0.672	<0.08	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.554	<0.05	---	---	6.64	0.379	<0.05	<0.36	---	AW-
MW03-03	MW03-03	6.1-13.7	---	14-Sep-10	0.285	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.141	<0.05	---	---	<0.59	0.051	<0.05	<0.11	---	AW-
MW03-03	MW03-03	6.1-13.7	---	7-Apr-11	0.255	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.224	<0.05	---	---	1.77	0.104	<0.05	<0.15	---	AW-
MW03-03	MW03-03	6.1-13.7	---	17-Aug-11	0.606	<0.06	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.35	<0.05	---	---	1.62	0.326	<0.05	<0.2	---	AW-
MW03-03	MW03-03	6.1-13.7	L1291408-1	18-Apr-13	0.216	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.132	<0.05	---	---	<0.4	0.125	<0.05	<0.2	---	AW-
MW03-03	MW03-03	6.1-13.7	L1451660-1	6-May-14	0.789	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.48	<0.05	---	---	28.	0.452	<0.05	<0.7	---	**AW+**
MW03-03	MW03-03	6.1-13.7	L1501939-1	13-Aug-14	0.47	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.298	<0.05	---	---	<0.5	0.504	<0.05	<0.2	---	AW-
MW03-03	MW03-03	6.1-13.7	L1751053-4	31-Mar-16	0.398	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.304	<0.05	---	---	<0.8	0.356	<0.05	<2.	---	AW-
MW03-03	MW03-03	6.1-13.7	L1909647-4	5-Apr-17	0.938	<0.05	0.058	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	0.705	<0.05	---	---	18.9	0.689	<0.05	<0.3	---	**AW+**
MW03-03	MW03-03	6.1-13.7	L2082551-2	19-Apr-18	0.54	<0.08	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	0.524	<0.05	---	---	<0.8	0.591	<0.05	<2.	---	AW-
A2MW09-05I	A2MW09-05I	9.18-10.68	---	22-Dec-09	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	0.552	<0.05	<0.05	<0.05	---	AW-
A2MW09-05I	MW09-05I	9.18-10.68	---	21-Apr-10	0.093	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.068	<0.05	---	---	1.14	0.083	<0.05	<0.08	---	AW-
A2MW09-05I	MW09-05I	9.18-10.68	---	14-Sep-10	<0.08	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.78	<0.05	<0.05	<0.05	---	AW-
A2MW09-05I	A2MW09-5I	9.18-10.68	---	31-Mar-11	0.199	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.226	<0.05	---	---	3.21	0.215	<0.05	<0.05	---	AW-
A2MW09-05I	MW09-05I	9.18-10.68	---	1-Sep-11	0.072	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.4	<0.05	<0.05	<0.07	---	AW-
A2MW09-05I	MW09-5I	9.18-10.68	---	9-May-12	<0.5	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.598	<0.05	---	---	30.5	0.502	<0.05	<0.3	---	**AW+**
A2MW09-05I	MW09-05I	9.18-10.68	---	13-Aug-12	0.165	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.234	<0.05	---	---	7.5	0.157	<0.05	<0.2	---	AW-
A2MW09-05I	MW09-05I	9.18-10.68	L1265496-1	5-Feb-13	<0.4	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.437	<0.05	---	---	5.57	0.32	<0.05	<0.2	---	AW-
A2MW09-05I	MW09-05I	9.18-10.68	L1282461-1	25-Mar-13	<0.5	<0.1	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.525	<0.05	---	---	4.43	0.33	<0.05	<0.4	---	AW-
A2MW09-05I	MW09-05I	9.18-10.68	L1382363-1	23-Oct-13	0.179	0.063	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.24	<0.05	---	---	7.54	0.125	<0.05	<0.2	---	AW-
A2MW09-05I	MW09-05I	9.18-10.68	L1405682-3	19-Dec-13	0.343	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.523	<0.05	---	---	18.5	0.366	<0.05	<0.3	---	**AW+**
A2MW09-05I	MW09-05I	9.18-10.68	L1449337-1	30-Apr-14	0.43	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.5	<0.05	---	---	5.62	0.462	<0.05	<0.05	---	AW-
A2MW09-05I	MW09-05I	9.18-10.68	L1501099-1	12-Aug-14	0.534	<0.05	<0.08	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.797	<0.05	---	---	20.8	1.13	0.074	<0.4	---	**AW+**
A2MW09-05I	A2MW09-05I	9.18-10.68	L1608929-1	7-May-15	0.478	<0.05	<0.06	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.764	<0.05	---	---	5.61	0.702	<0.05	<2.	---	AW-
A2MW09-05I	A2MW09-05I	9.18-10.68	L1662936-1	25-Aug-15	0.477	<0.2	<0.06	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.745	<0.05	---	---	14.3	0.811	<0.05	<2.	---	**AW+**
A2MW09-05I	A2MW09-05I	9.18-10.68	L1747969-4	22-Mar-16	0.425	<0.05	<0.06	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.523	<0.05	---	---	<1.	0.285	<0.05	<0.3	---	AW-
A2MW09-05I	A2MW09-05I	9.18-10.68	L1819742-1	25-Aug-16	0.418	<0.1	<0.07	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	0.738	<0.05	---	---	24.4	0.697	<0.05	<3.	---	**AW+**
A2MW09-05I	A2MW09-05I	9.18-10.68	L1873026-1	21-Dec-16	0.683	<0.05	<0.07	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	0.914	<0.05	---	---	<2.	0.473	<0.05	<0.7	---	AW-
A2MW09-05I	MW09-05I	9.18-10.68	L1912573-4	12-Apr-17	0.388	<0.05	<0.06	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	0.53	<0.05	---	---	<2.	0.15	<0.05	<2.	---	AW-
A2MW09-05I	MW09-05I	9.18-10.68	L1987046-1	6-Sep-17	0.414	<0.05	<0.08	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	0.681	<0.05	---	---	<6.	0.537	<0.05	<2.	---	AW-
A2MW09-05I	MW09-05I	9.18-10.68	L2085717-1	26-Apr-18	0.454	<0.2	<0.08	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	0.69	<0.05	3.69	<0.05	<2.	<0.06	0.058	<2.	4.9	AW-
A2MW09-05I	MW09-05I	9.18-10.68	L2103253-1	30-May-18	0.288	<0.01	<0.05	<0.01	<0.005	<0.015	---	<0.01	<0.01	<0.005	<0.01	0.428	<0.01	0.091	<0.05	<0.8	<0.02	0.016	<0.6	<1.	AW-
A2MW09-05I	A2 MW09-05I	9.18-10.68	L2151626-1	22-Aug-18	0.426	<0.2	<0.08	<0.01	<0.005	<0.015	---	<0.01	<0.01	<0.005	<0.01	0.681	<0.01	2.71	0.141	<2.	0.096	0.03	<1.	4.1	AW-
A2MW09-05I	MW09-05I	9.18-10.68	L2249476-2	26-Mar-19	<0.3	<0.01	<0.04	<0.01	<0.005	---	<0.015	<0.01	<0.01	<0.005	<0.01	0.459	<0.01	0.201	<0.05	<0.8	<0.02	0.019	<0.8	<1.2	AW-
A2MW09-05I	MW09-05I	9.18-10.68	L2344655-1	10-Sep-19	0.373	<0.09	<0.05	<0.01	<0.005	---	<0.015	<0.01	<0.01	<0.005	<0.01	0.392	<0.01	4.45	1.21	<2.	0.108	0.02	<0.8	6.6	AW-
A2MW09-05I	MW09-05I	9.18-10.68	/A20A4587-00	8-Apr-20	0.324	<0.100	<0.040	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	0.553	<0.010	0.274	<0.040	<0.900	<0.020	0.018	<0.800	<0.905	AW-
A2MW09-05I	MW09-05I	9.18-10.68	/A20B2369-00	11-Aug-20	0.233	<0.010	<0.030	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	0.332	<0.010	0.167	0.036	<0.600	<0.020	0.015	<0.500	<0.605	AW-
A2MW09-05I	DUP-01	9.18-10.68	/A20B2369-00	11-Aug-20	0.281	<0.010	<0.030	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	0.364	<0.010	0.183	0.04	<0.700	<0.020	0.017	<0.500	<0.704	AW-
QA/QC RPD				11-Aug-20	18.7%	---	---	---	---	---	---	---	---	---	---	9.2%	---	9.1%	---	---	---	---	---	---	
A2MW09-06I	A2MW09-06I	9.33-10.83	---	22-Dec-09	0.097	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.114	<0.05	---	---	1.22	<0.06	<0.05	<0.2	---	AW-
A2MW09-06I	MW09-06I	9.33-10.83	---	21-Apr-10	0.171	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.139	<0.05	---	---	1.81	0.133	<0.05	<0.1	---	AW-
A2MW09-06I	MW09-06I	9.33-10.83	---	14-Sep-10	0.116	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.055	<0.05	---	---	<0.24	<0.05	0.059	<0.12	---	AW-
A2MW09-06I	A2MW09-06I	9.33-10.83	---	6-Apr-11	0.355	<0.09	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.545	<0.05	---	---	11.9	0.505	<0.05	<0.3	---	**AW+**
A2MW09-06I	MW09-06I	9.33-10.83	---	1-Sep-11	0.178	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.163	<0.05	---	---	17.8	<0.05	<0.05	<0.2	---	**AW+**
A2MW09-06I	MW09-06I	9.33-10.83	---	9-May-12	<0.7	<0.09	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.845	<0.05	---	---	41.9	0.79	0.071	<0.5	---	**AW+**
A2MW09-06I	MW09-06I	9.33-10.83	---	13-Aug-12	0.102	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.141	<0.05	---	---	5.76	0.141	<0.05	<0.2	---	AW-
A2MW09-06I	MW09-06I	9.33-10.83	---	5-Feb-13	0.548	<0.09	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.81	<0.05	---	---	33.	0.879	<0.05	<0.3	---	**AW+**
A2MW09-06I	MW09-06I	9.33-10.83	L1282461-2	25-Mar-13	<0.7	<0.1	<0.1	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.893	<0.05	---	---	46.2	0.908	<0.05	<1.	---	**AW+**
A2MW09-06I	MW09-06I	9.33-10.83	L1350563-2	20-Aug-13	<0.1	<0.1	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.133	<0.05	---	---	0.545	0.154	<0.05	<0.2	---	AW-
A2MW09-06I	MW09-06I	9.33-10.83	L1405682-7	19-Dec-13	0.365	<0.05	<0.1	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.595	<0.05	---	---	14.6	0.597	0.063	<0.1	---	**AW+**
A2MW09-06I	MW09-06I	9.33-10.83	L1449337-3	30-Apr-14	0.668	<0.05	<0.1	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	1.07	<0.05	---	---	33.3	1.16	0.054	<0.06	---	**AW+**
A2MW09-06I	MW09-06I	9.33-10.83	L1501099-2	12-Aug-14	0.185	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.289	<0.05	---	---	6.43	0.367	<0.05	<0.05	---	AW-
A2MW09-06I	MW09-06I	9.33-10.83	L1608318-1	6-May-15	0.247	<0.01	<0.05	<0.01	<0.01	<0.02	---	<0.01	<0.02	<0.01	<0.02	0.435	<0.01	---	---	<2.	0.494	0.083	<0.8	---	AW-
A2MW09-06I	MW09-06I	9.33-10.83	L1662936-2	25-Aug-15	0.122	<0.08	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.171	<0.05	---	---	<1.	0.106	0.071	<2.	---	AW-
A2MW09-06I	MW09-06I	9.33-10.83	L1747969-5	22-Mar-16	0.407	<0.05	<0.07	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.653	<0.05	---	---	4.45	0.608	<0.05	<2.	---	AW-
A2MW09-06I	MW09-06I	9.33-10.83	L1819742-2	25-Aug-16	<0.05	<0.2	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	0.087	<0.05	---	---	<0.2	0.198	0.092	<0.4	---	AW-
A2MW09-06I	MW09-06I	9.33-10.83	L1912573-5	12-Apr-17	0.5	<0.05	<0.07	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	0.877	<0.05	---	---	<5.	0.68	0.056	<2.	---	AW-
A2MW09-06I	MW09-06I	9.33-10.83	L1987046-2	6-Sep-17	0.114	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	0.208	<0.05	---	---	<0.4	<0.05	0.058	<0.6	---	AW-
A2MW09-06I	MW09-06I	9.33-10.83	L2085717-2	26-Apr-18	0.371	**<0.6**	<0.2	<0.05	<0.005	<0.1	---	<0.05	<0.06	<0.005	0.097	0.72	<0.05	5.04	<0.07	<2.	0.391	0.644	<2.	7.3	**AW+**
A2MW09-06I	A2 MW09-06I	9.33-10.83	L2151626-2	22-Aug-18	0.133	<0.01	<0.06	<0.01	<0.005	0.025	---	<0.01	<0.03	<0.005	0.015	0.218	0.011	<0.05	<0.05	<0.5	<0.02	0.084	<0.5	<0.72	AW-
A2MW09-06I	MW09-06I	9.33-10.83	L2249476-1	26-Mar-19	<0.080	<0.060	<0.030	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	0.172	<0.010	0.091	<0.050	<0.30	<0.020	0.028	<0.30	<0.45	AW-
A2MW09-06I	MW09-06I	9.33-10.83	L2344655-2	10-Sep-19	0.116	<0.40	<0.070	<0.020	<0.0050	---	<0.015	<0.010	<0.050	<0.0050	0.086	0.164	<0.010	0.154	0.059	<0.40	<0.070	0.592	<0.30	1.17	**AW+**
A2MW09-06I	MW09-06I	9.33-10.83	/A20A3974-00	26-Mar-20	0.184	<0.200	<0.050	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.300	0.392	<0.010	0.133	<0.020	<2.50	<0.040	0.047	<0.600	<2.52	AW-
A2MW09-06I	MW09-06I	9.33-10.83	/A20B2369-00	11-Aug-20	0.048	<0.030	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	0.072	<0.010	0.028	0.034	<0.300	<0.020	0.015	<0.200	<0.303	AW-

TABLE 2-3
AREA 2 CONCENTRATIONS OF POLYCYCLIC AROMATIC HYDROCARBONS IN GROUNDWATER
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY
µg/L (ppb)

Well ID	Sample ID	Screened Interval	ALS Laboratory Report #	Sample Date	Acenaphthene	Acridine	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b+k)fluoranthene [3]	Benzo(b+j+k)fluoranthene [3]	Benzo(ghi)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	1-Methylnaphthalene [4]	2-Methylnaphthalene [4]	Naphthalene	Phenanthrene	Pyrene	Quinoline	Total PAHs [4]	Groundwater Classification
Generic Numerical Water Standards[2]																									
CSR	Schedule 3.2 - Marine Aquatic Life			(AW)[1]	60	0.5	1	1	0.1	NS	NS	NS	1	NS	2	120	NS	NS	NS	10	3	0.2	34	NS	
	Site Specific Screening Levels				60	30	40	1	2.8	NS	NS	NS	1	NS	40	120	NS	NS	NS	440	3	40	34	NS	
A2MW09-06I	DUP-02	9.33-10.83	/A20B2369-00	11-Aug-20	0.053	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	0.076	<0.010	0.03	0.036	<0.300	<0.020	0.016	<0.200	<0.303	AW-
QA/QC RPD				11-Aug-20	---	---	---	---	---	---	---	---	---	---	---	5.4%	---	---	---	---	---	---	---	---	
A2MW09-06S	A2MW09-06S	2.44-5.44	---	21-Dec-09	<0.1	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.15	<0.05	---	---	<2.	<0.05	<0.05	<0.1	---	AW-
A2MW09-06S	MW09-06S	2.44-5.44	---	21-Apr-10	0.086	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.164	<0.05	---	---	6.94	<0.05	<0.05	<0.06	---	AW-
A2MW09-06S	MW09-06S	2.44-5.44	---	14-Sep-10	<0.15	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.071	<0.05	---	---	<0.91	<0.05	0.099	<0.08	---	AW-
A2MW09-06S	A2MW09-06S	2.44-5.44	---	6-Apr-11	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A2MW09-06S	MW09-06S	2.44-5.44	---	1-Sep-11	0.176	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.182	<0.05	---	---	15.7	0.089	0.083	<0.2	---	**AW+**
A2MW09-06S	MW09-06S	2.44-5.44	L1449337-2	30-Apr-14	0.241	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.472	<0.05	---	---	9.61	0.338	<0.05	<0.05	---	AW-
A2MW09-06S	MW09-06S	2.44-5.44	L1911856-1	11-Apr-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.3	<0.05	<0.05	<0.05	---	AW-
A2MW09-10	A2MW09-10	2.22-5.22	---	22-Dec-09	0.499	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.545	<0.05	---	---	19.3	<0.06	<0.05	<0.5	---	**AW+**
A2MW09-10	A2MW09-10	2.22-5.22	---	2-Feb-10	0.486	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.394	<0.05	---	---	43.	0.127	<0.05	<0.4	---	**AW+**
A2MW09-10	MW09-10	2.22-5.22	---	21-Apr-10	0.525	<0.08	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.658	<0.05	---	---	29.6	0.223	<0.05	<0.35	---	**AW+**
A2MW09-10	MW09-10	2.22-5.22	---	14-Sep-10	0.356	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.125	<0.05	---	---	15.4	0.311	<0.05	0.316	---	**AW+**
A2MW09-10	A2MW09-10	2.22-5.22	---	31-Mar-11	0.748	<0.07	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	1.06	<0.05	---	---	116.	0.578	<0.05	<0.35	---	**AW+**
A2MW09-10	MW09-10	2.22-5.22	---	9-May-12	0.364	<0.07	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.572	<0.05	---	---	60.4	0.32	<0.05	<0.4	---	**AW+**
A2MW09-10	MW09-10	2.22-5.22	L1265496-3	5-Feb-13	0.287	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.425	<0.05	---	---	50.3	<0.2	<0.05	<0.2	---	**AW+**
A2MW09-10	MW09-10	2.22-5.22	L1282463-1	25-Mar-13	0.365	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.423	<0.05	---	---	73.3	0.106	<0.05	<0.4	---	**AW+**
A2MW09-10	MW09-10	2.22-5.22	L1449336-1	30-Apr-14	0.507	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.779	<0.05	---	---	100.	0.332	<0.05	<0.2	---	**AW+**
A2MW09-10	MW09-10	2.22-5.22	L1747969-1	22-Mar-16	0.221	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.311	<0.05	---	---	50.8	0.134	<0.05	<0.9	---	**AW+**
A2MW09-10	MW09-10	2.22-5.22	L1873026-2	21-Dec-16	0.57	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	0.757	<0.05	---	---	64.9	0.174	<0.05	<0.09	---	**AW+**
A2MW09-10	MW09-10	2.22-5.22	L1914178-1	18-Apr-17	0.517	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	0.885	<0.05	---	---	71.1	0.213	<0.05	<2.	---	**AW+**
A2MW09-11	A2MW09-11	2.05-5.05	---	22-Dec-09	0.544	<0.1	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.393	<0.05	---	---	39.8	<0.05	0.087	<0.9	---	**AW+**
A2MW09-11	A2MW09-11	2.05-5.05	---	3-Feb-10	0.437	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.39	<0.05	---	---	45.	0.098	<0.05	0.508	---	**AW+**
A2MW09-11	MW09-11	2.05-5.05	---	22-Apr-10	0.594	<0.07	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.653	<0.05	---	---	94.4	0.317	<0.05	<0.8	---	**AW+**
A2MW09-11	MW09-11	2.05-5.05	---	9-May-12	0.622	<0.2	0.059	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.951	<0.05	---	---	115.	0.723	0.155	<0.8	---	**AW+**
A2MW09-11	MW09-11	2.05-5.05	---	4-Feb-13	<0.7	<0.2	<0.2	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.943	<0.05	---	---	84.6	0.85	0.243	<0.9	---	**AW+**
A2MW09-11	MW09-11	2.05-5.05	L1283007-1	26-Mar-13	0.474	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.56	<0.05	---	---	118.	0.363	0.064	<0.6	---	**AW+**
A2MW09-11	MW09-11	2.05-5.05	L1405682-5	19-Dec-13	0.412	<0.2	<0.1	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.752	<0.05	---	---	108.	0.553	0.124	<0.7	---	**AW+**
A2MW09-11	MW09-11	2.05-5.05	L1449336-2	30-Apr-14	0.519	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.762	<0.05	---	---	145.	0.467	0.119	<0.05	---	**AW+**
A2MW09-11	MW09-11	2.05-5.05	L1608929-3	7-May-15	0.495	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.637	<0.05	---	---	91.6	0.445	0.117	<3.	---	**AW+**
A2MW09-11	MW09-11	2.05-5.05	L1747969-6	22-Mar-16	0.517	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.625	<0.05	---	---	98.6	0.414	0.178	<4.	---	**AW+**
A2MW09-11	MW09-11	2.05-5.05	L1873026-3	21-Dec-16	0.719	<0.05	0.061	<0.05	0.0088	<0.1	---	<0.05	<0.05	<0.005	<0.05	0.758	<0.05	---	---	130.	0.498	0.209	<0.2	---	**AW+**
A2MW09-11	MW09-11	2.05-5.05	L1914178-2	18-Apr-17	0.628	<0.05	<0.08	<0.05	0.0083	<0.1	---	<0.05	<0.05	<0.005	<0.05	0.801	<0.05	---	---	83.6	0.573	0.203	<4.	---	**AW+**
A2MW09-11	MW09-11	2.05-5.05	L2085717-7	26-Apr-18	0.413	<0.3	<0.05	<0.05	<0.02	<0.1	---	<0.05	<0.05	<0.005	<0.05	0.666	<0.05	27.	42.7	99.4	0.451	0.196	<4.	171.	**AW+**
A2MW09-11	MW09-11	2.05-5.05	L2246339-5	19-Mar-19	0.397	<0.1	<0.04	<0.01	<0.005	---	<0.015	<0.01	<0.03	<0.005	<0.02	0.514	<0.01	29.5	46.1	119.	0.281	0.1	<3.	196.	**AW+**
A2MW09-11	MW09-11	2.05-5.05	L2259932-1	17-Apr-19	0.563	<0.03	<0.06	<0.02	<0.008	---	<0.015	<0.01	<0.03	<0.005	<0.03	0.724	<0.01	25.4	40.9	60.3	0.445	0.192	<4.	129.	**AW+**
A2MW09-11	MW09-11	2.05-5.05	/A20A4587-00	8-Apr-20	0.467	<0.100	<0.040	<0.010	<0.0050	---	<0.015	<0.010	<0.030	<0.0050	<0.010	0.578	<0.010	30.3	45.1	89.1	0.278	0.112	<3.00	90.6	**AW+**
A2MW09-11	DUP-10	2.05-5.05	/A20A4587-00	8-Apr-20	0.447	<0.090	<0.040	<0.010	<0.0050	---	<0.015	<0.010	<0.030	<0.0050	0.011	0.57	<0.010	27.3	42.1	85.5	0.286	0.104	<3.00	87.	**AW+**
QA/QC RPD				8-Apr-20	4.4%	---	---	---	---	---	---	---	---	---	---	1.4%	---	10.4%	6.9%	4.1%	2.8%	7.4%	---	4.1%	
A2MW09-12	A2MW09-12	2.14-5.14	---	22-Dec-09	0.649	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.615	<0.05	---	---	113.	0.395	<0.05	<2.	---	**AW+**
A2MW09-12	A2MW09-12	2.14-5.14	---	3-Feb-10	0.414	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.363	<0.05	---	---	66.5	0.179	<0.05	0.643	---	**AW+**
A2MW09-12	MW09-12	2.14-5.14	---	22-Apr-10	0.405	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.308	<0.05	---	---	74.1	0.142	<0.05	<0.7	---	**AW+**
A2MW09-12	MW09-12	2.14-5.14	---	14-Sep-10	0.321	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	16.8	<0.05	0.051	0.503	---	**AW+**
A2MW09-12	A2MW09-12	2.14-5.14	---	31-Mar-11	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	0.107	<0.05	<0.05	<0.05	---	AW-
A2MW09-12	MW09-12	2.14-5.14	---	5-Feb-13	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A2MW09-12	MW09-12	2.14-5.14	L1282461-3	25-Mar-13	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A2MW09-12	MW09-12	2.14-5.14	L1405682-6	19-Dec-13	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	0.283	<0.05	<0.05	<0.05	---	AW-
A2MW09-12	MW09-12	2.14-5.14	L1449337-4	30-Apr-14	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	0.098	<0.05	<0.05	<0.05	---	AW-
A2MW09-12	MW09-12	2.14-5.14	L1608929-4	7-May-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A2MW09-12	MW09-12	2.14-5.14	L1747969-7	22-Mar-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A2MW09-12	MW09-12	2.14-5.14	L1914178-3	18-Apr-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A2MW09-12	MW09-12	2.14-5.14	L2085717-3	26-Apr-18	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.21	AW-
A2MW09-12	MW09-12	2.14-5.14	L2246339-4	19-Mar-19	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.050	<0.11	AW-
A2MW09-12	MW09-12	2.14-5.14	/A20A3974-00	26-Mar-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.010	0.02	<0.050	<0.020	<0.010	<0.050	<0.065	AW-
A2MW09-13	A2MW09-13	2.02-5.02	---	22-Dec-09	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	2.48	<0.05	<0.05	<0.05	---	AW-
A2MW09-13	A2MW09-13	2.02-5.02	---	3-Feb-10	0.39	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.34	<0.05	---	---	58.	0.088	<0.05	<0.7	---	**AW+**
A2MW09-13	MW09-13	2.02-5.02	---	22-Apr-10	<0.05	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.6	<0.05	<0.05	<0.05	---	AW-
A2MW09-13	MW09-13	2.02-5.02	---	14-Sep-10	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A2MW09-13	MW09-13	2.02-5.02	---	4-Feb-13	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	0.062	<0.05	<0.05	<0.05	---	AW-
A2MW09-13	MW09-13	2.02-5.02	L1283010-1	26-Mar-13	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A2MW09-13	MW09-13	2.02-5.02	L1405681-3	19-Dec-13	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A2MW09-13	MW09-13	2.02-5.02	L1449879-5	1-May-14	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	0.2	<0.05	<0.05	<0.05	---	AW-
A2MW09-13	MW09-13	2.02-5.02	L1610017-1	11-May-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A2MW09-13	MW09-13	2.02-5.02	L1747969-2	22-Mar-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A2MW09-13	MW09-13	2.02-5.02	L1911588-2	10-Apr-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
A2MW09-13	MW09-13	2.02-5.02	L2085717-4	26-Apr-18	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.21	AW-
A2MW09-13	MW09-13	2.02-5.02	L2246339-3	19-Mar-19	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	0.01	<0.050	<0.11	AW-
A2MW09-14	A2MW09-14	2.03-5.03	---	23-Dec-09	1.09	<0.05	<0.2	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	1.	<0.05	---	---	<0.6	<0.05	<0.05	<0.4	---	AW-
A2MW09-14	A2MW09-14	2.03-5.03	---	3-Feb-10	1.18	<0.05	0.105	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	1.17	<0.05	---	---	<0.9	0.075	<0.05	<0.4	---	AW-
A2MW09-14	MW09-14	2.03-5.03	---	22-Apr-10	1.34	<0.08	<0.2	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	1.33	<0.05	---	---	<1.	0.155	<0.05	<0.4	---	AW-
A2MW09-14	MW09-14	2.03-5.03	---	14-Sep-10	1.17	<0.05	0.09	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	1.15	<0.05	---	---	<0.26	0.135	<0.05	<0.31	---	AW-
A2MW09-14	A2MW09-14	2.03-5.03	---	5-May-11	1.25	<0.05	0.092	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	1.33	<0.05	---	---	<1.5	0.234	<0.05	<0.4	---	AW-
A2MW09-14	MW09-14	2.03-5.03	L1283010-2	26-Mar-13	<0.3	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.12	<0.05	---	---	<0.2	<0.05	<0.05	<0.07	---	AW-
A2MW09-14	MW09-14	2.03-5.03	L1405681-2	19-Dec-13	<0.4	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.123	<0.05	---	---	<0.2	<0.05	<0.05	<0.1	---	AW-
A2MW09-14	MW09-14	2.03-5.03	L1449879-6	1-May-14	0.359	<0.05	<0.09	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.311	<0.05	---	---	<0.6	<0.05	<0.05	<0.2	---	AW-
A2MW09-14	MW09-14	2.03-5.03	L1498925-1	7-Aug-14	0.203	<0.05	0.078	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.13	<0.05	---	---	<0.6	0.201	<0.05	<0.05	---	AW-
A2MW09-14	MW09-14	2.03-5.03	L1610017-2	11-May-15	2.23	<0.05	<0.3	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	1.64	<0.05	---	---	<2.	0.53	<0.05	<4.	---	AW-
A2MW09-14	MW09-14	2.03-5.03	L1751053-5	31-Mar-16	0.117	<0.05	0.062	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.158	<0.05	---	---	<0.3	<0.05	<0.05	<0.2	---	AW-
A2MW09-14	MW09-14	2.03-5.03	L1911588-3	10-Apr-17	0.593	<0.05	<0.2	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	0.315	<0.05	---	---	<0.9	<0.05	<0.05	<0.8	---	AW-
A2MW09-14	MW09-14	2.03-5.03	L2085717-5	26-Apr-18	0.144	<0.08	0.096	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	0.291	<0.05	0.055	<0.05	<0.5	<0.05	<0.05	<0.2	0.59	AW-
A2MW09-15	A2MW09-15	1.35-4.35	---	23-Dec-09	<0.3	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.3	<0.05	<0.05	<0.07	---	AW-
A2MW09-15	A2MW09-15	1.35-4.35	---	3-Feb-10	<0.6	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.7	<0.05	<0.05	<0.05	---	AW-
A2MW09-15	MW09-15	1.35-4.35	---	22-Apr-10	<0.7	<0.05	<0.05	<0.05	<0.01	<0.05	---	<0.05	<0.05	<0.05	<0.05	0.087	<0.05	---	---	<0.5	<0.05	<0.05	<0.2	---	AW-
A2MW09-15	MW09-15	1.35-4.35	---	14-Sep-10	<0.61	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.12	<0.05	---	---	<0.44	<0.05	<0.05	<0.09	---	AW-
A2MW09-15	A2MW09-15	1.35-4.35	---	11-Apr-11	<0.5	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.113	<0.05	---	---	0.927	<0.05	<0.05	<0.07	---	AW-
A2MW09-15	A2MW09-15	1.35-4.35	---	5-Feb-13	<0.5	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.08	<0.05	<0.05	<0.05	---	AW-
A2MW09-15	MW09-15	1.35-4.35	L1283010-3	26-Mar-13	<0.3	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.085	<0.05	---	---	<0.4	<0.05	<0.05	<0.06	---	AW-
A2MW09-15	MW09-15	1.35-4.35	L1345378-8	8-Aug-13	0.402	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	0.061	<0.05	---	---	<0.9	<0.05	<0.05	<0.2	---	AW-
A2MW09-15	MW09-15	1.35-4.35	L1449879-7	1-May-14	<0.3	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.4	<0.05	<0.05	<0.1	---	AW-
A2MW09-15	MW09-15	1.35-4.35	L1498925-2	7-Aug-14	<0.3	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.5	<0.05	<0.05	<0.2	---	AW-
A2MW09-15	MW09-15	1.35-4.35	L1610017-3	11-May-15	<0.07	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.5	<0.05	<0.05	<0.3	---	AW-
A2MW09-15	MW09-15	1.35-4.35	L1766653-1	10-May-16	0.053	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.5	<0.05	<0.05	<0.2	---	AW-
A2MW09-15	MW09-15	1.35-4.35	L1822946-1	1-Sep-16	0.093	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<1.	<0.05	<0.05	<0.2	---	AW-
A2MW09-15	MW09-15	1.35-4.35	L1911588-4	10-Apr-17	0.087	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.2	<0.05	<0.05	<0.2	---	AW-
A2MW09-15	MW09-15	1.35-4.35	L2085717-6	26-Apr-18	<0.1	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	0.056	<0.05	<0.4	<0.05	<0.05	<0.4	<0.61	AW-
WS2-D	WS2-D	4.6-7.6	L1584769-1	5-Mar-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
WS2-D	WS2-D	4.6-7.6	L1659479-5	18-Aug-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
WS2-D	WS2-D	4.6-7.6	L1742377-2	8-Mar-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
WS2-D	WS2-D	4.6-7.6	L1809959-3	8-Aug-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
WS2-D	WS2-D	4.6-7.6	L1898884-3	8-Mar-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
WS2-D	WS2-D	4.6-7.6	L1980058-1	23-Aug-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
WS2-D	WS2-D	10.7-12.2	L2088139-1	2-May-18	<0.01	<0.01	<0.01	<0.01	<0.005	<0.015	---	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.02	<0.01	<0.05	<0.11	AW-
WS2-D	WS2-D	10.7-12.2	L2153915-1	27-Aug-18	<0.01	<0.01	<0.01	<0.01	<0.005	<0.015	---	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.02	<0.01	<0.05	<0.11	AW-
WS2-D	WS2-D	10.7-12.2	L2248814-1	25-Mar-19	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.050	<0.11	AW-
WS2-D	WS2-D	10.7-12.2	L2346508-1	12-Sep-19	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.050	<0.11	AW-
WS2-D	WS2-D	10.7-12.2	VA20A4358-001	2-Apr-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.010	0.017	<0.050	<0.020	<0.010	<0.050	<0.065	AW-
WS2-D	WS2-D	10.7-12.2	VA20B2611-001	12-Aug-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.050	<0.065	AW-
WS2-D2	WS2-D2	10.7-12.2	L1584769-4	5-Mar-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
WS2-D2	WS2-D2	10.7-12.2	L1658732-2	17-Aug-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
WS2-D2	WS2-D2	10.7-12.2	L1743813-2	10-Mar-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
WS2-D2	WS2-D2	10.7-12.2	L1809959-4	8-Aug-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
WS2-D2	WS2-D2	10.7-12.2	L1898884-4	8-Mar-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
WS2-D2	WS2-D2	10.7-12.2	L1980058-2	23-Aug-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
WS2-D2	WS2-D2	10.7-12.2	L2088139-2	2-May-18	<0.01	<0.01	<0.01	<0.01	<0.005	<0.015	---	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.02	<0.01	<0.05	<0.11	AW-
WS2-D2	WS2-D2	10.7-12.2	L2153915-2	27-Aug-18	<0.01	<0.01	<0.01	<0.01	<0.005	<0.015	---	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.02	<0.01	<0.05	<0.11	AW-
WS2-D2	WS2-D2	10.7-12.2	L2248814-2	25-Mar-19	<0.01	<0.01	<0.01	<0.01	<0.005	---	<0.015	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.02	<0.01	<0.05	<0.11	AW-
WS2-D2	WS2-D2	10.7-12.2	L2346508-2	12-Sep-19	<0.01	<0.01	<0.01	<0.01	<0.005	---	<0.015	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.02	<0.01	<0.05	<0.11	AW-
WS2-D2	WS2-D2	10.7-12.2	/A20A4358-00	2-Apr-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	0.011	0.02	<0.050	<0.020	<0.010	<0.050	<0.065	AW-
WS2-D2	WS2-D2	10.7-12.2	/A20B2611-00	12-Aug-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.050	<0.065	AW-
MW11-3S	MW11-3S	5.00-8.00	---	21-Jul-11	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-3S	MW11-3S	5.00-8.00	L1610017-7	11-May-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-3S	MW11-3S	5.00-8.00	L1663797-1	26-Aug-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-3S	MW11-3S	5.00-8.00	L1747945-1	22-Mar-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-3S	MW11-3S	5.00-8.00	L1817088-1	22-Aug-16	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-3S	MW11-3D	18.5-20	L1663797-3	26-Aug-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-3S	MW11-3S	5.00-8.00	L1908950-1	4-Apr-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-3S	MW11-3S	5.00-8.00	L1975358-1	15-Aug-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-3S	MW11-3S	5.00-8.00	L2082551-3	19-Apr-18	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.21	AW-
MW11-3S	MW11-3S	5.00-8.00	L2150755-1	21-Aug-18	<0.01	<0.01	<0.01	<0.01	<0.005	<0.015	---	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.02	<0.01	<0.05	<0.11	AW-
MW11-3S	MW11-3S	5.00-8.00	L2245599-4	18-Mar-19	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.050	<0.11	AW-
MW11-3S	MW11-3S	5.00-8.00	L2343824-1	9-Sep-19	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	0.056	<0.020	<0.010	<0.050	<0.11	AW-

TABLE 2-3
AREA 2 CONCENTRATIONS OF POLYCYCLIC AROMATIC HYDROCARBONS IN GROUNDWATER
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY
µg/L (ppb)

Well ID	Sample ID	Screened Interval	ALS Laboratory Report #	Sample Date	Acenaphthene	Acridine	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b+k)fluoranthene [3]	Benzo(b+j+k)fluoranthene [3]	Benzo(ghi)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	1-Methylnaphthalene [4]	2-Methylnaphthalene [4]	Naphthalene	Phenanthrene	Pyrene	Quinoline	Total PAHs [4]	Groundwater Classification
Generic Numerical Water Standards [2]																									
CSR	Schedule 3.2 - Marine Aquatic Life			(AW) [1]	60	0.5	1	1	0.1	NS	NS	NS	1	NS	2	120	NS	NS	NS	10	3	0.2	34	NS	
	Site Specific Screening Levels				60	30	40	1	2.8	NS	NS	NS	1	NS	40	120	NS	NS	NS	440	3	40	34	NS	
MW11-3S	MW11-3S	5.00-8.00	/A20A4276-00	1-Apr-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.010	0.017	<0.050	<0.020	<0.010	<0.050	<0.11	AW-
MW11-3S	MW11-3S	5.00-8.00	/A20B2849-00	17-Aug-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.010	0.017	<0.050	<0.020	<0.010	<0.050	<0.065	AW-
MW11-3I	MW11-3I	11-12.5	---	21-Jul-11	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-3I	MW11-3I	11-12.5	L1610017-8	11-May-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-3I	MW11-3I	11-12.5	L1663797-2	26-Aug-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-3I	MW11-3I	11-12.5	L1747945-2	22-Mar-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-3I	MW11-3I	11-12.5	L1817088-2	22-Aug-16	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-3I	MW11-3I	11-12.5	L1908950-2	4-Apr-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-3I	MW11-3I	11-12.5	L1975358-2	15-Aug-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-3I	MW11-3I	11-12.5	L2082551-4	19-Apr-18	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.21	AW-
MW11-3I	MW11-3I	11-12.5	L2150755-2	21-Aug-18	<0.01	<0.01	<0.01	<0.01	<0.005	<0.015	---	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.02	<0.01	<0.05	<0.11	AW-
MW11-3I	MW11-3I	11-12.5	L2245599-5	18-Mar-19	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.050	<0.11	AW-
MW11-3I	MW11-3I	11-12.5	L2343824-2	9-Sep-19	<0.020	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.020	<0.0050	0.067	0.012	<0.010	<0.050	0.075	<0.20	0.024	0.042	<0.050	<0.22	AW-
MW11-3I	MW11-3I	11-12.5	/A20A4276-00	1-Apr-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.010	0.018	<0.050	<0.020	<0.010	<0.050	<0.22	AW-
MW11-3I	MW11-3I	11-12.5	/A20B2849-00	17-Aug-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	0.01	0.017	<0.050	<0.020	<0.010	<0.050	<0.065	AW-
MW11-3D	MW11-3D	18.5-20	---	21-Jul-11	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-3D	MW11-3D	18.5-20	L1610761-1	12-May-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-3D	MW11-3D	18.5-20	L1663797-3	26-Aug-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-3D	MW11-3D	18.5-20	L1747945-3	22-Mar-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-3D	MW11-3D	18.5-20	L1817088-3	22-Aug-16	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-3D	MW11-3D	18.5-20	L1908950-3	4-Apr-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-3D	MW11-3D	18.5-20	L1975358-3	15-Aug-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-3D	MW11-3D	18.5-20	L2082551-5	19-Apr-18	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.21	AW-
MW11-3D	MW11-3D	18.5-20	L2150755-3	21-Aug-18	<0.01	<0.01	<0.01	<0.01	<0.005	<0.015	---	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.02	<0.01	<0.05	<0.11	AW-
MW11-3D	MW11-3D	18.5-20	L2245599-6	18-Mar-19	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.050	<0.11	AW-
MW11-3D	MW11-3D	18.5-20	L2343824-3	9-Sep-19	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	0.053	<0.20	<0.020	<0.010	<0.050	<0.22	AW-
MW11-3D	MW11-3D	18.5-20	/A20A4276-00	1-Apr-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.010	0.016	<0.050	<0.020	<0.010	<0.050	<0.22	AW-
MW11-3D	MW11-3D	18.5-20	/A20B2619-00	13-Aug-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.010	0.014	<0.050	<0.020	<0.010	<0.050	<0.065	AW-
MW11-4S	MW11-4S	5.00-8.00	---	21-Jul-11	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.08	<0.05	<0.05	<0.05	---	AW-
MW11-4S	MW11-4S	5.00-8.00	L1610761-2	12-May-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-4S	MW11-4S	5.00-8.00	L1663797-4	26-Aug-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-4S	MW11-4S	5.00-8.00	L1747945-4	22-Mar-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-4S	MW11-4S	5.00-8.00	L1817088-4	22-Aug-16	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-4S	MW11-4S	5.00-8.00	L1908950-4	4-Apr-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-4S	MW11-4S	5.00-8.00	L1975358-4	15-Aug-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-4S	MW11-4S	5.00-8.00	L2082551-6	19-Apr-18	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.21	AW-
MW11-4S	MW11-4S	5.00-8.00	L2149934-1	20-Aug-18	<0.01	<0.01	<0.01	<0.01	<0.005	<0.015	---	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.02	<0.01	<0.05	<0.11	AW-
MW11-4S	MW11-4S	5.00-8.00	L2245599-1	18-Mar-19	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.050	<0.11	AW-
MW11-4S	MW11-4S	5.00-8.00	L2343824-4	9-Sep-19	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.050	<0.050	<0.050	<0.020	<0.010	<0.050	<0.11	AW-
MW11-4S	MW11-4S	5.00-8.00	/A20A4276-00	1-Apr-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	0.012	0.017	<0.100	<0.020	<0.010	<0.050	<0.11	AW-
MW11-4S	DUP-8	5.00-8.00	/A20A4276-00	1-Apr-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.010	0.017	<0.100	<0.020	<0.010	<0.050	<0.11	AW-
QA/QC RPD				1-Apr-20	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
MW11-4S	MW11-4S	5.00-8.00	/A20B2619-00	13-Aug-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	0.01	<0.010	<0.010	0.01	<0.080	<0.020	<0.010	<0.050	<0.090	AW-
MW11-4I	MW11-4I	11-12.5	---	21-Jul-11	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.07	<0.05	<0.05	<0.05	---	AW-
MW11-4I	MW11-4I	11-12.5	L1610761-3	12-May-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-4I	MW11-4I	11-12.5	L1663797-5	26-Aug-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-4I	MW11-4I	11-12.5	L1747945-5	22-Mar-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-4I	MW11-4I	11-12.5	L1817088-5	22-Aug-16	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-4I	MW11-4I	11-12.5	L1908950-5	4-Apr-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-4I	MW11-4I	11-12.5	L1975358-5	15-Aug-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-4I	MW11-4I	11-12.5	L2082551-7	19-Apr-18	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.21	AW-
MW11-4I	MW11-4I	11-12.5	L2149934-2	20-Aug-18	<0.01	<0.01	<0.01	<0.01	<0.005	<0.015	---	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.02	<0.01	<0.05	<0.11	AW-
MW11-4I	MW11-4I	11-12.5	L2245599-2	18-Mar-19	<0.01	<0.01	<0.01	<0.01	<0.005	---	<0.015	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.02	<0.01	<0.05	<0.11	AW-
MW11-4I	MW11-4I	11-12.5	L2343824-5	9-Sep-19	<0.01	<0.01	<0.01	<0.01	<0.005	---	<0.015	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	<0.05	<0.05	0.087	<0.02	<0.01	<0.05	<0.11	AW-
MW11-4I	MW11-4I	11-12.5	/A20A4276-00	1-Apr-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	0.016	0.021	<0.100	<0.020	<0.010	<0.050	<0.11	AW-
MW11-4I	MW11-4I	11-12.5	/A20B2619-00	13-Aug-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.020	0.02	<0.080	<0.020	<0.010	<0.050	<0.090	AW-
MW11-4D	MW11-4D	18.5-20	---	21-Jul-11	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.07	<0.05	<0.05	<0.05	---	AW-
MW11-4D	MW11-4D	18.5-20	L1610761-4	12-May-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-4D	MW11-4D	18.5-20	L1663797-6	26-Aug-15	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-4D	MW11-4D	18.5-20	L1747945-6	22-Mar-16	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	---	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-4D	MW11-4D	18.5-20	L1817088-6	22-Aug-16	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-4D	MW11-4D	18.5-20	L1908950-6	4-Apr-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-4D	MW11-4D	18.5-20	L1975358-6	15-Aug-17	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	---	---	<0.05	<0.05	<0.05	<0.05	---	AW-
MW11-4D	MW11-4D	18.5-20	L2082551-8	19-Apr-18	<0.05	<0.05	<0.05	<0.05	<0.005	<0.1	---	<0.05	<0.05	<0.005	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	<0.21	AW-
MW11-4D	MW11-4D	18.5-20	L2149934-3	20-Aug-18	<0.01	<0.01	<0.01	<0.01	<0.005	<0.015	---	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.02	<0.01	<0.05	<0.11	AW-
MW11-4D	MW11-4D	18.5-20	L2245599-3	18-Mar-19	<0.01	<0.01	<0.01	<0.01	<0.005	---	<0.015	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	<0.05	<0.05	<0.05	<0.02	<0.01	<0.05	<0.11	AW-
MW11-4D	MW11-4D	18.5-20	L2343824-6	9-Sep-19	<0.01	<0.01	<0.01	<0.01	<0.005	---	<0.015	<0.01	<0.01	<0.005	<0.01	<0.01	<0.01	<0.05	<0.05	0.052	<0.02	<0.01	<0.05	<0.11	AW-
MW11-4D	MW11-4D	18.5-20	VA20A4276-006	1-Apr-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	0.01	0.019	<0.100	<0.020	<0.010	<0.050	<0.11	AW-
MW11-4D	MW11-4D	18.5-20	VA20B2619-004	13-Aug-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.020	0.021	<0.070	<0.020	<0.010	<0.050	<0.081	AW-
R_BLANK-1	R_BLANK-1		VA20A4924-001	16-Apr-20	<0.010	<0.010	<0.010	<0.010	<0.0050	---	<0.015	<0.010	<0.010	<0.0050	<0.010	<0.010	<0.010	<0.010	<0.010	<0.050	<0.020	<0.010	<0.050	<0.065	AW-
Reported Detection Limit					0.01	0.01	0.01	0.01	0.005	0.015	0.015	0.01	0.01	0.005	0.01	0.01	0.01	0.05	0.05	0.05	0.02	0.01	0.05	0.11	

Abbreviations:

CSR	Contaminated Sites Regulation (including Stage 12 amendments, January 2019)
NS	No standard established for indicated parameter
QA/QC	Quality Assurance/Quality Control
RPD	Relative Percent Difference
mbgs	Metres below ground surface
µg/L	Micrograms per litre
ppb	Parts per billion
<	Sample concentration less than the reported detection limit indicated
---	Sample not analyzed for indicated parameter

Notes:

1 CSR AW standards apply to both freshwater and marine receiving environments
2 Criterion concentration reported in µg/L
3 Beginning 2018 the analysis of Benzo(b+j)fluoranthene has been replaced with Benzo(b+j+k)fluoranthene
4 Lab analysis of 1-Methylnaphthalene, 2-Methylnaphthalene and Total PAH's first began to be reported in 2018

	Sample concentration greater than CSR standard for aquatic life (AW).
BOLD	Sample concentration greater than CSR standard for aquatic life (AW) and Site-Specific Screening Levels (SSSLs).
BOLD	Reportable Detection Limit (RDL) exceeds the regulatory standard.

TABLE 2-4
AREA 2 CONCENTRATIONS OF DISSOLVED METALS IN GROUNDWATER
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
PARKLAND BURNABY REFINERY
µg/L (ppb)

Well ID	Sample ID	Screened Interval (mbgs)	ALS Laboratory Report #	Sample Date	pH	Temperature (°C)	Conductivity (µS/cm)	Dissolved Oxygen (mg/L)	Hardness (mg/L CaCO3)	Aluminum	Antimony	Arsenic	Barium	Beryllium	Boron	Cadmium	Calcium	Chromium (+6)	Cobalt	Copper	Iron	Lead	Magnesium	Manganese	Mercury	Molybdenum	Nickel	Selenium	Silver	Sodium	Thallium	Titanium	Uranium	Vanadium	Zinc	Groundwater Classification
Generic Numerical Water Standards[1]																																				
CSR	Schedule 3.2 - Marine Aquatic Life			(AW)	NS	NS	NS	NS	NS	NS	2500	125	5000	1000	12000	15	NS	15	40	20	NS	20	NS	NS	0.25	10000	83	20	15	NS	3	1000	85	NS	100	NS
	Site-Specific Screening Levels (SSSLs)				NS	NS	NS	NS	NS	NS	2500	125	5000	1000	12000	90	NS	500	1100	62	NS	1400	NS	NS	NS	10000	750	20	NS	NS	3	NS	1000	NS	900	NS
G2-11A	G2-11A	4.6-6.1	L2086840-1	30-Apr-18	6.16	12.15	1977.	0.32	---	---	---	---	---	---	---	---	---	---	---	0.55	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	AW-
G2-11A	G2-11A	4.6-6.1	L2154663-1	28-Aug-18	5.99	13.48	1492.	1.5	---	---	---	---	---	---	---	---	---	---	---	0.81	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	AW-
G2-11B	G2-11B	7.0-8.5	L2086840-2	30-Apr-18	6.23	12.39	1977.	1.77	---	---	---	---	---	---	---	---	---	---	---	<0.4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	AW-
G2-11B	G2-11B	7.0-8.5	L2154663-2	28-Aug-18	6.07	13.46	1680.	0.53	---	---	---	---	---	---	---	---	---	---	---	<0.2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	AW-
PW03-1A	PW03-1A	2.4-4.0	L1448683-1	29-Apr-14	6.08	9.09	131.	0.43	72.7	<10.	<0.5	<1.	23.	<5.	<100.	0.143	20000.	<0.5	0.81	<1.	<30.	<1.	5520.	1420.	<0.2	<1.	<5.	<1.	<0.05	8300.	<0.2	<50.	<0.2	<30.	5.1	AW-
PW03-1B	PW03-1B	1.1-3.7	L1448683-2	29-Apr-14	5.55	8.75	88.	9.15	83.7	38.	<0.5	<1.	77.	<5.	<100.	0.073	24300.	<0.5	<0.5	<1.	<30.	<1.	5610.	10.	<0.2	<1.	<5.	<1.	<0.05	3500.	<0.2	<50.	<0.2	<30.	6.4	AW-
PW03-2A	PW03-2A	1.8-4.6	L1448683-3	29-Apr-14	5.05	9.07	94.	1.35	32.2	19.	<0.5	<1.	45.	<5.	<100.	0.306	9920.	<0.5	<0.5	2.4	<30.	<1.	1820.	261.	<0.2	<1.	<5.	<1.	<0.05	11200.	<0.2	<50.	<0.2	<30.	9.8	AW-
PW03-2B	PW03-2B	1.1-3.7	L1448683-4	29-Apr-14	6.09	9.31	303.	9.4	248.	<10.	<0.5	<1.	53.	<5.	<100.	<0.05	80800.	<0.5	<0.5	<1.	<30.	<1.	11200.	<10.	<0.2	<1.	<5.	<1.	<0.05	14100.	<0.2	<50.	0.23	<30.	8.9	AW-
PW03-3	PW03-3	1.2-4.1	L1448682-1	29-Apr-14	5.05	9.58	78.	4.37	33.4	12.	<0.5	<1.	<20.	<5.	<100.	0.075	8900.	<0.5	1.79	<1.	110.	<1.	2700.	252.	<0.2	<1.	<5.	<1.	<0.05	10200.	<0.2	<50.	<0.2	<30.	6.	AW-
PW03-4	PW03-4	1.8-4.0	L1448682-2	29-Apr-14	7.07	8.78	111.	3.93	42.2	<10.	<0.5	<1.	<20.	<5.	<100.	<0.05	12100.	0.61	<0.5	<1.	<30.	<1.	2930.	<10.	<0.2	<1.	<5.	<1.	<0.05	17200.	<0.2	<50.	<0.2	<30.	<5.	AW-
PW03-5	PW03-5	7.6-8.5	L1448683-5	29-Apr-14	5.95	10.27	190.	1.54	83.4	<10.	<0.5	<1.	30.	<5.	<100.	0.073	21900.	<0.5	3.71	1.2	<30.	<1.	6980.	258.	<0.2	<1.	6.2	<1.	<0.05	15000.	<0.2	<50.	<0.2	<30.	11.6	AW-
PW03-6	PW03-6	1.1-3.0	L1448682-3	29-Apr-14	5.46	8.69	95.	0.43	47.1	<10.	<0.5	<1.	<20.	<5.	<100.	<0.05	14200.	<0.5	<0.5	<1.	<30.	<1.	2830.	56.	<0.2	<1.	<5.	<1.	<0.05	5700.	<0.2	<50.	<0.2	<30.	<5.	AW-
U8	U8	3.22-6.22	L1448682-4	29-Apr-14	5.38	11.	78.	1.76	28.7	42.	<0.5	1.	41.	<5.	<100.	<0.05	8770.	<0.5	5.7	<1.	3440.	<1.	1650.	819.	<0.2	<1.	<5.	<1.	<0.05	4700.	<0.2	<50.	<0.2	<30.	<5.	AW-
U8	U8	3.22-6.22	L2087552-1	1-May-18	5.52	10.23	61.	0.65	---	---	---	---	---	---	---	---	---	---	---	0.71	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	AW-
U9	U9	3.3-6.3	L1448682-5	29-Apr-14	5.46	9.36	53.	1.1	30.6	44.	<0.5	<1.	46.	<5.	<100.	0.067	9670.	<0.5	1.88	2.2	558.	<1.	1570.	348.	<0.2	<1.	<5.	<1.	<0.05	3600.	<0.2	<50.	<0.2	<30.	5.5	AW-
MW02-02	MW02-02	1.2-4.3	L1449879-8	1-May-14	6.52	11.1	907.	2.42	12.	92.	<0.5	10.5	<20.	<5.	<100.	<0.05	3240.	<0.5	1.44	3.4	159.	<1.	940.	310.	<0.2	7.	<5.	<1.	<0.05	216000.	<0.2	<50.	<0.2	31.	<5.	AW-
MW02-03	MW02-03	1.5-4.6	L1449879-9	1-May-14	5.91	10.88	317.	0.36	93.8	18.	<0.5	5.3	42.	<5.	<100.	<0.05	26200.	<0.5	8.11	<1.	14700.	<1.	6860.	2370.	<0.2	<1.	<5.	<1.	<0.05	28900.	<0.2	<50.	<0.2	<30.	<5.	AW-
MW02-03	MW02-03	1.5-4.6	L1498928-2	7-Aug-14	5.83	12.79	157.	0.72	33.2	27.	<0.5	5.1	<20.	<5.	<100.	<0.05	9220.	<0.5	2.94	<1.	5800.	<1.	2470.	893.	---	<1.	<5.	<1.	<0.05	18400.	<0.2	<50.	<0.2	<30.	<5.	AW-
MW02-03	MW02-03	1.5-4.6	L2085715-2	26-Apr-18	4.82	11.98	379.	0.46	---	---	---	---	---	---	---	---	---	---	---	2.34	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	AW-
MW02-04	MW02-04	1.5-4.6	L1449879-1	1-May-14	6.41	10.87	371.	2.38	127.	<10.	<0.5	<1.	21.	<5.	<100.	0.077	33900.	<0.5	2.94	1.2	177.	<1.	10300.	785.	<0.2	<1.	<5.	<1.	<0.05	28400.	<0.2	<50.	<0.2	<30.	<5.	AW-
MW02-04	MW02-04	1.5-4.6	L1498928-3	7-Aug-14	6.3	11.54	420.	0.83	190.	<10.	<0.5	<1.	35.	<5.	<100.	0.198	50200.	<0.5	2.83	1.5	<30.	<1.	15700.	1130.	---	1.6	<5.	<1.	<0.05	46700.	<0.2	<50.	<0.2	<30.	<5.	AW-
MW02-04	MW02-04	1.5-4.6	L2082550-1	19-Apr-18	5.87	10.23	371.	2.47	---	---	---	---	---	---	---	---	---	---	---	0.89	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	AW-
MW03-02	MW03-02	3.7-7.6	L1449337-6	30-Apr-14	5.89	10.05	198.	1.82	45.4	<10.	<0.5	<1.	<20.	<5.	<100.	<0.05	12400.	<0.5	<0.5	2.9	<30.	<1.	3530.	136.	<0.2	<1.	<5.	<1.	<0.05	42100.	<0.2	<50.	<0.2	<30.	<5.	AW-
MW03-02	MW03-02	3.7-7.6	L1501099-4	12-Aug-14	5.83	12.79	157.	0.72	54.6	<10.	<0.5	<1.	27.	<5.	<100.	0.108	14700.	<0.5	<0.5	2.4	<30.	<1.	4320.	106.	<0.2	<1.	<5.	<1.	<0.05	39900.	<0.2	<50.	<0.2	<30.	<5.	AW-
MW03-02	MW03-02	3.7-7.6	L2085715-1	26-Apr-18	5.78	10.95	175.	4.95	---	---	---	---	---	---	---	---	---	---	---	0.87	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	AW-
MW03-03	MW03-03	6.1-13.7	L2082550-2	19-Apr-18	6.33	11.74	288.	6.13	---	---	---	---	---	---	---	---	---	---	---	0.2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	AW-
A2MW09-05I	MW09-05I	9.18-10.68	L1449337-1	30-Apr-14	6.19	10.37	321.	0.62	203.	<10.	<0.5	<1.	32.	<5.	<100.	<0.05	52300.	<0.5	<0.5	<1.	2810.	<1.	17500.	1470.	<0.2	<1.	<5.	<1.	<0.05	10700.	<0.2	<50.	<0.2	<30.	<5.	AW-
A2MW09-05I	MW09-05I	9.18-10.68	L1501099-1	12-Aug-14	6.85	13.69	426.	2.42	278.	<10.	<0.5	<1.	36.	<5.	<100.	<0.05	72900.	<0.5	<0.5	<1.	3300.	<1.	23400.	1890.	<0.2	<1.	<5.	<1.	<0.05	11900.	<0.2	<50.	<0.2	<30.	<5.	AW-
A2MW09-05I	MW09-05I	9.18-10.68	L2085718-1	26-Apr-18	6.46	11.45	234.	0.22	---	---	---	---	---	---	---	---	---	---	---	<0.2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	AW-
A2MW09-05I	MW09-05I	9.18-10.68	L2103254-1	30-May-18	6.22	12.21	227.	0.22	---	---	---	---	---	---	---	---	---	---	---	<0.2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	AW-
A2MW09-05I	MW09-05I	9.18-10.68	L2151626-1	22-Aug-18	6.75	12.31	276.	2.38	---	---	---	---	---	---	---	---	---	---	---	0.36	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	AW-
A2MW09-06S	MW09-06S	2.44-5.44	L1449337-2	30-Apr-14	5.52	9.34	89.	3.63	48.6	<10.	<0.5	<1.	<20.	<5.	<100.	<0.05	13500.	<0.5	4.02	<1.	2190.	<1.	3620.	1380.	<0.2	<1.	<5.	<1.	<0.05	5700.	<0.2	<50.	<0.2	<30.	<5.	AW-
A2MW09-06I	MW09-06I	9.33-10.83	L1449337-3	30-Apr-14	6.53	10.15	188.	2.1	103.	<10.	<0.5	1.2	32.	<5.	<100.	<0.05	24100.	<0.5	<0.5	<1.	3410.	<1.	10300.	1970.	<0.2	<1.	<5.	<1.	<0.05	13000.	<0.2	<50.	<0.2	<30.	<5.	AW-
A2MW09-06I	MW09-06I	9.33-10.83	L1501099-2	12-Aug-14	6.86	13.67	380.	1.71	219.	<10.	<0.5	1.9	72.	<5.	<100.	<0.05	53900.	<0.5	<0.5	<1.	5670.	<1.	20400	6230.	<0.2	1.1	<5.	<1.	<0.05	23000.	<0.2	<50.	<0.2	<30.	<5.	AW-
A2MW09-06I	MW09-06I	9.33-10.83	L2085718-2	26-Apr-18	6.5	11.23	161.	0.36	---	---	---	---	---	---	---	---	---	---	---	<0.2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	AW-
A2MW09-06I	MW09-06I	9.33-10.83	L2151626-2	22-Aug-18	5.2	11.7	277.	1.85	---	---	---	---	---	---	---	---	---	---	---	<0.2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	AW-
A2MW09-10	MW09-10	2.22-5.22	L1449336-1	30-Apr-14	6.1	10.32	516.	0.42	170.	11.	<0.5	5.7	60.	<5.	<100.	<0.05	47200.	<0.5	8.04	<1.	44600	<1.	12700.	8260.	<0.2	<1.	<5.	<1.	<0.05	62200.	<0.2	<50.	<0.2	<30.	<5.	AW-
A2MW09-11	MW09-11	2.05-5.05	L1449336-2	30-Apr-14	6.33	9.39	399.	1.97	156.	17.	<0.5	17.4	44.	<5.	<100.	<0.1	43100.	<1.	15.2	<1.	71000.	<1.	11700.	11600.	<0.2	1.6	<5.	<2.	<0.05	7800.	<0.2	<50.	<0.2	<30.	<5.	AW-
A2MW09-11	MW09-11	2.05-5.05	L2085718-7	26-Apr-18	6.2	10.07	262.	0.2	---	---	---	---	---	---	---	---	---	---	---	0.3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	AW-
A2MW09-12	MW09-12	2.14-5.14	L1449337-4	30-Apr-14	5.54	9.39	74.	1.95	27.8	<10.	<0.5	<1.	<20.	<5.	<100.	<0.05	7260.	0.76	<0.5	1.2	<30.	<1.	2340.	54.	<0.2	<1.	<5.	<1.	<0.05	10700.	<0.2	<50.	<0.2	<30.	<5.	AW-
A2MW09-12	MW09-12	2.14-5.14	L2085718-3	26-Apr-18	5.46	10.7	69.	3.42	---	---	---	---	---	---	---	---	---	---	---	0.52	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	AW-
A2MW09-13	MW09-13	2.02-5.02	L1449879-5	1-May-14	5.13	8.41	63.	2.62	18.4	21.	<0.5	<1.	<20.	<5.	<100.	<0.05	5880.	<0.5	1.	<1.	103.	<1.	900.	158.	<0.2	<1.	<5.	<1.	<0.05	10200.	<0.2	<50.	<0.2	<30.	<5.	AW-
A2MW09-13	MW09-13	2.02-5.02	L2085718-4	26-Apr-18	5.22	10.43	124.	1.33	---	---	---	---	---	---	---	---	---	---	---	0.55	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	AW-
A2MW09-14	MW09-14	2.03-5.03	L1449879-6	1-May-14	5.84	9.9	231.	0.2	77.6	15.	<0.5	2.8	37.	<5.	<100.	<0.05	23300.	<0.5	7.48	<1.	15000.	<1.	4740.	2200.	<0.2	<1.	<5.	<1.	<0.05	20100.	<0.2	<50.	<0.2	<30.	<5.	AW-
A2MW09-14	MW09-14	2.03-5.03	L1498925-1	7-Aug-14	6.	15.09	250.	1.28	77.5	12.	<0.5	4.5	65.	<5.	<100.	<0.05	23200.	<0.5	5.27	<1.	12800.	<1.	4770.	2630.	---	<1.	<5.	<1.	<0.05	24600.	<0.2	<50.	<0.2	<30.	<5.	AW-
A2MW09-14	MW09-14	2.03-5.03	L2085718-5	26-Apr-18	5.51	10.41	361.	0.13	---	---	---	---	---	---	---	---	---	---	---	0.36	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	AW-
A2MW09-15	MW09-15	1.35-4.35	L1449879-7	1-May-14	7.39	10.97	578.	1.4	43.8	18.	<0.5	5.6	<20.	<5.	<100.	<0.05	11800.	<0.5	1.31	1.8	356.	<1.	3500.	473.	<0.2	7.7	<5.	<1.	<0.05	179000.	<0.2	<50.	0.34	<30.	<5.	AW-
A2MW09-15	MW09-15	1.35-4.35	L1498925-2	7-Aug-14	7.38	12.33	480.	0.58	30.7	24.	<0.5	4.9	<20.	<5.	<100.	<0.05	8300.	<0.5	0.91	<1.	366.	<1.	2410.	381.	---	4.5	<5.	<1.	<0.05	154000.	<0.2	<50.	<0.2	<30.	<5.	AW-
A2MW09-15	MW09-15	1.35-4.35	L2085718-6	26-Apr-18	4.39	13.22	299.	3.9	---	---	---	---	---	---	---	---	---	---	---	0.32	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	AW-
MW11-3S	MW11-3S	5.00-8.00	L1676220-3	21-Sep-15	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<10.	---	---	---	---	---	---	---	---	---	---	---	---	---	---	7.4	AW-
MW11-3S	MW11-3S	5.00-8.00	L1747945-1	22-Mar-16	5.66	11.79	308.	2.14	57.3	<10.	<0.5	<1.	45.	<5.	<100.	0.065	19000.	<0.5	<0.5	<1.	<30.	<1.	2380.	30.	<0.2	<1.	<5.	<1.	<0.05	66000.	<0.2	<50.	<0.2	<30.	7.4	AW-
MW11-3S	MW11-3S	5.00-8.00	L1817091-1	22-Aug-16	5.34	13.02	434.	0.92	38.6	15.	<0.5	<1.	47.	<5.	<100.	0.054	11800.	<0.5	<0.5	<1.	<30.	<1.	2230.	64.	<0.2	<1.	<5.	<1.	<0.05	95400.	<0.2	<50.	<0.2	<30.	<5.	AW-
MW11-3S	MW11-3S	5.00-8.00	L1908950-1	4-Apr-17	5.93	11.66	339.	8.23	64.1	<10.	<0.5	<1.	48.	<5.	<100.	0.052	21900.	<0.5	<0.5	2.7	<30.	<1.	2270.	36.	<0.2	<1.	<5.	<1.	<0.05	66000.	<0.2	<50.	<0.2	<30.	<5.	AW-
MW11-3S	MW11-3S	5.00-8.00	L1975358-1	15-Aug-17	5.42	13.66	455.	1.76	47.6	17.	<0.5	<1.	55.	<5.	<100.	0.101	14600.	<0.5	<0.5	1.6	<30.	<1.	2680.	69.	---	<1.	<5.	<1.	<0.05	98500.	<0.2	<50.	<0.2	<30.	<5.	AW-
MW11-3S	MW11-3S	5.00-8.00	L2082551-3	19-Apr-18	5.25	10.65	257.	3.25	52.3	32.5	<0.1	0.22	41.1	<0.1	13.	0.023	18500.	<0.1	<0.1	0.23	65.	0.071	1470.	13.1	---	0.1	0.89	<0.05	0.016	40700.	<0.01	<1.5	0.04	<0.5	1.5	AW-
MW11-3S	MW11-3S	5.00-8.00	L2150755-1	21-Aug-18	5.13	12.45	429.	1.92	50.6	17.6	<0.1	0.25	58.4	<0.1	21.	0.099	15400.	0.1	0.16	0.4	<10.	<0.05	2960.	69.	<0.005	<0.05	1.35	<0.05	0.012	80800.	0.013	<0.3	<0.01	<0.5	2.1	AW-
MW11-3I	MW11-3I	11-12.5	L1676220-4	21-Sep-15	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<10.	---	---	---	---	---	---	---	---	---	---	---	---	---	---	9.7	AW-
MW11-3I	MW11-3I	11-12.5	L1747945-2	22-Mar-16	5.89	12.29	349.	1.9	64.4	<10.	<0.5	<1.	35.	<5.	<100.	0.082	18200.	<0.5	0.87	<1.	39.	<1.	4580.	220.	<0.2	<1.	<5.	<1.	<0.05	92200.	<0.2	<50.	<0.2	<30.	<5.	AW-
MW11-3I	MW11-3I	11-12.5	L1817091-2	22-Aug-16	5.78	13.1	482.	0.68	67.5	<10.	<0.5	<1.	39.	<5.	<100.	0.084	19000.	<0.5	0.92	<1.	<30.	<1.	4850.	235.	<0.2	<1.	<5.	<1.	<0.05	105000.	<0.2	<50.	<0.2	<30.	5.1	AW-
MW11-3I	MW11-3I	11-12.5	L1908950-3	4-Apr-17	5.85	12.54	458.	1.67	65.3	13.	<0.5	<1.	39.	<5.	<100.	0.109	18700.	<0.5	0.82	3.1	<30.	<1.	4550.	213.	<0.2	<1.	<5.	<1.	<0.05	97800.	<0.2	<50.	<0.2	<30.	7.5	AW-
MW11-3I	MW11-3I	11-12.5	L1975358-2	15-Aug-17	5.79	13.25	473.	0.33	74.6	<10.	<0.5	<1.	42.	<5.	<100.	0.081	21100.	<0.5	0.86	<1.	<30.	<1.	5330.	254.	---	<1.	<5.	<1.	<0.05	104000.	<0.2	<50.	<0.2	<30.	<5.	AW-
MW11-3I	MW11-3I	11-12.5	L2082551-4	19-Apr-18	5.6	12.03	536.	0.82	73.1	2.4	<0.1	0.27	45.2	<0.1	30.	0.095	20500.	<0.1	0.84	0.34	<10.	<0.05	5340.	219.	---	0.108	3.05	<0.05	<0.01	107000.	<0.01	<0.3	0.011	<0.5	2.9	AW-
MW11-3I	MW11-3I	11-12.5	L2150755-2	21-Aug-18	5.41	12.89	506.	0.73	84.9	2.1	<0.1	0.28	46.8	<0.1	27.	0.095	23200.	<0.1	0.83	0.47	<10.	<0.05	6520.	219.	<0.005	0.124	3.2	0.052	<0.01	93300.	<0.01	<0.3	0.012	<0.5	2.9	AW-
MW11-3D	MW11-3D	18.5-20	L1676220-5	21-Sep-15	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<10.	---	---	---	---	---	---	---	---	---	---	---	---	---	---	9.7	AW-
MW11-3D	MW11-3D	18.5-20	L1747945-3	22-Mar-16	6.65	12.	784.	0.3	374.	<10.	<0.5	4.2	164.	<5.	<100.	<0.05	103000.	<0.5	0.93	<1.	4320.	<1.	28200.	1300.	<0.2	<1.	<5.	<1.	<0.05	57700.	<0.2	<50.	<0.2	<30.	<5.	AW-
MW11-3D	MW11-3D	18.5-20	L1817091-3	22-Aug-16	6.55	13.07	802.	0.13	379.	<10.	<0.5	4.6	166.	<5.	<100.	<0.05	105000.	<0.5	0.94	<1.	4100.	<1.	28700.	1310.	<0.2	<1.	<5.	<1.	<0.05	61600.	<0.2	<50.	<0.2	<30.	<5.	AW-
MW11-3D	MW11-3D	18.5-20	L1908950-3	4-Apr-17	6.47	12.52	794.	0.23	375.	<10.	<0.5	4.3	164.	<5.	<100.	<0.05	103000.	<0.5	0.92	2.1	4320.	<1.	28200.	1310.	<0.2	<1.	<5.	<1.	<0.05	61900.	<0.2	<50.	<0.2	<30.	<5.	AW-
MW11-3D	MW11-3D	18.5-20	L1975358-3	15-Aug-17	6.41	14.27	787.	1.09	374.	<10.	<0.5	4.3	162.	<5.	<100.	<0.05	103000.	<0.5	0.89	1.3	4170.	<1.	28500.	1310.	---	<1.	<5.	<1.	<0.05	63700.	<0.2	<50.	<0.2	<30.	<5.	AW-
MW11-3D	MW11-3D	18.5-20	L2082551-5	19-Apr-18	6.36	12.41	846.	0.29	350.	28.5	<0.1	4.24	155.	<0.1	29.	<0.005	98000.	<0.1	0.91	<0.2	4090.	<0.05	25700.	1300.	---	0.142	1.7	<0.05	<0.01	63000.	<0.01	1.17	0.013	<0.5	1.6	AW-
MW11-3D	MW11-3D	18.5-20	L2150755-3	21-Aug-18	6.34	12.96	795.	2.71	340.	<1.	<0.1	4.07	143.	<0.1	30.	0.07	94600.	<0.1	0.85	<0.2	3680.	<0.05	25300.	1230.	<0.005	0.183	1.76	<0.05	<0.01	63500.	<0.01	<0.3	0.023	<0.5	6.3	AW-
MW11-4S	MW11-4S	5 - 8.0	L1452404-6	7-May-14	5.44	10.57	798.	1.68	58.8	27.	<0.5	<1.	41.	<5.	<100.	0.168	17600.	<0.5	14.	29.9	305.	<1.	3590.	1560.	<0.2	<1.	11.8	<1.	<0.05	196000.	<0.2	<50.	<0.2	<30.	25.9	**AW+**
MW11-4S	MW11-4S	5 - 8.0	L1663797-4	26-Aug-15	5.5	12.16	832.	1.76	41.8	19.	<0.5	<1.	36.	<5.	<100.	0.12	12000.	<0.5	11.4	16.6	95.	<1.	2880.	1190.	<0.2	<1.	10.8	<1.	<0.05	185000.	<0.2	<50.	<0.2	<30.	19.3	**AW+**
MW11-4S	MW11-4S	5 - 8.0	L1676220-1	21-Sep-15	---	---	---	---	---		---	---	---	---	---	---	---	---	---	31.	---	---	---	---	---	---	---	---	---	---	---	---	---	---	24.8	**AW+**
MW11-4S	MW11-4S	5 - 8.0	L1747945-4	22-Mar-16	6.69	10.84	729.	0.18	41.2	18.	<0.5	<1.	32.	<5.	<100.	0.122	12300.	<0.5	9.3	28.3	<30.	<1.	2560.	1090.	<0.2	<1.	8.7	<1.	<0.05	178000.	<0.2	<50.	<0.2	<30.	13.2	**AW+**
MW11-4S	MW11-4S	5 - 8.0	L1817091-4	22-Aug-16	5.67	11.69	821.	1.95	46.4	19.	<0.5	<1.	35.	<5.	<100.	0.104	13700.	<0.5	10.3	32.7	<30.	<1.	2940.	1280.	<0.2	<1.	9.	<1.	<0.05	205000.	<0.2	<50.	<0.2	<30.	15.7	**AW+**
MW11-4S	MW11-4S	5 - 8.0	L1908950-4	4-Apr-17	5.75	10.59	695.	0.42	36.	14.	<0.5	<1.	32.	<5.	<100.	0.086	10600.	<0.5	7.24	29.9	<30.	<1.	2300.	1000.	<0.2	<1.	7.1	<1.	<0.05	179000.	<0.2	<50.	<0.2	<30.	12.2	**AW+**
MW11-4S	MW11-4S	5 - 8.0	L1975358-4	15-Aug-17	5.62	12.46	864.	0.77	58.2	<10.	<0.5	<1.	55.	<5.	<100.	0.071	17300.	<0.5	9.15	6.6	4640.	<1.	3620.	1300.	---	<1.	5.9	<1.	<0.05	212000.	<0.2	<50.	<0.2	<30.	9.6	AW-
MW11-4S	MW11-4S	5 - 8.0	L2082551-6	19-Apr-18	5.52	11.05	966.	0.25	67.	13.8	<0.1	0.67	58.1	<0.1	29.	0.079	20000.	0.1	9.15	4.79	3150.	<0.05	4170.	1470.	---	0.081	6.29	0.066	<0.01	209000.	0.024	<0.3	0.017	<0.5	6.3	AW-
MW11-4S	MW11-4S	5 - 8.0	L2149934-1	20-Aug-18	5.46	12.18	1035.	2.3	62.9	20.	<0.1	0.54	52.6	<0.1	30.	0.174	17800.	<0.1	14.5	12.	884.	<0.05	4470.	1730.	<0.01	0.072	12.3	0.078	<0.01	238000.	0.026	<0.3	0.016	<0.5	11.3	AW-
MW11-4S	MW11-4S	5 - 8.0	L2245599-1	18-Mar-19	5.33	11.34	815.	1.23	---	15.	<0.10	0.59	42.2	<0.10	33.	0.13	18400.	0.2	11.6	23.9	627.	<0.05	4870.	1780.	---	0.097	10.3	0.099	<0.01	222000.	0.027	<0.3	0.047	<0.5	10.8	**AW+**
MW11-4S	MW11-4S	5 - 8.0	L2343824-4	9-Sep-19	4.12	11.25	861.	4.12	---	1.9	0.1	0.29	48.4	<0.10	25.	0.092	22800.	<0.10	0.6	0.42	22.	<0.050	6800.	186.	---	0.108	3.31	<0.050	<0.010	96100.	<0.010	<0.30	<0.010	<0.50	3.2	AW-
MW11-4S	MW11-4S	5 - 8.0	VA20A4276-004	1-Apr-20	5.7	10.28	1148.	0.91	---	14.4	<0.10	0.42	42.2	<0.02	32.	0.132	17500.	<0.50	11.6	25.2	21.	<0.050	4540.	1860.	<0.005	0.092	10.3	0.098	<0.010	214000.	0.025	<0.30	0.043	<0.50	10.2	**AW+**
MW11-4S	MW11-4S	5 - 8.0	VA20B2619-002	13-Aug-20	5.69	11.27	927.	0.19	71.	17.3	<0.10	0.54	47.4	<0.020	31.	0.14	20600.	<0.10	15.2	19.8	311.	<0.050	4740.	1950.	<0.005	0.078	12.2	0.077	<0.010	243000.	0.025	<0.30	0.04	<0.50	10.9	AW-
MW11-4I	MW11-4I	11.0-12.5	L1452404-7	7-May-14	5.49	11.19	948.	1.2	152.	<10.	<0.5	<1.	67.	<5.	<100.	0.112	41900.	<0.5	3.95	1.3	2260.	<1.	11600.	907.	<0.2	<1.	<5.	<1.	<0.05	194000.	<0.2	<50.	<0.2	<30.	6.1	AW-
MW11-4I	MW11-4I	11.0-12.5	L1501930-5	13-Aug-14	5.39	12.3	948.	2.93	153.	<10.	<0.5	<1.	66.	<5.	<100.	0.197	42100.	<0.5	4.3	1.3	2010.	<1.	11600.	936.	<0.2	<1.	<5.	<1.	<0.05	201000.	<0.2	<50.	<0.2	<30.	6.2	AW-
MW11-4I	MW11-4I	11.0-12.5	L1676220-2	21-Sep-15	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	<10.	---	---	---	---	---	---	---	---	---	---	---	---	---	---	24.6	AW-
MW11-4I	MW11-4I	11.0-12.5	L1747945-5	22-Mar-16	6.69	11.08	793.	0.52	105.	<10.	<0.5	<1.	52.	<5.	<100.	0.122	29500.	<0.5	4.78	<1.	1040.	<1.	7620.	777.	<0.2	<1.	<5.	<1.	<0.05	169000.	<0.2	<50.	<0.2	<30.	<5.	AW-
MW11-4I	MW11-4I	11.0-12.5	L1817091-5	22-Aug-16	5.65	11.63	837.	0.25	104.	<10.	<0.5	<1.	55.	<5.	<100.	0.093	29700.	<0.5	6.37	1.1	1020.	<1.	7220.	851.	<0.2	<1.	<5.	<1.	<0.05	185000.	<0.2	<50.	<0.2	<30.	9.	AW-
MW11-4I	MW11-4I	11.0-12.5	L1908950-5	4-Apr-17	5.66	11.3	767.	0.51	92.5	<10.	<0.5	<1.	52.	<5.	<100.	0.146	26000.	<0.5	5.12	3.8	563.	<1.	6690.	776.	<0.2	<1.	<5.	<1.	<0.05	173000.	<0.2	<50.	<0.2	<30.	<5.	AW-
MW11-4I	MW11-4I	11.0-12.5	L1975358-5	15-Aug-17	5.55	12.54	809.	0.45	91.	<10.	<0.5	<1.	53.	<5.	<100.	0.082	26000.	<0.5	6.29	3.7	557.	<1.	6320.	882.	---	<1.	<5.	<1.	<0.05	185000.	<0.2	<50.	<0.2	<30.	6.4	AW-
MW11-4I	MW11-4I	11.0-12.5	L2082551-7	19-Apr-18	5.09	11.13	964.	1.38	118.	6.7	<0.1	0.5	66.7	<0.1	26.	0.133	32500.	<0.1	6.93	1.41	1170.	<0.05	9060.	982.	---	0.212	4.31	<0.05	<0.01	211000.	0.012	<0.3	0.026	<0.5	6.3	AW-
MW11-4I	MW11-4I	11.0-12.5	L2149934-2	20-Aug-18	5.63	12.6	976.	3.43	113.	9.1	<0.1	0.47	66.3	<0.1	27.	0.143	32100.	<0.1	8.63	1.87	616.	<0.05	8040.	1090.	<0.01	0.241	4.72	<0.05	<0.01	211000.	0.012	<0.3	0.02	<0.5	7.8	AW-
MW11-4D	MW11-4D	18.5-20	L1747945-6	22-Mar-16	6.64	11.13	791.	0.24	113.	<10.	<0.5	<1.	50.	<5.	<100.	0.081	31000.	<0.5	4.55	<1.	543.	<1.	8700.	635.	<0.2	<1.	<5.	<1.	<0.05	164000.	<0.2	<50.	<0.2	<30.	<5.	AW-
MW11-4D	MW11-4D	18.5-20	L1817091-6	22-Aug-16	5.37	12.15	882.	0.32	163.	<10.	<0.5	<1.	60.	<5.	<100.	0.072	44200.	<0.5	5.05	<1.	3800.	<1.	12800.	859.	<0.2	<1.	<5.	<1.	<0.05	156000.	<0.2	<50.	<0.2	<30.	13.2	AW-
MW11-4D	MW11-4D	18.5-20	L1908950-6	4-Apr-17	5.8	11.63	780.	0.35	145.	<10.	<0.5	<1.	58.	<5.	<100.	0.084	38800.	<0.5	3.63	2.6	3410.	<1.	11700.	734.	<0.2	<1.	<5.	<1.	<0.05	150000.	<0.2	<50.	<0.2	<30.	<5.	AW-
MW11-4D	MW11-4D	18.5-20	L1975358-6	15-Aug-17	5.8	13.26	897.	1.96	197.	<10.	<0.5	<1.	75.	<5.	<100.	0.06	52200.	<0.5	4.89	3.	6070.	<1.	16200.	994.	---	<1.	<5.	<1.	<0.05	147000.	<0.2	<50.	<0.2	<30.	16.	AW-
MW11-4D	MW11-4D	18.5-20	L2082551-8	19-Apr-18	5.77	11.6	913.	0.14	160.	4.4	<0.1	0.59	72.1	<0.1	22.	0.095	41500.	<0.1	4.72	1.25	4220.	<0.05	13800.	881.	---	0.115	3.72	<0.05	<0.01	177000.	<0.01	<0.3	0.018	<0.5	3.1	AW-
MW11-4D	MW11-4D	18.5-20	L2149934-3	20-Aug-18	5.92	12.1	986.	6.7	172.0	30.1	<0.1	0.69	75.4	<0.1	25.	0.242	45600.	<0.1	6.91	1.76	3750.	0.075	14200.0	1070.	<0.01	0.103	3.68	0.051	<0.01	183000.0	<0.01	<1.5	0.015	<0.5	9.7	AW-
Reported Detection Limit					---	---	---	---	0.5	1.	0.1	0.1	0.1	0.1	10.	0.005	50.	0.1	0.1	0.2	10.	0.05	5.	0.1	0.01	0.05	0.5	0.05	0.01	50.	0.01	0.3	0.01	0.5	1.	

Abbreviations:
CSR Contaminated Sites Regulation (including Stage 12 amendments, January 2019)
NS No standard established for indicated parameter.
QA/QC Quality Assurance/Quality Control
RPD Relative Percent Difference
mbgs Metres below ground surface
µg/L Micrograms per litre
ppb Parts per billion
< Sample concentration less than the detection limit indicated.
--- Sample not analyzed for indicated parameter.

Notes:
1 Criterion concentration in µg/L
(orange shading) Sample concentration greater than CSR standard for aquatic life (AW).
BOLD (yellow shading) Sample concentration greater than CSR standard for aquatic life (AW) and Site-Specific Screening Levels (SSSLs).
BOLD Reportable Detection Limit (RDL) exceeds the regulatory standard.

TABLE 2-5
SUMMARY OF EXTRACTION RATES - PERIMETER EXTRACTION SYSTEM
PARKLAND BURNABY REFINERY

Extraction Well	December 8, 2010				April 7, 2011				September 12-14, 2011				December 7-8, 2011			June 27, 2012		July 25, 2012					November 22, 2012				
	Total Fluids Extracted (m^3)	Fluid Extraction Rate[7, 13] (gpm)	Total NAPL Extracted (L)	NAPL Extraction Rate[5] (L/day)	Total Fluids Extracted (m^3)	Fluid Extraction Rate[7, 13] (gpm)	Total NAPL Extracted (L)	NAPL Extraction Rate[5] (L/day)	Total Fluids Extracted (m^3)	Fluid Extraction Rate[7, 13] (gpm)	Total NAPL Extracted (L)	NAPL Extraction Rate[5] (L/day)	Total Fluids Extracted (m^3)	Total NAPL Extracted (L)	NAPL Extraction Rate[5] (L/day)	Total Fluids Extracted (m^3)	Fluid Extraction Rate[10] (gpm)	Total Fluids Extracted (m^3)	Fluid Extraction Rate[13] (m^3/day)	(gpm)	Total NAPL Extracted (L)	NAPL Extraction Rate[5] (L/day)	Total Fluids Extracted (m^3)	Fluid Extraction Rate[13] (m^3/day)	(gpm)	Total NAPL Extracted (L)	NAPL Extraction Rate[5] (L/day)
UEIB-1[1]	38.16	0.08	1,414	11.1	78	0.07	2,680	12.8	78	N/A	2,680	N/A	78	2,680	N/A	78	N/A	78	N/A	N/A	2,680	N/A	78	N/A	N/A	2,680	N/A
UEIB-2[2]/UEIB-52[14]	8	0.07	270	13.5	53	0.11	1,272	4.9	100	0.06	1,549	1.9	116	N/A	N/A	157	0.02	158	0.05	0.01	1,578	0.09	158	0.00	0.00	1,578	0.00
UEIB-3/UEIB-53[14]	87	0.20	3,817	30.4	204	0.19	4,346	4.4	316	0.12	4,402	0.4	353	N/A	N/A	442	0.00	442	0.00	0.00	4,465	0.20	446	0.03	0.01	4,465	0.00
UEIB-4/UEIB-54[14]	49	0.11	0.00	0.00	122	0.10	0.00	0.00	226	0.07	113	0.7	242	N/A	N/A	308	0.00	308	0.00	0.00	154	0.13	308	0.00	0.00	154	-
UEIB-5[8]	82	0.18	0.00	0.00	170	0.15	0.00	0.00	265	0.11	132	0.8	286	N/A	N/A	358	N/A	358	0.62	0.11	184	0.22	358	N/A	N/A	184	N/A
UEIB-6[9]	34	0.06	1,459	11.6	85	0.08	4,697	27.0	134	0.04	5,988	8.1	148	N/A	N/A	209	N/A	209	0.50	0.09	6,025	0.16	209	N/A	N/A	6,025	N/A
UEIB-7/UEIB-47[14]	30	0.07	74	0.6	112	0.13	3,097	25.2	185	0.05	5,591	15.7	197	N/A	N/A	292	0.00	292	0.00	0.00	5,644	0.17	293	0.01	0.00	5,644	0.00
UEIB-8/UEIB-48[14]	435	0.51	0.00	0.00	717	0.34	0.00	0.00	761	0.16	0.00	0.00	912	N/A	N/A	1,099	0.13	1,108	0.40	0.07	0.00	0.00	1,108	0.00	0.00	0.00	0.00
UEIB-9/UEIB-49[14]	500	0.79	0.00	0.00	1,105	0.87	0.00	0.00	1,453	0.27	0.00	0.00	1,530	N/A	N/A	1,645	0.09	1,651	0.27	0.05	0.00	0.00	1,657	0.05	0.01	0.00	0.00
UEIB-10[4]/UEIB-50[14]	8	0.33	0.00	0.00	215	0.26	0.00	0.00	732	0.07	0.00	0.00	759	N/A	N/A	792	0.00	792	0.22	0.04	0.00	0.00	792	0.04	0.01	0.00	0.00
UEIB-11[3]	8	0.01	0.00	0.00	10	N/A	0.00	N/A	10	N/A	0.00	N/A	10	0.00	N/A	10	N/A	10	N/A	N/A	0.00	N/A	10	N/A	N/A	0.00	N/A
UEIB-14[1,4]/UEIB-51[14]	N/A	N/A	N/A	N/A	12	0.11	0.00	0.00	78	0.05	789	4.4	84	N/A	N/A	85	0.00	85	0.00	0.00	825	0.11	85	N/A	N/A	825	N/A
UEIB-15	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	170	0.66	0.00	0.00	228	N/A	N/A	579	1.12	1,013	5.31	0.97	0.00	0.00	1,282	4.62	0.85	0.00	0.00
UEIB-16	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	188	1.07	0.00	0.00	373	N/A	N/A	413	0.01	416	0.12	0.02	0.00	0.00	543	1.99	0.36	0.00	0.00
UEIB-17	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	82	0.33	0.00	0.00	119	N/A	N/A	277	0.29	309	1.16	0.21	0.00	0.00	499	2.17	0.40	0.00	0.00
UEIB-18	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	116	0.59	0.00	0.00	176	N/A	N/A	491	0.54	553	2.19	0.40	0.00	0.00	894	3.22	0.59	0.00	0.00
UEIB-19	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	163	0.76	0.00	0.00	382	N/A	N/A	1,083	1.39	1,232	5.23	0.96	0.00	0.00	2,040	4.75	0.87	0.00	0.00
UEIB-20/UEIB-56[14]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	407	1.99	0.00	0.00	659	N/A	N/A	1,786	2.77	2,093	10.25	1.88	0.00	0.00	3,021	7.25	1.33	0.00	0.00
UEIB-21	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	400	1.83	0.00	0.00	529	N/A	N/A	1,453	2.16	1,672	7.94	1.46	0.00	0.00	2,863	10.45	1.92	0.00	0.00
UEIB-22	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	122	0.52	0.00	0.00	246	N/A	N/A	559	0.33	619	1.53	0.28	0.00	0.00	823	2.25	0.41	0.00	0.00
UEIB-23	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	61	0.19	0.00	0.00	150	N/A	N/A	420	0.12	429	0.37	0.07	0.00	0.00	478	0.71	0.13	0.00	0.00
UEIB-24	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	416	2.13	0.00	0.00	662	N/A	N/A	1,185	2.09	1,426	8.78	1.61	0.00	0.00	2,808	10.32	1.89	0.00	0.00
UEIB-25	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	100	2.13	0.00	0.00	156	N/A	N/A	309	0.83	446	5.47	1.00	0.00	0.00	1,361	3.87	0.71	0.00	0.00
UEIB-26	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	133	0.59	0.00	0.00	215	N/A	N/A	407	0.55	459	1.95	0.36	0.00	0.00	854	4.53	0.83	0.00	0.00
UEIB-27	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	359	1.73	0.00	0.00	486	N/A	N/A	738	1.41	883	5.10	0.94	0.00	0.00	1,494	7.91	1.45	0.00	0.00
UEIB-28	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	382	1.75	0.00	0.00	648	N/A	N/A	809	0.24	834	0.91	0.17	0.00	0.00	1,166	2.78	0.51	0.00	0.00
UEIB-29	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	408	1.88	0.00	0.00	515	N/A	N/A	1,201	1.77	1,415	7.80	1.43	0.00	0.00	2,232	6.74	1.24	0.00	0.00
UEIB-30	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	130	0.54	0.00	0.00	209	N/A	N/A	490	0.42	542	1.88	0.35	0.00	0.00	1,304	8.92	1.64	0.00	0.00
UEIB-31/UEIB-55[14]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	124	0.61	0.00	0.00	198	N/A	N/A	536	0.62	577	3.35	0.61	0.00	0.00	974	2.98	0.55	0.00	0.00
UEIB-32	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.60	N/A	N/A	154	N/A	N/A	1,455	2.02	1,762	8.70	1.60	0.00	0.00	2,105	3.44	0.63	0.00	0.00
UEIB-33	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.66	N/A	N/A	383	N/A	N/A	1,378	N/A	1,379	0.00	0.00	0.00	0.00	1,379	0.01	0.00	0.00	0.00
UEIB-34	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.28	N/A	N/A	97	N/A	N/A	1,097	0.58	1,167	2.34	0.43	0.00	0.00	1,296	1.17	0.21	0.00	0.00
UEIB-35	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.54	N/A	N/A	112	N/A	N/A	1,021	1.30	1,171	5.67	1.04	0.00	0.00	1,759	4.20	0.77	0.00	0.00
UEIB-36	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.58	N/A	N/A	144	N/A	N/A	656	0.51	722	2.24	0.41	0.00	0.00	937	1.95	0.36	0.00	0.00
UEIB-37[6]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.04	N/A	N/A	85	N/A	N/A	241	0.26	285	1.52	0.28	0.00	0.00	353	0.26	0.05	0.00	0.00
UEIB-38	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	43	0.03	72	0.87	0.16	0.00	0.00	174	0.97	0.18	0.00	0.00
UEIB-39[6]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.07	N/A	N/A	5	N/A	N/A	359	0.43	420	2.14	0.39	0.00	0.00	627	1.85	0.34	0.00	0.00
UEIB-40[6]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.60	N/A	N/A	45	N/A	N/A	151	0.16	176	0.90	0.16	0.00	0.00	402	1.62	0.30	0.00	0.00
UEIB-41[6]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.94	N/A	N/A	70	N/A	N/A	278	0.25	308	1.14	0.21	0.00	0.00	601	3.97	0.73	0.00	0.00
UEIB-42[6]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	1.55	N/A	N/A	1	N/A	N/A	336	0.37	395	2.08	0.38	0.00	0.00	1,377	12.35	2.27	0.00	0.00
UEIB-43	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	553	1.36	1,085	6.60	1.21	0.00	0.00	1,775	8.47	1.55	0.00	0.00
UEIB-44	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	0.46	N/A	N/A	110	N/A	N/A	456	0.73	548	3.39	0.62	0.00	0.00	800	2.37	0.43	0.00	0.00
UEIB-45[8]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	367	2.02	566	9.49	1.74	57	1.39	1,544	8.10	1.49	106	0.46
UEIB-46[9]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	37	0.34	69	1.58	0.29	0.00	0.00	185	0.96	0.18	0.00	0.00
CPR-1[11]	N/A	UK	N/A	N/A	355	UK	N/A	N/A	N/A	0.61	N/A	N/A	631	N/A	N/A	1,502	0.12	1,505	1.36	0.25	49	0.12	1,548	0.48	0.09	53	0.05
CPR-2[11]	N/A	UK	N/A	N/A	64	UK	N/A	N/A	N/A	0.09	N/A	N/A	82	N/A	N/A	143	0.00	143	0.02	0.00	14	0.03	143	0.00	0.00	14	0.00
EX-1[11]	4,477	UK	-	-	N/A	UK	N/A	N/A	N/A	UK	N/A	N/A	N/A	N/A	N/A	5,169	0.42	5,169	2.31	0.42	N/A	N/A	5,208	0.15	0.03	N/A	N/A
EX-2[11]	429	UK	-	-	N/A	UK	N/A	N/A	N/A	UK	N/A	N/A	N/A	N/A	N/A	520	0.05	524	0.22	0.04	N/A	N/A	524	0.01	0.00	N/A	N/A
EX-3[11]	1,639	UK	-	-	N/A	UK	N/A	N/A	N/A	UK	N/A	N/A	N/A	N/A	N/A	1,979	0.18	1,979	0.79	0.14	N/A	N/A	1,987	0.03	0.01	N/A	N/A
EX-4[11]	N/A	UK	N/A	N/A	N/A	UK	N/A	N/A	N/A	UK	N/A	N/A	N/A	N/A	N/A	501	0.03	501	0.14	0.03	N/A	N/A	502	0.01	0.00	N/A	N/A
U2-5[11]	N/A	UK	N/A	N/A	N/A	UK	N/A	N/A	N/A	UK	N/A	N/A	N/A	N/A	N/A	503	0.01	503	0.01	0.00	N/A	N/A	503	0.00	0.00	N/A	N/A
Total	1,277	2.41	7,033	67.3	3,303	2.40	16,092	74.3	8,100	33	21,244	31.9	11,870	2,680	0.0	36,956	28	40,860	125	22	21,674	2.62	55,867	138	25	21,728	0.51

Abbreviations:

N/A- Not available (pump not installed/running at this time.

UK - Unknown (not enough data).
NAPL - Non-Aqueous Phase Liquids

PHC - Petroleum Hydrocarbons
m - Metres
L - Litres
Kg - Kilograms
gpm - Gallons per minute

Notes

1. UEIB-1 operated from August 5, 2010 to March 17, 2011. On March 17, UEIB-1 was replaced with UEIB-14.
2. UEIB-2 operated from August 5 to 25, 2010 and continuously since February 1, 2011.
3. UEIB-11 operated from August 25, 2010 to February 1, 2011.
4. UEIB-10 operated from December 2010 to July 2012. In July 2012, UEIB-10 was replaced with UEIB-32. On December 17, 2015, pump in UEIB-14 was moved to UEIB-10.
5. NAPL extraction rate measured as total NAPL extracted since previous measuring event.
6. No pump tests done before July 2012. Assumed rate of 0.90 L/count.
7. Pumps UEIB-32 to UEIB-44 not started until September 27, 2011. Rates listed for those pumps are taken from measurements completed from September 27 to October 24, 2011. Due to this exception, cummulative extracted fluids and NAPL were not calculated.
8. Pump operated in UEIB-5 until June 2012, then it was moved into UEIB-45.
9. Pump operated in UEIB-6 until June 2012, then it was moved into UEIB-46.
10. Extraction rate values calculated from change in counter readings between June 21 to June 27.
11. For November 22, 2012 Summary Table results, CPR-(1,2), EX-(1,2,3,4) and U2-5 data was collected on Oct.22,24, 2012.
12. Transducer Data - during rebound testing, all pumps were shut off from Oct.11-12, 2011 to Mar.14-22, 2012 with the exception of test pumps (UEIB-5,6,22,23,35 and 36).
13. Fluid extraction rate based on the average of the last five measurements.
14. A replaced well was installed to replace the shallow extraction well. The AP4 pump was swapped from the shallow well to the deep well and installed in the week of October 2, 2017

TABLE 2-5
SUMMARY OF EXTRACTION RATES - PERIMETER EXTRACTION SYSTEM
PARKLAND BURNABY REFINERY

	December 19, 2012						February 14, 2013						June 6, 2013						September 26, 2013							
Extraction Well	Total Fluids Extracted (m^3)	Fluid Extraction Rate (m^3/day)	(gpm)	Total NAPL Extracted (L)	NAPL Extracted (quarterly basis) (L)	NAPL Extraction Rate[5] (L/day)	Total Fluids Extracted (m^3)	Fluid Extraction Rate [13] (m^3/day)	(gpm)	Total NAPL Extracted (L)	NAPL Extracted (quarterly basis) (L)	NAPL Extraction Rate[5] (L/day)	Total Fluids Extracted (m^3)	Fluid Extraction Rate [13] (m^3/day)	(gpm)	Total NAPL Extracted (L)	NAPL Extracted (quarterly basis) (L)	NAPL Extraction Rate[5] (L/day)	Total Fluids Extracted (m^3)	Quarter Fluids Extracted (m^3)	Fluid Extraction Rate [13] (m^3/day)	(gpm)	Total NAPL Extracted (L)	NAPL Extracted (quarterly basis) (L)	NAPL Extraction Rate[5] (L/day)	PHC Mass Extracted (quarterly basis) (Kg)
UEIB-1[1]	78	N/A	N/A	2,680	0.00	N/A	78	N/A	N/A	2,680	0.00	N/A	78	N/A	N/A	2,680	0.00	N/A	78	N/A	N/A	N/A	2,680	0.00	N/A	NA
UEIB-2[2]/UEIB-52[14]	164	0.10	0.02	1,578	0.00	0.00	179	0.26	0.05	1,578	0.00	0.00	201	0.20	0.04	1,578	0.00	0.00	210	9	0.08	0.01	1,578	0.00	0.00	0.03
UEIB-3/UEIB-53[14]	452	0.18	0.03	4,465	0.00	0.00	466	0.24	0.04	4,465	0.00	0.00	491	0.23	0.04	4,465	0.00	0.00	506	15	0.13	0.02	4,465	0.00	0.00	0.04
UEIB-4/UEIB-54[14]	309	0.02	0.00	154	0.00	0.00	311	0.05	0.01	154	0.00	0.00	315	0.04	0.01	154	0.00	0.00	319	4	0.04	0.01	154	0.00	0.00	0.01
UEIB-5[8]	358	N/A	N/A	184	0.00	N/A	358	N/A	N/A	184	0.00	N/A	358	N/A	N/A	184	0.00	N/A	358	N/A	N/A	N/A	184	0.00	N/A	NA
UEIB-6[9]	209	N/A	N/A	6,025	0.00	N/A	209	N/A	N/A	6,025	0.00	N/A	209	N/A	N/A	6,025	0.00	N/A	209	N/A	N/A	N/A	6,025	0.00	N/A	NA
UEIB-7/UEIB-47[14]	294	0.03	0.01	5,644	0.00	0.00	295	0.02	0.00	5,644	0.00	0.00	298	0.02	0.00	5,644	0.00	0.00	307	9	0.08	0.01	5,644	0.00	0.00	0.03
UEIB-8/UEIB-48[14]	1,123	0.17	0.03	0.00	0.00	0.00	1,151	0.50	0.09	0.00	0.00	0.00	1,180	0.25	0.05	0.00	0.00	0.00	1,190	10	0.09	0.02	0.00	0.00	0.00	0.03
UEIB-9/UEIB-49[14]	1,669	0.19	0.03	0.00	0.00	0.00	1,706	0.65	0.12	0.00	0.00	0.00	1,780	0.67	0.12	0.00	0.00	0.00	1,811	31	0.27	0.05	0.00	0.00	0.00	0.09
UEIB-10[4]/UEIB-50[14]	792	0.04	0.01	0.00	0.00	0.00	792	N/A	N/A	0.00	0.00	N/A	792	N/A	N/A	0.00	0.00	N/A	792	N/A	N/A	N/A	0.00	0.00	N/A	N/A
UEIB-11[3]	10	N/A	N/A	0.00	0.00	N/A	10	N/A	N/A	0.00	0.00	N/A	10	N/A	N/A	0.00	0.00	N/A	10	N/A	N/A	N/A	0.00	0.00	N/A	N/A
UEIB-14[1,4]/UEIB-51[14]	85	0.00	0.00	825	0.00	N/A	85	0.00	0.00	825	0.00	0.00	85	0.00	0.00	825	0.00	0.00	86	0	0.00	0.00	825	0.00	0.00	0.00
UEIB-15	1,415	4.78	0.88	0.00	0.00	0.00	1,674	4.46	0.82	0.00	0.00	0.00	2,205	4.78	0.88	0.00	0.00	0.00	2,499	294	2.20	0.40	0.00	0.00	0.00	0.06
UEIB-16	714	5.35	0.98	0.00	0.00	0.00	975	4.03	0.74	0.00	0.00	0.00	1,467	4.44	0.81	0.00	0.00	0.00	1,731	263	2.31	0.42	0.00	0.00	0.00	0.14
UEIB-17	602	3.60	0.66	0.00	0.00	0.00	752	2.13	0.39	0.00	0.00	0.00	1,071	2.87	0.53	0.00	0.00	0.00	1,218	147	1.50	0.27	0.00	0.00	0.00	0.14
UEIB-18	1,009	3.97	0.73	0.00	0.00	0.00	1,224	3.66	0.67	0.00	0.00	0.00	1,669	4.01	0.74	0.00	0.00	0.00	1,908	239	2.09	0.38	0.00	0.00	0.00	0.36
UEIB-19	2,372	11.26	2.07	0.00	0.00	0.00	2,614	4.87	0.89	0.00	0.00	0.00	2,821	3.65	0.67	0.00	0.00	0.00	3,091	270	2.39	0.44	0.00	0.00	0.00	0.62
UEIB-20/UEIB-56[14]	3,235	7.46	1.37	0.00	0.00	0.00	3,466	4.65	0.85	0.00	0.00	0.00	4,827	12.85	2.36	0.00	0.00	0.00	5,609	782	6.91	1.27	0.00	0.00	0.00	1.62
UEIB-21	3,179	10.89	2.00	0.00	0.00	0.00	3,883	11.76	2.16	0.00	0.00	0.00	3,908	N/A	N/A	0.00	0.00	N/A	3,988	80	0.60	0.11	0.00	0.00	0.00	0.55
UEIB-22	889	2.31	0.42	0.00	0.00	0.00	1,020	2.21	0.41	0.00	0.00	0.00	1,318	2.69	0.49	0.00	0.00	0.00	1,477	158	1.40	0.26	0.00	0.00	0.00	0.36
UEIB-23	490	0.57	0.10	0.00	0.00	0.00	545	1.25	0.23	0.00	0.00	0.00	739	1.75	0.32	0.00	0.00	0.00	1,048	309	2.74	0.50	0.00	0.00	0.00	0.89
UEIB-24	3,100	10.42	1.91	0.00	0.00	0.00	3,559	8.20	1.50	0.00	0.00	0.00	4,188	7.84	1.44	0.00	0.00	0.00	4,402	213	1.18	0.22	0.00	0.00	0.00	0.61
UEIB-25	1,486	4.18	0.77	0.00	0.00	0.00	1,732	4.40	0.81	0.00	0.00	0.00	2,194	4.16	0.76	0.00	0.00	0.00	2,532	338	2.99	0.55	0.00	0.00	0.00	0.10
UEIB-26	1,023	5.29	0.97	0.00	0.00	0.00	1,329	5.46	1.00	0.00	0.00	0.00	1,704	3.38	0.62	0.00	0.00	0.00	1,877	173	1.58	0.29	0.00	0.00	0.00	0.06
UEIB-27	1,494	0.01	0.00	0.00	0.00	0.00	1,494	0.00	0.00	0.00	0.00	0.00	2,074	7.53	1.38	0.00	0.00	0.00	2,598	525	4.64	0.85	0.00	0.00	0.00	0.99
UEIB-28	1,322	5.29	0.97	0.00	0.00	0.00	1,670	6.20	1.14	0.00	0.00	0.00	2,190	4.69	0.86	0.00	0.00	0.00	2,268	78	0.58	0.11	0.00	0.00	0.00	0.21
UEIB-29	2,520	7.72	1.42	0.00	0.00	0.00	3,091	10.19	1.87	0.00	0.00	0.00	3,656	4.36	0.80	0.00	0.00	0.00	4,331	675	5.96	1.09	0.00	0.00	0.00	1.94
UEIB-30	1,459	7.25	1.33	0.00	0.00	0.00	1,722	4.71	0.86	0.00	0.00	0.00	2,375	6.01	1.10	0.00	0.00	0.00	2,612	238	2.10	0.39	0.00	0.00	0.00	0.68
UEIB-31/UEIB-55[14]	1,067	3.31	0.61	0.00	0.00	0.00	1,203	2.44	0.45	0.00	0.00	0.00	1,496	2.65	0.49	0.00	0.00	0.00	1,679	182	1.61	0.30	0.00	0.00	0.00	0.52
UEIB-32	2,219	5.09	0.93	0.00	0.00	0.00	2,404	3.31	0.61	9	9.26	0.17	2,679	2.47	0.45	23	13.75	0.12	2,786	107	0.93	0.17	23.01	0.00	0.00	1.41
UEIB-33	1,379	0.00	0.00	0.00	0.00	0.00	1,379	0.00	0.00	0.00	0.00	0.00	1,820	3.97	0.73	0.00	0.00	0.00	2,247	427	3.71	0.68	11.23	11.23	0.16	1.70
UEIB-34	1,401	3.06	0.56	0.00	0.00	0.00	1,618	3.89	0.71	0.00	0.00	0.00	2,257	5.74	1.05	0.00	0.00	0.00	2,579	323	2.81	0.52	0.00	0.00	0.00	0.08
UEIB-35	1,858	3.80	0.70	0.00	0.00	0.00	2,191	5.95	1.09	0.00	0.00	0.00	4,191	18.01	3.30	0.00	0.00	0.00	6,057	1,866	16.23	2.98	0.00	0.00	0.00	5.38
UEIB-36	1,080	4.29	0.79	0.00	0.00	0.00	1,756	12.08	2.22	0.00	0.00	0.00	2,239	4.35	0.80	0.00	0.00	0.00	2,870	631	5.49	1.01	0.00	0.00	0.00	0.18
UEIB-37 [6]	359	0.24	0.04	0.00	0.00	0.00	394	0.75	0.14	0.00	0.00	0.00	721	2.95	0.54	0.00	0.00	0.00	1,021	300	2.61	0.48	0.00	0.00	0.00	0.86
UEIB-38	217	1.77	0.32	0.00	0.00	0.00	312	1.70	0.31	0.00	0.00	0.00	490	1.60	0.29	0.00	0.00	0.00	550	60	0.52	0.10	0.00	0.00	0.00	0.02
UEIB-39 [6]	702	2.64	0.48	0.00	0.00	0.00	813	1.98	0.36	0.00	0.00	0.00	1,034	1.99	0.36	0.00	0.00	0.00	1,197	163	1.47	0.27	0.00	0.00	0.00	0.47
UEIB-40 [6]	483	2.69	0.49	0.00	0.00	0.00	650	2.82	0.52	0.00	0.00	0.00	925	2.48	0.45	0.00	0.00	0.00	1,097	173	1.57	0.29	0.00	0.00	0.00	0.50
UEIB-41 [6]	764	6.28	1.15	0.00	0.00	0.00	857	1.63	0.30	0.00	0.00	0.00	1,413	5.06	0.93	0.00	0.00	0.00	1,819	405	3.80	0.70	0.00	0.00	0.00	1.17
UEIB-42 [6]	1,730	13.89	2.55	0.00	0.00	0.00	2,539	14.45	2.65	0.00	0.00	0.00	3,808	11.44	2.10	0.00	0.00	0.00	4,493	685	3.97	0.73	0.00	0.00	0.00	1.97
UEIB-43	1,972	8.60	1.58	0.00	0.00	0.00	2,716	14.39	2.64	0.00	0.00	0.00	4,012	12.32	2.26	0.00	0.00	0.00	4,945	933	6.96	1.28	0.00	0.00	0.00	2.69
UEIB-44	883	3.16	0.58	0.00	0.00	0.00	1,045	2.90	0.53	8	8.13	0.15	1,215	1.53	0.28	17	8.49	0.08	1,294	79	0.68	0.13	18.71	2.10	0.03	0.27
UEIB-45 [8]	1,779	9.01	1.65	106	0.00	0.24	2,147	6.56	1.20	106	0.00	0.00	2,878	6.59	1.21	142	36.58	0.33	3,381	503	4.41	0.81	155.86	13.76	0.20	3.50
UEIB-46 [9]	247	1.82	0.33	0.00	0.00	0.00	328	1.08	0.20	0.00	0.00	0.00	402	0.67	0.12	7.76	7.76	0.05	478	76	0.67	0.12	10.17	2.42	0.03	0.54
CPR-1 [11]	1,895	2.80	0.51	53	0	0.00	2,102	4.61	0.85	109	55.68	0.88	2,232	4.08	0.75	131	22.49	0.15	2,345	114	1.67	0.31	132	1.24	0.15	0.33
CPR-2 [11]	143	0.00	0.00	14	0	0.00	161	0.23	0.04	31	16.92	0.00	313	1.82	0.33	31	0.00	0.18	320	8	0.85	0.16	32	0.38	0.00	0.02
EX-1 [11]	5,313	1.79	0.33	N/A	NA	N/A	5,433	2.01	0.37	N/A	NA	N/A	5,564	1.49	0.27	N/A	NA	N/A	5,648	84	1.12	0.21	N/A	NA	N/A	N/A
EX-2 [11]	532	0.14	0.03	N/A	NA	N/A	540	0.14	0.03	N/A	NA	N/A	554	0.14	0.03	N/A	NA	N/A	563	8	0.12	0.02	N/A	NA	N/A	N/A
EX-3 [11]	2,005	0.31	0.06	N/A	NA	N/A	2,024	0.32	0.06	N/A	NA	N/A	2,057	0.32	0.06	N/A	NA	N/A	2,082	25	0.30	0.06	N/A	NA	N/A	N/A
EX-4 [11]	506	0.06	0.01	N/A	NA	N/A	509	0.07	0.01	N/A	NA	N/A	516	0.06	0.01	N/A	NA	N/A	520	5	0.06	0.01	N/A	NA	N/A	N/A
U2-5 [11]	503	0.00	0.00	N/A	NA	N/A	503	0.00	0.00	N/A	NA	N/A	503	0.00	0.00	N/A	NA	N/A	503	N/A	-	0.00	N/A	NA	N/A	N/A
Total	60,888	166	30	21,728	0	0.24	70,014	163	30	21,818	90	1.19	87,523	168	31	21,907	89	0.91	99,539	12,017	103	19	21,938	31	0.58	31.20

Abbreviations:

N/A- Not available (pump not installed/running at this time.

UK - Unknown (not enough data).
NAPL - Non-Aqueous Phase Liquids

PHC - Petroleum Hydrocarbons
m - Metres
L - Litres
Kg - Kilograms
gpm - Gallons per minute

TABLE 2-5
SUMMARY OF EXTRACTION RATES - PERIMETER EXTRACTION SYSTEM
PARKLAND BURNABY REFINERY

Extraction Well	December 20, 2013								March 26, 2014								June 24-25 and July 7, 2014							
	Total Fluids Extracted (m^3)	Quarter Fluids Extracted (m^3)	Fluid Extraction Rate[13] (m^3/day)	Fluid Extraction Rate[13] (gpm)	Total NAPL Extracted (L)	NAPL Extracted (quarterly basis) (L)	NAPL Extraction Rate[5] (L/day)	PHC Mass Extracted (quarterly basis) (Kg)	Total Fluids Extracted (m^3)	Quarter Fluids Extracted (m^3)	Fluid Extraction Rate[13] (m^3/day)	Fluid Extraction Rate[13] (gpm)	Total NAPL Extracted (L)	NAPL Extracted (quarterly basis) (L)	NAPL Extraction Rate[5] (L/day)	PHC Mass Extracted (quarterly basis) (Kg)	Total Fluids Extracted (m^3)	Quarter Fluids Extracted (m^3)	Fluid Extraction Rate[13] (m^3/day)	Fluid Extraction Rate[13] (gpm)	Total NAPL Extracted (L)	NAPL Extracted (quarterly basis) (L)	NAPL Extraction Rate[5] (L/day)	PHC Mass Extracted (quarterly basis) (Kg)
UEIB-1[1]	78	N/A	N/A	N/A	2,680	NA	N/A	NA	78	N/A	N/A	N/A	2,680	N/A	N/A	NA	78	N/A	N/A	N/A	2,680	N/A	N/A	NA
UEIB-2[2]/UEIB-52[14]	219	9	0.14	0.03	1,578	0.00	0.00	0.03	234	14	0.16	0.03	1,578	0.00	0.00	0.04	248	15	0.15	0.03	1,578	0.00	0.00	5.49
UEIB-3/UEIB-53[14]	525	18	0.26	0.05	4,465	0.00	0.00	0.91	561	36	0.38	0.07	4,465	0.00	0.00	0.10	595	34	0.38	0.07	4,465	0.00	0.00	12.80
UEIB-4/UEIB-54[14]	321	1	0.03	0.01	154	0.00	0.00	0.00	334	13	0.17	0.03	154	0.00	0.00	0.04	346	12	0.13	0.02	153.92	0.00	0.00	4.58
UEIB-5[8]	358	N/A	N/A	N/A	184	NA	N/A	NA	358	N/A	N/A	N/A	184	N/A	N/A	NA	358	N/A	N/A	N/A	184	N/A	N/A	NA
UEIB-6[9]	209	N/A	N/A	N/A	6,025	NA	N/A	NA	209	N/A	N/A	N/A	6,025	N/A	N/A	NA	209	N/A	N/A	N/A	6,025	N/A	N/A	NA
UEIB-7/UEIB-47[14]	307	0	0.00	0.00	5,644	0.00	0.00	0.00	311	4	0.04	0.01	5,644	0.00	0.00	0.01	315	4	0.05	0.01	5,644	0.00	0.00	1.64
UEIB-8/UEIB-48[14]	1,190	0	0.00	0.00	0.00	0.00	0.00	0.00	1,220	30	0.31	0.06	0.00	0.00	0.00	0.09	1,274	54	0.59	0.11	0.00	0.00	0.00	0.05
UEIB-9/UEIB-49[14]	1,836	24	0.24	0.04	0.00	0.00	0.00	0.07	1,904	68	0.78	0.14	0.00	0.00	0.00	0.20	1,970	66	0.96	0.18	0.00	0.00	0.00	24.78
UEIB-10[4]/UEIB-50[14]	792	N/A	N/A	N/A	0.00	0.00	N/A	N/A	792	N/A	N/A	N/A	0.00	N/A	N/A	N/A	792	N/A	N/A	N/A	0.00	N/A	N/A	N/A
UEIB-11[3]	10	N/A	N/A	N/A	0.00	0.00	N/A	N/A	10	N/A	N/A	N/A	0.00	N/A	N/A	N/A	10	N/A	N/A	N/A	0.00	N/A	N/A	N/A
UEIB-14[1,4]/UEIB-51[14]	86	0	0.00	0.00	825	0.00	0.00	0.00	86	1	0.01	0.00	825	0.00	0.00	0.00	90	4	0.04	0.01	825	0.00	0.00	1.51
UEIB-15	2,816	317	4.03	0.74	0.00	0.00	0.00	0.06	3,033	217	1.12	0.21	0.00	0.00	0.00	0.04	3,152	119	0.84	0.15	0.00	0.00	0.00	0.10
UEIB-16	2,076	346	4.40	0.81	0.00	0.00	0.00	0.19	3,536	1,460	18.42	3.38	0.00	0.00	0.00	0.80	4,053	516	4.68	0.86	0.00	0.00	0.00	0.18
UEIB-17	1,531	313	4.20	0.77	0.00	0.00	0.00	0.31	1,869	338	2.94	0.54	0.00	0.00	0.00	0.33	2,057	188	0.72	0.13	0.00	0.00	0.00	0.11
UEIB-18	2,235	327	8.63	1.58	0.00	0.00	0.00	3.39	2,593	357	2.42	0.44	0.00	0.00	0.00	0.54	2,826	233	2.31	0.42	0.00	0.00	0.00	87.34
UEIB-19	3,149	59	0.01	0.00	0.00	0.00	0.00	7.27	3,519	370	3.17	0.58	0.00	0.00	0.00	0.85	4,013	493	5.02	0.92	0.00	0.00	0.00	0.63
UEIB-20/UEIB-56[14]	6,199	589	11.53	2.12	0.00	0.00	0.00	12.82	6,510	312	2.52	0.46	0.00	0.00	0.00	0.65	6,667	157	1.70	0.31	0.00	0.00	0.00	0.12
UEIB-21	4,410	423	11.12	2.04	0.00	0.00	0.00	30.56	5,065	655	8.26	1.52	0.00	0.00	0.00	4.54	6,581	1,516	4.12	0.76	0.00	0.00	0.00	10.51
UEIB-22	1,670	193	2.44	0.45	0.00	0.00	0.00	3.82	1,979	309	3.14	0.58	0.00	0.00	0.00	0.71	2,293	315	2.94	0.54	0.00	0.00	0.00	0.18
UEIB-23	1,088	40	0.52	0.09	0.00	0.00	0.00	3.13	1,465	376	4.72	0.87	0.00	0.00	0.00	1.08	1,946	482	4.54	0.83	0.00	0.00	0.00	0.51
UEIB-24	5,069	667	7.61	1.40	0.00	0.00	0.00	14.60	5,429	360	3.72	0.68	0.00	0.00	0.00	1.04	5,439	10	0.10	0.02	0.00	0.00	0.00	0.04
UEIB-25	2,883	351	4.96	0.91	0.00	0.00	0.00	0.84	3,317	434	3.99	0.73	0.00	0.00	0.00	0.13	3,317	0	0.76	0.14	0.00	0.00	0.00	0.00
UEIB-26	2,074	197	2.48	0.45	0.00	0.00	0.00	0.75	4,486	2,413	32.98	6.05	0.00	0.00	0.00	0.87	4,783	297	3.32	0.61	0.00	0.00	0.00	0.64
UEIB-27	3,057	459	7.25	1.33	0.00	0.00	0.00	5.74	3,563	506	4.96	0.91	0.00	0.00	0.00	0.95	3,918	355	3.48	0.64	0.00	0.00	0.00	1.44
UEIB-28	2,293	25	0.05	0.01	0.00	0.00	0.00	6.19	2,307	14	0.20	0.04	0.00	0.00	0.00	0.04	2,428	121	1.64	0.30	0.00	0.00	0.00	0.26
UEIB-29	4,925	594	6.53	1.20	0.00	0.00	0.00	14.17	5,604	679	7.07	1.30	0.00	0.00	0.00	1.96	5,937	334	2.57	0.47	0.00	0.00	0.00	125.08
UEIB-30	2,914	302	4.52	0.83	0.00	0.00	0.00	8.39	3,162	248	2.60	0.48	0.00	0.00	0.00	0.71	3,167	5	0.96	0.18	0.00	0.00	0.00	0.02
UEIB-31/UEIB-55[14]	1,849	170	1.92	0.35	0.00	0.00	0.00	5.32	2,157	308	4.68	0.86	0.00	0.00	0.00	0.89	2,545	388	3.97	0.73	0.00	0.00	0.00	145.55
UEIB-32	2,875	89	1.11	0.20	28.40	5.39	0.05	37.77	2,966	91	0.79	0.14	39.34	10.94	0.13	1.19	3,071	105	1.17	0.21	44.62	5.27	0.04	2.65
UEIB-33	3,038	791	10.44	1.92	54.26	43.03	0.38	12.11	3,792	753	7.34	1.35	54.26	0.00	0.00	3.01	3,792	0	0.16	0.03	54.26	0.00	0.00	0.00
UEIB-34	2,803	224	2.72	0.50	0.00	0.00	0.00	0.73	3,057	253	2.70	0.49	0.00	0.00	0.00	0.07	3,472	415	4.28	0.79	0.00	0.00	0.00	0.73
UEIB-35	7,304	1,247	13.70	2.51	0.00	0.00	0.00	21.00	7,997	692	6.66	1.22	0.00	0.00	0.00	1.99	8,328	331	3.68	0.67	0.00	0.00	0.00	0.39
UEIB-36	3,023	153	1.76	0.32	0.00	0.00	0.00	0.84	3,264	242	2.75	0.50	0.00	0.00	0.00	0.07	3,498	234	2.60	0.48	0.00	0.00	0.00	87.70
UEIB-37[6]	1,438	417	4.98	0.91	0.00	0.00	0.00	4.14	1,892	454	4.83	0.89	0.00	0.00	0.00	1.31	2,207	315	3.49	0.64	0.00	0.00	0.00	118.09
UEIB-38	618	68	0.88	0.16	0.00	0.00	0.00	0.19	713	96	1.00	0.18	0.00	0.00	0.00	0.03	802	89	0.81	0.15	0.00	0.00	0.00	33.34
UEIB-39[6]	1,321	124	1.55	0.28	0.00	0.00	0.00	3.80	1,572	251	2.80	0.51	0.00	0.00	0.00	0.72	1,750	178	1.97	0.36	0.00	0.00	0.00	66.76
UEIB-40[6]	1,295	197	2.58	0.47	0.00	0.00	0.00	3.73	1,617	322	3.53	0.65	0.00	0.00	0.00	0.93	1,904	288	3.19	0.59	0.00	0.00	0.00	107.96
UEIB-41[6]	2,406	588	6.95	1.27	0.00	0.00	0.00	6.92	2,871	464	5.14	0.94	0.00	0.00	0.00	1.34	3,100	229	2.80	0.51	0.00	0.00	0.00	85.86
UEIB-42[6]	4,493	0	0.00	0.00	0.00	0.00	0.00	12.93	4,577	83	1.19	0.22	0.00	0.00	0.00	0.24	4,843	266	2.96	0.54	0.00	0.00	0.00	99.85
UEIB-43	5,197	253	4.06	0.74	0.00	0.00	0.00	14.95	6,242	1,044	10.87	1.99	0.00	0.00	0.00	3.01	6,533	291	8.10	1.49	0.00	0.00	0.00	109.31
UEIB-44	1,359	65	0.79	0.14	23.17	4.46	0.04	4.73	1,432	73	0.67	0.12	23.87	0.69	0.01	0.25	1,584	153	1.69	0.31	30.01	6.14	0.05	0.78
UEIB-45[8]	3,910	529	6.53	1.20	188.11	32.25	0.28	27.15	4,713	803	8.40	1.54	255.22	67.10	0.80	5.58	5,294	581	5.23	0.96	337.72	82.50	1.33	4535.09
UEIB-46[9]	533	55	0.76	0.14	10.17	0.00	0.00	3.81	662	129	1.44	0.26	10.17	0.00	0.00	0.93	812	150	1.65	0.30	10.17	0.00	0.00	0.75
CPR-1[11]	2,412	67	0.43	0.08	135	2.43	0.08	6.94	2,806	393	3.49	0.64	155	20.58	0.17	1.13	2,969	163	2.87	1	155	0.00	0.00	61.23
CPR-2[11]	326	5	0.04	0.01	32	0.00	0.00	0.94	377	51	0.45	0.08	34	2.55	0.03	0.15	386	9	0.27	0	35	0.46	0.00	3.43
EX-1[11]	5,730	82	0.85	0.16	N/A	NA	N/A	N/A	5,779	49	0.69	0.13	N/A	N/A	N/A	N/A	5,888	109	1.13	0	N/A	N/A	N/A	N/A
EX-2[11]	570	7	0.08	0.02	N/A	NA	N/A	N/A	576	6	0.09	0.02	N/A	N/A	N/A	N/A	591	15	0.15	0	N/A	N/A	N/A	N/A
EX-3[11]	2,091	9	0.15	0.03	N/A	NA	N/A	N/A	2,124	33	0.46	0.08	N/A	N/A	N/A	N/A	2,177	54	0.62	0	N/A	N/A	N/A	N/A
EX-4[11]	527	6	0.05	0.01	N/A	NA	N/A	N/A	534	7	0.08	0.01	N/A	N/A	N/A	N/A	541	6	0.07	0	N/A	N/A	N/A	N/A
U2-5[11]	503	N/A	-	0.00	N/A	NA	N/A	N/A	503	N/A	N/A	N/A	N/A	N/A	N/A	N/A	503	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	109,942	10,403	136	25	22,025	88	0.84	281.21	125,755	15,813	174	32	22,127	102	1.14	38.55	135,456	9,700	95	17	22,222	94	1.43	5737.47

Abbreviations:

N/A- Not available (pump not installed/running at this time.

UK - Unknown (not enough data).
NAPL - Non-Aqueous Phase Liquids

PHC - Petroleum Hydrocarbons
m - Metres
L - Litres
Kg - Kilograms
gpm - Gallons per minute

TABLE 2-5
SUMMARY OF EXTRACTION RATES - PERIMETER EXTRACTION SYSTEM
PARKLAND BURNABY REFINERY

Extraction Well	September 29-30, 2014								December 15-17, 2014								February 24-25, 2015							
	Total Fluids Extracted (m^3)	Quarter Fluids Extracted (m^3)	Fluid Extraction Rate [13]		Total NAPL Extracted (L)	NAPL Extracted (quarterly basis) (L)	NAPL Extraction Rate[5] (L/day)	PHC Mass Extracted (quarterly basis) (Kg)	Total Fluids Extracted (m^3)	Quarter Fluids Extracted (m^3)	Fluid Extraction Rate [13]		Total NAPL Extracted (L)	NAPL Extracted (quarterly basis) (L)	NAPL Extraction Rate[5] (L/day)	PHC Mass Extracted (quarterly basis) (Kg)	Total Fluids Extracted (m^3)	Quarter Fluids Extracted (m^3)	Fluid Extraction Rate [13]		Total NAPL Extracted (L)	NAPL Extracted (quarterly basis) (L)	NAPL Extraction Rate[5] (L/day)	PHC Mass Extracted (quarterly basis) (Kg)
			(m^3/day)	(gpm)							(m^3/day)	(gpm)							(m^3/day)	(gpm)				
UEIB-1[1]	78	N/A	N/A	N/A	2,680	N/A	N/A	NA	78	N/A	N/A	N/A	2,680	N/A	N/A	NA	78	N/A	N/A	N/A	2,680	N/A	N/A	NA
UEIB-2[2]/UEIB-52[14]	256	8	0.05	0.01	1,578	0.00	0.00	1.84	280	24.3	0.34	0.06	1,578	0.00	0.00	0.12	303	23.1	0.25	0.05	1,578	0.00	0.00	0.07
UEIB-3/UEIB-53[14]	605	10	0.07	0.01	4,465	0.00	0.00	2.37	633	27.5	0.38	0.07	4,465	0.00	0.00	0.46	648	15.0	0.13	0.02	4,465	0.00	0.00	0.05
UEIB-4/UEIB-54[14]	353	6	0.02	0.00	153.92	0.00	0.00	1.56	383	30.4	0.47	0.09	153.92	0.00	0.00	1.38	390	6.8	0.06	0.01	153.92	0.00	0.00	0.02
UEIB-5[8]	358	N/A	N/A	N/A	184	N/A	N/A	NA	358	N/A	N/A	N/A	184	N/A	N/A	NA	358	N/A	N/A	N/A	184	N/A	N/A	NA
UEIB-6[9]	209	N/A	N/A	N/A	6,025	N/A	N/A	NA	209	N/A	N/A	N/A	6,025	N/A	N/A	NA	209	N/A	N/A	N/A	6,025	N/A	N/A	NA
UEIB-7/UEIB-47[14]	316	0.2	0.00	0.00	5,644	0.00	0.00	0.06	320	4.7	0.07	0.01	5,644	0.00	0.00	0.14	323	3.2	0.04	0.01	5,644	0.00	0.00	0.01
UEIB-8/UEIB-48[14]	1,299	25	0.01	0.00	0.00	0.00	0.00	6.00	1,345	46.3	0.58	0.11	2.83	2.83	0.04	0.13	1,431	85.8	1.03	0.19	6.80	3.97	0.07	0.14
UEIB-9/UEIB-49[14]	2,020	50	0.44	0.08	0.00	0.00	0.00	0.03	2,104	84.3	1.05	0.19	0.00	0.00	0.00	0.02	2,159	55.0	0.58	0.11	0.00	0.00	0.00	0.01
UEIB-10[4]/UEIB-50[14]	792	N/A	N/A	N/A	0.00	N/A	N/A	N/A	792	N/A	N/A	N/A	0.00	N/A	N/A	N/A	792	N/A	N/A	N/A	0.00	N/A	N/A	N/A
UEIB-11[3]	10	N/A	N/A	N/A	0.00	N/A	N/A	N/A	10	N/A	N/A	N/A	0.00	N/A	N/A	N/A	10	N/A	N/A	N/A	0.00	N/A	N/A	N/A
UEIB-14[1,4]/UEIB-51[14]	91	0.3	0.00	0.00	825	0.00	0.00	0.07	92	1.1	0.02	0.00	825	0.00	0.00	0.13	93	1.7	0.02	0.00	825	0.00	0.00	0.01
UEIB-15	3,616	464	2.05	0.38	0.00	0.00	0.00	0.23	4,442	826.0	11.46	2.10	0.00	0.00	0.00	0.74	5,558	1,116.2	8.90	1.63	0.00	0.00	0.00	0.68
UEIB-16	4,679	626	1.65	0.30	0.00	0.00	0.00	153.36	5,294	615.0	9.58	1.76	0.00	0.00	0.00	0.63	5,298	4.4	0.01	0.00	0.00	0.00	0.00	0.00
UEIB-17	2,257	200	2.57	0.47	0.00	0.00	0.00	49.04	2,444	187.0	2.02	0.37	0.00	0.00	0.00	0.15	2,819	375.0	2.18	0.40	0.00	0.00	0.00	1.17
UEIB-18	3,002	177	1.93	0.35	0.00	0.00	0.00	0.50	3,374	371.9	4.25	0.78	0.00	0.00	0.00	0.30	3,788	413.9	5.72	1.05	0.00	0.00	0.00	0.96
UEIB-19	4,301	288	0.99	0.18	0.00	0.00	0.00	70.61	4,308	7.3	0.13	0.02	0.00	0.00	0.00	0.02	4,343	34.8	0.44	0.08	0.00	0.00	0.00	0.05
UEIB-20/UEIB-56[14]	7,003	336	4.09	0.75	0.00	0.00	0.00	0.28	7,584	581.4	4.32	0.79	0.00	0.00	0.00	0.51	8,094	510.0	6.01	1.10	0.00	0.00	0.00	0.40
UEIB-21	6,924	343	5.70	1.05	0.00	0.00	0.00	83.85	7,647	723.5	8.90	1.63	0.00	0.00	0.00	3.51	8,362	714.7	6.83	1.25	0.00	0.00	0.00	4.29
UEIB-22	2,557	264	2.70	0.49	0.00	0.00	0.00	0.37	3,322	764.7	9.77	1.79	0.00	0.00	0.00	2.41	3,477	155.0	1.92	0.35	0.00	0.00	0.00	0.48
UEIB-23	2,453	507	6.03	1.11	0.00	0.00	0.00	0.22	4,145	1,692.0	24.26	4.45	0.00	0.00	0.00	2.93	4,598	452.7	5.76	1.06	0.00	0.00	0.00	0.64
UEIB-24	5,548	109	1.37	0.25	0.00	0.00	0.00	0.02	5,820	272.1	2.48	0.46	0.00	0.00	0.00	0.19	5,979	158.4	11.55	2.12	0.00	0.00	0.00	0.10
UEIB-25	3,598	281	3.75	0.69	0.00	0.00	0.00	68.80	4,126	527.8	7.16	1.31	0.00	0.00	0.00	0.55	4,672	546.5	3.69	0.68	0.00	0.00	0.00	0.78
UEIB-26	4,961	178	1.97	0.36	0.00	0.00	0.00	43.56	5,425	463.4	0.67	0.12	0.00	0.00	0.00	0.90	5,524	99.1	4.68	0.86	0.00	0.00	0.00	0.38
UEIB-27	4,412	493	8.08	1.48	0.00	0.00	0.00	0.93	5,512	1,100.7	12.45	2.28	0.00	0.00	0.00	7.02	6,042	529.4	1.41	0.26	0.00	0.00	0.00	3.07
UEIB-28	2,547	119	1.97	0.36	0.00	0.00	0.00	29.13	2,864	317.3	3.98	0.73	0.00	0.00	0.00	0.75	3,191	326.5	10.18	1.87	0.00	0.00	0.00	1.00
UEIB-29	6,185	248	2.95	0.54	0.00	0.00	0.00	60.68	6,621	435.6	3.30	0.60	0.00	0.00	0.00	0.22	7,007	386.4	3.88	0.71	0.00	0.00	0.00	0.10
UEIB-30	3,409	242	3.37	0.62	0.00	0.00	0.00	0.06	3,844	434.7	4.89	0.90	0.00	0.00	0.00	0.31	4,403	559.4	7.80	1.43	0.00	0.00	0.00	0.29
UEIB-31/UEIB-55[14]	3,942	1,397	21.77	3.99	0.00	0.00	0.00	341.95	3,947	5.2	0.03	0.01	0.00	0.00	0.00	0.16	3,993	46.2	3.10	0.57	0.00	0.00	0.00	0.01
UEIB-32	3,177	105	1.04	0.19	44.62	0.00	0.00	0.66	3,315	138.2	1.53	0.28	44.62	0.00	0.00	1.14	3,442	127.5	1.46	0.27	44.62	0.00	0.00	1.03
UEIB-33	3,808	16	0.28	0.05	54.26	0.00	0.00	0.12	3,968	160.7	2.07	0.38	54.26	0.00	0.00	0.74	4,276	307.4	3.46	0.63	54.26	0.00	0.00	1.87
UEIB-34	3,952	480	4.48	0.82	24.02	24.02	0.26	0.13	4,337	385.2	3.40	0.62	40.07	16.06	0.20	2.68	4,703	365.8	4.35	0.80	40.07	0.00	0.00	0.56
UEIB-35	8,401	74	0.02	0.00	0.00	0.00	0.00	4.87	8,891	489.3	7.17	1.31	0.00	0.00	0.00	14.86	9,479	588.5	6.57	1.21	0.00	0.00	0.00	0.33
UEIB-36	3,833	335	3.51	0.64	16.77	16.77	0.23	82.08	4,193	359.6	3.04	0.56	33.16	16.39	0.20	0.11	4,326	132.7	1.57	0.29	33.16	0.00	0.00	0.04
UEIB-37 [6]	3,359	1,152	17.29	3.17	0.00	0.00	0.00	282.08	3,926	566.8	5.70	1.05	0.00	0.00	0.00	6.35	4,443	517.1	5.87	1.08	0.00	0.00	0.00	0.74
UEIB-38	810	8	0.09	0.02	0.00	0.00	0.00	1.98	810	-	0.08	0.01	0.00	0.00	0.00	0.00	810	0.0	0.00	0.00	0.00	0.00	0.00	0.00
UEIB-39 [6]	1,921	171	1.58	0.29	0.00	0.00	0.00	0.09	2,142	221.0	2.60	0.48	0.00	0.00	0.00	0.11	2,396	254.2	2.96	0.54	0.00	0.00	0.00	0.47
UEIB-40 [6]	2,168	264	3.68	0.67	0.00	0.00	0.00	0.13	2,493	325.2	3.77	0.69	0.00	0.00	0.00	0.10	2,793	299.2	3.33	0.61	0.00	0.00	0.00	0.19
UEIB-41 [6]	4,721	1,621	3.26	0.60	0.00	0.00	0.00	0.47	5,132	410.7	3.74	0.69	0.00	0.00	0.00	12.47	5,440	308.6	3.54	0.65	0.00	0.00	0.00	0.52
UEIB-42 [6]	5,083	240	2.53	0.46	0.00	0.00	0.00	0.14	5,666	582.8	6.74	1.24	0.00	0.00	0.00	0.10	6,620	953.8	11.00	2.02	0.00	0.00	0.00	0.24
UEIB-43	7,879	1,346	10.70	1.96	0.00	0.00	0.00	329.40	8,870	991.8	9.22	1.69	0.00	0.00	0.00	30.13	9,694	824.1	9.74	1.79	0.00	0.00	0.00	2.57
UEIB-44	1,714	130	1.25	0.23	42.96	12.95	0.18	1.77	1,714	0.3	0.00	0.00	42.98	0.01	0.00	0.01	1,732	18.0	0.33	0.06	42.98	0.00	0.00	0.13
UEIB-45 [8]	6,477	1,182	10.69	1.96	455.95	118.23	1.53	5659.44	7,018	541.4	5.38	0.99	501.07	45.12	0.58	391.41	7,738	719.9	8.87	1.63	557.72	56.65	0.82	19.39
UEIB-46 [9]	937	124	1.18	0.22	10.17	0.00	0.00	0.59	1,111	174.0	2.27	0.42	10.17	0.00	0.00	1.53	1,232	121.2	1.36	0.25	10.17	0.00	0.00	0.76
CPR-1 [11]	2,970	1	0.02	0	155	0.06	0.00	0.28	3,330	359.4	4.67	0.86	170	14.88	0.18	10.92	3,558	228.4	3.00	0.55	170	0.00	0.00	0.71
CPR-2 [11]	386	0	0.00	0	35	0.00	0.00	0.00	494	107.9	1.44	0.26	35	0.00	0.00	3.28	586	92.6	1.22	0.22	35	0.00	0.00	0.29
EX-1 [11]	5,947	59	0.71	0	N/A	N/A	N/A	N/A	6,049	102.7	1.07	0.20	N/A	N/A	N/A	N/A	6,137	87.6	1.15	0.21	N/A	N/A	N/A	N/A
EX-2 [11]	599	9	0.11	0	N/A	N/A	N/A	N/A	616	16.9	0.19	0.03	N/A	N/A	N/A	N/A	630	13.7	0.18	0.03	N/A	N/A	N/A	N/A
EX-3 [11]	2,200	22	0.28	0	N/A	N/A	N/A	N/A	2,272	72.5	0.82	0.15	N/A	N/A	N/A	N/A	2,326	54.2	0.71	0.13	N/A	N/A	N/A	N/A
EX-4 [11]	544	3	0.04	0	N/A	N/A	N/A	N/A	549	5.6	0.06	0.01	N/A	N/A	N/A	N/A	554	4.6	0.05	0.01	N/A	N/A	N/A	N/A
U2-5 [11]	503	N/A	N/A	N/A	N/A	N/A	N/A	N/A	503	N/A	N/A	N/A	N/A	N/A	N/A	N/A	503	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	149,167	13,712	136	25	22,394	172	2.21	7279.78	164,724	15,556	178	33	22,489	95	1.20	499.60	177,362	12,638	157	29	22,550	61	0.89	44.55

Abbreviations:

N/A- Not available (pump not installed/running at this time.

UK - Unknown (not enough data).
NAPL - Non-Aqueous Phase Liquids

PHC - Petroleum Hydrocarbons
m - Metres
L - Litres
Kg - Kilograms
gpm - Gallons per minute

TABLE 2-5
SUMMARY OF EXTRACTION RATES - PERIMETER EXTRACTION SYSTEM
PARKLAND BURNABY REFINERY

Extraction Well	May 26-28, 2015								August 11-13, 2015								November 16-19, 2015							
	Total Fluids Extracted (m^3)	Quarter Fluids Extracted (m^3)	Fluid Extraction Rate[13] (m^3/day)	Fluid Extraction Rate[13] (gpm)	Total NAPL Extracted (L)	NAPL Extracted (quarterly basis) (L)	NAPL Extraction Rate[5] (L/day)	PHC Mass Extracted (quarterly basis) (Kg)	Total Fluids Extracted (m^3)	Quarter Fluids Extracted (m^3)	Fluid Extraction Rate[13] (m^3/day)	Fluid Extraction Rate[13] (gpm)	Total NAPL Extracted (L)	NAPL Extracted (quarterly basis) (L)	NAPL Extraction Rate[5] (L/day)	PHC Mass Extracted (quarterly basis) (Kg)	Total Fluids Extracted (m^3)	Quarter Fluids Extracted (m^3)	Fluid Extraction Rate[13] (m^3/day)	Fluid Extraction Rate[13] (gpm)	Total NAPL Extracted (L)	NAPL Extracted (quarterly basis) (L)	NAPL Extraction Rate[5] (L/day)	PHC Mass Extracted (quarterly basis) (Kg)
UEIB-1[1]	78	N/A	N/A	N/A	2,680	N/A	N/A	NA	78	N/A	N/A	N/A	2,680	N/A	N/A	N/A	78	N/A	N/A	N/A	2,680	N/A	N/A	N/A
UEIB-2[2]/UEIB-52[14]	317	13.5	0.09	0.02	1,578	0.00	0.00	0.65	317	0.1	0.00	0.00	1,578	0.00	0.00	0.00	326	9.3	0.12	0.02	1,578	0.00	0.00	0.18
UEIB-3/UEIB-53[14]	653	4.9	0.00	0.00	4,465	0.00	0.00	0.24	653	0.0	0.00	0.00	4,465	0.00	0.00	0.00	660	7.5	0.12	0.02	4,465	0.00	0.00	0.15
UEIB-4/UEIB-54[14]	391	0.7	0.00	0.00	153.92	0.00	0.00	0.03	391	0.0	0.00	0.00	154	0.00	0.00	0.00	391	0.4	0.01	0.00	154	0.00	0.00	0.01
UEIB-5[8]	358	N/A	N/A	N/A	184	N/A	N/A	N/A	358	N/A	N/A	N/A	184	N/A	N/A	N/A	358	N/A	N/A	N/A	184	N/A	N/A	N/A
UEIB-6[9]	209	N/A	N/A	N/A	6,025	N/A	N/A	N/A	209	N/A	N/A	N/A	6,025	N/A	N/A	N/A	209	N/A	N/A	N/A	6,025	N/A	N/A	N/A
UEIB-7/UEIB-47[14]	324	0.9	0.00	0.00	5,644	0.00	0.00	0.04	324	0.1	0.00	0.00	5,644	0.00	0.00	0.00	327	2.8	0.04	0.01	5,644	0.00	0.00	0.05
UEIB-8/UEIB-48[14]	1,467	36.1	0.20	0.04	6.80	0.00	0.00	1.75	1,467	0.2	0.00	0.00	6.80	0.00	0.00	0.01	1,512	45.0	0.40	0.07	6.80	0.00	0.00	0.09
UEIB-9/UEIB-49[14]	2,222	63.3	0.57	0.10	0.00	0.00	0.00	0.02	2,255	32.3	0.30	0.06	0.00	0.00	0.00	1.04	2,337	82.8	1.02	0.19	0.00	0.00	0.00	0.01
UEIB-10[4]/UEIB-50[14]	792	N/A	N/A	N/A	0.00	N/A	N/A	N/A	792	N/A	N/A	N/A	0.00	N/A	N/A	N/A	793	1.5	0.00	0.00	0.00	0.00	0.00	0.03
UEIB-11[3]	10	N/A	N/A	N/A	0.00	N/A	N/A	N/A	10	N/A	N/A	N/A	0.00	N/A	N/A	N/A	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
UEIB-14[1,4]/UEIB-51[14]	94	0.5	0.00	0.00	825	0.00	0.00	0.02	94	0.2	0.00	0.00	825	0.00	0.00	0.01	95	0.8	0.01	0.00	825	0.00	0.00	0.02
UEIB-15	6,305	747.3	7.69	1.41	0.00	0.00	0.00	0.28	7,443	1,137.6	2.62	0.48	0.00	0.00	0.00	0.14	7,540	97.5	2.31	0.42	0.00	0.00	0.00	0.08
UEIB-16	5,299	0.3	0.01	0.00	0.00	0.00	0.00	0.00	5,313	14.6	0.23	0.04	0.00	0.00	0.00	0.47	5,379	65.2	0.54	0.10	0.00	0.00	0.00	1.25
UEIB-17	2,873	53.7	0.73	0.13	0.00	0.00	0.00	2.61	3,149	276.3	4.87	0.89	0.00	0.00	0.00	9	3,524	375.0	2.62	0.48	0.00	0.00	0.00	7.21
UEIB-18	4,272	483.9	5.71	1.05	0.00	0.00	0.00	0.20	4,795	523.2	4.92	0.90	0.00	0.00	0.00	0.20	5,147	352.1	4.67	0.86	0.00	0.00	0.00	6.77
UEIB-19	4,355	12.1	0.21	0.04	0.00	0.00	0.00	0.59	5,232	876.8	3.61	0.66	0.00	0.00	0.00	28.16	5,589	356.8	1.34	0.25	0.00	0.00	0.00	0.40
UEIB-20/UEIB-56[14]	8,837	743.0	6.33	1.16	0.00	0.00	0.00	0.77	9,712	874.6	8.34	1.53	0.00	0.00	0.00	0.40	10,734	1,022.7	10.62	1.95	0.00	0.00	0.00	1.12
UEIB-21	8,850	488.3	6.69	1.23	0.00	0.00	0.00	2.52	9,623	772.1	8.51	1.56	0.00	0.00	0.00	3.47	10,243	620.2	7.15	1.31	0.00	0.00	0.00	1.62
UEIB-22	3,824	347.6	3.99	0.73	0.00	0.00	0.00	0.55	3,981	157.2	1.37	0.25	0.00	0.00	0.00	0.05	4,203	221.1	2.58	0.47	0.00	0.00	0.00	0.27
UEIB-23	4,942	344.2	4.88	0.90	0.00	0.00	0.00	0.15	5,381	438.4	4.31	0.79	0.00	0.00	0.00	14.08	5,609	228.5	2.26	0.41	0.00	0.00	0.00	4.39
UEIB-24	6,894	915.1	8.88	1.63	0.00	0.00	0.00	44.50	7,546	652.4	3.45	0.63	0.00	0.00	0.00	20.95	7,974	428.2	4.91	0.90	0.00	0.00	0.00	8.24
UEIB-25	4,965	293.0	3.21	0.59	0.00	0.00	0.00	0.35	5,177	211.8	2.12	0.39	0.00	0.00	0.00	6.80	5,377	199.5	2.35	0.43	0.00	0.00	0.00	3.84
UEIB-26	8,175	2,651.4	46.00	8.44	0.00	0.00	0.00	128.95	8,339	164.1	1.61	0.30	0.00	0.00	0.00	5.27	8,628	289.1	3.78	0.69	0.00	0.00	0.00	5.56
UEIB-27	6,540	498.7	4.46	0.82	0.00	0.00	0.00	1.34	6,739	198.9	2.15	0.40	0.00	0.00	0.00	0.39	7,005	265.4	3.18	0.58	0.00	0.00	0.00	0.68
UEIB-28	3,494	303.3	2.31	0.42	0.00	0.00	0.00	0.15	3,594	99.9	1.22	0.22	0.00	0.00	0.00	3.21	3,749	155.2	2.24	0.41	0.00	0.00	0.00	2.98
UEIB-29	7,706	698.6	5.00	0.92	0.00	0.00	0.00	0.24	7,983	277.7	1.55	0.28	0.00	0.00	0.00	0.24	8,405	421.1	4.56	0.84	0.00	0.00	0.00	0.16
UEIB-30	4,750	346.8	2.90	0.53	0.00	0.00	0.00	0.21	5,006	256.1	3.30	0.61	0.00	0.00	0.00	8.23	5,011	5.3	0.01	0.00	0.00	0.00	0.00	0.06
UEIB-31/UEIB-55[14]	4,160	167.0	0.09	0.02	0.00	0.00	0.00	8.12	4,237	76.9	0.74	0.14	0.00	0.00	0.00	2.47	4,455	218.1	2.52	0.46	0.00	0.00	0.00	4.19
UEIB-32	3,544	102.0	1.06	0.19	44.62	0.00	0.00	0.57	3,619	74.5	0.75	0.14	44.62	0.00	0.00	0.44	3,695	76.6	0.92	0.17	44.62	0.00	0.00	0.52
UEIB-33	4,458	182.5	1.40	0.26	54.26	0.00	0.00	0.76	4,528	69.3	0.69	0.13	54.26	0.00	0.00	0.37	4,718	190.0	2.70	0.50	54.26	0.00	0.00	0.67
UEIB-34	4,970	266.4	2.75	0.50	40.07	0.00	0.00	0.04	5,150	180.5	1.62	0.30	40.07	0.00	0.00	0.03	5,270	119.9	0.98	0.18	40.07	0.00	0.00	0.01
UEIB-35	9,896	416.5	3.77	0.69	0.00	0.00	0.00	20.26	10,162	266.0	2.64	0.48	0.00	0.00	0.00	8.54	10,419	257.1	3.24	0.59	0.00	0.00	0.00	0.04
UEIB-36	4,392	66.4	1.07	0.20	33.16	0.00	0.00	3.23	4,463	71.0	0.82	0.15	33.16	0.00	0.00	2.28	4,579	115.5	1.19	0.22	33.16	0.00	0.00	2.22
UEIB-37[6]	4,521	77.2	0.72	0.13	0.00	0.00	0.00	3.76	4,607	86.3	0.94	0.17	0.00	0.00	0.00	2.77	4,664	56.8	0.66	0.12	0.00	0.00	0.00	1.09
UEIB-38	810	0.0	0.00	0.00	0.00	0.00	0.00	0.00	814	3.5	0.05	0.01	0.00	0.00	0.00	0.11	852	37.7	0.42	0.08	0.00	0.00	0.00	0.73
UEIB-39[6]	2,518	121.5	1.34	0.25	0.00	0.00	0.00	0.02	2,619	101.5	1.02	0.19	0.00	0.00	0.00	3.26	2,700	80.6	1.01	0.19	0.00	0.00	0.00	1.55
UEIB-40[6]	2,946	153.3	1.63	0.30	0.00	0.00	0.00	7.46	3,080	133.8	1.34	0.25	0.00	0.00	0.00	4.30	3,213	133.7	1.60	0.29	0.00	0.00	0.00	2.57
UEIB-41[6]	5,653	213.2	2.33	0.43	0.00	0.00	0.00	10.37	5,872	218.1	2.35	0.43	0.00	0.00	0.00	7.00	6,090	218.2	2.61	0.48	0.00	0.00	0.00	4.20
UEIB-42[6]	7,210	590.5	8.12	1.49	0.00	0.00	0.00	28.72	7,883	673.1	6.75	1.24	0.00	0.00	0.00	21.62	8,471	587.8	7.03	1.29	0.00	0.00	0.00	11.31
UEIB-43	9,760	65.8	0.00	0.00	0.00	0.00	0.00	3.20	9,828	67.6	0.89	0.16	0.00	0.00	0.00	2.17	10,403	575.5	5.22	0.96	0.00	0.00	0.00	11.07
UEIB-44	1,821	88.5	0.93	0.17	42.98	0.00	0.00	0.29	1,893	71.8	0.69	0.13	42.98	0.00	0.00	0.34	1,942	49.0	0.53	0.10	42.98	0.00	0.00	0.94
UEIB-45[8]	8,450	711.5	7.39	1.35	632.50	74.78	0.95	667.34	8,982	532.4	6.14	1.13	688.13	55.63	0.71	223.96	9,386	403.6	4.46	0.82	728.20	40.07	0.42	116.51
UEIB-46[9]	1,299	66.8	0.53	0.10	10.17	0.00	0.00	0.40	1,354	55.2	0.52	0.10	10.17	0.00	0.00	0.17	1,437	83.2	0.93	0.17	10.17	0.00	0.00	0.39
CPR-1[11]	3,680	122.5	1.22	0.22	170	0.00	0.00	5.96	3,688	7.5	0.10	0.02	170	0.00	0.00	0.01	3,803	115.5	2.21	0.41	177	6.15	0.18	0.03
CPR-2[11]	610	23.8	0.2	0.04	35	0.00	0.00	1.16	610	0.0	0.0	0.00	35	0.00	0.00	0.00	641	31.4	0.6	0.11	36	1.57	0.04	0.60
EX-1[11]	6,239	101.9	0.97	0.18	N/A	N/A	N/A	N/A	6,327	87.9	0.91	0.17	N/A	N/A	N/A	N/A	6,441	113.8	1.30	0.24	N/A	N/A	N/A	N/A
EX-2[11]	646	16.1	0.14	0.03	N/A	N/A	N/A	N/A	658	11.9	0.13	0.02	N/A	N/A	N/A	N/A	676	18.2	0.22	0.04	N/A	N/A	N/A	N/A
EX-3[11]	2,378	52.1	0.36	0.07	N/A	N/A	N/A	N/A	2,427	48.1	0.49	0.09	N/A	N/A	N/A	N/A	2,506	79.2	0.99	0.18	N/A	N/A	N/A	N/A
EX-4[11]	559	4.7	0.05	0.01	N/A	N/A	N/A	N/A	562	3.5	0.04	0.01	N/A	N/A	N/A	N/A	566	4.3	0.05	0.01	N/A	N/A	N/A	N/A
U2-5[11]	503	N/A	N/A	N/A	N/A	N/A	N/A	N/A	503	N/A	N/A	N/A	N/A	N/A	N/A	N/A	503	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	190,019	12,657	146	27	22,624	75	0.95	947.83	199,824	9,805	84	15	22,680	56	0.71	381.84	208,643	8,819	98	18	22,728	48	0.64	203.83

Abbreviations:

N/A- Not available (pump not installed/running at this time.

UK - Unknown (not enough data).
NAPL - Non-Aqueous Phase Liquids

PHC - Petroleum Hydrocarbons
m - Metres
L - Litres
Kg - Kilograms
gpm - Gallons per minute

TABLE 2-5
SUMMARY OF EXTRACTION RATES - PERIMETER EXTRACTION SYSTEM
PARKLAND BURNABY REFINERY

Extraction Well	February 1-3, 2016								May 30,31 June 8, 9, and 15, 2016								August 29-31, 2016							
	Total Fluids Extracted (m^3)	Quarter Fluids Extracted (m^3)	Fluid Extraction Rate[13] (m^3/day)	(gpm)	Total NAPL Extracted (L)	NAPL Extracted (quarterly basis) (L)	NAPL Extraction Rate[5] (L/day)	PHC Mass Extracted (quarterly basis) (Kg)	Total Fluids Extracted (m^3)	Quarter Fluids Extracted (m^3)	Fluid Extraction Rate[13] (m^3/day)	(gpm)	Total NAPL Extracted (L)	NAPL Extracted (quarterly basis) (L)	NAPL Extraction Rate[5] (L/day)	PHC Mass Extracted (quarterly basis) (Kg)	Total Fluids Extracted (m^3)	Quarter Fluids Extracted (m^3)	Fluid Extraction Rate[13] (m^3/day)	(gpm)	Total NAPL Extracted (L)	NAPL Extracted (quarterly basis) (L)	NAPL Extraction Rate[5] (L/day)	PHC Mass Extracted (quarterly basis) (Kg)
UEIB-1[1]	78	N/A	N/A	N/A	2,680	N/A	N/A	N/A	78	N/A	N/A	N/A	2,680	N/A	N/A	N/A	78	N/A	N/A	N/A	2,680	N/A	N/A	N/A
UEIB-2[2]/UEIB-52[14]	340	14.0	0.17	0.03	1,578	0.00	0.00	0.20	350	9.6	0.09	0.02	1,578	0.00	0.00	0.16	356	5.9	0.05	0.01	1,578	0.00	0.00	0.04
UEIB-3/UEIB-53[14]	672	11.4	0.14	0.03	4,465	0.00	0.00	0.16	675	3.0	0.01	0.00	4,465	0.00	0.00	0.05	675	NA	0.01	0.00	4,465	N/A	N/A	N/A
UEIB-4/UEIB-54[14]	392	1.1	0.01	0.00	154	0.00	0.00	0.02	393	0.5	0.00	0.00	154	0.00	0.00	0.01	394	1.2	0.02	0.00	154	0.00	0.00	0.01
UEIB-5[8]	358	N/A	N/A	N/A	184	N/A	N/A	N/A	358	N/A	N/A	N/A	184	N/A	N/A	N/A	358	N/A	N/A	N/A	184	N/A	N/A	N/A
UEIB-6[9]	209	N/A	N/A	N/A	6,025	N/A	N/A	N/A	209	N/A	N/A	N/A	6,025	N/A	N/A	N/A	209	N/A	N/A	N/A	6,025	N/A	N/A	N/A
UEIB-7/UEIB-47[14]	329	1.6	0.02	0.00	5,644	0.00	0.00	0.01	330	0.8	0.01	0.00	5,644	0.00	0.00	0.01	330	0.7	0.01	0.00	5,644	0.00	0.00	0.00
UEIB-8/UEIB-48[14]	1,618	106.3	1.27	0.23	6.80	0.00	0.00	1.53	1,713	95.0	0.97	0.18	6.80	0.00	0.00	0.08	1,742	28.8	0.09	0.02	6.80	0.00	0.00	0.19
UEIB-9/UEIB-49[14]	2,419	81.3	0.89	0.16	0.00	0.00	0.00	2.69	2,483	64.5	0.64	0.12	0.00	0.00	0.00	0.07	2,530	46.3	0.45	0.08	0.00	0.00	0.00	0.05
UEIB-10[4]/UEIB-50[14]	803	10.1	0.11	0.02	0.00	0.00	0.00	0.14	811	7.7	0.09	0.02	0.00	0.00	0.00	0.13	819	8.5	0.10	0.02	0.00	0.00	0.00	0.06
UEIB-11[3]	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
UEIB-14[1,4]/UEIB-51[14]	95	N/A	N/A	N/A	825	N/A	N/A	N/A	95	N/A	N/A	N/A	825	N/A	N/A	N/A	95	N/A	N/A	N/A	825	N/A	N/A	N/A
UEIB-15	7,709	168.7	2.42	0.44	0.00	0.00	0.00	0.03	7,891	182.0	1.37	0.25	0.00	0.00	0.00	0.03	8,671	780.1	12.38	2.27	0.00	0.00	0.00	0.15
UEIB-16	5,707	328.6	4.00	0.73	0.00	0.00	0.00	4.63	5,951	243.9	2.11	0.39	0.00	0.00	0.00	4.13	6,163	211.8	2.58	0.47	0.00	0.00	0.00	1.37
UEIB-17	3,875	350.9	3.83	0.70	0.00	0.00	0.00	4.95	4,000	125.0	1.63	0.30	0.00	0.00	0.00	2.12	4,131	130.8	1.18	0.22	0.00	0.00	0.00	0.85
UEIB-18	5,568	420.7	4.48	0.82	0.00	0.00	0.00	5.93	5,939	370.8	3.55	0.65	0.00	0.00	0.00	6.28	6,201	262.2	2.90	0.53	0.00	0.00	0.00	1.69
UEIB-19	5,798	209.0	2.63	0.48	0.00	0.00	0.00	0.19	6,053	254.9	2.55	0.47	0.00	0.00	0.00	0.18	6,422	369.2	4.74	0.87	0.00	0.00	0.00	0.19
UEIB-20/UEIB-56[14]	11,244	510.1	5.17	0.95	0.00	0.00	0.00	0.44	11,766	521.6	5.87	1.08	0.00	0.00	0.00	0.07	12,223	457.3	4.66	0.86	0.00	0.00	0.00	2.96
UEIB-21	10,371	128.1	2.21	0.40	0.00	0.00	0.00	0.16	10,371	0.0	0.00	0.00	0.00	0.00	0.00	0	10,633	262.3	6.36	1.17	0.00	0.00	0.00	1.70
UEIB-22	4,494	291.4	3.12	0.57	0.00	0.00	0.00	0.47	4,735	240.7	2.30	0.42	0.00	0.00	0.00	0.37	4,794	59.8	0.28	0.05	0.00	0.00	0.00	0.35
UEIB-23	5,948	339.3	4.08	0.75	0.00	0.00	0.00	4.79	6,100	151.3	1.38	0.25	0.00	0.00	0.00	2.56	6,150	50.1	0.36	0.07	0.00	0.00	0.00	0.32
UEIB-24	8,325	351.2	3.37	0.62	0.00	0.00	0.00	4.95	8,617	291.7	3.22	0.59	0.00	0.00	0.00	4.94	9,061	443.7	5.45	1.00	0.00	0.00	0.00	2.87
UEIB-25	5,733	356.8	4.59	0.84	0.00	0.00	0.00	5.03	6,134	401.0	4.11	0.75	0.00	0.00	0.00	6.79	6,379	244.4	2.15	0.39	0.00	0.00	0.00	1.58
UEIB-26	9,030	401.3	4.41	0.81	0.00	0.00	0.00	5.66	9,304	274.3	2.79	0.51	0.00	0.00	0.00	4.65	9,522	218.1	2.23	0.41	0.00	0.00	0.00	1.41
UEIB-27	7,381	376.4	3.16	0.58	0.00	0.00	0.00	1.60	7,570	188.4	1.86	0.34	0.00	0.00	0.00	0.57	8,076	506.7	7.09	1.30	0.00	0.00	0.00	1.54
UEIB-28	4,111	361.8	4.74	0.87	0.00	0.00	0.00	0.31	4,472	360.7	3.80	0.70	0.00	0.00	0.00	6	4,706	234.1	2.07	0.38	0.00	0.00	0.00	1.51
UEIB-29	8,665	260.7	2.21	0.40	0.00	0.00	0.00	3.68	8,840	174.4	1.96	0.36	0.00	0.00	0.00	2.95	9,642	802.4	10.53	1.93	0.00	0.00	0.00	5.19
UEIB-30	5,024	12.4	0.18	0.03	0.00	0.00	0.00	0.00	5,113	89.1	0.97	0.18	0.00	0.00	0.00	2	5,160	46.8	0.42	0.08	0.00	0.00	0.00	0.30
UEIB-31/UEIB-55[14]	4,667	211.4	2.29	0.42	0.00	0.00	0.00	2.98	4,667	0.0	0.00	0.00	0.00	0.00	0.00	0.00	4,667	0.0	0.00	0.00	0.00	0.00	0.00	0.00
UEIB-32	3,803	107.7	1.24	0.23	44.62	0.00	0.00	0.57	3,901	97.8	1.07	0.20	44.62	0.00	0.00	0.41	3,986	85.4	0.89	0.16	44.62	0.00	0.00	0.38
UEIB-33	5,039	321.2	3.76	0.69	54.26	0.00	0.00	0.91	5,228	188.9	1.82	0.33	54.26	0.00	0.00	0.64	5,341	113.7	0.99	0.18	54.26	0.00	0.00	0.41
UEIB-34	5,376	106.1	1.19	0.22	40.07	0.00	0.00	0.02	5,447	71.1	0.71	0.13	40.07	0.00	0.00	1	5,521	74.0	0.93	0.17	40.07	0.00	0.00	0.48
UEIB-35	10,964	545.2	6.42	1.18	0.00	0.00	0.00	7.69	11,335	371.5	3.74	0.69	0.00	0.00	0.00	6.29	11,605	269.5	2.75	0.50	0.00	0.00	0.00	1.74
UEIB-36	4,591	12.3	0.16	0.03	33.16	0.00	0.00	0.17	4,591	0.0	0.00	0.00	33.16	0.00	0.00	0.00	4,592	1.3	0.02	0.00	33.16	0.00	0.00	0.01
UEIB-37[6]	4,747	82.9	0.93	0.17	0.00	0.00	0.00	1.17	4,797	50.2	0.49	0.09	0.00	0.00	0.00	0.85	4,847	50.1	0.57	0.10	0.00	0.00	0.00	0.32
UEIB-38	901	49.5	0.56	0.10	0.00	0.00	0.00	0.70	942	40.5	0.42	0.08	0.00	0.00	0.00	0.69	980	38.4	0.44	0.08	0.00	0.00	0.00	0.25
UEIB-39[6]	2,867	166.9	2.00	0.37	0.00	0.00	0.00	2.35	2,980	113.6	1.13	0.21	0.00	0.00	0.00	1.92	3,018	37.7	0.30	0.05	0.00	0.00	0.00	0.24
UEIB-40[6]	3,345	131.5	1.44	0.26	0.00	0.00	0.00	1.85	3,501	155.9	2.02	0.37	0.00	0.00	0.00	0.03	3,682	181.4	1.93	0.35	0.00	0.00	0.00	1.17
UEIB-41[6]	6,398	308.5	3.59	0.66	0.00	0.00	0.00	4.35	6,404	5.5	0.06	0.01	0.00	0.00	0.00	0.09	6,643	239.5	3.05	0.56	0.00	0.00	0.00	1.55
UEIB-42[6]	9,225	754.2	8.40	1.54	0.00	0.00	0.00	10.64	9,958	732.2	8.04	1.48	0.00	0.00	0.00	12.40	10,600	642.8	6.81	1.25	0.00	0.00	0.00	4.15
UEIB-43	10,700	296.7	3.70	0.68	0.00	0.00	0.00	4.18	11,035	334.6	2.78	0.51	0.00	0.00	0.00	5.67	11,035	0.4	0.01	0.00	0.00	0.00	0.00	0.00
UEIB-44	1,992	50.2	0.59	0.11	42.98	0.00	0.00	0.16	2,041	49.4	0.54	0.10	42.98	0.00	0.00	0.15	2,082	40.5	0.42	0.08	42.98	0.00	0.00	0.14
UEIB-45[8]	9,820	434.1	4.89	0.90	762.56	34.36	0.45	70.45	10,240	420.6	4.53	0.83	817.36	54.80	6.87	79.88	10,695	454.7	2.85	0.52	866.97	49.61	0.54	17.23
UEIB-46[9]	1,550	112.8	1.23	0.23	10.17	0.00	0.00	0.52	1,600	49.8	0.35	0.06	10.17	0.00	0.00	0.61	1,671	71.0	1.12	0.21	12.47	2.30	0.03	0.32
CPR-1[11]	4,333	529.8	3.88	0.71	177	0.00	0.00	7.47	4,347	14.1	0.07	0.01	203.60	27.09	0.47	0.24	4,349	1.3	0.00	0.00	203.60	0.00	0.00	0.01
CPR-2[11]	720	79.0	0.67	0.12	36	0.00	0.00	1.11	720	0.0	0.00	0.00	40.17	3.95	0.07	0.00	720	0.0	0.00	0.00	40.17	0.00	0.00	0.00
EX-1[11]	6,558	117.5	1.28	0.24	N/A	N/A	N/A	N/A	6,640	81.8	0.86	0.16	N/A	N/A	N/A	N/A	6,709	68.6	0.82	0.15	N/A	N/A	N/A	N/A
EX-2[11]	699	22.4	0.25	0.05	N/A	N/A	N/A	N/A	718	19.4	0.21	0.04	N/A	N/A	N/A	N/A	732	14.4	0.15	0.03	N/A	N/A	N/A	N/A
EX-3[11]	2,603	97.2	1.13	0.21	N/A	N/A	N/A	N/A	2,651	47.8	0.53	0.10	N/A	N/A	N/A	N/A	2,678	26.8	0.28	0.05	N/A	N/A	N/A	N/A
EX-4[11]	571	5.0	0.05	0.01	N/A	N/A	N/A	N/A	576	4.3	0.05	0.01	N/A	N/A	N/A	N/A	579	3.7	0.04	0.01	N/A	N/A	N/A	N/A
U2-5[11]	503	N/A	N/A	N/A	N/A	N/A	N/A	N/A	503	N/A	N/A	N/A	N/A	N/A	N/A	N/A	503	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	218,278	9,635	107	20	22,762	34	0.45	164.89	225,178	6,900	71	13	22,848	86	7.41	154.85	232,765	7,587	90	17	22,900	52	0.56	52.73

Abbreviations:

N/A- Not available (pump not installed/running at this time.

UK - Unknown (not enough data).
NAPL - Non-Aqueous Phase Liquids

PHC - Petroleum Hydrocarbons
m - Metres
L - Litres
Kg - Kilograms
gpm - Gallons per minute

TABLE 2-5
SUMMARY OF EXTRACTION RATES - PERIMETER EXTRACTION SYSTEM
PARKLAND BURNABY REFINERY

Extraction Well	November 14, 16, and 17, 2016								Feburary 20, 21, and 22, 2017								June 12-14, 2017							
	Total Fluids Extracted (m^3)	Quarter Fluids Extracted (m^3)	Fluid Extraction Rate [13] (m^3/day)	(gpm)	Total NAPL Extracted (L)	NAPL Extracted (quarterly basis) (L)	NAPL Extraction Rate[5] (L/day)	PHC Mass Extracted (quarterly basis) (Kg)	Total Fluids Extracted (m^3)	Quarter Fluids Extracted (m^3)	Fluid Extraction Rate [13] (m^3/day)	(gpm)	Total NAPL Extracted (L)	NAPL Extracted (quarterly basis) (L)	NAPL Extraction Rate[5] (L/day)	PHC Mass Extracted (quarterly basis) (Kg)	Total Fluids Extracted (m^3)	Quarter Fluids Extracted (m^3)	Fluid Extraction Rate [13] (m^3/day)	(gpm)	Total NAPL Extracted (L)	NAPL Extracted (quarterly basis) (L)	NAPL Extraction Rate[5] (L/day)	PHC Mass Extracted (quarterly basis) (Kg)
UEIB-1[1]	78	N/A	N/A	N/A	2,680	N/A	N/A	N/A	78	N/A	N/A	N/A	2,680	N/A	N/A	N/A	78	N/A	N/A	N/A	2,680	N/A	N/A	N/A
UEIB-2[2]/UEIB-52[14]	365	9.8	0.14	0.03	1,578	0.00	0.00	0.04	380	14.1	0.15	0.03	1,578	0.00	0.00	0.05	392	12.5	0.11	0.02	1,578	0.00	0.00	0.08
UEIB-3/UEIB-53[14]	675	NA	0.01	0.00	4,465	N/A	N/A	N/A	675	NA	0.01	0.00	4,465	N/A	N/A	N/A	675	NA	NA	NA	4,465	N/A	N/A	N/A
UEIB-4/UEIB-54[14]	399	5.4	0.07	0.01	154	0.00	0.00	0.02	408	8.8	0.06	0.01	154	0.00	0.00	0.03	413	5.2	0.02	0.00	154	0.00	0.00	0.03
UEIB-5[8]	358	N/A	N/A	N/A	184	N/A	N/A	N/A	358	N/A	N/A	N/A	184	N/A	N/A	N/A	358	N/A	N/A	N/A	184	N/A	N/A	N/A
UEIB-6[9]	209	N/A	N/A	N/A	6,025	N/A	N/A	N/A	209	N/A	N/A	N/A	6,025	N/A	N/A	N/A	209	N/A	N/A	N/A	6,025	N/A	N/A	N/A
UEIB-7/UEIB-47[14]	332	1.5	0.02	0.00	5,644	0.00	0.00	0.00	333	0.9	0.01	0.00	5,644	0.00	0.00	0.00	335	1.8	0.02	0.00	5,644	0.00	0.00	0.01
UEIB-8/UEIB-48[14]	1,793	50.4	0.79	0.14	6.80	0.00	0.00	0.01	1,889	96.0	1.07	0.20	6.80	0.00	0.00	0.10	1,976	87.8	0.75	0.14	6.80	0.00	0.00	0.04
UEIB-9/UEIB-49[14]	2,574	44.7	0.59	0.11	0.00	0.00	0.00	0.19	2,621	46.5	0.48	0.09	0.00	0.00	0.00	0.15	2,675	54.3	0.50	0.09	0.00	0.00	0.00	0.34
UEIB-10[4]/UEIB-50[14]	831	11.9	0.16	0.03	0.00	0.00	0.00	0.05	846	14.7	0.16	0.03	0.00	0.00	0.00	0.05	867	20.6	0.19	0.03	0.00	0.00	0.00	0.13
UEIB-11[3]	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
UEIB-14[1,4]/UEIB-51[14]	95	N/A	N/A	N/A	825	N/A	N/A	N/A	95	N/A	N/A	N/A	825	N/A	N/A	N/A	95	N/A	N/A	N/A	825	N/A	N/A	N/A
UEIB-15	9,013	342.0	4.28	0.79	0.00	0.00	0.00	0.13	9,479	465.7	5.43	1.00	0.00	0.00	0.00	0.20	10,223	743.9	7.19	1.32	0.00	0.00	0.00	0.13
UEIB-16	6,430	267.4	2.97	0.55	0.00	0.00	0.00	1.15	6,996	565.5	5.50	1.01	0.00	0.00	0.00	1.82	7,093	97.7	0.85	0.16	0.00	0.00	0.00	0.62
UEIB-17	4,686	555.5	8.65	1.59	0.00	0.00	0.00	2.38	5,168	481.8	3.76	0.69	0.00	0.00	0.00	1.55	5,390	222.0	3.09	0.57	0.00	0.00	0.00	1.40
UEIB-18	6,568	367.4	4.66	0.86	0.00	0.00	0.00	0.25	7,015	446.2	4.87	0.89	0.00	0.00	0.00	1.44	7,482	467.9	4.21	0.77	0.00	0.00	0.00	2.96
UEIB-19	6,574	152.4	0.54	0.10	0.00	0.00	0.00	0.65	7,097	522.3	5.44	1.00	0.00	0.00	0.00	1.68	7,550	453.1	4.30	0.79	0.00	0.00	0.00	0.35
UEIB-20/UEIB-56[14]	12,384	160.3	-	0.00	0.00	0.00	0.00	0.69	12,384	-	-	0.00	0.00	0.00	0.00	0.00	12,384	-	-	0.00	0.00	0.00	0.00	0.00
UEIB-21	11,282	649.1	9.14	1.68	0.00	0.00	0.00	2.43	12,218	935.4	8.50	1.56	0.00	0.00	0.00	1.13	12,837	619.7	6.79	1.25	0.00	0.00	0.00	0.60
UEIB-22	5,009	214.7	3.43	0.63	0.00	0.00	0.00	0.36	5,254	245.0	2.95	0.54	0.00	0.00	0.00	0.30	7,155	1,900.6	2.40	0.44	0.00	0.00	0.00	1.94
UEIB-23	6,268	118.4	1.78	0.33	0.00	0.00	0.00	0.51	6,562	294.1	3.76	0.69	0.00	0.00	0.00	0.95	6,789	227.0	1.42	0.26	0.00	0.00	0.00	1.44
UEIB-24	9,339	278.3	2.83	0.52	0.00	0.00	0.00	1.19	9,414	74.9	0.07	0.01	0.00	0.00	0.00	0.02	9,504	90.3	1.27	0.23	0.00	0.00	0.00	0.57
UEIB-25	6,578	199.7	2.43	0.45	0.00	0.00	0.00	0.86	6,815	236.2	2.54	0.47	0.00	0.00	0.00	0.76	7,078	263.7	2.64	0.48	0.00	0.00	0.00	1.67
UEIB-26	9,857	334.9	4.94	0.91	0.00	0.00	0.00	0.15	10,400	543.6	5.46	1.00	0.00	0.00	0.00	0.24	10,725	324.1	2.87	0.53	0.00	0.00	0.00	0.04
UEIB-27	8,225	148.5	0.06	0.01	0.00	0.00	0.00	0.22	8,451	226.1	2.69	0.49	0.00	0.00	0.00	0.71	9,086	635.5	8.85	1.62	0.00	0.00	0.00	1.38
UEIB-28	4,978	272.3	2.72	0.50	0.00	0.00	0.00	0.30	5,157	178.9	1.48	0.27	0.00	0.00	0.00	0.09	5,333	175.9	1.05	0.19	0.00	0.00	0.00	0.48
UEIB-29	10,612	969.7	12.47	2.29	0.00	0.00	0.00	4.16	11,376	764.6	5.47	1.00	0.00	0.00	0.00	2.46	11,636	259.5	3.41	0.63	0.00	0.00	0.00	1.64
UEIB-30	5,445	285.6	4.10	0.75	0.00	0.00	0.00	1.22	5,983	538.0	6.07	1.11	0.00	0.00	0.00	0.00	6,577	593.4	5.65	1.04	0.00	0.00	0.00	3.75
UEIB-31/UEIB-55[14]	4,667	0.0	0.00	0.00	0.00	0.00	0.00	0.00	4,667	-	0.00	0.00	0.00	0.00	0.00	0.00	4,667	-	0.00	0.00	0.00	0.00	0.00	0.00
UEIB-32	4,079	93.1	1.28	0.23	44.62	0.00	0.00	0.80	4,160	80.6	0.75	0.14	44.62	0.00	0.00	0.46	4,281	120.5	1.10	0.20	44.62	0.00	0.00	0.84
UEIB-33	5,489	148.1	1.97	0.36	54.26	0.00	0.00	0.40	5,809	320.1	3.36	0.62	54.26	0.00	0.00	0.84	6,078	268.8	2.31	0.42	54.26	0.00	0.00	3.72
UEIB-34	5,618	96.6	1.24	0.23	40.07	0.00	0.00	0.01	5,646	28.4	0.38	0.07	40.07	0.00	0.00	0.01	5,694	48.3	0.48	0.09	40.07	0.00	0.00	0.03
UEIB-35	11,914	309.2	4.10	0.75	0.00	0.00	0.00	1.33	12,276	362.0	3.58	0.66	0.00	0.00	0.00	1.16	12,577	300.8	2.83	0.52	0.00	0.00	0.00	0.04
UEIB-36	4,689	96.6	1.27	0.23	33.16	0.00	0.00	0.41	4,807	117.8	1.02	0.19	33.16	0.00	0.00	0.38	4,937	130.0	1.04	0.19	33.16	0.00	0.00	0.82
UEIB-37 [6]	4,908	61.3	0.79	0.14	0.00	0.00	0.00	0.26	4,963	54.5	0.50	0.09	0.00	0.00	0.00	0.18	5,037	74.5	0.59	0.11	0.00	0.00	0.00	0.47
UEIB-38	1,038	58.1	0.79	0.14	0.00	0.00	0.00	0.25	1,067	28.8	0.19	0.04	0.00	0.00	0.00	0.09	1,093	26.2	0.37	0.07	0.00	0.00	0.00	0.17
UEIB-39 [6]	3,022	3.8	0.05	0.01	0.00	0.00	0.00	0.02	3,530	508.4	7.60	1.39	0.00	0.00	0.00	1.64	3,937	407.0	1.39	0.26	0.00	0.00	0.00	2.57
UEIB-40 [6]	3,813	131.0	1.50	0.28	0.00	0.00	0.00	0.56	3,953	139.8	1.34	0.25	0.00	0.00	0.00	0.03	4,087	133.8	1.30	0.24	0.00	0.00	0.00	0.85
UEIB-41 [6]	8,580	1,937.0	4.26	0.78	0.00	0.00	0.00	8.31	8,757	176.5	2.10	0.38	0.00	0.00	0.00	0.57	8,961	203.8	1.89	0.35	0.00	0.00	0.00	1.29
UEIB-42 [6]	11,114	513.9	6.46	1.19	0.00	0.00	0.00	4.01	11,470	356.1	2.92	0.53	0.00	0.00	0.00	0.07	11,932	461.4	4.73	0.87	0.00	0.00	0.00	0.08
UEIB-43	11,071	35.8	0.51	0.09	0.00	0.00	0.00	0.15	11,912	841.3	10.77	1.98	0.00	0.00	0.00	2.71	13,068	1,156.0	11.73	2.15	0.00	0.00	0.00	7.31
UEIB-44	2,166	84.6	1.22	0.22	42.98	0.00	0.54	0.41	2,242	75.9	0.51	0.09	42.98	0.00	0.00	0.25	2,317	74.7	0.71	0.13	42.98	0.00	0.00	0.23
UEIB-45 [8]	10,995	300.0	3.84	0.70	893.55	26.58	0.34	6.63	11,444	449.3	5.13	0.94	933.44	39.89	0.41	11.83	12,038	594.2	5.75	1.06	1,000.33	66.89	0.59	28.44
UEIB-46 [9]	1,774	103.1	1.37	0.25	16.23	3.76	0.05	1.09	1,891	117.5	1.32	0.24	16.23	0.00	0.00	0.78	2,013	121.7	1.17	0.21	16.23	0.00	0.00	2.46
CPR-1 [11]	4,363	14.2	0.17	0.03	203.60	0.00	0.00	0.06	4,439	75.6	1.13	0.21	203.60	0.00	0.00	0.24	4,507	68.9	0.54	0.10	203.60	0.00	0.00	0.44
CPR-2 [11]	1,050	329.1	3.87	0.71	40.17	0.00	0.00	1.41	1,260	210.3	2.21	0.41	40.17	0.00	0.00	0.68	1,480	220.4	2.20	0.40	40.17	0.00	0.00	1.39
EX-1 [11]	6,760	50.9	0.60	0.11	N/A	N/A	N/A	N/A	6,826	66.6	0.66	0.12	N/A	N/A	N/A	N/A	6,909	82.6	0.83	0.15	N/A	N/A	N/A	N/A
EX-2 [11]	772	39.6	0.47	0.09	N/A	N/A	N/A	N/A	826	53.8	0.58	0.11	N/A	N/A	N/A	N/A	868	42.4	0.42	0.08	N/A	N/A	N/A	N/A
EX-3 [11]	2,713	35.5	0.42	0.08	N/A	N/A	N/A	N/A	2,764	50.8	0.52	0.10	N/A	N/A	N/A	N/A	2,810	45.8	0.46	0.08	N/A	N/A	N/A	N/A
EX-4 [11]	583	3.2	0.04	0.01	N/A	N/A	N/A	N/A	588	5.2	0.06	0.01	N/A	N/A	N/A	N/A	593	5.2	0.05	0.01	N/A	N/A	N/A	N/A
U2-5 [11]	503	N/A	N/A	N/A	N/A	N/A	N/A	N/A	503	N/A	N/A	N/A	N/A	N/A	N/A	N/A	503	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	242,650	9,885	103	19	22,930	30	0.93	43.09	253,469	10,819	113	21	22,970	40	0.41	35.63	265,312	11,844	99	18	23,037	67	0.59	67.00

Abbreviations:

N/A- Not available (pump not installed/running at this time.

UK - Unknown (not enough data).
NAPL - Non-Aqueous Phase Liquids

PHC - Petroleum Hydrocarbons
m - Metres
L - Litres
Kg - Kilograms
gpm - Gallons per minute

TABLE 2-5
SUMMARY OF EXTRACTION RATES - PERIMETER EXTRACTION SYSTEM
PARKLAND BURNABY REFINERY

Extraction Well	September 12-14, 2017								December 4-7, 2017								March 26-29, 2018							
	Total Fluids Extracted (m^3)	Quarter Fluids Extracted (m^3)	Fluid Extraction Rate [13] (m^3/day)	(gpm)	Total NAPL Extracted (L)	NAPL Extracted (quarterly basis) (L)	NAPL Extraction Rate[5] (L/day)	PHC Mass Extracted (quarterly basis) (Kg)	Total Fluids Extracted (m^3)	Quarter Fluids Extracted (m^3)	Fluid Extraction Rate [13] (m^3/day)	(gpm)	Total NAPL Extracted (L)	NAPL Extracted (quarterly basis) (L)	NAPL Extraction Rate[5] (L/day)	PHC Mass Extracted (quarterly basis) (Kg)	Total Fluids Extracted (m^3)	Quarter Fluids Extracted (m^3)	Fluid Extraction Rate [13] (m^3/day)	(gpm)	Total NAPL Extracted (L)	NAPL Extracted (quarterly basis) (L)	NAPL Extraction Rate[5] (L/day)	PHC Mass Extracted (quarterly basis) (Kg)
UEIB-1[1]	78	N/A	N/A	N/A	2,680	N/A	N/A	N/A	78	N/A	N/A	N/A	2,680	N/A	N/A	N/A	78	N/A	N/A	N/A	2,680	N/A	N/A	N/A
UEIB-2[2]/UEIB-52[14]	392	0.0	0.00	0.00	1,578	0.00	0.00	0.00	435	43.1	0.69	0.13	1,578	0.00	0.00	0.30	538	102.7	1.05	0.19	1,578	0.00	0.00	0.54
UEIB-3/UEIB-53[14]	675	NA	NA	NA	4,465	N/A	N/A	N/A	696	21.8	0.33	0.06	4,465	0.00	0.00	1.13	739	42.2	0.43	0.08	4,468	2.38	0.02	1.80
UEIB-4/UEIB-54[14]	413	0.0	0.00	0.00	154	0.00	0.00	0.00	457	43.5	0.44	0.08	154	0.00	0.00	1.23	525	68.2	0.61	0.11	158	3.90	0.03	3.01
UEIB-5[8]	358	N/A	N/A	N/A	184	N/A	N/A	N/A	358	N/A	N/A	N/A	184	N/A	N/A	N/A	358	N/A	N/A	N/A	184	N/A	N/A	N/A
UEIB-6[9]	209	N/A	N/A	N/A	6,025	N/A	N/A	N/A	209	N/A	N/A	N/A	6,025	N/A	N/A	N/A	209	N/A	N/A	N/A	6,025	N/A	N/A	N/A
UEIB-7/UEIB-47[14]	335	0.1	0.00	0.00	5,644	0.00	0.00	0.00	340	5.5	0.11	0.02	5,644	0.00	0.00	0.29	355	14.5	0.15	0.03	5,644	0.00	0.00	0.12
UEIB-8/UEIB-48[14]	1,976	-	-	0.00	6.80	0.00	0.00	0.00	2,098	121.5	1.80	0.33	6.80	0.00	0.00	0.21	2,238	140.4	1.43	0.26	6.80	0.00	0.00	0.09
UEIB-9/UEIB-49[14]	2,695	19.7	0.18	0.03	0.00	0.00	0.00	0.67	2,760	65.1	0.87	0.16	0.00	0.00	0.00	3.38	2,862	101.8	1.04	0.19	0.00	0.00	0.00	0.84
UEIB-10[4]/UEIB-50[14]	869	2.1	0.02	0.00	0.00	0.00	0.00	0.07	925	56.0	0.89	0.16	0.00	0.00	0.00	0.01	1,035	109.7	1.13	0.21	0.00	0.00	0.00	0.01
UEIB-11[3]	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
UEIB-14[1,4]/UEIB-51[14]	95	N/A	N/A	N/A	825	N/A	N/A	N/A	95	N/A	N/A	N/A	825	N/A	N/A	N/A	95	N/A	N/A	N/A	825	N/A	N/A	N/A
UEIB-15	10,385	162.8	2.18	0.40	0.00	0.00	0.00	0.02	10,579	193.3	2.65	0.49	0.00	0.00	0.00	0.03	11,000	420.9	4.38	0.80	0.00	0.00	0.00	3.49
UEIB-16	7,356	262.4	3.35	0.61	0.00	0.00	0.00	8.98	7,633	276.7	3.43	0.63	0.00	0.00	0.00	14.38	8,030	397.0	4.13	0.76	0.00	0.00	0.00	3.29
UEIB-17	5,514	124.3	1.13	0.21	0.00	0.00	0.00	4.25	5,847	332.5	5.10	0.94	0.00	0.00	0.00	17.28	6,222	375.4	3.91	0.72	0.00	0.00	0.00	3.11
UEIB-18	7,738	256.0	2.27	0.42	0.00	0.00	0.00	8.76	8,355	616.0	8.36	1.53	0.00	0.00	0.00	32.03	8,601	246.9	2.57	0.47	0.00	0.00	0.00	0.09
UEIB-19	7,724	174.1	1.69	0.31	0.00	0.00	0.00	5.96	7,990	266.7	3.85	0.71	0.00	0.00	0.00	2.26	8,501	510.4	5.32	0.98	0.00	0.00	0.00	0.48
UEIB-20/UEIB-56[14]	12,384	N/A	N/A	0.00	0.00	0.00	0.00	N/A	12,384	N/A	N/A	0.00	0.00	0.00	0.00	N/A	12,384	N/A	N/A	0.00	0.00	0.00	0.00	N/A
UEIB-21	13,407	569.7	5.53	1.01	0.00	0.00	0.00	0.22	13,889	482.2	6.52	1.20	0.00	0.00	0.00	0.37	14,419	529.7	5.52	1.01	0.00	0.00	0.00	0.51
UEIB-22	7,244	89.5	0.86	0.16	0.00	0.00	0.00	3.06	7,413	169.2	2.58	0.47	0.00	0.00	0.00	0.18	7,759	345.8	3.60	0.66	0.00	0.00	0.00	0.39
UEIB-23	6,819	29.4	0.34	0.06	0.00	0.00	0.00	1.01	6,855	36.7	0.48	0.09	0.00	0.00	0.00	1.91	6,946	90.7	0.94	0.17	0.00	0.00	0.00	0.75
UEIB-24	9,677	172.8	2.07	0.38	0.00	0.00	0.00	5.91	9,942	265.1	3.33	0.61	0.00	0.00	0.00	13.78	10,343	400.6	4.17	0.77	0.00	0.00	0.00	3.32
UEIB-25	7,263	184.2	2.12	0.39	0.00	0.00	0.00	6.30	7,441	178.3	2.29	0.42	0.00	0.00	0.00	9.27	7,680	238.8	2.49	0.46	0.00	0.00	0.00	0.06
UEIB-26	10,844	119.6	1.34	0.25	0.00	0.00	0.00	4.09	10,991	147.0	2.11	0.39	0.00	0.00	0.00	7.64	11,321	330.3	3.44	0.63	0.00	0.00	0.00	0.13
UEIB-27	9,660	574.1	6.72	1.23	0.00	0.00	0.00	1.06	11,202	1,541.7	26.03	4.78	0.00	0.00	0.00	4.46	11,615	412.5	4.33	0.80	0.00	0.00	0.00	0.22
UEIB-28	5,351	17.8	0.24	0.04	0.00	0.00	0.00	0.00	5,446	95.4	1.46	0.27	0.00	0.00	0.00	0.12	5,770	323.7	3.40	0.62	0.00	0.00	0.00	0.41
UEIB-29	11,662	25.6	0.29	0.05	0.00	0.00	0.00	0.88	11,987	325.3	3.06	0.56	0.00	0.00	0.00	16.91	11,992	4.9	0.05	0.01	0.00	0.00	0.00	0.04
UEIB-30	6,922	345.1	3.91	0.72	0.00	0.00	0.00	11.81	6,992	70.2	1.29	0.24	0.00	0.00	0.00	3.65	7,329	336.6	3.00	0.55	0.00	0.00	0.00	2.79
UEIB-31/UEIB-55[14]	4,668	1.1	0.00	0.00	0.00	0.00	0.00	0.04	4,733	65.5	0.90	0.16	0.00	0.00	0.00	3.40	4,842	108.9	0.97	0.18	0.00	0.00	0.00	0.90
UEIB-32	4,358	77.0	0.95	0.17	44.62	0.00	0.00	0.50	4,423	65.2	0.83	0.15	44.62	0.00	0.00	0.46	4,507	84.1	0.86	0.16	44.62	0.00	0.00	0.54
UEIB-33	6,155	77.0	0.82	0.15	54.26	0.00	0.00	6.17	6,275	119.3	1.88	0.34	54.26	0.00	0.00	0.43	6,584	309.6	3.16	0.58	54.26	0.00	0.00	1.37
UEIB-34	5,761	66.7	0.81	0.15	40.07	0.00	0.00	0.05	7,599	1,838.0	1.12	0.21	40.07	0.00	0.00	0.42	7,719	120.0	1.22	0.22	40.07	0.00	0.00	0.05
UEIB-35	12,655	77.7	0.82	0.15	0.00	0.00	0.00	2.66	12,775	120.5	1.61	0.29	0.00	0.00	0.00	6.27	12,980	204.4	2.08	0.38	0.00	0.00	0.00	0.04
UEIB-36	5,055	117.8	1.38	0.25	33.16	0.00	0.00	4.03	5,163	108.9	1.30	0.24	33.16	0.00	0.00	5.66	5,318	154.9	1.58	0.29	33.16	0.00	0.00	1.28
UEIB-37 [6]	5,071	34.1	0.37	0.07	0.00	0.00	0.00	1.17	5,103	31.9	0.41	0.08	0.00	0.00	0.00	1.66	5,163	60.1	0.61	0.11	0.00	0.00	0.00	0.50
UEIB-38	1,127	34.4	0.40	0.07	0.00	0.00	0.00	1.18	1,168	40.5	0.52	0.10	0.00	0.00	0.00	2.11	1,259	91.5	0.92	0.17	0.00	0.00	0.00	0.76
UEIB-39 [6]	3,998	60.9	0.66	0.12	0.00	0.00	0.00	2.08	4,097	98.7	1.36	0.25	0.00	0.00	0.00	5.13	4,310	213.3	2.15	0.40	0.00	0.00	0.00	1.77
UEIB-40 [6]	4,166	79.0	0.89	0.16	0.00	0.00	0.00	0.01	4,227	61.1	0.75	0.14	0.00	0.00	0.00	0.02	4,243	15.8	0.16	0.03	0.00	0.00	0.00	0.13
UEIB-41 [6]	9,091	130.7	1.51	0.28	0.00	0.00	0.00	4.47	9,250	159.0	2.13	0.39	0.00	0.00	0.00	8.27	9,585	334.9	3.38	0.62	0.00	0.00	0.00	2.77
UEIB-42 [6]	12,181	249.0	2.96	0.54	0.00	0.00	0.00	0.10	12,637	456.1	6.16	1.13	0.00	0.00	0.00	0.06	13,233	596.7	6.03	1.11	0.00	0.00	0.00	4.94
UEIB-43	14,187	1,118.8	13.13	2.41	0.00	0.00	0.00	38.27	15,056	869.4	10.95	2.01	0.00	0.00	0.00	45.20	15,949	892.2	9.17	1.68	0.00	0.00	0.00	7.39
UEIB-44	2,356	38.8	0.45	0.08	42.98	0.00	0.00	0.14	2,390	34.5	0.43	0.08	42.98	0.00	0.00	0.15	2,439	49.3	0.50	0.09	42.98	0.00	0.00	0.20
UEIB-45 [8]	12,623	584.9	6.90	1.27	1,062.25	61.93	0.69	182.97	13,018	394.3	4.74	0.87	1,103.64	41.39	0.49	360.75	13,489	471.0	4.81	0.88	1,157.13	53.50	0.48	12.31
UEIB-46 [9]	2,073	59.7	0.60	0.11	16.23	0.00	0.00	0.23	2,109	36.4	0.52	0.10	16.23	0.00	0.00	0.19	2,186	76.8	0.78	0.14	20.55	4.32	0.04	1.95
CPR-1 [11]	4,508	0.1	0.00	0.00	203.60	0.00	0.00	0.00	4,710	202.8	2.91	0.53	203.60	0.00	0.00	10.54	4,920	209.6	2.47	0.45	203.60	0.00	0.00	1.74
CPR-2 [11]	1,480	0.0	0.00	0.00	40.17	0.00	0.00	0.00	1,514	33.6	0.48	0.09	40.17	0.00	0.00	1.74	1,574	60.4	0.62	0.11	40.17	0.00	0.00	0.50
EX-1 [11]	6,974	65.0	0.74	0.14	N/A	N/A	N/A	N/A	7,034	60.2	0.76	0.14	N/A	N/A	N/A	N/A	7,109	75.2	0.76	0.14	N/A	N/A	N/A	N/A
EX-2 [11]	883	15.0	0.18	0.03	N/A	N/A	N/A	N/A	924	41.2	0.56	0.10	N/A	N/A	N/A	N/A	964	39.7	0.41	0.07	N/A	N/A	N/A	N/A
EX-3 [11]	2,831	21.0	0.25	0.04	N/A	N/A	N/A	N/A	2,871	40.3	0.54	0.10	N/A	N/A	N/A	N/A	2,923	52.6	0.52	0.10	N/A	N/A	N/A	N/A
EX-4 [11]	596	3.0	0.03	0.01	N/A	N/A	N/A	N/A	599	3.3	0.04	0.01	N/A	N/A	N/A	N/A	604	4.6	0.05	0.01	N/A	N/A	N/A	N/A
U2-5 [11]	503	N/A	N/A	N/A	N/A	N/A	N/A	N/A	503	N/A	N/A	N/A	N/A	N/A	N/A	N/A	503	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	271,354	6,041	68	12	23,099	62	0.69	307.11	281,587	10,233	119	22	23,140	41	0.49	583.27	291,356	9,769	100	18	23,204	64	0.57	64.65

Abbreviations:

N/A- Not available (pump not installed/running at this time.

UK - Unknown (not enough data).
NAPL - Non-Aqueous Phase Liquids

PHC - Petroleum Hydrocarbons
m - Metres
L - Litres
Kg - Kilograms
gpm - Gallons per minute

TABLE 2-5
SUMMARY OF EXTRACTION RATES - PERIMETER EXTRACTION SYSTEM
PARKLAND BURNABY REFINERY

Extraction Well	June 12-18, 2018								Sept 4-6, 2018								Nov 19-21, 2018							
	Total Fluids Extracted (m^3)	Quarter Fluids Extracted (m^3)	Fluid Extraction Rate [13] (m^3/day)	(gpm)	Total NAPL Extracted (L)	NAPL Extracted (quarterly basis) (L)	NAPL Extraction Rate[5] (L/day)	PHC Mass Extracted (quarterly basis) (Kg)	Total Fluids Extracted (m^3)	Quarter Fluids Extracted (m^3)	Fluid Extraction Rate [13] (m^3/day)	(gpm)	Total NAPL Extracted (L)	NAPL Extracted (quarterly basis) (L)	NAPL Extraction Rate[5] (L/day)	PHC Mass Extracted (quarterly basis) (Kg)	Total Fluids Extracted (m^3)	Quarter Fluids Extracted (m^3)	Fluid Extraction Rate [13] (m^3/day)	(gpm)	Total NAPL Extracted (L)	NAPL Extracted (quarterly basis) (L)	NAPL Extraction Rate[5] (L/day)	PHC Mass Extracted (quarterly basis) (Kg)
UEIB-1[1]	78	N/A	N/A	N/A	2,680	N/A	N/A	N/A	78	N/A	N/A	N/A	2,680	N/A	N/A	N/A	78	N/A	N/A	N/A	2,680	N/A	N/A	N/A
UEIB-2[2]/UEIB-52[14]	609	70.8	0.53	0.10	1,578	0.00	0.00	0.22	630	21.2	0.21	0.04	1,578	0.00	0.00	0.08	667	36.7	0.59	0.11	1,578	0.00	0.00	0.19
UEIB-3/UEIB-53[14]	769	30.1	0.27	0.05	4,470	2.79	0.02	0.28	785	16.5	0.20	0.04	4,471	0.72	0.01	0.06	804	18.7	0.26	0.05	4,471	0.00	0.00	0.22
UEIB-4/UEIB-54[14]	580	54.9	0.32	0.06	163	5.00	0.06	8.54	611	31.1	0.27	0.05	166	2.92	0.04	17.01	651	40.5	0.63	0.12	169	3.04	0.04	80.57
UEIB-5[8]	358	N/A	N/A	N/A	184	N/A	N/A	N/A	358	N/A	N/A	N/A	184	N/A	N/A	N/A	358	N/A	N/A	N/A	184	N/A	N/A	N/A
UEIB-6[9]	209	N/A	N/A	N/A	6,025	N/A	N/A	N/A	209	N/A	N/A	N/A	6,025	N/A	N/A	N/A	209	N/A	N/A	N/A	6,025	N/A	N/A	N/A
UEIB-7/UEIB-47[14]	362	7.3	0.06	0.01	5,644	0.00	0.00	1.17	362	0.2	0.00	0.00	5,644	0.00	0.00	0.03	366	4.3	0.06	0.01	5,644	0.00	0.00	0.46
UEIB-8/UEIB-48[14]	2,386	147.8	2.01	0.37	6.80	0.00	0.00	0.02	2,466	80.3	0.74	0.14	6.80	0.00	0.00	0.02	2,785	318.5	6.78	1.24	6.80	0.00	0.00	34.02
UEIB-9/UEIB-49[14]	3,390	528.4	0.83	0.15	0.00	0.00	0.00	5.31	3,460	70.4	0.71	0.13	0.00	0.00	0.00	0.02	3,525	64.3	0.81	0.15	0.00	0.00	0.00	0.01
UEIB-10[4]/UEIB-50[14]	1,129	94.1	0.90	0.17	0.00	0.00	0.00	15	1,184	55.8	0.54	0.10	0.00	0.00	0.00	9.50	1,238	53.9	0.67	0.12	0.00	0.00	0.00	5.76
UEIB-11[3]	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
UEIB-14[1,4]/UEIB-51[14]	95	0.0	0.00	0.00	825	0.00	0.00	0.00	95	0.0	0.00	0.00	825	0.00	0.00	0.00	98	3.0	0.04	0.01	825	0.00	0.00	0.02
UEIB-15	11,320	320.6	2.55	0.47	0.00	0.00	0.00	0	11,399	78.3	0.59	0.11	0.00	0.00	0.00	0.01	11,582	183.6	2.66	0.49	0.00	0.00	0.00	19.61
UEIB-16	8,398	368.0	2.69	0.49	0.00	0.00	0.00	59.26	8,547	149.0	1.50	0.27	0.00	0.00	0.00	25.38	8,699	152.4	1.91	0.35	0.00	0.00	0.00	16.28
UEIB-17	6,300	77.9	0.67	0.12	0.00	0.00	0.00	13	6,317	16.7	0.23	0.04	0.00	0.00	0.00	2.84	6,483	166.6	2.62	0.48	0.00	0.00	0.00	17.80
UEIB-18	8,945	343.5	5.90	1.08	0.00	0.00	0.00	55.31	9,191	246.0	2.59	0.47	0.00	0.00	0.00	41.88	9,613	422.5	5.23	0.96	0.00	0.00	0.00	45.13
UEIB-19	8,897	396.5	3.04	0.56	0.00	0.00	0.00	0.18	9,122	224.6	5.92	1.09	0.00	0.00	0.00	38.25	9,777	655.3	7.57	1.39	0.00	0.00	0.00	0.23
UEIB-20/UEIB-56[14]	12,439	55.7	1.28	0.24	0.00	0.00	0.00	0.02	12,585	145.4	1.58	0.29	0.00	0.00	0.00	24.75	13,047	462.2	7.03	1.29	0.00	0.00	0.00	0.13
UEIB-21	14,914	494.8	2.27	0.42	0.00	0.00	0.00	0.14	15,245	331.2	3.50	0.64	0.00	0.00	0.00	56.40	15,708	463.4	6.22	1.14	0.00	0.00	0.00	0.68
UEIB-22	8,012	252.5	0.95	0.17	0.00	0.00	0.00	0.59	8,049	37.8	0.47	0.09	0.00	0.00	0.00	6.43	8,215	165.7	2.54	0.47	0.00	0.00	0.00	0.38
UEIB-23	7,053	106.9	1.22	0.22	0.00	0.00	0.00	17.21	7,121	68.2	0.69	0.13	0.00	0.00	0.00	11.62	7,149	28.2	0.39	0.07	0.00	0.00	0.00	3.01
UEIB-24	10,941	597.7	7.16	1.31	0.00	0.00	0.00	96.25	11,232	291.1	3.17	0.58	0.00	0.00	0.00	49.56	11,525	293.6	3.84	0.70	0.00	0.00	0.00	31.37
UEIB-25	7,915	235.0	1.91	0.35	0.00	0.00	0.00	37.84	8,079	164.2	1.85	0.34	0.00	0.00	0.00	27.95	8,256	176.9	2.20	0.40	0.00	0.00	0.00	18.90
UEIB-26	11,491	169.5	1.07	0.20	0.00	0.00	0.00	27.30	11,605	114.1	1.36	0.25	0.00	0.00	0.00	19.42	11,868	263.3	4.12	0.76	0.00	0.00	0.00	0.13
UEIB-27	12,052	437.7	3.80	0.70	0.00	0.00	0.00	70.48	12,133	80.9	1.13	0.21	0.00	0.00	0.00	0.01	12,909	775.6	12.97	2.38	0.00	0.00	0.00	0.68
UEIB-28	6,026	256.5	1.64	0.30	0.00	0.00	0.00	0.37	6,134	108.0	1.08	0.20	0.00	0.00	0.00	0.19	6,326	191.8	3.14	0.58	0.00	0.00	0.00	0.05
UEIB-29	12,141	149.4	3.60	0.66	0.00	0.00	0.00	0.60	12,476	334.7	3.73	0.68	0.00	0.00	0.00	56.99	12,891	415.6	6.07	1.11	0.00	0.00	0.00	44.40
UEIB-30	7,576	247.9	0.42	0.08	0.00	0.00	0.00	39.92	7,580	3.0	0.00	0.00	0.00	0.00	0.00	0.51	7,664	84.7	1.78	0.33	0.00	0.00	0.00	9.05
UEIB-31/UEIB-55[14]	4,953	111.1	0.70	0.13	0.00	0.00	0.00	17.88	5,001	48.3	0.74	0.14	0.00	0.00	0.00	0.03	5,108	106.9	1.70	0.31	0.00	0.00	0.00	11.42
UEIB-32	4,586	79.7	0.55	0.10	44.62	0.00	0.00	0.47	4,656	69.5	0.69	0.13	44.62	0.00	0.00	0.41	4,723	66.8	0.93	0.17	44.62	0.00	0.00	0.47
UEIB-33	6,784	200.0	1.25	0.23	54.26	0.00	0.00	4.32	6,848	63.9	0.68	0.12	54.26	0.00	0.00	1.01	6,963	114.5	1.88	0.34	54.26	0.00	0.00	1.39
UEIB-34	7,747	27.4	0.13	0.02	40.07	0.00	0.00	4.41	7,783	36.1	0.01	0.00	40.07	0.00	0.00	6.15	7,802	19.0	0.39	0.07	40.07	0.00	0.00	0.02
UEIB-35	13,300	320.3	2.92	0.54	0.00	0.00	0.00	0.05	13,548	248.2	2.67	0.49	0.00	0.00	0.00	0.03	13,756	207.5	2.66	0.49	0.00	0.00	0.00	0.05
UEIB-36	5,428	109.7	1.09	0.20	33.16	0.00	0.00	17.66	5,511	83.2	0.85	0.16	33.16	0.00	0.00	14.17	5,935	423.8	9.33	1.71	33.16	0.00	0.00	45.27
UEIB-37[6]	5,207	43.8	0.38	0.07	0.00	0.00	0.00	7.05	5,244	37.2	0.42	0.08	0.00	0.00	0.00	6.33	5,266	21.7	0.21	0.04	0.00	0.00	0.00	2.31
UEIB-38	1,328	68.3	0.63	0.12	0.00	0.00	0.00	11.00	1,394	65.7	0.81	0.15	0.00	0.00	0.00	0.01	1,435	41.2	0.45	0.08	0.00	0.00	0.00	0.01
UEIB-39[6]	4,452	141.6	1.03	0.19	0.00	0.00	0.00	22.79	4,461	9.6	0.00	0.00	0.00	0.00	0.00	1.64	4,514	52.2	1.01	0.19	0.00	0.00	0.00	5.58
UEIB-40[6]	4,337	94.4	1.65	0.30	0.00	0.00	0.00	15.20	4,501	163.9	1.85	0.34	0.00	0.00	0.00	0.02	4,638	137.0	1.69	0.31	0.00	0.00	0.00	0.02
UEIB-41[6]	9,862	276.4	2.66	0.49	0.00	0.00	0.00	44.51	10,026	164.1	1.70	0.31	0.00	0.00	0.00	27.94	10,171	145.3	1.88	0.35	0.00	0.00	0.00	15.52
UEIB-42[6]	13,705	471.3	4.63	0.85	0.00	0.00	0.00	75.90	14,083	378.3	3.50	0.64	0.00	0.00	0.00	64.42	14,305	221.4	2.00	0.37	0.00	0.00	0.00	23.65
UEIB-43	16,779	829.9	11.08	2.03	0.00	0.00	0.00	133.64	17,560	781.7	8.59	1.58	0.00	0.00	0.00	133.10	18,469	909.1	12.19	2.24	0.00	0.00	0.00	0.32
UEIB-44	2,499	59.4	0.61	0.11	42.98	0.00	0.00	0.11	2,541	42.7	0.50	0.09	42.98	0.00	0.00	0.11	2,578	36.7	0.41	0.08	42.98	0.00	0.00	0.25
UEIB-45[8]	13,834	345.7	3.95	0.72	1,188.43	31.30	0.38	1033.01	14,207	372.6	3.81	0.70	1,222.16	33.73	0.43	920.95	14,439	231.7	2.75	0.50	1,245.63	23.47	0.31	88.50
UEIB-46[9]	2,286	100.2	0.89	0.16	29.92	9.37	0.11	0.34	2,345	58.7	0.55	0.10	35.40	5.48	0.07	0.36	2,394	49.4	0.66	0.12	39.87	4.47	0.06	1.34
CPR-1[11]	4,944	24.4	0.08	0.01	203.60	0.00	0.00	3.92	4,961	16.2	0.21	0.04	203.60	0.00	0.00	2.76	5,172	211.5	2.95	0.54	203.60	0.00	0.00	22.60
CPR-2[11]	1,577	2.6	0.03	0.01	40.17	0.00	0.00	0.41	1,578	0.9	0.01	0.00	40.17	0.00	0.00	0.15	1,664	86.5	1.25	0.23	40.17	0.00	0.00	9.24
EX-1[11]	7,127	18.0	0.74	0.14	N/A	N/A	N/A	N/A	7,127	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7,127	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EX-2[11]	974	9.4	0.39	0.07	N/A	N/A	N/A	N/A	974	N/A	N/A	N/A	N/A	N/A	N/A	N/A	974	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EX-3[11]	2,937	13.6	0.52	0.10	N/A	N/A	N/A	N/A	2,937	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2,937	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EX-4[11]	608	4.0	0.04	0.01	N/A	N/A	N/A	N/A	611	3.0	0.03	0.01	N/A	N/A	N/A	N/A	614	3.5	0.04	0.01	N/A	N/A	N/A	N/A
U2-5[11]	503	N/A	N/A	N/A	N/A	N/A	N/A	N/A	503	N/A	N/A	N/A	N/A	N/A	N/A	N/A	503	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	300,150	8,794	81	15	23,253	48	0.58	1841.44	305,462	5,312	60	11	23,296	43	0.54	1568.51	313,989	8,527	125	23	23,327	31	0.40	557.03

Abbreviations:

N/A- Not available (pump not installed/running at this time.

UK - Unknown (not enough data).
NAPL - Non-Aqueous Phase Liquids

PHC - Petroleum Hydrocarbons
m - Metres
L - Litres
Kg - Kilograms
gpm - Gallons per minute

TABLE 2-5
SUMMARY OF EXTRACTION RATES - PERIMETER EXTRACTION SYSTEM
PARKLAND BURNABY REFINERY

Extraction Well	Feb 19-21, 2019								May 13-15, 2019								August 6-8, 2019							
	Total Fluids Extracted (m^3)	Quarter Fluids Extracted (m^3)	Fluid Extraction Rate [13] (m^3/day)	(gpm)	Total NAPL Extracted (L)	NAPL Extracted (quarterly basis) (L)	NAPL Extraction Rate[5] (L/day)	PHC Mass Extracted (quarterly basis) (Kg)	Total Fluids Extracted (m^3)	Quarter Fluids Extracted (m^3)	Fluid Extraction Rate [13] (m^3/day)	(gpm)	Total NAPL Extracted (L)	NAPL Extracted (quarterly basis) (L)	NAPL Extraction Rate[5] (L/day)	PHC Mass Extracted (quarterly basis) (Kg)	Total Fluids Extracted (m^3)	Quarter Fluids Extracted (m^3)	Fluid Extraction Rate [13] (m^3/day)	(gpm)	Total NAPL Extracted (L)	NAPL Extracted (quarterly basis) (L)	NAPL Extraction Rate[5] (L/day)	PHC Mass Extracted (quarterly basis) (Kg)
UEIB-1[1]	78	N/A	N/A	N/A	2,680	N/A	N/A	N/A	78	N/A	N/A	N/A	2,680	N/A	N/A	N/A	78	N/A	N/A	N/A	2,680	N/A	N/A	N/A
UEIB-2[2]/UEIB-52[14]	724	57.1	0.90	0.17	1,578	0.00	0.00	0.09	784	60.0	0.73	0.13	1,578	0.00	0.00	0.06	897	113.4	0.81	0.15	1,578	0.00	0.00	0.55
UEIB-3/UEIB-53[14]	823	19.5	0.31	0.06	4,471	0.00	0.00	0.29	846	22.6	0.28	0.05	4,472	1.13	0.01	1.12	876	30.5	0.19	0.03	4,474	1.52	0.01	0.98
UEIB-4/UEIB-54[14]	707	55.7	0.87	0.16	176	7.26	0.08	4.99	765	58.4	0.73	0.13	182	5.84	0.07	3.26	1,050	284.6	2.49	0.46	210	28.46	0.24	91.01
UEIB-5[8]	358	N/A	N/A	N/A	184	N/A	N/A	N/A	358	N/A	N/A	N/A	184	N/A	N/A	N/A	358	N/A	N/A	N/A	184	N/A	N/A	N/A
UEIB-6[9]	209	N/A	N/A	N/A	6,025	N/A	N/A	N/A	209	N/A	N/A	N/A	6,025	N/A	N/A	N/A	209	N/A	N/A	N/A	6,025	N/A	N/A	N/A
UEIB-7/UEIB-47[14]	373	6.8	0.10	0.02	5,644	0.00	0.00	0.00	381	7.7	0.10	0.02	5,644	0.00	0.00	0.00	386	5.2	0.02	0.00	5,644	0.00	0.00	0.00
UEIB-8/UEIB-48[14]	3,137	352.1	6.83	1.25	6.80	0.00	0.00	0.13	3,265	128.4	1.55	0.28	6.80	0.00	0.00	0.10	3,487	221.1	1.45	0.27	6.80	0.00	0.00	0.08
UEIB-9/UEIB-49[14]	3,597	72.1	1.12	0.21	0.00	0.00	0.00	0.01	3,684	87.1	1.08	0.20	0.00	0.00	0.00	0.88	3,827	143.3	0.99	0.18	0.00	0.00	0.00	4.48
UEIB-10[4]/UEIB-50[14]	1,293	55.0	0.87	0.16	0.00	0.00	0.00	1.00	1,407	113.9	1.35	0.25	0.00	0.00	0.00	1.15	1,634	226.4	1.54	0.28	0.00	0.00	0.00	7.07
UEIB-11[3]	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
UEIB-14[1,4]/UEIB-51[14]	98	0.0	0.00	0.00	825	0.00	0.00	0.00	186	88.1	2.04	0.37	825	0.00	0.00	0.79	1,099	912.8	4.26	0.78	825	0.00	0.00	7.03
UEIB-15	11,796	214.3	3.41	0.63	0.00	0.00	0.00	3.90	12,008	211.8	2.43	0.45	0.00	0.00	0.00	2.15	12,259	251.0	1.37	0.25	0.00	0.00	0.00	7.84
UEIB-16	8,840	140.6	2.07	0.38	0.00	0.00	0.00	2.56	9,000	160.8	1.76	0.32	0.00	0.00	0.00	1.63	9,226	226.0	1.57	0.29	0.00	0.00	0.00	7.06
UEIB-17	6,747	263.5	4.23	0.78	0.00	0.00	0.00	4.79	6,963	215.8	1.85	0.34	0.00	0.00	0.00	2.19	7,106	143.0	0.69	0.13	0.00	0.00	0.00	4.47
UEIB-18	9,924	310.4	4.54	0.83	0.00	0.00	0.00	0.12	10,254	330.3	3.75	0.69	0.00	0.00	0.00	3.35	10,627	372.6	2.33	0.43	0.00	0.00	0.00	0.13
UEIB-19	9,880	103.1	1.52	0.28	0.00	0.00	0.00	0.06	9,949	68.0	0.88	0.16	0.00	0.00	0.00	0.69	10,103	154.5	0.74	0.14	0.00	0.00	0.00	4.83
UEIB-20/UEIB-56[14]	14,119	1,072.3	19.27	3.54	0.00	0.00	0.00	0.66	15,641	1,521.3	18.93	3.47	0.00	0.00	0.00	15.42	16,473	832.3	4.35	0.80	0.00	0.00	0.00	26.00
UEIB-21	16,210	501.6	8.06	1.48	0.00	0.00	0.00	0.09	16,684	473.8	5.54	1.02	0.00	0.00	0.00	0.15	17,216	532.8	3.43	0.63	0.00	0.00	0.00	16.65
UEIB-22	8,423	207.7	3.26	0.60	0.00	0.00	0.00	0.25	8,535	112.6	0.99	0.18	0.00	0.00	0.00	0.44	8,608	73.0	0.31	0.06	0.00	0.00	0.00	2.28
UEIB-23	7,179	29.9	0.48	0.09	0.00	0.00	0.00	0.54	7,228	48.3	0.61	0.11	0.00	0.00	0.00	0.49	7,359	131.2	0.84	0.15	0.00	0.00	0.00	4.10
UEIB-24	11,876	350.4	5.60	1.03	0.00	0.00	0.00	6.37	12,390	514.2	6.05	1.11	0.00	0.00	0.00	5.21	13,132	742.3	5.33	0.98	0.00	0.00	0.00	23.19
UEIB-25	8,350	94.5	0.74	0.14	0.00	0.00	0.00	1.72	8,617	267.3	4.42	0.81	0.00	0.00	0.00	2.71	9,105	487.6	3.65	0.67	0.00	0.00	0.00	0.12
UEIB-26	12,163	294.8	4.31	0.79	0.00	0.00	0.00	5.36	12,351	187.6	2.66	0.49	0.00	0.00	0.00	1.90	12,773	422.2	2.80	0.51	0.00	0.00	0.00	13.19
UEIB-27	14,109	1,200.7	18.75	3.44	0.00	0.00	0.00	21.84	14,910	800.7	9.38	1.72	0.00	0.00	0.00	8.11	15,337	427.2	2.78	0.51	0.00	0.00	0.00	0.11
UEIB-28	6,576	249.8	3.60	0.66	0.00	0.00	0.00	0.31	6,732	156.5	1.96	0.36	0.00	0.00	0.00	0.19	6,907	174.4	1.26	0.23	0.00	0.00	0.00	0.27
UEIB-29	13,372	480.6	7.40	1.36	0.00	0.00	0.00	8.74	13,858	486.5	5.69	1.04	0.00	0.00	0.00	0.05	14,574	715.6	4.98	0.91	0.00	0.00	0.00	22.36
UEIB-30	7,845	181.1	2.66	0.49	0.00	0.00	0.00	3.29	7,956	110.8	1.35	0.25	0.00	0.00	0.00	1.12	8,009	52.8	0.30	0.05	0.00	0.00	0.00	1.65
UEIB-31/UEIB-55[14]	5,228	120.0	1.75	0.32	0.00	0.00	0.00	2.18	5,349	120.4	1.72	0.32	0.00	0.00	0.00	1.22	5,620	270.9	1.80	0.33	0.00	0.00	0.00	8.46
UEIB-32	4,797	74.2	1.09	0.20	44.62	0.00	0.00	1.10	4,862	64.8	0.81	0.15	44.62	0.00	0.00	0.37	4,981	119.3	0.80	0.15	50.58	5.96	0.04	14.66
UEIB-33	7,116	153.4	2.19	0.40	54.26	0.00	0.00	4.51	7,258	141.5	1.76	0.32	54.26	0.00	0.00	2.06	7,398	139.9	0.85	0.16	54.26	0.00	0.00	3.45
UEIB-34	7,843	41.8	0.59	0.11	40.07	0.00	0.00	0.02	7,905	62.0	0.78	0.14	40.07	0.00	0.00	0.06	8,027	121.7	0.83	0.15	40.07	0.00	0.00	0.09
UEIB-35	13,971	215.8	3.20	0.59	0.00	0.00	0.00	0.04	14,197	225.6	2.55	0.47	0.00	0.00	0.00	2.29	14,556	358.9	2.77	0.51	0.00	0.00	0.00	0.11
UEIB-36	6,021	85.6	1.24	0.23	33.16	0.00	0.00	1.56	6,129	108.6	1.37	0.25	33.16	0.00	0.00	1.10	6,324	194.8	1.31	0.24	33.16	0.00	0.00	6.08
UEIB-37 [6]	5,287	21.2	0.31	0.06	0.00	0.00	0.00	0.39	5,318	31.0	0.38	0.07	0.00	0.00	0.00	0.31	5,405	87.3	0.63	0.12	0.00	0.00	0.00	2.73
UEIB-38	1,478	43.8	0.66	0.12	0.00	0.00	0.00	0.80	1,541	63.0	0.78	0.14	0.00	0.00	0.00	0.02	1,635	93.2	0.73	0.13	0.00	0.00	0.00	2.91
UEIB-39 [6]	4,603	89.6	1.31	0.24	0.00	0.00	0.00	1.63	4,715	111.9	1.53	0.28	0.00	0.00	0.00	1.13	5,024	309.0	2.31	0.42	0.00	0.00	0.00	9.65
UEIB-40 [6]	4,779	140.8	2.11	0.39	0.00	0.00	0.00	2.56	4,971	192.6	2.40	0.44	0.00	0.00	0.00	1.95	5,214	242.5	1.68	0.31	0.00	0.00	0.00	0.03
UEIB-41 [6]	10,331	160.5	2.46	0.45	0.00	0.00	0.00	2.92	10,578	246.2	3.07	0.56	0.00	0.00	0.00	2.49	10,903	325.0	1.99	0.37	0.00	0.00	0.00	10.15
UEIB-42 [6]	14,734	429.7	6.86	1.26	0.00	0.00	0.00	7.82	15,752	1,018.1	10.92	2.00	0.00	0.00	0.00	10.32	16,051	298.6	2.39	0.44	0.00	0.00	0.00	9.33
UEIB-43	19,518	1,048.9	15.25	2.80	0.00	0.00	0.00	19.08	19,589	70.4	0.00	0.00	0.00	0.00	0.00	0.71	20,349	760.6	4.45	0.82	0.00	0.00	0.00	23.77
UEIB-44	2,614	35.5	0.53	0.10	42.98	0.00	0.00	0.08	2,659	45.1	0.55	0.10	42.98	0.00	0.00	0.17	2,734	75.1	0.53	0.10	42.98	0.00	0.00	1.06
UEIB-45 [8]	14,625	186.4	2.99	0.55	1,258.20	12.57	0.14	36.73	14,900	274.7	3.08	0.57	1,303.51	45.31	0.17	5.41	15,332	432.1	1.73	0.32	1,315.15	11.64	0.37	12.32
UEIB-46 [9]	2,441	46.5	0.72	0.13	42.95	3.08	0.03	0.19	2,491	49.6	0.61	0.11	42.95	0.00	0.00	0.27	2,571	80.7	0.50	0.09	42.95	0.00	0.00	0.27
CPR-1 [11]	5,437	264.9	3.84	0.70	203.60	0.00	0.00	4.82	5,492	55.5	0.69	0.13	203.60	0.00	0.00	0.56	5,515	22.4	0.02	0.00	203.60	0.00	0.00	0.70
CPR-2 [11]	1,706	41.7	1.32	0.24	40.17	0.00	0.00	0.76	1,706	0.1	0.00	0.00	40.17	0.00	0.00	0.00	1,708	1.8	0.00	0.00	40.17	0.00	0.00	0.06
EX-1 [11]	7,127	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7,127	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7,127	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EX-2 [11]	974	N/A	N/A	N/A	N/A	N/A	N/A	N/A	974	N/A	N/A	N/A	N/A	N/A	N/A	N/A	974	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EX-3 [11]	2,937	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2,937	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2,937	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EX-4 [11]	618	3.4	0.05	0.01	N/A	N/A	N/A	N/A	622	3.9	0.05	0.01	N/A	N/A	N/A	N/A	628	6.0	0.04	0.01	N/A	N/A	N/A	N/A
U2-5 [11]	503	N/A	N/A	N/A	N/A	N/A	N/A	N/A	503	N/A	N/A	N/A	N/A	N/A	N/A	N/A	503	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	323,506	9,517	149	27	23,350	23	0.25	154.32	332,624	9,117	109	20	23,402	52	0.25	83.61	344,239	11,616	74	14	23,450	48	0.66	351.29

Abbreviations:

N/A- Not available (pump not installed/running at this time.

UK - Unknown (not enough data).
NAPL - Non-Aqueous Phase Liquids

PHC - Petroleum Hydrocarbons
m - Metres
L - Litres
Kg - Kilograms
gpm - Gallons per minute

SUMMARY OF EXTRACTION RATES - PERIMETER EXTRACTION SYSTEM
PARKLAND BURNABY REFINERY

Extraction Well	October 3 - January 7th, 2019/2020								Jan 7 - March 30, 2020								March 30 -July 6, 2020							
	Total Fluids Extracted (m^3)	Quarter Fluids Extracted (m^3)	Fluid Extraction Rate [13] (m^3/day)	Fluid Extraction Rate [13] (gpm)	Total NAPL Extracted (L)	NAPL Extracted (quarterly basis) (L)	NAPL Extraction Rate[5] (L/day)	PHC Mass Extracted (quarterly basis) (Kg)	Total Fluids Extracted (m^3)	Quarter Fluids Extracted (m^3)	Fluid Extraction Rate [13] (m^3/day)	Fluid Extraction Rate [13] (gpm)	Total NAPL Extracted (L)	NAPL Extracted (quarterly basis) (L)	NAPL Extraction Rate[5] (L/day)	PHC Mass Extracted (quarterly basis) (Kg)	Total Fluids Extracted (m^3)	Quarter Fluids Extracted (m^3)	Fluid Extraction Rate [13] (m^3/day)	Fluid Extraction Rate [13] (gpm)	Total NAPL Extracted (L)	NAPL Extracted (quarterly basis) (L)	NAPL Extraction Rate[5] (L/day)	PHC Mass Extracted (quarterly basis) (Kg)
UEIB-1[1]	78	N/A	N/A	N/A	2,680	N/A	N/A	N/A	78	N/A	N/A	N/A	2,680	N/A	N/A	N/A	78	N/A	N/A	N/A	2,680	N/A	N/A	N/A
UEIB-2[2]/UEIB-52[14]	957	59.3	0.64	0.12	1,578	0.00	0.00	0.17	1,030	73.2	0.91	0.17	1,578	0.00	0.00	0.12	1,094	64.1	0.67	0.12	1,578	0.00	0.00	N/A
UEIB-3/UEIB-53[14]	901	24.4	0.25	0.05	4,475	1.22	0.01	1.58	926	25.4	0.31	0.06	4,477	1.89	0.02	0.73	954	27.4	0.28	0.05	4,479	2.11	0.02	N/A
UEIB-4/UEIB-54[14]	1,166	116.4	1.18	0.22	222	11.64	0.12	5.83	1,257	90.4	1.16	0.21	231	9.04	0.11	17.63	1,322	65.1	0.67	0.12	237	6.51	0.07	N/A
UEIB-5[8]	358	N/A	N/A	N/A	184	N/A	N/A	N/A	358	N/A	N/A	N/A	184	N/A	N/A	N/A	358	N/A	N/A	N/A	184	N/A	N/A	N/A
UEIB-6[9]	209	N/A	N/A	N/A	6,025	N/A	N/A	N/A	209	N/A	N/A	N/A	6,025	N/A	N/A	N/A	209	N/A	N/A	N/A	6,025	N/A	N/A	N/A
UEIB-7/UEIB-47[14]	394	8.2	0.08	0.01	5,644	0.00	0.00	0.01	405	10.2	0.12	0.02	5,644	0.00	0.00	0.20	413	8.4	0.09	0.02	5,644	0.16	0.00	N/A
UEIB-8/UEIB-48[14]	3,689	202.7	2.03	0.37	6.80	0.00	0.00	0.24	3,953	263.7	3.13	0.57	6.80	0.00	0.00	0.15	4,177	224.3	2.37	0.43	6.80	0.00	0.00	N/A
UEIB-9/UEIB-49[14]	3,933	105.7	1.10	0.20	0.00	0.00	0.00	0.02	4,025	92.1	1.15	0.21	0.00	0.00	0.00	0.01	4,093	68.4	0.71	0.13	0.00	0.00	0.00	N/A
UEIB-10[4]/UEIB-50[14]	1,805	171.3	1.80	0.33	0.00	0.00	0.00	0.05	1,950	145.2	1.87	0.34	0.00	0.00	0.00	0.06	2,107	156.5	1.54	0.28	0.00	0.00	0.00	N/A
UEIB-11[3]	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
UEIB-14[1,4]/UEIB-51[14]	1,777	678.1	6.85	1.26	825	0.00	0.00	3.49	1,883	106.1	5.48	1.00	825	0.00	0.00	0.21	2,064	181.2	1.78	0.33	825	0.00	0.00	N/A
UEIB-15	12,588	328.2	1.84	0.34	0.00	0.00	0.00	0.16	12,702	114.2	1.47	0.27	0.00	0.00	0.00	2.24	12,876	174.4	1.68	0.31	0.00	0.00	0.00	N/A
UEIB-16	9,510	283.2	3.79	0.70	0.00	0.00	0.00	2.44	9,864	354.3	4.24	0.78	0.00	0.00	0.00	6.95	10,137	272.7	2.94	0.54	0.00	0.00	0.00	N/A
UEIB-17	7,549	443.4	5.63	1.03	0.00	0.00	0.00	0.82	8,092	542.9	6.49	1.19	0.00	0.00	0.00	10.65	8,323	230.7	2.64	0.48	0.00	0.00	0.00	N/A
UEIB-18	11,304	677.9	10.73	1.97	0.00	0.00	0.00	0.17	11,481	176.3	2.32	0.43	0.00	0.00	0.00	3.46	11,587	106.0	1.09	0.20	0.00	0.00	0.00	N/A
UEIB-19	10,467	363.8	5.02	0.92	0.00	0.00	0.00	1.11	10,776	309.1	4.11	0.75	0.00	0.00	0.00	0.08	11,481	705.6	7.70	1.41	0.00	0.00	0.00	N/A
UEIB-20/UEIB-56[14]	16,860	387.0	4.01	0.74	0.00	0.00	0.00	0.11	17,764	904.0	9.23	1.69	0.00	0.00	0.00	0.41	17,923	158.7	1.66	0.30	0.00	0.00	0.00	N/A
UEIB-21	17,848	631.4	8.25	1.51	0.00	0.00	0.00	0.76	18,447	599.5	7.61	1.40	0.00	0.00	0.00	0.35	19,160	712.7	7.36	1.35	0.00	0.00	0.00	N/A
UEIB-22	8,840	231.6	3.21	0.59	0.00	0.00	0.00	0.23	9,130	290.5	3.94	0.72	0.00	0.00	0.00	0.23	9,309	178.8	2.05	0.38	0.00	0.00	0.00	N/A
UEIB-23	7,576	217.2	0.99	0.18	0.00	0.00	0.00	1.87	7,642	66.5	0.86	0.16	0.00	0.00	0.00	1.30	7,719	76.5	0.79	0.15	0.00	0.00	0.00	N/A
UEIB-24	13,632	499.4	6.94	1.27	0.00	0.00	0.00	0.12	NM	NM	NM	NM	NM	NM	NM	NM	14,662	515.3	6.03	1.11	0.00	0.00	0.00	N/A
UEIB-25	9,276	170.6	1.66	0.30	0.00	0.00	0.00	0.06	NM	NM	NM	NM	NM	NM	NM	NM	9,591	157.5	1.87	0.34	0.00	0.00	0.00	N/A
UEIB-26	13,264	490.8	6.31	1.16	0.00	0.00	0.00	0.17	NM	NM	NM	NM	NM	NM	NM	NM	14,060	398.3	3.79	0.70	0.00	0.00	0.00	N/A
UEIB-27	15,615	277.3	2.31	0.42	0.00	0.00	0.00	2.39	NM	NM	NM	NM	NM	NM	NM	NM	15,734	59.7	0.46	0.08	0.00	0.00	0.00	N/A
UEIB-28	7,115	208.9	3.09	0.57	0.00	0.00	0.00	0.25	NM	NM	NM	NM	NM	NM	NM	NM	7,624	254.4	1.81	0.33	0.00	0.00	0.00	N/A
UEIB-29	15,155	581.5	7.17	1.32	0.00	0.00	0.00	0.90	NM	NM	NM	NM	NM	NM	NM	NM	16,425	634.7	6.24	1.14	0.00	0.00	0.00	N/A
UEIB-30	8,116	106.8	1.70	0.31	0.00	0.00	0.00	0.92	NM	NM	NM	NM	NM	NM	NM	NM	8,453	168.9	1.24	0.23	0.00	0.00	0.00	N/A
UEIB-31/UEIB-55[14]	5,620	0.6	0.11	0.02	0.00	0.00	0.00	0.01	NM	NM	NM	NM	NM	NM	NM	NM	5,628	3.7	0.04	0.01	0.00	0.00	0.00	N/A
UEIB-32	5,070	89.1	1.09	0.20	55.04	4.46	0.05	0.48	5,162	91.8	1.15	0.21	57.73	2.69	0.03	2.58	5,236	74.2	0.77	0.14	57.73	0.00	0.00	N/A
UEIB-33	7,567	169.1	2.42	0.44	54.26	0.00	0.00	1.96	7,780	213.2	2.64	0.48	54.26	0.00	0.00	1.27	7,919	139.6	1.47	0.27	56.95	2.70	0.03	N/A
UEIB-34	8,117	89.8	1.10	0.20	40.07	0.00	0.00	0.11	8,217	99.8	1.19	0.22	40.07	0.00	0.00	0.10	8,325	107.9	1.10	0.20	40.07	0.00	0.00	N/A
UEIB-35	14,798	242.3	3.15	0.58	0.00	0.00	0.00	2.09	15,038	240.3	3.08	0.56	0.00	0.00	0.00	4.72	15,180	141.6	1.26	0.23	0.00	0.00	0.00	N/A
UEIB-36	6,454	129.9	1.56	0.29	33.16	0.00	0.00	0.04	6,582	128.6	1.54	0.28	33.16	0.00	0.00	2.52	6,720	137.4	1.41	0.26	33.16	0.00	0.00	N/A
UEIB-37 [6]	5,456	50.9	0.52	0.10	0.00	0.00	0.00	0.01	5,505	48.2	0.58	0.11	0.00	0.00	0.00	0.95	5,543	39.0	0.40	0.07	0.00	0.00	0.00	N/A
UEIB-38	1,687	52.7	0.55	0.10	0.00	0.00	0.00	0.02	1,749	62.1	0.72	0.13	0.00	0.00	0.00	1.22	1,813	63.1	0.65	0.12	0.00	0.00	0.00	N/A
UEIB-39 [6]	5,136	111.8	1.30	0.24	0.00	0.00	0.00	0.96	5,257	121.1	1.46	0.27	0.00	0.00	0.00	2.38	5,413	155.6	1.53	0.28	0.00	0.00	0.00	N/A
UEIB-40 [6]	5,380	166.5	1.68	0.31	0.00	0.00	0.00	1.44	5,573	192.4	2.28	0.42	0.00	0.00	0.00	3.78	5,891	318.5	3.10	0.57	0.00	0.00	0.00	N/A
UEIB-41 [6]	10,987	84.3	0.94	0.17	0.00	0.00	0.00	0.73	11,075	88.1	1.04	0.19	0.00	0.00	0.00	1.73	11,163	87.5	0.90	0.16	0.00	0.00	0.00	N/A
UEIB-42 [6]	16,601	550.3	5.40	0.99	0.00	0.00	0.00	0.10	17,130	529.1	6.77	1.24	0.00	0.00	0.00	10.38	17,823	692.9	6.96	1.28	0.00	0.00	0.00	N/A
UEIB-43	20,928	578.7	6.01	1.10	0.00	0.00	0.00	4.99	21,001	73.4	1.77	0.32	0.00	0.00	0.00	1.44	21,029	27.8	0.28	0.05	0.00	0.00	0.00	N/A
UEIB-44	2,781	47.6	0.50	0.09	42.98	0.00	0.00	0.95	2,837	55.4	0.66	0.12	42.98	0.00	0.00	0.20	2,897	60.3	0.62	0.11	44.32	1.34	0.01	N/A
UEIB-45 [8]	15,602	269.7	2.64	0.48	1,342.13	26.97	0.28	21.14	15,977	375.3	4.39	0.81	1,379.65	37.53	0.45	22.52	16,403	426.0	4.40	0.81	1,422.26	42.60	0.44	N/A
UEIB-46 [9]	2,636	64.7	0.65	0.12	42.95	0.00	0.00	0.25	2,709	72.9	0.88	0.16	42.95	0.00	0.00	0.31	2,780	71.4	0.74	0.14	44.57	1.61	0.02	N/A
CPR-1 [11]	5,785	269.7	2.54	0.47	203.60	0.00	0.00	2.33	6,087	302.8	4.13	0.76	203.60	0.00	0.00	5.94	6,113	25.7	0.41	0.08	203.60	0.00	0.00	N/A
CPR-2 [11]	1,764	56.3	0.51	0.09	40.17	0.00	0.00	0.49	1,784	20.4	0.43	0.08	40.17	0.00	0.00	0.40	1,784	0.0	0.00	0.00	40.17	0.00	0.00	N/A
EX-1 [11]	7,127	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7,127	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7,127	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EX-2 [11]	974	N/A	N/A	N/A	N/A	N/A	N/A	N/A	974	N/A	N/A	N/A	N/A	N/A	N/A	N/A	974	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EX-3 [11]	2,937	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2,937	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2,937	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EX-4 [11]	633	4.9	0.05	0.01	N/A	N/A	N/A	N/A	637	4.7	0.06	0.01	N/A	N/A	N/A	N/A	642	5.1	0.05	0.01	N/A	N/A	N/A	N/A
U2-5 [11]	503	N/A	N/A	N/A	N/A	N/A	N/A	N/A	503	N/A	N/A	N/A	N/A	N/A	N/A	N/A	503	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	354,533	10,294	119	22	23,494	44	0.46	61.96	273,624	6,883	89	16	23,545	51	0.62	107.23	371,786	8,177	84	15	23,602	57	0.58	0.00

Abbreviations:

N/A- Not available (pump not installed/running at this time.

UK - Unknown (not enough data).
NAPL - Non-Aqueous Phase Liquids

PHC - Petroleum Hydrocarbons
m - Metres
L - Litres
Kg - Kilograms
gpm - Gallons per minute

TABLE 2-5
SUMMARY OF EXTRACTION RATES - PERIMETER EXTRACTION SYSTEM
PARKLAND BURNABY REFINERY

Extraction Well	July 6 - Oct 1, 2020								Oct 1, 2020 - Jan 5, 2021							
	Total Fluids Extracted (m^3)	Quarter Fluids Extracted (m^3)	Fluid Extraction Rate [13] (m^3/day)	(gpm)	Total NAPL Extracted (L)	NAPL Extracted (quarterly basis) (L)	NAPL Extraction Rate[5] (L/day)	PHC Mass Extracted (quarterly basis) (Kg)	Total Fluids Extracted (m^3)	Quarter Fluids Extracted (m^3)	Fluid Extraction Rate [13] (m^3/day)	(gpm)	Total NAPL Extracted (L)	NAPL Extracted (quarterly basis) (L)	NAPL Extraction Rate[5] (L/day)	PHC Mass Extracted (quarterly basis) (Kg)
UEIB-1[1]	78	N/A	N/A	N/A	2,680	N/A	N/A	N/A	78	N/A	N/A	N/A	2,680	N/A	N/A	N/A
UEIB-2[2]/UEIB-52[14]	1,152	57.9	0.66	0.12	1,578	0.00	0.00	N/A	1,203	51.2	0.55	0.10	1,579	1.19	0.01	N/A
UEIB-3/UEIB-53[14]	973	18.9	0.23	0.04	4,480	0.95	0.01	N/A	995	22.3	0.22	0.04	4,482	1.73	0.02	N/A
UEIB-4/UEIB-54[14]	1,371	49.0	0.58	0.11	242	4.90	0.06	N/A	1,437	66.6	0.66	0.12	249	6.66	0.07	N/A
UEIB-5[8]	358	N/A	N/A	N/A	184	N/A	N/A	N/A	358	N/A	N/A	N/A	184	N/A	N/A	N/A
UEIB-6[9]	209	N/A	N/A	N/A	6,025	N/A	N/A	N/A	209	N/A	N/A	N/A	6,025	N/A	N/A	N/A
UEIB-7/UEIB-47[14]	420	7.4	0.08	0.01	5,645	0.37	0.00	N/A	433	12.9	0.13	0.02	5,645	0.20	0.00	N/A
UEIB-8/UEIB-48[14]	4,316	138.3	1.64	0.30	6.80	0.00	0.00	N/A	4,497	181.6	1.82	0.33	6.80	0.00	0.00	N/A
UEIB-9/UEIB-49[14]	4,144	50.7	0.59	0.11	0.00	0.00	0.00	N/A	4,220	76.2	0.74	0.14	0.00	0.00	0.00	N/A
UEIB-10[4]/UEIB-50[14]	2,237	130.0	1.52	0.28	0.00	0.00	0.00	N/A	2,348	111.2	1.15	0.21	0.00	0.00	0.00	N/A
UEIB-11[3]	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A	10	N/A	N/A	N/A	N/A	N/A	N/A	N/A
UEIB-14[1,4]/UEIB-51[14]	2,219	155.2	1.84	0.34	825	0.00	0.00	N/A	2,309	89.7	0.98	0.18	825	0.00	0.00	N/A
UEIB-15	12,960	84.1	1.03	0.19	0.00	0.00	0.00	N/A	13,190	229.9	2.39	0.44	0.00	0.00	0.00	N/A
UEIB-16	10,423	286.2	3.11	0.57	0.00	0.00	0.00	N/A	10,925	502.1	4.89	0.90	0.00	0.00	0.00	N/A
UEIB-17	8,426	102.9	1.23	0.23	0.00	0.00	0.00	N/A	8,740	314.1	2.97	0.55	0.00	0.00	0.00	N/A
UEIB-18	11,697	110.2	1.23	0.23	0.00	0.00	0.00	N/A	11,981	284.4	2.79	0.51	0.00	0.00	0.00	N/A
UEIB-19	11,762	280.4	3.53	0.65	0.00	0.00	0.00	N/A	12,025	262.7	2.79	0.51	0.00	0.00	0.00	N/A
UEIB-20/UEIB-56[14]	18,038	115.8	1.45	0.27	0.00	0.00	0.00	N/A	18,404	365.6	3.48	0.64	0.00	0.00	0.00	N/A
UEIB-21	19,641	481.0	5.57	1.02	0.00	0.00	0.00	N/A	20,222	580.6	6.01	1.10	0.00	0.00	0.00	N/A
UEIB-22	9,481	171.7	1.90	0.35	0.00	0.00	0.00	N/A	9,885	403.6	4.12	0.76	0.00	0.00	0.00	N/A
UEIB-23	7,801	82.3	0.90	0.16	0.00	0.00	0.00	N/A	7,872	70.4	0.74	0.14	0.00	0.00	0.00	N/A
UEIB-24	15,109	446.9	5.04	0.92	0.00	0.00	0.00	N/A	15,492	382.9	4.00	0.73	0.00	0.00	0.00	N/A
UEIB-25	9,781	190.6	2.20	0.40	0.00	0.00	0.00	N/A	9,877	95.9	0.99	0.18	0.00	0.00	0.00	N/A
UEIB-26	14,224	163.2	1.95	0.36	0.00	0.00	0.00	N/A	14,488	264.0	2.61	0.48	0.00	0.00	0.00	N/A
UEIB-27	16,077	342.9	3.59	0.66	0.00	0.00	0.00	N/A	16,498	420.8	4.30	0.79	0.00	0.00	0.00	N/A
UEIB-28	7,738	114.2	1.34	0.25	0.00	0.00	0.00	N/A	8,002	263.8	2.57	0.47	0.00	0.00	0.00	N/A
UEIB-29	16,833	407.6	4.77	0.87	0.00	0.00	0.00	N/A	17,433	600.9	6.02	1.10	0.00	0.00	0.00	N/A
UEIB-30	8,504	50.6	0.61	0.11	0.00	0.00	0.00	N/A	8,681	177.3	1.67	0.31	0.00	0.00	0.00	N/A
UEIB-31/UEIB-55[14]	5,629	1.0	0.01	0.00	0.00	0.00	0.00	N/A	6,239	610.1	5.50	1.01	0.00	0.00	0.00	N/A
UEIB-32	5,279	42.4	0.51	0.09	57.73	0.00	0.00	N/A	5,331	52.8	0.53	0.10	57.73	0.00	0.00	N/A
UEIB-33	7,995	75.7	0.91	0.17	60.74	3.79	0.04	N/A	8,170	174.9	1.69	0.31	69.48	8.74	0.09	N/A
UEIB-34	8,390	65.6	0.80	0.15	40.07	0.00	0.00	N/A	8,472	81.7	0.82	0.15	40.07	0.00	0.00	N/A
UEIB-35	15,547	366.6	4.05	0.74	0.00	0.00	0.00	N/A	16,720	1,173.0	11.30	2.07	0.00	0.00	0.00	N/A
UEIB-36	6,813	93.4	1.12	0.21	33.16	0.00	0.00	N/A	7,266	452.3	4.20	0.77	33.16	0.00	0.00	N/A
UEIB-37 [6]	5,577	33.4	0.38	0.07	0.00	0.00	0.00	N/A	5,616	39.0	0.40	0.07	0.00	0.00	0.00	N/A
UEIB-38	1,878	65.5	0.73	0.13	0.00	0.00	0.00	N/A	1,928	49.9	0.60	0.11	0.00	0.00	0.00	N/A
UEIB-39 [6]	5,561	148.3	1.73	0.32	0.00	0.00	0.00	N/A	5,667	106.5	1.16	0.21	0.00	0.00	0.00	N/A
UEIB-40 [6]	6,243	351.3	4.16	0.76	0.00	0.00	0.00	N/A	6,792	549.5	5.47	1.00	0.00	0.00	0.00	N/A
UEIB-41 [6]	11,241	78.1	0.83	0.15	0.00	0.00	0.00	N/A	11,445	204.5	1.98	0.36	0.00	0.00	0.00	N/A
UEIB-42 [6]	18,016	192.5	2.49	0.46	0.00	0.00	0.00	N/A	18,347	330.9	3.25	0.60	0.00	0.00	0.00	N/A
UEIB-43	21,526	496.4	4.94	0.91	0.00	0.00	0.00	N/A	21,690	164.8	1.74	0.32	0.00	0.00	0.00	N/A
UEIB-44	2,943	45.5	0.53	0.10	46.59	2.27	0.03	N/A	3,099	156.9	1.48	0.27	53.22	6.62	0.07	N/A
UEIB-45 [8]	16,653	250.2	3.05	0.56	1,447.27	25.02	0.29	N/A	16,971	317.7	3.43	0.63	1,479.05	31.77	0.33	N/A
UEIB-46 [9]	2,831	51.3	0.60	0.11	48.58	4.02	0.05	N/A	2,901	69.6	0.70	0.13	53.48	4.90	0.05	N/A
CPR-1 [11]	6,131	18.2	0.19	0.03	203.60	0.00	0.00	N/A	6,542	410.4	3.86	0.71	203.60	0.00	0.00	N/A
CPR-2 [11]	1,786	1.4	0.01	0.00	40.17	0.00	0.00	N/A	1,796	10.1	0.10	0.02	40.17	0.00	0.00	N/A
EX-1 [11]	7,127	N/A	N/A	N/A	N/A	N/A	N/A	N/A	7,127	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EX-2 [11]	974	N/A	N/A	N/A	N/A	N/A	N/A	N/A	974	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EX-3 [11]	2,937	N/A	N/A	N/A	N/A	N/A	N/A	N/A	2,937	N/A	N/A	N/A	N/A	N/A	N/A	N/A
EX-4 [11]	646	3.7	0.04	0.01	N/A	N/A	N/A	N/A	651	4.9	0.05	0.01	N/A	N/A	N/A	N/A
U2-5 [11]	503	N/A	N/A	N/A	N/A	N/A	N/A	N/A	503	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Total	378,205	6,418	74	14	23,643	41	0.47	0.00	388,995	10,790	107	20	23,705	62	0.64	0.00

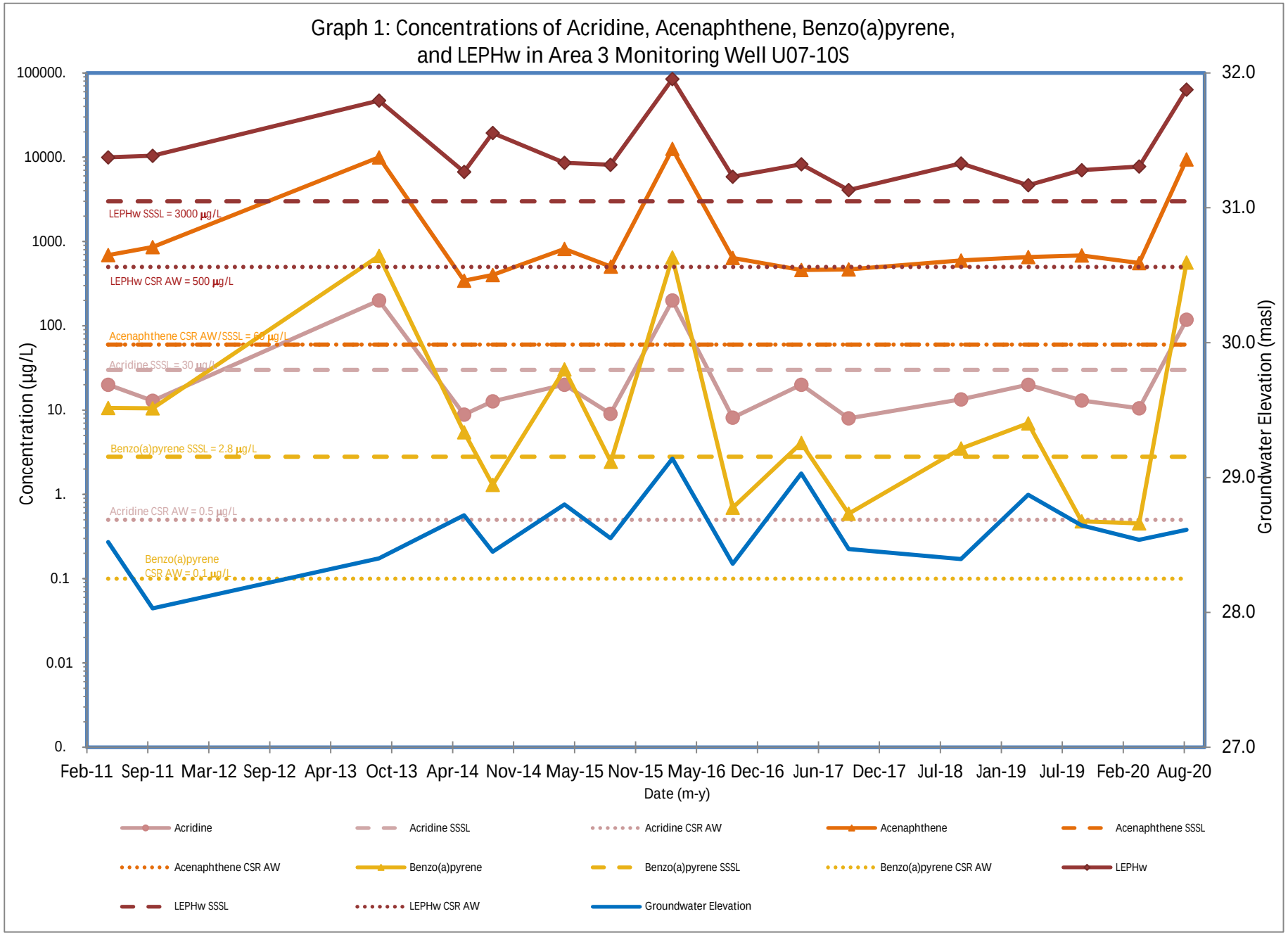
Abbreviations:

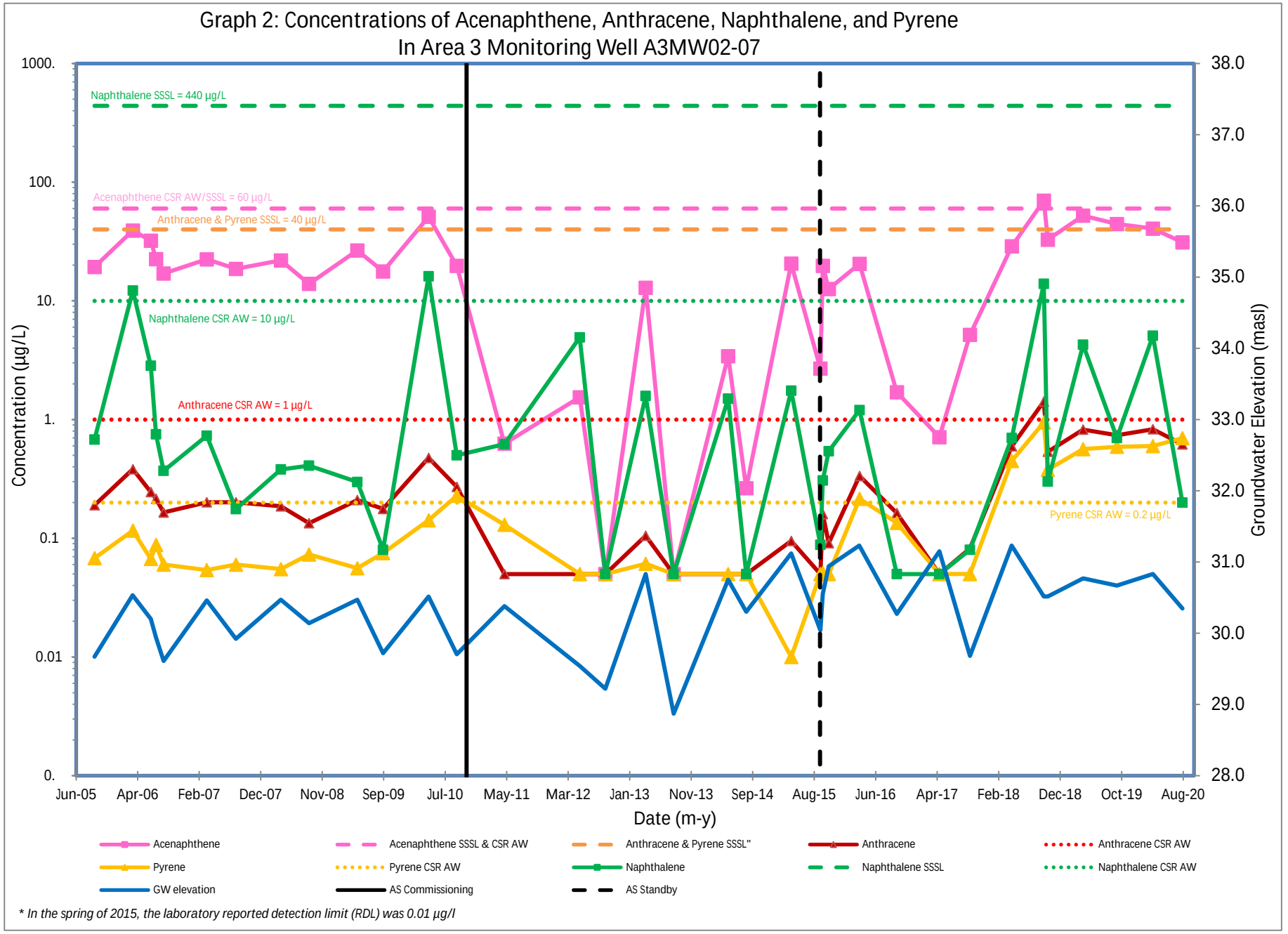
N/A- Not available (pump not installed/running at this time.

UK - Unknown (not enough data).
NAPL - Non-Aqueous Phase Liquids

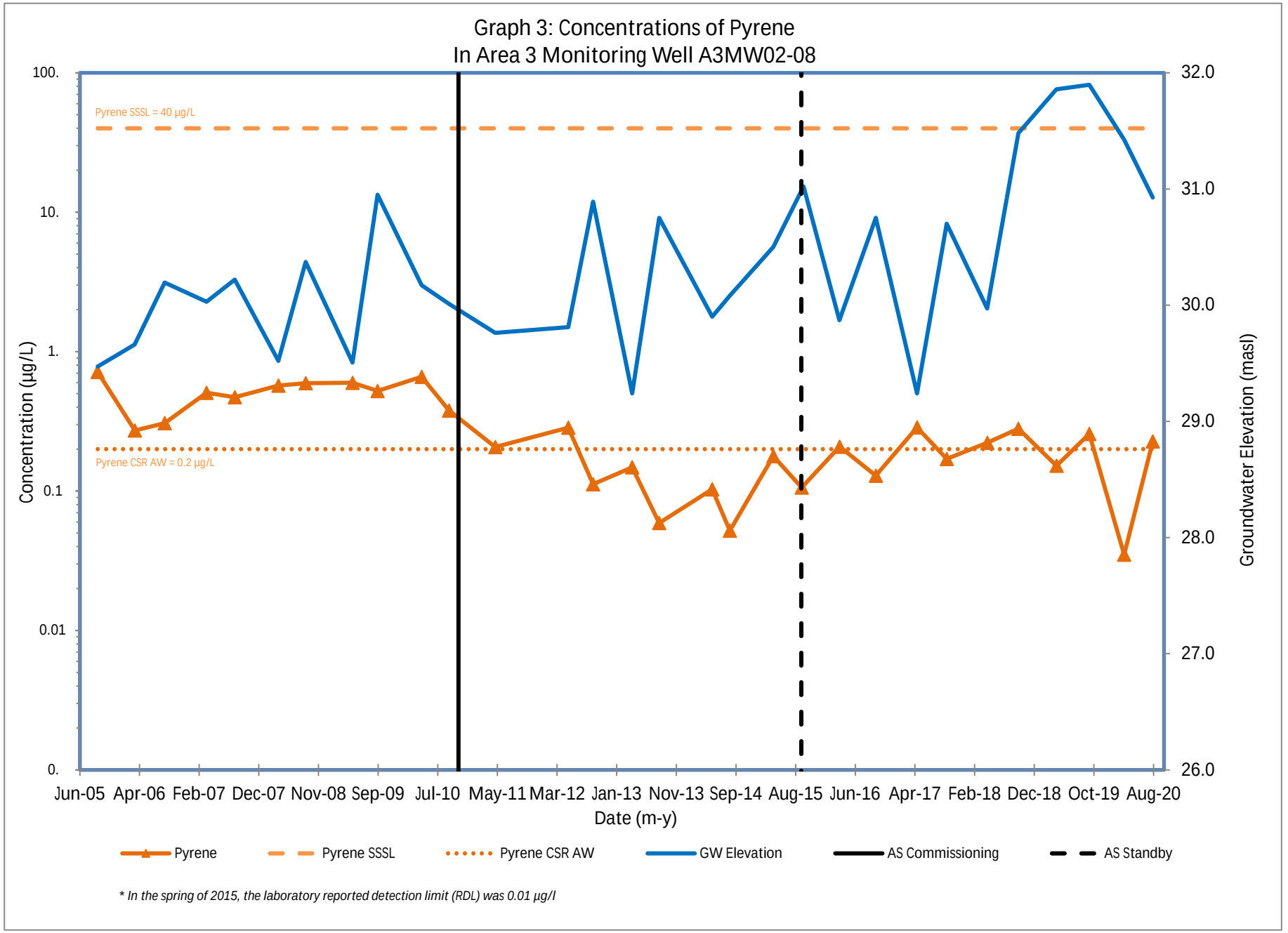
PHC - Petroleum Hydrocarbons
m - Metres
L - Litres
Kg - Kilograms
gpm - Gallons per minute

GRAPHS

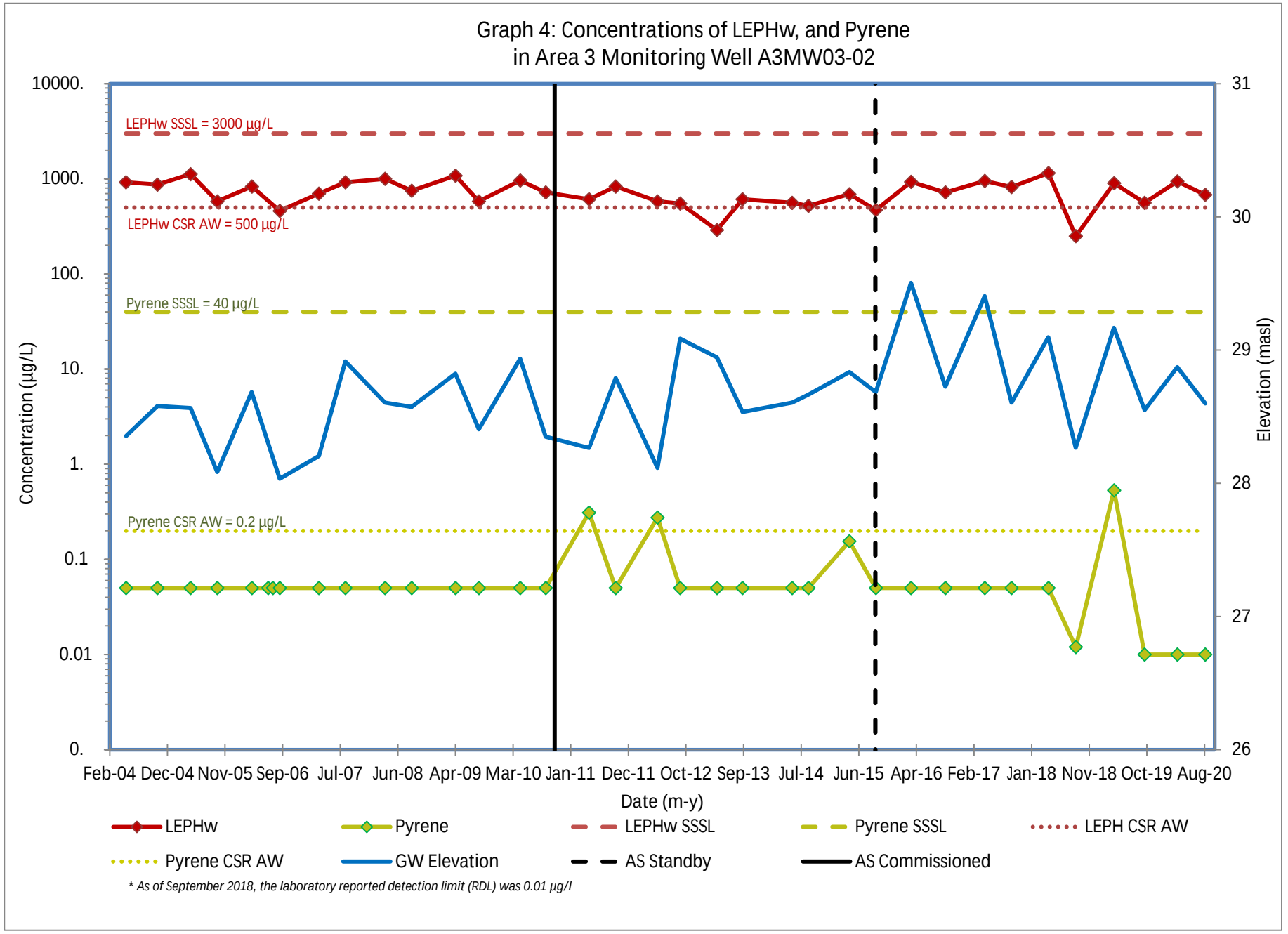

Graph 1: Concentrations of Acridine, Acenaphthene, Benzo(a)pyrene, and LEPHw in Area 3 Monitoring Well U07-10S
Concentration (µg/L)
Groundwater Elevation (masl)
100000.
10000.
1000.
100.
10.
1.
0.1
0.01
0.
32.0
31.0
30.0
29.0
28.0
27.0
LEPHw SSSL = 3000 µg/L
LEPHw CSR AW = 500 µg/L
Acenaphthene CSR AW/SSSL = 60 µg/L
Acridine SSSL = 30 µg/L
Benzo(a)pyrene SSSL = 2.8 µg/L
Acridine CSR AW = 0.5 µg/L
Benzo(a)pyrene CSR AW = 0.1 µg/L
Feb-11 Sep-11 Mar-12 Sep-12 Apr-13 Oct-13 Apr-14 Nov-14 May-15 Nov-15 May-16 Dec-16 Jun-17 Dec-17 Jul-18 Jan-19 Jul-19 Feb-20 Aug-20
Date (m-y)
Acridine
Acridine SSSL
Acridine CSR AW
Acenaphthene
Acenaphthene SSSL
Acenaphthene CSR AW
Benzo(a)pyrene
Benzo(a)pyrene SSSL
Benzo(a)pyrene CSR AW
LEPHw
LEPHw SSSL
LEPHw CSR AW
Groundwater Elevation

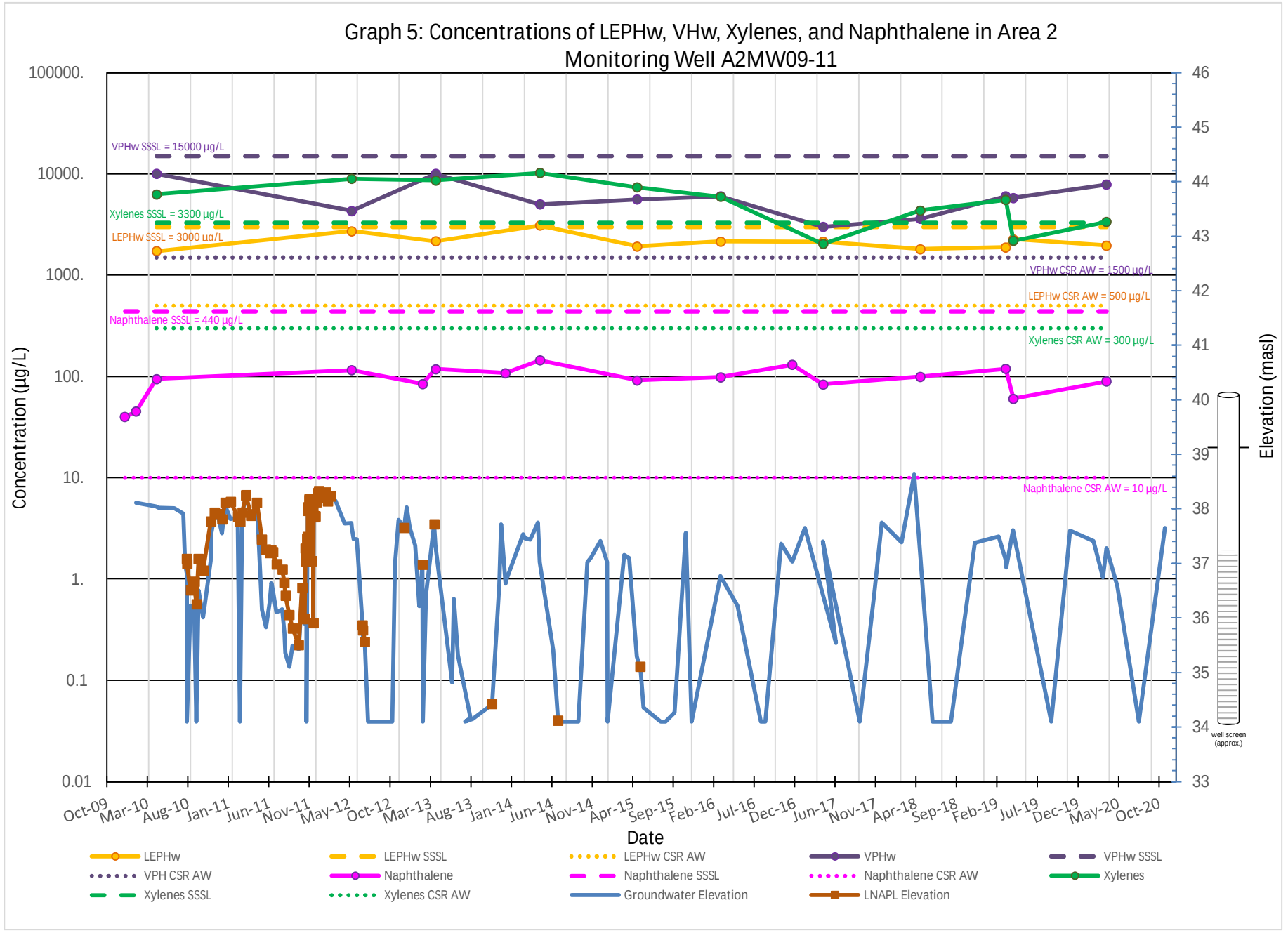


** In the spring of 2015, the laboratory reported detection limit (RDL) was 0.01 µg/l*

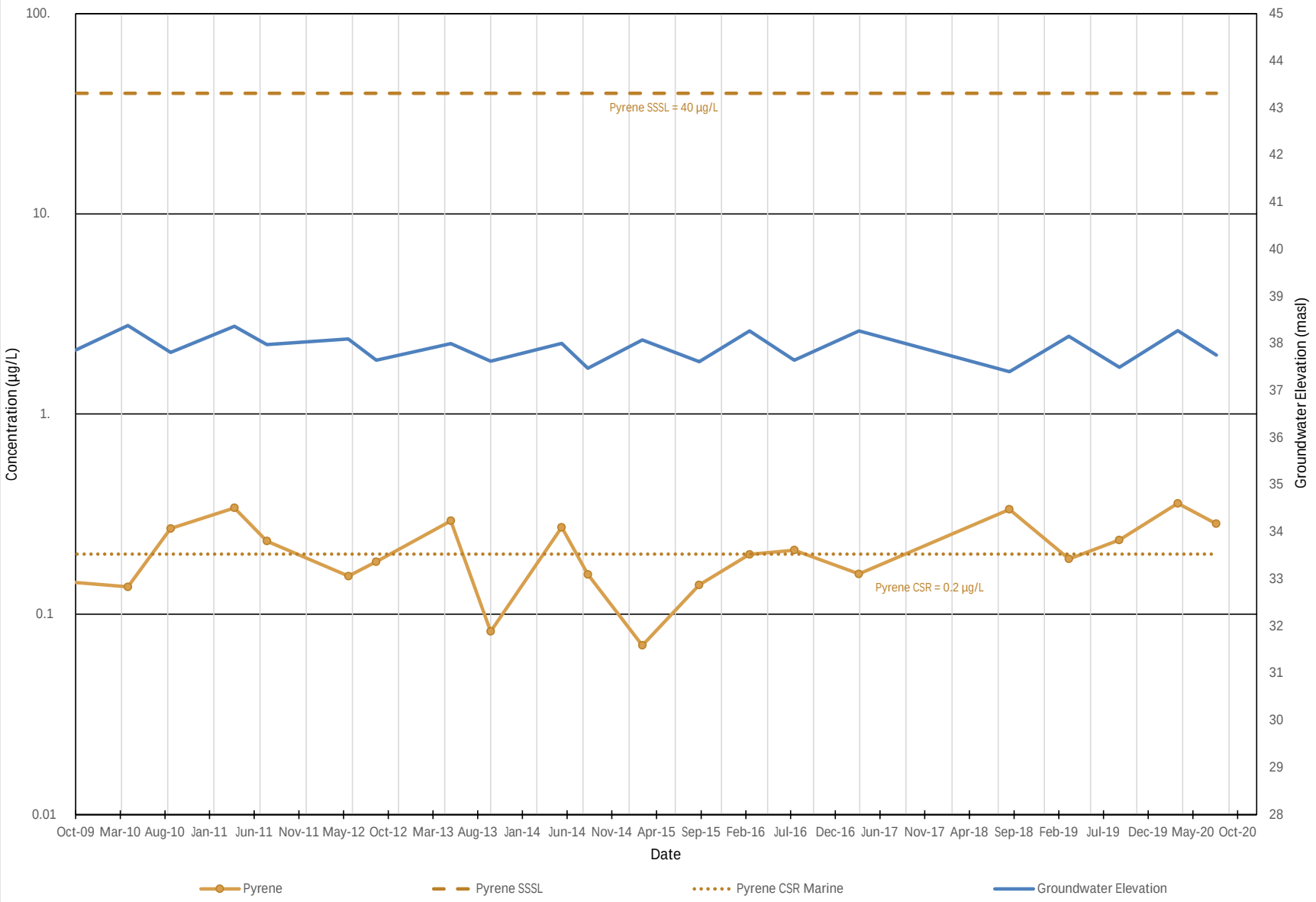


** In the spring of 2015, the laboratory reported detection limit (RDL) was 0.01 µg/l*


Graph 4: Concentrations of LEPHw, and Pyrene
in Area 3 Monitoring Well A3MW03-02
LEPHw SSSL = 3000 µg/L
LEPHw CSR AW = 500 µg/L
Pyrene SSSL = 40 µg/L
Pyrene CSR AW = 0.2 µg/L
Concentration (µg/L)
Elevation (masl)
10000.
1000.
100.
10.
1.
0.1
0.01
0.
31
30
29
28
27
26
Feb-04 Dec-04 Nov-05 Sep-06 Jul-07 Jun-08 Apr-09 Mar-10 Jan-11 Dec-11 Oct-12 Sep-13 Jul-14 Jun-15 Apr-16 Feb-17 Jan-18 Nov-18 Oct-19 Aug-20
Date (m-y)
LEPHw
Pyrene
LEPHw SSSL
Pyrene SSSL
LEPH CSR AW
Pyrene CSR AW
GW Elevation
AS Standby
AS Commissioned
* As of September 2018, the laboratory reported detection limit (RDL) was 0.01 µg/l

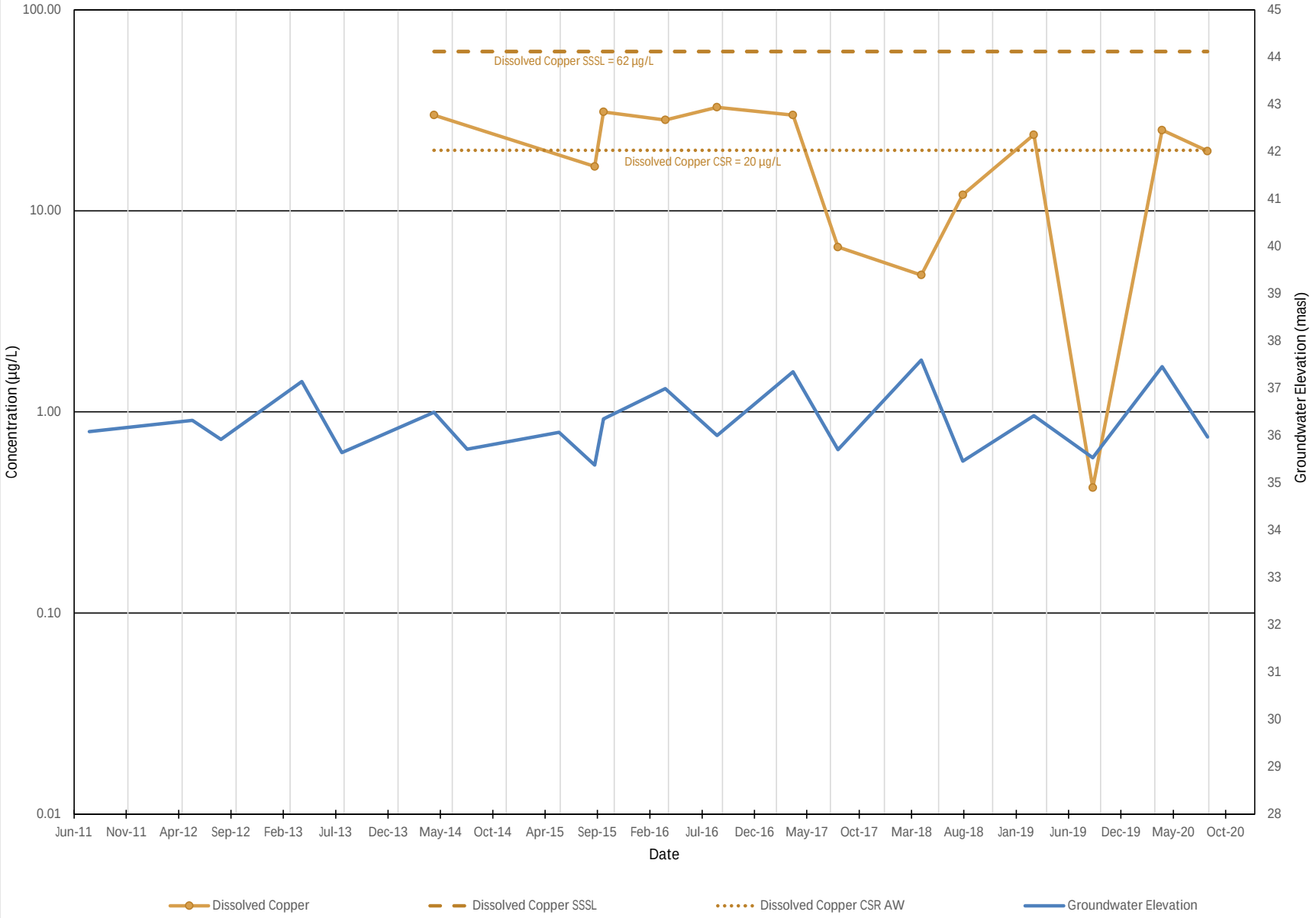

Graph 5: Concentrations of LEPHw, VHw, Xylenes, and Naphthalene in Area 2
Monitoring Well A2MW09-11
Concentration (µg/L)
Elevation (masl)
Date
VPHw SSSL = 15000 µg/L
Xylenes SSSL = 3300 µg/L
LEPHw SSSL = 3000 µg/L
VPHw CSR AW = 1500 µg/L
LEPHw CSR AW = 500 µg/L
Naphthalene SSSL = 440 µg/L
Xylenes CSR AW = 300 µg/L
Naphthalene CSR AW = 10 µg/L
well screen (approx.)
LEPHw
LEPHw SSSL
LEPHw CSR AW
VPHw
VPHw SSSL
VPH CSR AW
Naphthalene
Naphthalene SSSL
Naphthalene CSR AW
Xylenes
Xylenes SSSL
Xylenes CSR AW
Groundwater Elevation
LNAPL Elevation

Graph 6: Concentrations of Pyrene in Area 2 Monitoring Well G2-3B



Precipitation data between April 2011 and July 2011 from the Vancouver Harbour CS Weather Station was not available.

Graph 7: Concentrations of Dissolved Copper in Area 2 Monitoring Well MW11-4S



Appendix A - Perimeter Extraction System

List of PES Components

System Component	Number of Components	Description
Pneumatic Pump	40	QED Environmental Systems AP4 / AP4+ AutoPump
Air Compressor System		
1. Air Compressor	1	Ingersoll Rand UP6-30-125 operated at approximately 110 pounds per square inch (psi).
2. Dryer Unit	1	Ingersoll Rand Desiccant Dryer HL Series Model HP120PH00AA operated at a dew point of -40°F
Oil / Water Separator		
3. Oil / Water Separator	1	Ecologix Environmental System Oil Water Separator with HD Q-PAC coalescing plates. Single wall 12 gauge stainless steel construction.
4. NAPL Storage Container (Lube Cube)	1	Containment Solutions 60 gallon 10 gauge steel single wall construction.
5. Flow Meter	1	Area-Velocity Flow Meter – Model AVFM 5.0
Sequestering System		
1. Chemical Dosing Pump	1	LMI Milton Roy Chemical Metering Pump Model E731-312SI
2. Sequestering Agent	1	LineClear 50 Blended Phosphonate/Maleic Homopolymers/Stabilizer stored in 275 gallon poly tote with a 360 gallon secondary containment spill pallet.
3. Line-Charging Pump	1	Oberdorfer Chemsteel Model R104 Stainless Steel Sealed Rotary Gear pump.
4. Pressure Compensating Drippers	40	Netafim Woodpecker Pressure Compensating (WPC) with CNL. Pressure range of 14.5 to 58 psi.

Total Fluid and Effluent Extraction Rate Methodology

Total fluid extraction rates were determined on a pump-by-pump basis as follows:

$$Total\ Fluid\ Extraction\ Rate\ (by\ well) = \frac{\#\ of\ pump\ cycles \times average\ volume\ per\ cycle}{elapsed\ time}$$

The number of pump cycles were recorded from the pump-dedicated cycle counter, along with the date and time, during each semi-monthly monitoring event and the average volume per cycle for each pump was re-evaluated quarterly.

The average pump volume per cycle was estimated as follows:

- Discharge total fluids collected by each pump into an empty 208 litre (L) drum.
- Record the cycle counter at the beginning and end of each test to determine the total number of pump cycles.

- Measure and calculate the volume of water within the drum.
- Divide the total volume in the drum by the number of pump cycles.

The above methodology was applied during each quarterly event to assess the total fluid and effluent extraction rate achieved at each active PES well.

Appendix B Regulatory Context and SSSLs

1 REGULATORY CONTEXT FOR PERIMETER GROUNDWATER MONITORING PROGRAM

The British Columbia provincial *Environmental Management Act* (EMA) was brought into force on July 8, 2004. The applicable regulations under the EMA are the Contaminated Sites Regulation (CSR) and the Hazardous Waste Regulation (HWR). Federal environmental legislation applicable to Burrard Inlet adjacent to the Site includes the *Fisheries Act*.

1.1 Fisheries Act

The Fisheries Act, administered by the Fisheries and Oceans Canada (DFO), prohibits the discharge of a deleterious substance to an aquatic environment and is enforced by Environment and Climate Change Canada, DFO, and the British Columbia Ministry of the Environment and Climate Change Strategy (ENV). Deleterious substances are defined as any substance that, if added to any water, would degrade or alter its quality such that it could be harmful to fish, fish habitat or the use of fish by people and therefore includes contaminants regulated by the CSR.

1.2 Contaminated Sites Regulation

ENV has established standards for evaluating contamination and associated remediation requirements in the CSR. The CSR came into effect April 1, 1997 and provides a framework to investigate, assess, and remediate contaminated sites in BC. Thirteen amendments to the CSR have been completed since 1997, with the most recent being the Stage 13, which came into effect on February 1, 2021.

The CSR is simplified into four new schedules:

- Schedule 3.1 – Part 1, Matrix Numerical Soil Standards;
- Schedule 3.1 – Part 2, Generic Numerical Soil Standards to Protect Human Health;
- Schedule 3.1 – Part 3, Generic Numerical Soil Standards to Protect Ecological Health;
- Schedule 3.2, Generic Numerical Water Standards;
- Schedule 3.3, Generic Numerical Vapour Standards; and
- Schedule 3.4, Generic Numerical Sediment Standards.

1.3 Soil

Under the CSR, there are three types of numerical remediation soil standards.

1. The Generic Numerical Soil Standards refer to concentrations of specific substances in soil, for a particular land or water use.
2. Matrix Numerical Standards are applied for some substances in soil, taking into account site-specific factors such as proximity to a watercourse, likelihood of human ingestion, and use of land for livestock rearing.
3. Site-Specific Numerical Standards involve the generation of a soil standard for a specific site, in accordance with ENV protocols. Site Specific Numerical Standards may require ENV approval prior to being applied at a site.

Sites are considered contaminated if any parameter exceeds the numerical standard for the applicable use at the property.

Groundwater

The Site is zoned for heavy industrial use. The following is a discussion of the applicable groundwater standards at the Site. Water quality standards are classified into four levels, based on the use of the water:

- AW - Aquatic life (freshwater and/or marine/estuarine);
- IW - Irrigation;
- LW - Livestock watering; and
- DW - Drinking water.

Based on the surrounding site use neither irrigation nor livestock watering standards apply at the Site.

Additionally, numeric water standards for the generic petroleum hydrocarbon (PHC) parameters “volatile hydrocarbon in water” ($VH_{WC6-C10}$) and “extractable petroleum hydrocarbons in water” ($EPHw_{C10-C19}$) are applicable at all sites regardless of water use.

ENV requires specific analysis for light extractable petroleum hydrocarbons in water (LEPHw) in support of Certificates and Determinations and will not consider $EPHw_{C10-C19}$ analyses appropriate for assessing LEPHw contamination. At low concentrations EPHw is used as an indicator test for LEPHw. LEPHw concentrations are based on $EPHw_{C10-C19}$ concentrations minus the six polycyclic aromatic hydrocarbon (PAH) compounds (acenaphthene, acridine, anthracene, fluorene, naphthalene, and phenanthrene). The six PAH compounds are reported separately.

1.3.1 Applicability of Drinking Water Standards

Under ENV guidance, drinking water standards are applicable at all sites unless they are determined to be not applicable using Protocol 21 (ENV 2017), or an exemption is granted by the ENV.

A letter requesting a drinking water standards exemption for Area 2 of the Refinery was submitted to ENV on December 19, 2011 and re-submitted on November 9, 2012. The drinking water exemption was provided by the ENV on May 15, 2017.

To determine whether drinking water applies to Areas 1 and 3, the drinking water flowcharts at the end of Protocol 21 (Figures 1 and 4 in the Protocol) were reviewed in which Area 3 was assessed separately from Area 1. This approach was implemented in the 2015 and 2016 PMP and PES Monitoring Report which determined that drinking water does not apply to any of the areas of the Parkland Burnaby Refinery (AECOM, 2017).

A copy of the drinking water exemption response-letter prepared by ENV for Area 2, as well as the Area 1 and Area 3 assessments, have been included at the end of this Appendix.

1.3.2 Applicability of Aquatic Life Standards

The nearest surface water downgradient of the Site is Burrard Inlet, located approximately 10 m to the north of Areas 1 and 3, and 40 m north of Area 2. Assessment of the Site’s hydrogeology and potential pathways for groundwater contamination, using the available data from numerous soil and groundwater investigations, indicated that CSR standards for the protection of marine aquatic life (AW) are applicable at the Site[3]. Rainbow Creek a freshwater waterbody is located within close vicinity to MW17-04, as a result, this well was also compared against freshwater (FW) aquatic life standards. This is the only well in the PMP required to be screened against FW AW standards.

3

1.3.3 Groundwater Site-Specific Screening Levels

The Site-Specific Screening Levels (SSSLs) were first introduced in the Report on the 2015 and 2016 Perimeter Monitoring Program and Perimeter Extraction System, Chevron Burnaby Refinery, Burnaby British Columbia (AECOM 2017). SSSLs for select parameters were developed by SLR Consulting Canada Ltd. (SLR), with the support of Parkland and AECOM, to evaluate potential risks resulting from impacted Site groundwater to Burrard Inlet. The SSSLs were based on the CSR Stage 10 Omnibus Amendments in addition to the Updated Screening Levels (USLs) and Risk-Based Management Targets (RBMTs) developed for application along the Foreshore downslope of Area 2 of the Refinery[4]. Upon the release of the Stage 11 and 12 Housekeeping Amendment, the SSSLs were reviewed by AECOM. The CSR AW standards for parameters which have SSSLs did not change between Stage 10, Stage 11 and Stage 12 Amendments. In December 2020, ENV provided comment by e-mail that recognized that Parkland had prepared SSSLs as "threshold" concentration for evaluation but re-enforced that they do not replace the CSR standards unless formally approved by ENV. Parkland is using the SSSLs as an extra layer of assessment to identify areas of greater environmental concern. The SSSLs are being used to target investigation and monitoring activities on the site. They are used in conjunction with the applicable CSR standards. All delineation at the site will be to the applicable CSR standards.

The groundwater SSSLs for the Parkland Refinery monitoring wells located in Areas 1, 2 and 3 are summarized in **Table 1** below. The supporting rationale are presented in Section 2.0

Table 1: Groundwater Site-Specific Screening Levels (SSSLs)

PCOC Group	PCOC	SSSL (µg/L)	Source
PHCs	LEPHw	3000	RBMT x 10
	VPHw	15000	RBMT x 10
	Benzene	21000	RBMT x 10
	Ethylbenzene	3200	RBMT x 10
	Toluene	7700	RBMT x 10
	Xylenes	3300	RBMT x 10
	Acridine	30	USL x 10
	Anthracene	40	USL x 10
	Benzo[a]pyrene	2.8	RBMT x 10
	Fluoranthene	40	USL x 10
	Naphthalene	440	RBMT x 10
	Pyrene	40	USL x 10
Metals	Cadmium	90	USL x 10
	Chromium	500	USL x 10
	Cobalt	1100	USL x 10
	Copper	62	RBMT x 10
	Lead	1400	USL x 10
	Nickel	750	USL x 10
	Uranium	1000	USL x 10
	Zinc	900	RBMT x 10

[4] The SSSLs were partially derived from the Stage 10 Omnibus Amendment. Upon release of the Stage 11 Housekeeping Amendment, these SSSLs were reassessed to determine if any updates were warranted. AECOM concluded no further updates are required at this time.

2 SITE-SPECIFIC SCREENING LEVEL RATIONALE

This section outlines the rationale for the selection of the SSSLs for groundwater for the Perimeter Monitoring Program for Areas 1, 2 and 3 of the Refinery. The sources of values used to derive the SSSLs are presented in Section 2.1 and the approach followed to obtain the SSSLs is described in Section 2.2.

2.1 Sources of SSSLs

The sources of SSSLs included:

- USLs for Foreshore Monitoring (SLR 2013a and 2013b);
- RBMTs for the Seep Area along the Foreshore Downslope of East Impounding Basin (SLR 2014a and 2014b); and
- The BC CSR, Stage 10 (Omnibus) Amendments, Schedule 3.2 – AW Standard for the Protection of Aquatic Life.

2.2 Updated Screening Levels

The USLs were used as part of the Foreshore Monitoring Plan to evaluate porewater and surface water samples collected in the foreshore downslope of Area 2 of the Refinery. The USLs were presented to BC ENV in two memoranda prepared by SLR: Updated Screening Levels for Foreshore Monitoring and Updated Screening Levels for Foreshore Monitoring - Addendum, dated May 9, 2013 and June 6, 2013, respectively. The USLs were based on the BC Approved Water Quality Guidelines (AWQG) for the protection of marine aquatic life, the Burrard Inlet Water Quality Objectives (BIWQOs), the Canadian Council of Ministers of the Environment (CCME) Water Quality Guidelines for the Protection of Aquatic Life, and the Federal Interim Groundwater Quality Guidelines (FIGQG) for Federal Contaminated Sites (Meridian 2012). The rationale supporting each proposed USL was provided in the SLR memoranda (2013a and 2013b). Upon review, BC ENV confirmed that the selected screening levels were satisfactory to the Ministry (BC MoE 2013).

The USLs were used to evaluate potential contaminants of concern (PCOCs) in the porewater and seawater along the foreshore in the vicinity of the seeps and at a reference location, to assess the performance of the Interim Remedial Action (IRA), and, to support the selection of PCOCs for the Human Health and Ecological Risk Assessments completed for the foreshore downslope of Area 2 (SLR 2016).

2.2.1 Risk-Based Management Targets

RBMTs were derived by SLR for PCOCs associated with the seeps observed in the foreshore area downslope of the East Impounding Basin (EIB) in Area 2 at the Parkland Refinery in Burnaby, BC. The PCOCs for which RBMTS were derived were selected based on the final porewater and surface water PCOCs retained in the Human Health and Ecological Risk Assessment (HHERA) for the protection of marine aquatic life (SLR 2014a). PCOCs for which RBMTs were proposed included light extractable petroleum hydrocarbons in water (LEPHw), volatile petroleum hydrocarbons in water (VPHw), benzene, toluene, ethylbenzene, xylenes (BTEX), benzo(a)pyrene, naphthalene, copper, and zinc. RBMTs were developed to be protective of aquatic plants and invertebrates at the community level and fish at the population level and were defined as the concentrations of PCOC in porewater below which the ecological function of aquatic plants and invertebrates and the viability of local fish population can be maintained. Literature sources reviewed in the derivation of the RBMTs for aquatic receptors included:

- Technical supporting documents published by BC MoE as part of the BC AWQG.
- Technical supporting documents published by CCME as part of the Canadian Environmental Quality Guidelines for the protection of aquatic life.

- Technical supporting document published by the US EPA to support the Ambient Water Quality Guidelines.
- Toxicity values developed by other jurisdictions such as the Atlantic Risk Based Corrective Action (RBCA) and the European Union.
- Scientific peer review articles such as McGrath and DiToro (2009).
- Grey literature including ecological risk assessment reports prepared by environmental consultants focusing on projects completed in British Columbia.

Preferences were given to chronic sublethal toxicity data (e.g., EC20) for reproduction and growth, if available, when selecting the RBMTs. The rationale supporting the RBMTs is provided by SLR (2014a and 2014b).

The RBMTs were proposed in the context of the final remedy for the seeps, as a risk management tool, to determine whether porewater PCOCs can adversely impact aquatic life upon discharge in the foreshore (i.e. downgradient of the remedial measure) and to assess the performance of the final remedy in the foreshore cross-gradient and downgradient of the seeps. The RBMTs were deemed adequate by BC MoE (MoE, 2014).

2.2.2 Regulatory Context for the RBMTs

The CSR under the EMA is the principal regulatory document defining requirements for contaminated sites management in British Columbia. The CSR came into effect on April 1, 1997 and has been amended several times, most recently on February 1, 2021 with the Stage 13 Housekeeping Amendment. The EMA and CSR have provisions for both numerical standards and risk-based standards approaches to managing site contamination.

CSR standards are not available for porewater/groundwater quality assessment for monitoring wells located within 10 m of the high water mark of the aquatic receiving environment. The CSR AW standards apply to porewater/groundwater wells at distances greater or equal to 10 m from the high water mark of receiving environment, based on the assumption that groundwater will be diluted at least 10-fold from its initial concentration in the remaining 10 m before entering the aquatic receiving environment (BC MoE 2017). The BC Water Quality Guidelines (WGQs) apply to high water mark of the aquatic receiving environment.

As part of the Foreshore Monitoring Program implemented by URS (2012a, 2012b, and 2012c) (now AECOM), porewater results for samples collected from monitoring wells installed within the intertidal area have been compared to USLs for the protection of marine aquatic life. As indicated in Section 2.2, these benchmarks were presented to BC MoE in two memoranda prepared by SLR (2013a and 2013b) and upon review; BC MoE confirmed that the selected screening levels were satisfactory to the Ministry.

If the CSR AW standards cannot be met at distances greater or equal to 10 m from the high water mark of the receiving environment and the BC WQGs (i.e., USLs for foreshore monitoring in this case) cannot be met for monitoring wells located within 10 m of the high water mark of the aquatic receiving environment, BC MoE, the Technical Guidance 15 – Concentration Limits for the Protection of Aquatic Receiving Environments (BC MoE 2017) allows an alternative risk-based approach which shows that:

- The 10-fold dilution of substance concentrations in groundwater occurs before the water enters the aquatic receiving environment;
- Groundwater quality meets a site-specific risk-based standard with a protection level appropriate for aquatic receiving environments (i.e., EC_{20}); or
- Substance concentrations in groundwater do not represent an unacceptable risk to aquatic life as revealed by a detailed ecological risk assessment.

According to the above, the RBMTs were used to determine whether porewater PCOCs presented an unacceptable risk to aquatic life upon discharge to the foreshore.

2.3 Derivation of SSSLs for Monitoring Wells in Areas 1, 2 and 3

The following approach was used to select the SSSLs for monitoring wells located in Areas 1, 2 and 3 of the Parkland Burnaby Refinery:

- The RBMT values were multiplied by 10 to obtain SSSLs to screen groundwater monitoring wells located greater than 10 m from the foreshore high water mark. This approach was followed for LEPHw, VPHw, BTEX, styrene, benzo(a)pyrene, naphthalene, copper, and zinc.
- In the absence of RBMTs, the USL values were multiplied by 10 to obtain SSSLs to screen groundwater monitoring wells located greater than 10 m from the foreshore high water mark. This approach was followed for acenaphthene, acridine, anthracene, benz(a)anthracene, fluoranthene, fluorene, phenanthrene, pyrene, quinoline, barium, beryllium, cadmium, chromium, cobalt, lead, molybdenum, nickel, selenium, thallium, titanium, and uranium. Note that several of the SSSLs derived using this approach are equal to the BC CSR Schedule 3.2 – Generic Numerical Water Standards for the Protection of Aquatic Life. In these instances, the CSR Schedule 3.2 AW Standards were applied. PCOCs for which the USL multiplied by 10 was equal to the CSR AW standard included: VHw (C6-C10), acenaphthene, benz(a)anthracene, chrysene, fluorene, phenanthrene, quinoline, barium, beryllium, molybdenum, selenium, and thallium.
- The BC CSR, Schedule 3.2 – AW Standard for the Protection of Aquatic Life was selected when it was higher than the RBMT x 10 and/or USL x 10. This approach was followed for antimony, arsenic, and boron.

2.4 Additional SSSLs Development Considerations

The USLs and RBMTs were originally derived for porewater and surface water in the Seep Area along the Foreshore down slope of East Impounding Basin in Area 2 of the Refinery. These USLs and RBMTs are the basis for SSSLs which are currently applied to Areas 1, 2 and 3. The justification for the application of the SSSLs for Areas 1 and 3 is based on the following:

- The USLs and RBMTs were derived for PHCs, PAHs and metals. These represent the same PCOCs for the entire Refinery. Additionally, the PHC sources are similar for the three areas.
- A sensitive site designation was attributed to the foreshore down slope of Area 2 for the purpose of deriving the USLs and RBMTs. The receptors of concerns considered as part of the selection of USLs and RBMTs included aquatic plants, benthic invertebrates and fish (including federally or provincially listed fish). The sensitive site designation and aquatic receptors of concern selected for the foreshore down slope of Area 2 are considered to be protective of the aquatic species residing in aquatic habitat downslope of Area 1 and Area 3. The foreshore down gradient of Area 1 and Area 3 includes a wharf and the slope to Burrard Inlet is stabilized with rip-rap, which extends into the foreshore and intertidal environments (URS 2007). Aquatic plants, benthic invertebrates and fish considered receptors of concern in the area of the foreshore down slope of Areas 1 and 3 were also considered receptors of concern for the foreshore down slope of Area 2.

3 DRINKING WATER EXEMPTION ASSESSMENT

A drinking water exemption was obtained from ENV in 2017 for Area 2. A letter requesting a drinking water standards exemption for Area 2 of the Refinery was submitted to the ENV on December 19, 2011 and re-submitted on November 9, 2012. The drinking water exemption was provided by the ENV on May 15, 2017. A copy of the ENV response-letter is included at the end of this Appendix.

To assess the applicability of the CSR drinking water standards for Areas 1 and 3, the drinking water flowcharts at the end of Protocol 21 (Figures 1 and 4) were completed for each area. The assessment is shown in **Table 2** for Area 3 and **Tables 3** and **4** for Area 1.

Based on the Protocol 21 Assessment, drinking water does not apply for Area 1 and 3 of the Parkland Burnaby Refinery.

Table 2: Drinking Water Use Application in Area 3

Protocol 21 Flowchart Question	**Answer:**
Current Drinking Water Use	
Q1. Is water at or near the site currently used for drinking water?	No. There are no drinking water wells located within 500m of the Site. Drinking water in Burnaby, BC is supplied by the municipality.
Future Drinking Water Use	
Q1. Is the site located within filled former marine or estuarine foreshore?	Yes.
Conclusion	Future DW use does not apply to Area 3.

Table 3: Drinking Water Use Application in Area 1

Protocol 21 Flowchart Question	**Answer:**
Current Drinking Water Use	
Q1. Is water at or near the site currently used for drinking water?	No. There are no wells located within 500m of the Site. Drinking water in Burnaby, BC is supplied by the municipality from GVRD surface water reservoirs (Seymour, Capilano and Coquitlam watersheds) far removed from the Site.
Future Drinking Water Use	
Q1. Is the site located within filled former marine or estuarine foreshore?	No.
Q2. Is the aquifer confined and protected by a natural confining barrier?	No.
Q3. Does drinking water use apply to an underlying aquifer?	No. See bedrock aquifer table below.
Q4. Does the unconfined aquifer have a bulk hydraulic conductivity > 10-6 m/s or a yield ≥1.3 L/min or is the aquifer mapped in the BC Water Resource Atlas?	No. The unconfined aquifer has a bulk hydraulic conductivity < 10^{-6} m/s based on a pumping test in Area 2. Yes. The yield in Area 2 till is ≥1.3 L/min (URS, 2012). No. The site is not an aquifer mapped in the BC Water Resource Atlas.
Q5. Is the unconfined aquifer comprised only of imported fill or present only seasonally or is the average saturated thickness ≤2m?	Yes, the average saturated thickness in the unconsolidated material (i.e. non-bedrock) is less than 2 meters. To evaluate this, 10 borehole logs and well monitoring data across Area 1 were reviewed. The depth to bedrock ranged from 0.8 to 5 meters below grade. The average depth to water (measured seasonally over

Protocol 21 Flowchart Question	Answer:
	more than 10 years) ranged from 0.9 to 4.9 meters below grade. The average saturated thickness in the unconsolidated material ranged from 0 to 3.2 meters with an average saturated thickness over the 10 locations of 1.1 meters[5].
Conclusion	Future DW use does not apply to the unconsolidated non-bedrock groundwater in Area 1.

Table 4: Drinking Water Use Application in Area 1 Bedrock

Protocol 21	Answer:
Current Drinking Water Use	
Q1. Is water in the bedrock at or near your site currently being used for drinking purposes?	No. There are no wells located within 500m of the Site. Drinking water in Burnaby, BC is supplied by the municipality. See above
Future Drinking Water Use	
Q1. Is a bedrock aquifer mapped in the BC Water Resource Atlas?	No.
Q2. Do soil or groundwater containing substances at concentrations above standards protective of drinking water extend to the bedrock surface?	Yes.
Does in-situ bedrock investigations on the site or within 500 m show a bulk hydraulic conductivity >10-6 m/s and a yield ≥1.3 L/min?	No. Well yield is less than 1.3 L/min. To evaluate this, Well yield was calculated at 3 locations screened in the sand and siltstone in Area 1. Well yield ranged from 0.1 to 0.8 L/min
Conclusion	Future DW use does not apply to Area 1.

4 REFERENCES

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[5] Borehole logs/monitoring wells used in assessment: A1-9S/D, A1-12S/D, A1-11A/B, A1-7S/D, A1MW02-03, NDP97-1, A1-6, A1-5, A1-3S/D and A1-4S/D. Depth to bedrock based on borehole logs. Average depth to water based on regular monitoring (over multiple seasons) completed since 2004.

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SLR Consulting Canada Ltd (SLR). 2014a. Risk-Based Management Targets, Seep Area Foreshore Down Slope of the East Impounding Basin, Chevron Burnaby Refinery, Burnaby, BC. Report prepared for Chevron Canada Limited. February 28, 2014.

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BRITISH COLUMBIA

File: 26250-20/6726
Site: 6726

May 15, 2017

Mr. Chris Boys
Chevron Canada Limited
355 Willingdon Avenue
Burnaby, BC V5C 1X4

Dear Mr Boys:

Re: Drinking Water Exemption Request, Area 2, Chevron Burnaby Refinery, 5201 Penzance Drive, Burnaby, BC

The Ministry of Environment (Ministry) has reviewed the following technical report prepared by SLR Consulting (Canada) and additional correspondence from AECOM Canada Consulting submitted in support of your application for a determination of no drinking water use at Area 2 Chevron Refinery in Burnaby, British Columbia (the Site):

- *Drinking Water Standards Exemption Request, Chevron Burnaby Refinery, Area 2, 5201 Penzance Drive, Burnaby BC dated November 20, 2012 prepared by SLR Consulting (Canada)*
- *Additional information contained in an email from AECOM Canada dated Sept 1, 2016*
- *Additional information contained in a letter to the ministry from AECOM Canada dated March 17, 2017*

The legal description of the Site to which this water use determination applies is:

- Block F, Plan 13496, District Lot 188/189, Group 1 Land District, Except Plan RP13504 (PCL 3) & RP13238 (PCL 1) & B/L A37751 & 49497, 6238-0691, 5804-0588, 9999-5286, 0250-5620)

The Site is depicted in attached Figure 1 for reference.

Ministry of Environment Land Remediation Section
Environmental Emergencies and Land Remediation
Environmental Protection Division
Mailing Address:
PO Box 9342 Stn Prov Govt
Victoria BC V8W 9M1
Telephone: 250 387-6479
Facsimile: 250 387-8897
Website: www.gov.bc.ca/env

Section 12(5) of the Contaminated Sites Regulation (CSR) specifies the water uses that may apply at sites in BC, including aquatic life, drinking, irrigation and livestock watering water uses, as well as the factors a Director must consider in determining current and reasonable potential future water uses at a site. Protocol 21 provides criteria for determining current and reasonable potential future water uses at specific sites.

Where drinking water use has been determined to apply at a site under Protocol 21 and site circumstances indicate that it is unlikely or unreasonable to anticipate that water would be used for drinking, a site-specific water use determination may be sought from the Director. Protocol 21, Appendix 1 "Director's Decision Framework for Site-Specific Determinations of Water Use" outlines a multiple-lines-of-evidence approach for seeking a Director's determination of no drinking water use at a specific site.

The letter request and additional documentation provided by SLR and AECOM for a Water Use Determination provides the following rationale to support that drinking water use should not apply to the groundwater at the Site:

- *The geometric mean hydraulic conductivity for the native till based on the pumping tests is 3 x 10^{-7} m/s within this unit.*
- *The geometric mean hydraulic conductivity for the native till based on slug tests is: 9 x 10^{-7} m/s.*
- *Based on the nearest* [~700 m to 1 km away; Area 1 of the Chevron Refinery] *available bedrock hydrogeological data ... has bulk hydraulic conductivity less than 1 x 10^{-6} m/s, and a yield less than 1.3 L/min* [yield calculations ranged from 0.1 L/min to 0.8 L/min]*...the bedrock below Area 2 of the Refinery is not a viable aquifer.*
- There are no mapped aquifers at the Site, according to the Water Resources Atlas.
- *The site and down gradient Canadian Pacific Railway (CPR) property have been subject to heavy industrial usage since the mid 1900s and will continue to be so into the foreseeable future. Chevron has operated a refinery on the site since approximately 1954;*
- *The Burrard Inlet shoreline is approximately 30 m northwest (downgradient) of the site boundary and forms the northern boundary of the CPR lands;*
- *Because of the close proximity of marine waters to the site and the long past and continued use of the site for heavy industrial purposes into the future, it is unlikely that groundwater beneath the site or the CPR lands containing their main rail line into Vancouver would be used for drinking water;*
- *The land use for those lands abutting the site to the east, south, and west are park or green space, residential areas, or roadway rights-of-way;*
- *All residential areas are south of the site and are significantly higher in elevation (upgradient);*
- *The residential areas are serviced by Municipal water supply and the aquifer below these areas is not classified as a drinking water aquifer;*

- *There are no current drinking water wells, points of diversion, or mapped aquifers within 500 m of the site;*
- *There is no indication of contaminant migration to the south from contaminated areas at the site; and*
- This exemption would be similar to *the DW exemptions granted by the MoE for Site 8071 in New Westminster and Site 8467 in Port Alberni.*

On the basis of the arguments and supporting information provided by SLR and AECOM, I concur with the conclusion that potential future use of the groundwater underlying the Site for drinking water is unlikely for the following reasons:

- Hydraulic response and pumping tests indicate that the bulk hydraulic conductivity of the alluvium, glacial till formation is less than $1x10^{-6}$ m/s.
- Hydraulic response tests conducted in wells within 1 km of the site indicate that the bulk hydraulic conductivity of the native bedrock is less than $1x10^{-6}$ m/s and a maximum calculated yield of 0.8 L/min.
- There are no mapped aquifers below the Site according to the Water Resource Atlas.
- There are no current drinking water uses within 500 m of the Site and Site drinking water is serviced by a municipality that is not sourced from groundwater.
- The Site is located approximately 30 m from the marine foreshore and Site groundwater discharges to the marine environment.
- The Site has a long history of heavy industrial use. The Site will continue for heavy industrial purposes into the future.

Therefore, I hereby determine that drinking water use does not apply at the Site. I also confirm that aquatic life water use (marine) does apply.

This decision is based on the most recent information available to the ministry regarding the above referenced site. The ministry, however, makes no representation or warranty as to the accuracy or completeness of this information.

Please contact Lavinia Zanini at 604-582-5348 (lavinia.zanini@gov.bc.ca) if you require clarification regarding this letter.

Sincerely,

Amy Sloma, P. Eng.
For Director, *Environmental Management Act*

Attachment: Figure 1

cc: Mike Gill, AECOM Canada Consulting
Lucy Hewlett, Ministry of Environment, Victoria
Catherine Schachtel, CSAP Society

Figure 1. Chevron Burnaby Refinery, Area 2 (blue)

Appendix C Field Program and Methods

FIELD PROGRAM AND METHODS

The majority of monitoring wells included in the Perimeter Monitoring Program (PMP) are completed in low permeability, fine-grained formation material (e.g., sandy silt). Due to this material, groundwater recharge is typically slow, and samples are more likely to be turbid in comparison with monitoring wells constructed in coarse-grained materials. Excess suspended solids in groundwater samples may result in false positive detections of dissolved polycyclic aromatic hydrocarbons (PAHs), light and heavy extractable petroleum hydrocarbons in water (LEPHw/HEPHw) or extractable petroleum hydrocarbons in water ($EPHw_{C10-C19}$/$EPHw_{C19-C32}$). As a result, a selection of purging and sampling techniques is critical for the collection of high-quality, reliable groundwater analytical data. AECOM Canada Ltd. (AECOM) has developed site-specific field procedures and documentation requirements for the Parkland Refining (B.C.) Limited (Parkland) Burnaby Refinery PMP. The selected field methods are similar to the Ministry of Environment & Climate Change Strategy (BC ENV), British Columbia Field Sampling Manual (2013) and are consistent with AECOM protocols described in the following subsections.

MONITORING WELL PURGING METHOD

The method of groundwater purging and sampling is dependent upon the depth of groundwater table below the ground surface. For depths to groundwater less than 8 meters (m), purging and sampling were conducted using a peristaltic pump. For depths to groundwater greater than 8 m, purging was conducted using a dedicated bailer or Waterra™ tubing and foot valve. Prior to purging, the time of day and tide condition (for Area 3), monitoring well headspace vapour concentration levels, depth to water, and total depth of the monitoring well were recorded at each location. Field observations, field measurements, and other details related to monitoring, well purging, and sampling were recorded by AECOM field staff. If sufficient water was present, the following parameters were measured in the field:

- Dissolved Oxygen,
- pH and temperature,
- Electrical conductivity, salinity,
- Total dissolved solids (TDS), and,
- Oxidation reduction potential (ORP).

Monitoring well headspace vapour concentration levels were measured using a photoionization detector (RKI Eagle) operated in methane elimination mode immediately after removing the cap from the monitoring well. Depth to water was measured using an oil/water interface meter, which was decontaminated with amended water[6] between monitoring wells to prevent cross contamination.

For monitoring wells where the groundwater table is within 8 m of the ground surface, water was pumped from the monitoring well at a low flow rate (i.e., up to 0.5 litres per minute [L/min]) using a peristaltic pump connected to a well-dedicated length of ¼-inch high/low-density polyethylene tubing. The intake of the tubing was placed in the middle of the screened section of the monitoring well to obtain representative samples and to minimize the disturbance and subsequent entrainment of silt located at the bottom of the monitoring well. During purging, field parameters including pH, temperature, electrical conductivity, total dissolved solids, salinity, oxidation redox potential, and dissolved oxygen were measured. Purging continued until field parameters stabilized and at least one well volume had been removed[7], or until the well was purged dry.

For monitoring wells where the groundwater table is greater than 8 m from the ground surface, purging was conducted using a dedicated bailer, or Waterra™ tubing equipped with a foot valve. While purging with a bailer/Waterra™, water is removed from near the top of the water column to minimize disturbance

[6] Amended water is a 0.5% solution of Liquinox and distilled water.

[7] Studies have demonstrated that when purging at low flow rates, formation water is accessed in less than three (3) well volumes, and frequently between one to two (1 to 2) well volumes (Puls, R.W. and Michael J. Barcelona 1996. Ground Water Issue: Low-Flow (Minimal Drawdown) Ground Water Sampling Procedures, USEPA, Washington, DC).

of potential sediment located at the bottom of the monitoring well; purging was conducted until at least three well volumes had been removed, or until the monitoring well was dry.

Regardless of the purging method, if the monitoring well was purged dry, it was left to recharge overnight and sampled directly thereafter without additional purging.

All purge water was disposed of as prescribed by current environmental regulations and Parkland Refinery protocols.

MONITORING WELL SAMPLING METHOD

When groundwater recharge was sufficient to purge and sample using a peristaltic pump, a lower flow rate (i.e., up to 0.5 L/min) was used to minimize entrainment of silt and losses of volatile constituents in the sample. When using a bailer, WaterraTM tubing, or when the well was purged/sampled dry, groundwater levels were allowed to recover enough to collect the remaining sample set.

Sample containers and preservatives are listed by chemical constituent to be analyzed, below:

1. $EPHw_{C10-C19}$/$EPHw_{C19-C32}$, LEPHw/HEPHw, and/or PAHs: two 100 millilitre (mL) amber glass bottles, no filtering, sodium bisulphate [$NaH(SO_4)$] preservative;
2. BTEX, VPHw, and/or MTBE: two 40 mL clear glass purge and trap vials, no filtering, and NaH(SO4) preservative; and
3. Dissolved metals: one 125mL plastic container, field filtering, and nitric acid (HNO3) preservative.

Sample containers were filled completely to minimize headspace within the sample bottles. When sampling for volatile petroleum hydrocarbons, the sampler used purge and trap vials to reduce the potential of having headspace present in the sample containers. All bottles were placed immediately in coolers containing icepacks and transported at the end of the day using Chain of Custody (COC) protocols to ALS Environmental (ALS) of Burnaby, BC. All samples were submitted, extracted, and analysed within the required holding time for each parameter. Groundwater samples from Areas 1 and 3 monitoring wells and Area 2 monitoring wells were submitted under separate COC forms.

POTENTIAL TIDAL EFFECTS

To minimize potential biases in groundwater data quality due to tidal effects, AECOM sampled the monitoring wells in Area 3 over the period of an out-going or ebb tide cycle. Based on the locations of the remaining perimeter monitoring wells and Site hydrogeology, the tidal effect on the remaining monitoring wells is understood to be negligible. Thus, tide conditions were not considered when monitoring and sampling wells outside Area 3.

ANALYTICAL TESTING PROGRAM

Based on the letter entitled, Chevron Refinery Well Monitoring Program, submitted to the MoE (now BC ENV) on October 31, 2003, samples are analyzed for EPHw, rather than LEPHw/HEPHw, for samples where historical reported EPHw concentrations are below the Contaminated Sites Regulation (CSR) standards for the protection of marine life aquatic life (AW). This allows for the collection of groundwater quality data necessary for the assessment of key contaminants of concern, while minimizing unnecessary data collection and budget expenditure. LEPHw/HEPHw analysis was performed where the potential contaminants of concern include PAHs or where historical EPHw concentrations approached or exceeded the CSR AW standards.

QUALITY ASSURANCE

To evaluate the accuracy and reproducibility of the groundwater sampling results, AECOM collected approximately one field duplicate per every ten samples. Each data set included at least one duplicate for every constituent analyzed, or where one constituent is analysed repeatedly, a number equal to approximately 10% of the total number of analyses.

Appendix D 2020 Laboratory Analytical Data

(Sent as separate package electronically with Full Report)

Appendix E Quality Assurance and Quality Control Summary

QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

To confirm the integrity and reliability of the data, AECOM field staff followed pre-existing QA/QC protocols during the execution of the 2020 PMP. The procedures have resulted in a dataset that achieves the project objectives. The method, summary of data, and evaluation are described in this appendix.

Data Quality Assurance/Quality Control (QA/QC)

In order to assure the integrity and defensibility of the data collected, rigorous QA/QC protocols were implemented for the collection, identification, storage, shipment and documentation of the samples. Standard operating procedures (SOPs) for sample collection and storage, equipment decontamination, and sample chain of custody protocols were followed. Groundwater samples were collected using sampling techniques presented in **Appendix C**. The use of these methods confirmed the quality, soundness, and defensibility of the data obtained. The laboratory analytical data, once generated, was also proofed for inconsistencies and anomalies. Field duplicates, trip blanks, and equipment blanks were collected for QA/QC purposes.

Field Duplicate Samples

Field duplicate samples are two identical samples that are submitted to the laboratory with no indication that they are the same. The analysis of field duplicate samples provides an indication of the total precision of the sampling and analysis process. Field duplicate samples were collected and analyzed at a rate of approximately 10% of samples for a given analytical suite.

Travel Blanks

Travel blanks are samples of clean deionized and distilled (Reagent Grade Type II) water that are prepared in the laboratory, taken to the field, retained on Site throughout sample collection, returned to the laboratory, and analyzed with the environmental samples. The QA/QC review identifies travel blanks with detections of target analytes and evaluates the effect of the detections on associated sample results for possible cross-contamination during transport.

Travel blanks prepared by ALS Environmental were submitted with each batch of samples submitted to the laboratory for analysis. The following describes the results of the travel blanks, by area. No concerns with the data were identified related to the Travel Blanks

Area 2

A total of 13 travel blank samples were submitted with Area 2 groundwater samples during the 2020 PMP. The travel blanks were analyzed for BTEX/VPHw, VHw_{C6-C10}, and styrene. One trip blank (TRAVEL BLANK-9), submitted on April 2, 2020, was additionally analyzed for MTBE. Concentrations for all samples were less than the RDLs.

The reported analytical results for the travel blanks are represented in the laboratory Certificates of Analysis provided in **Appendix D** and summarized in **Table 2-2**.

Area 1 and Area 3

A total of 12 travel blank samples were submitted with Area 1 and 3 groundwater samples during the 2020 PMP. The travel blanks were analyzed for BTEX/VPHw, VHw, and styrene. Concentrations for all samples were less than the RDLs.

The reported analytical results for the travel blanks are presented in the laboratory Certificates of Analysis provided in **Appendix D** and summarized at the bottom of **Table 1-2**.

Equipment Blanks

Equipment blanks are samples taken by pouring clean deionized and distilled (Reagent Grade Type II) water, prepared in the laboratory, over the surface of the decontaminated interface probe used during the program and into laboratory provided sample containers. The decontamination method used is the same

as outlined in the SOP. These samples are transported and analyzed with the environmental samples to the laboratory. The QA/QC review identifies equipment blanks with detections of target analytes and evaluates the effect of the detections on associated sample results for possible cross-contamination due to equipment contamination.

One equipment blank was prepared and submitted during the wet season sampling event using dionized water provided by ALS. The equipment blank was analyzed for BTEX/VPHw, styrene, VHwC6-C10, LEPHw/HEPHw, and $EPHw_{C10-C19}$/$EPHw_{C19-C32}$. Concentrations in the sample were less than the RDLs, the reported analytical results for the equipment blank is presented in the laboratory Certificates of Analysis provided in **Appendix D** and summarized in **Table 2-2**. No concerns with the data were identified related to the equipment blank.

Analytical Data Interpretation

To confirm the quality of the laboratory analytical data, precision, accuracy, and completeness were considered.

Precision

Precision measures the reproducibility of repetitive measurements and is usually expressed in terms of imprecision. It is strictly defined as the degree of mutual agreement among multiple independent measurements as the result of repeated application of the same process under similar conditions.

Analytical precision is a measurement of the variability associated with the duplicate (i.e., two) or replicate (i.e., more than two) analyses of the same sample in the laboratory, and is determined by the analysis of matrix spike (MS) duplicate or laboratory duplicate samples.

Total precision is a measurement of the variability associated with the entire sampling and analysis process. It is determined by the analysis of duplicate or replicate field samples and incorporates any variability introduced by the analytical procedure, sample collection and handling procedures, and matrix factors. Precision data must be interpreted by taking into consideration these possible sources of variability.

Duplicate field samples were collected, and duplicate spiked or unspiked samples were analyzed to assess analytical precision. The results were assessed using the relative percent difference (RPD) between duplicate measurements. The equation used to calculate RPD for duplicate samples is:

$$RPD = \frac{(A - B)}{(\frac{A + B}{2}} * 100\%$$

where:

A = analytical result

B = duplicate result

Note that for RPDs the result can be a positive or a negative value. RPDs are often presented as absolute RPDs, in which case the absolute value of the RPD is reported, always resulting in a positive number. Reporting the absolute RPD results in a reduction in information, since, for instance, if a duplicate sample consistently returned higher results than the original sample, all RPD values would be negative and it may be an indication of a precision problem. In this case, if absolute RPD was reported, no indication would be forthcoming.

Total precision was determined by collecting field duplicate samples. These samples were collected and analyzed at a rate of approximately 10% of total samples for each analytical suite.

Analytical precision will be determined in the laboratory by running matrix spike/matrix spike duplicate (MS/MSD) pairs, or by running laboratory duplicate analyses. These samples will be analyzed at a rate of approximately 5% for each analytical suite.

As part of the 2020 monitoring program, relative percent differences (RPDs) were calculated for BTEX/VPHw, Styrene, VHwC6-C10, LEPHw/HEPHw, $EPHw_{C10-C19}/EPHw_{C19-C32}$ and PAHs in instances where the reported concentration of the parent and duplicate sample were five times the reported detection limit or greater. As a larger dataset, the average value was calculated using the absolute RPD numbers while individual results were calculated as positive / negative values for individual interpretation.

The British Columbia Ministry of Environment and Climate Change Strategy has provided guidance indicating that field RPDs[8] within 1.5 times the laboratory RPDs as defined in the BC Environmental Laboratory Manual[9] are acceptable. Therefore, acceptable field RPDs of 45% or below are acceptable for organic parameters are acceptable for the PMP, without additional evaluation.

It should be noted that the data set is small for statistical purposes as most reported concentrations were less than the RDLs. The following describes duplicates collected in Area 2 as well as Area 1 and 3.

Area 2

RPDs are presented for duplicate samples in **Tables 2-2 and 2-3**.

A total of 8 duplicates samples were collected and submitted along with the Area 2 parent samples during the 2020 PMP. Of the samples collected, a total of 26 parameters were suitable for RPD calculations. The average, median, maximum, and minimum RPDs of the field duplicates are presented in **Table E-1**, below:

Table E-1 Summary of RPD (%) of Duplicate Analyses in Area 2

Sample Type	Average RPD (%)	Median RPD (%)	Maximum RPD (%)	Minimum RPD (%)
Groundwater Samples				
Organic Parameters (LEPHw/HEPHw, EPHw, VPHw, VHw, BTEX, MTBE, and PAHs)	8.1	4.9	35.2	0.0

The maximum and average RPD values of organic parameters were below 45% and indicate a good correlation for duplicate pairings for the analytical program.

Area 1 and Area 3

RPDs are presented for duplicate samples in **Tables 1-2 and 1-3**.

A total of 6 duplicates samples were collected and submitted along with the Area 1 and 3 parent samples during the 2020 PMP. Of the samples collected, a total of 39 parameters were suitable for RPD calculation. The average, maximum, and minimum RPDs of the field duplicates are presented in **Table E-2** below:

[8] Question #36 from the BC MoE Questions and Answers webpage accessed February 27, 2019. http://www2.gov.bc.ca/assets/gov/environment/air-land-water/site-remediation/docs/contaminated-sites/cs_q-a.pdf

[9] BC ENV, 2020. British Columbia Environmental Laboratory Manual - Section A: Laboratory Quality Assurance / Quality Control: 2020. Victoria, BC. https://www2.gov.bc.ca/assets/gov/environment/research-monitoring-and-reporting/monitoring/emre/lab-manual/section-a-2020.pdf

Table E-2 Summary of RPD (%) of Duplicate Analyses in Area 1 and 3

Sample Type	Average RPD (%)	Median RPD (%)	Maximum RPD (%)	Minimum RPD (%)
Groundwater Samples				
Organic Parameters (LEPHw/HEPHw, EPHw, VPHw, VHw, BTEX, Styrene, and PAHs)	11.4	5.7%	69.9	0.3

The calculated RPDs for organic parameters in groundwater are within acceptable limits, with the exception of select PAH parameters (benz(a)anthracene and chrysene) for parent sample (U07-10S) and its duplicate sample (DUP-5) collected during the wet season PMP event. Sampling notes for this sampling event show that a hydrocarbon sheen was present in water purged from this well before sampling occurred. These observations could contribute to heterogeneity in the sample. Sample notes show that both the parent and duplicate sample were checked for sheen and none was observed in either sample. The calculated RPD values for this sample ranged from 0.4% to 69.9%.

Historical data indicates that samples collected from U07-10S has regularly contained concentrations of benz(a)anthracene and chrysene which exceed the CSR AW standards, similar to the 2020 data set. Therefore, despite the RPD for benz(a)anthracene and chrysene above the acceptable limits for this program the uncertainty is not anticipated to reflect the broader dataset nor change the findings of this report.

Accuracy

Accuracy is a statistical measurement of correctness and includes components of random error (e.g., variability due to imprecision) and systematic error (e.g., bias). Therefore, accuracy reflects the total error associated with a measurement. A measurement is accurate when the reported value does not differ beyond acceptable limits from the true value or known concentration of the spike or standard. Acceptance criteria are indicated in the individual standardized analytical methods.

Analytical accuracy is typically measured by determining the percent recovery of known target analytes that are spiked into a field sample (i.e., a surrogate or matrix spike), or reagent water (i.e., laboratory control sample [LCS] or blank spike) before extraction at known concentrations. Percent recovery (% REC) is calculated as:

$$\%\,REC = \frac{A}{B} * 100\%$$

where:

A = obtained value

B = true value

Analytical accuracy was determined in the laboratory by running MS samples or laboratory control samples. These samples were analyzed at a minimum rate of 5% for each analytical suite. The laboratory provided percent recoveries for most of the organic parameter analyses. The following describes the review of the percent recoveries provided by the laboratory with the certificates of analysis for samples collected from Area 2 as well as Area 1 and 3 monitoring wells:

Area 2: All reported laboratory control spike (LCS) sample recoveries and matrix control spike (MS) sample recoveries were within laboratory quality control (QC) limits.

The analytical results are sufficiently accurate for the purposes of this monitoring program.

Area 1 and 3: All reported LCS sample recoveries and MS sample recoveries were within laboratory QC limits, with the exception of 16 samples reported in 9 laboratory reports. The identified laboratory reports included: L2431889, VA20B3791, VA20A3631, VA20A4924, VA20B3584, VA20B3130, VA20B3129, VA20B3370 and VA20B3702.

In all instances where the LCS and MS sample recoveries were outside of laboratory QC limits, the reported data was within historical ranges, including many results less than the detection limits. In one instance, the Naphthalene-d8 surrogate recovery could not be measured for sample U07-10S in report VA20B3370 due to sample matrix interference. The analytical results for Naphthalene in this sample exceed both the CSR AW standards, which is consistent with results from previous years.

Based on the evaluation of the dataset, the LCS and MS sample recoveries outside of the laboratory QC limits are not anticipated to affect the findings of the PMP data evaluation.

Completeness

Completeness for this investigation was defined as the percentage of valid analytical results. Results made uncertain due to missed hold times, improper calibration, blank contamination, or poor calibration verification results would be deemed invalid. Results that may be flagged due to matrix effects are not considered invalid. Completeness for projects should exceed 90%. Completeness is calculated by:

$$Completeness = \frac{A}{B} * 100\%$$

where:

A = number of valid analytical results

B = total number of analytical results

No Area 1 and 3 or Area 2 samples from either sampling events were invalidated by ALS Environmental due to condition on arrival at the laboratory. All samples were analysed as indicated on the COAs that accompanied the samples.

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