REPORT ON THE
2015 AND 2016 PERIMETER MONITORING PROGRAM AND PERIMETER EXTRACTION SYSTEM
CHEVRON BURNABY REFINERY
BURNABY, BRITISH COLUMBIA

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EXECUTIVE SUMMARY

On behalf of Chevron Canada Limited (CCL), AECOM performed groundwater monitoring and sampling as part of the Perimeter Monitoring Program (PMP), and performed the operations, maintenance and monitoring of the Perimeter Extraction System (PES), at the Chevron Burnaby Refinery (Refinery). This report summarized the activities associated with the 2015 and 2016 PMP and PES.

The Refinery is composed of three areas which are collectively known as the "Site" (Figure 1). Area 1 functions mostly as a tank farm and is located at the northern terminus of Willingdon Avenue. Area 2 is the process area where refining is completed and is located near the end of Penzance Drive (Figure 3). Area 3, located north of Area 1, contains the wharf and rail loading facilities and is divided into two portions: (1) land reclaimed from Burrard Inlet (Figure 2), and (2) the adjacent water portion, including the wharf located within Burrard Inlet. Area 3 is leased from Port of Vancouver.

The purpose of the PMP is to monitor groundwater environmental conditions along the downgradient boundary of the Refinery. The scope of the semi-annual groundwater monitoring and sampling program was outlined to the British Columbia (BC) Ministry of Environment (MoE) by CCL in their letter entitled, *Chevron Refinery Well Monitoring Program*, dated October 31, 2003.

The PMP commenced formally in 2004 and has been ongoing ever since. The PMP consists of groundwater monitoring and sampling conducted on a semi-annual basis; one event occurs during the wet season (high water table) and the other event during the dry season (low water table). The wet season events occurred from March 3 to July 8, 2015 and March 7 to May 10, 2016. The dry season events occurred from August 10 to September 22, 2015 and August 8 to October 21, 2016. Based on analytical results collected in 2015 and 2016, and when compared to the results from 2014, the Site perimeter groundwater quality conditions have not significantly changed.

To evaluate potential risks from impacted Site groundwater to Burrard Inlet, Site-Specific Screening Levels (SSSLs) for select parameters were developed by SLR Consulting Canada Ltd. (SLR) with the support of AECOM, on behalf of CCL. The groundwater concentrations in the PMP were compared to these SSSLs and to the Contaminated Sites Regulation (CSR) standards for marine aquatic life (AW) and no specific water use (NU) (CSR standards). SSSLs will be the primary basis to evaluate the need for further assessment or remedial action. For those parameters where SSSLs are not available, the CSR standards will be the basis to evaluate the need for further assessment or remedial action.

Areas 1 and 3 PMP

In 2015 and 2016, 29 of the 30 Areas 1 and 3 PMP wells had groundwater concentrations of petroleum hydrocarbons (PHCs) and polycyclic aromatic hydrocarbons (PAHs) below their SSSLs. Groundwater from one well, U07-10S, had concentrations of light extractable petroleum hydrocarbons in water (LEPHw) and PAHs above their SSSLs. Concentrations of LEPHw and PAHs have consistently exceeded the SSSLs in this well since 2011, when the consistent sampling and analysis of LEPHw and PAHs was initiated. The LEPHw and PAHs found in U07-10S are vertically and horizontally delineated and limited to a small area in the immediate vicinity of U07-10S. The downgradient concentrations of LEPHw and PAHs were below the SSSLs for 2015 and 2016. Therefore, the LEPHw and PAHs in U07-10S do not represent a risk to Burrard Inlet.

In 2015, groundwater concentrations in 26 of the 30 PMP wells (55 of 60 samples) were below their CSR standards. Concentrations were above their CSR standards in five samples collected from four wells. Two of these samples were from U07-10S, which as noted previously, were above their SSSLs. The remaining three samples were from three wells (A3MW02-06, A3MW03-02 and U07-10I) and were due to minor exceedances of pyrene or LEPHw. These analytical results were generally consistent with previous years, and were below the SSSLs, which are the primary basis to evaluate the need for further assessment or remedial action.

In 2016, groundwater concentrations in 23 of the 30 PMP wells (52 of 60 samples) were below their CSR AW standards. Concentrations were above their CSR standards in eight samples collected from seven wells. Two of these samples were from U07-10S were also above their SSSLs, but as noted above, do not represent a risk to Burrard Inlet. The remaining six samples were from six wells (A3MW02-05, A3MW02-06, A3MW02-07, A3MW02-08, A3MW03-02 and U07-10I) and were due to minor exceedances of benzo(a)pyrene, fluoranthene, pyrene or LEPHw. Similar to the 2015 concentrations, these 2016 analytical results were generally consistent with previous years, and were below the SSSLs, which are the primary basis to evaluate the need for further assessment or remedial action.

Area 3 Air Sparge System

In 2010, a remedial air sparge (AS) system was installed in Area 3. From 2010 to 2015, the dissolved phase concentrations of benzene, toluene, ethylbenzene, xylenes, VHw and VPHw were generally reduced and by 2015 were all below the CSR AW standards. In October of 2015, the AS was temporarily turned off to assess whether further active remediation in Area 3, via the AS system was required. This report presents data from two rounds of semi-annual sampling (the wet and dry season sampling events in 2016) that have been completed since the system was temporarily turned off. Following the temporary shut down of the AS system, the concentrations of PHCs and PAHs in Area 3 in 2016 were similar to the concentrations from 2014 and 2015, indicating that the shutdown of the AS system has not resulted in a rebound and/or increase in the concentrations of PHCs and PAHs in groundwater in Area 3. Therefore the AS system has been put on permanent standby.

Area 2 PMP

Groundwater samples were collected along the Area 2 Refinery perimeter from 43 monitoring wells in 2015 and 55 wells in 2016. Groundwater concentrations in all of the PMP wells sampled over both years were below their SSSLs with the exception of the concentration of VHw in A2MW09-11 which was above the SSSL in the May 2015 sample. A sample collected the following year in March 2016 was below the SSSL.

Groundwater concentrations in 39 of the 43 wells sampled (75 of 79 samples) in 2015 and 49 of the 55 wells sampled (81 of 89 samples) in 2016, were below their CSR standards. Concentrations were above the CSR standards in 12 samples collected from seven wells. Six of these seven wells are within the influence of the PES, located immediately down slope of the PES on the Lower Bench and substantially up slope of Burrard Inlet:

- Of these groundwater samples, nine had PHC exceedances, five had PAH (naphthalene) exceedances, and three samples from one well (MW11-4S) had a minor exceedance of dissolved copper above the CSR AW standards; and,

- All groundwater concentrations are consistent with historical results or within an order of magnitude of the 2014 results and have been generally stable since monitoring and sampling of these wells began.

Further, as noted above, the concentrations of the above PHCs and PAHs in these wells were below the SSSLs (with the one exception), which are the primary basis to evaluate the need for further assessment or remedial action.

Area 2 MTBE Remediation Area

Groundwater data associated with the methyl tertiary butyl ether (MTBE) remediation area in Area 2 are collected from 20 wells and assessed as part of the PMP. The MTBE groundwater analytical data collected in 2015 and 2016 support the 2014 PMP report findings, that MTBE remediation is essentially complete in this area; i.e. that groundwater MTBE concentrations continue to remain below the CSR AW standard of 4,400 micrograms per litre (µg/L). Since sampling in the MTBE remediation area began in 2004, only eight wells had groundwater with MTBE concentrations above the CSR AW standard: WS1-D, WS2-D, WS2-D2, WS2-D3, WS2-D4, WS3-D, WS3-D2 and WS3-D4. By 2010, only two wells had groundwater MTBE concentrations above the CSR AW standard: WS2-D2 and WS2-D3. By 2011, the groundwater MTBE concentrations in those two wells dropped to below the CSR AW standard. Since 2011, groundwater MTBE concentrations in all eight wells that previously exceeded the CSR AW MTBE standard, have been below the standard and exhibit generally decreasing concentrations. The pump in extraction well EW2, shown in Figures 3 and 4, was put on stand-by on November 3, 2014 in order to observe the effects of non-pumping on groundwater MTBE concentrations. Since the pump in EW2 was put on standby, the MTBE concentrations in the 20 wells in the surrounding area have remained either within an order of magnitude of the 2013 and 2014 concentrations or have decreased. The MTBE concentrations measured in the 20 wells in 2015 and 2016 were generally an order of magnitude below the CSR AW standard of 4,400 µg/L.

Based on these results, the remediation of MTBE in this area is considered complete, and the sampling of the 20 wells in this area based on the MTBE remediation will be discontinued after 2016. Regular sampling of five wells as part of the larger PMP will continue in this area, specifically G2-9A, G2-9B, G2-10, WS2-D and WS2-D2 as these wells are screened across the water table and provide appropriate coverage to monitoring groundwater quality in the area.

As previously communicated to the MoE, the perimeter groundwater quality issues at the Refinery in Area 2 are currently being managed by CCL via the Area 2 PES installed in 2010 through 2012.

Area 2 Perimeter Extraction System

In the summer of 2010, CCL installed a groundwater PES along the northern perimeter of Area 2 to intercept and preclude the off-site migration of non-aqueous phase liquid (NAPL) and dissolved phase PHCs (above CSR regulatory standards) in groundwater that originate from the Area 2 NAPL plume (note that "NAPL" unless otherwise stated herein refers only to light non-aqueous phase liquids). In 2010, the PES initially consisted of ten total fluids pumps and associated extraction wells (located in what is currently referred to as the Central Section). The PES was upgraded and extended to the east and west in the summers of 2011 and 2012, and now consists of 40 total fluids pumps and associated extraction wells extending from the Ponds on the west to just beyond the Eastern Impounding Basin (EIB)/Flare Stack Area to the east. In 2014, some PES wells in the East Section did not adequately draw down the water in the extraction wells to the elevation of the pump intake due to inadvertent blockages in the discharge pipes. This issue was addressed by CCL in March 2015 via installation of a temporary bypass and then with the construction of system enhancements in the East Section of the PES in October 2015. Additional system enhancements, notably the construction of a larger diameter 3-inch header line for the Central and West Sections of the PES was completed in October 2016.

Capture zones and groundwater drawdown associated with the PES are assessed quarterly by AECOM to demonstrate that the PES is effectively precluding off-site migration of NAPL and dissolved phase PHCs (above CSR regulatory standards) along the northern perimeter of Area 2. Effective levels of drawdown and capture were maintained in all PES areas in 2015 and 2016.

PMP and PES in 2017

Both the PMP and PES programs will continue in 2017 following a similar scope of work as completed in 2015 and 2016 with a change being the reduction of groundwater monitoring and sampling in the MTBE area (Area 2).

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1.0 INTRODUCTION AND BACKGROUND

The objective of this report is to present to the British Columbia (BC) Ministry of Environment (MoE) the 2015 and 2016 groundwater results from the Perimeter Monitoring Program (PMP) and provide an update on the 2015 and 2016 performance of the Perimeter Extraction System (PES) located along the perimeter of the Chevron Burnaby Refinery (Refinery).

AECOM has prepared this report on behalf of Chevron Canada Limited (CCL) to document the results of (1) the 2015 and 2016 PMP (wet and dry seasons) and (2) the 2015 and 2016 PES performance at the Refinery.

The Refinery is composed of three areas (collectively known as the "Site"), as shown in Figure 1. Area 1 functions mostly as a tank farm and is located at the northern terminus of Willingdon Avenue. Area 2 is the process area where refining is completed and is located near the end of Penzance Drive (Figure 3). Area 3 is located north of Area 1, contains the wharf and rail loading facilities and is divided into two portions: (1) land reclaimed from Burrard Inlet (Figure 2), and (2) the adjacent water portion, including the wharf located within Burrard Inlet. Area 3 is leased from Port of Vancouver.

1.1 Introduction to Perimeter Monitoring Program (PMP)

The purpose of the PMP is to monitor groundwater environmental conditions along the downgradient Refinery boundary. The scope of the semi-annual groundwater monitoring and sampling program was outlined to the British Columbia (BC) Ministry of Environment (MoE) by CCL in their letter entitled, *Chevron Refinery Well Monitoring Program*, dated October 31, 2003.

Consistent with the purpose of the PMP, AECOM monitored 87 "Sentry" monitoring wells at the Refinery perimeter in 2015 and 2016. Fourteen wells were dry during both the wet and dry season monitoring events in 2015 and two wells were dry during both events in 2016; therefore, samples were only collected from 73 wells in 2015 and 85 wells in 2016. Sentry wells are intended to be those wells outside of known Areas of Environmental Concern (AECs), as per the October 2003 work plan. Wells in the AECs are being monitored under separate programs of investigation, mitigation, and/or remediation. Nevertheless, several of the Area 2 Sentry wells are within the influence of remedial actions (refer to Figures 3 and 4).

Further details are presented in Appendix A (Perimeter Monitoring Program Areas 1 and 3) and Appendix B (Area 2 Perimeter Monitoring Program).

1.2 Introduction to the Perimeter Extraction System (PES)

In the summer of 2010, Chevron installed a groundwater PES along the northern perimeter of Area 2 to intercept and preclude the off-site migration of the non-aqueous phase liquid (NAPL) and dissolved phase petroleum hydrocarbons (PHCs) (above CSR regulatory standards) in groundwater that originate from the Area 2 NAPL plume (note that "NAPL" unless otherwise stated herein refers only to light non-aqueous phase liquids). In 2010, the PES initially consisted of ten total fluids pumps and associated extraction wells (located in what is currently referred to as the Central Section). The PES was upgraded and extended to the east and west in the summers of 2011 and 2012, and now consists of 40 total fluids pumps and associated extraction wells extending from the Ponds on the west to just beyond the Eastern Impounding Basin (EIB)/Flare Stack Area to the east. The PES was further upgraded in 2015 by enlarging the header line of the Eastern Section.

Further details on the PES are presented in Appendix C (2013 and 2014 Perimeter Extraction System Operations and Performance).

1.3 Introduction to the Area 3 Air Sparge System

An air sparge (AS) remediation system was constructed in Area 3 in September 2010 and began operation in October 2010. The objectives of the AS system were to reduce dissolved phase PHC concentrations in groundwater at the downgradient land portion of Area 3, and to stop the potential transport of PHCs in groundwater to Burrard Inlet.

The AS system is comprised of 21 specifically designed AS wells, regularly spaced in two rows along the downgradient land portion of Area 3, fronting Burrard Inlet. Figure 2 shows the locations of the AS wells (SP-1 through SP-21). The AS system injected air at depths of between five and eight metres below ground surface (bgs) into the subsurface soils and groundwater. The injections stripped and volatilized the residual PHCs over the short term, and enhanced aerobic biodegradation over the long term due to the introduction of additional oxygen. The design air flow rate per well was 10 to 15 standard cubic feet per minute (SCFM) at an air-injection pressure of 5 to 10 pounds per square inch (psi). The sparge wells were installed such that the estimated radius of influence (ROI) of each well would overlap the ROI of the adjacent sparge wells, resulting in a remedial curtain along the waterfront perimeter of Area 3.

In October 2015, the AS system was temporarily turned off to assess whether further active remediation in the area will be warranted. To complete this assessment, Chevron continues to sample groundwater in Area 3 to review concentration trends pre- and post shut down to assess the use of risk management for this area.

The 2015 and 2016 monitoring programs were completed by Mr. Carny Wong, Dipl. Tech., A.A.g., Mr. Edward Preece, E.I.T., Mr. Ken Gauthier, B.Sc., P.Ag., and Mr. Albert Wang, P.Eng. The report was prepared by Mr. Preece, and the senior review was conducted by Mr. Michael Gill, P.Eng., CSAP.

2.0 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 (softer 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 at depth.

The Site is located on the south side of Burrard Inlet. In Area 2, the topography consists of a flat bench where most of the refinery infrastructure is located, and a short slope down to a second bench 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. At the fence line, the topography drops down to a second narrow bench at the refinery property line, this narrow bench is referred to as the Lower Bench. The topography then drops to the Canadian Pacific Railway (CPR) right-of-way (ROW) and then past the CPR ROW, drops down to the Foreshore.

Consistent with a steep northward slope of the ground surface, groundwater flows generally northward from the central upland areas of the Refinery towards the Site perimeter, south of Burrard Inlet. Low permeability soil and bedrock restrict groundwater flow and contaminant migration. Monitoring wells on-site have a total depth ranging between 1.2 metres (m) and 26.9 m below top of well pipe. Groundwater depths vary with the 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} metres per second (m/s) to 1×10^{-10} m/s with a geometric mean of 5×10^{-7} m/s (URS 2013a). Conservatively using the highest hydraulic conductivity of 1.1×10^{-6} m/s, measured in the Central Section where the majority of NAPL and higher concentration dissolved phase contamination is located, the groundwater velocity was calculated to be 30.5 metres/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. Under non-pumping conditions, the time for groundwater to travel from the PES to the Chevron property boundary on the Lower Bench was calculated to be six months (URS 2013b).

Siltstone and sandstone bedrock in Area 1 has a hydraulic conductivity of less than 10^{-6} metres/second and yields less than 1 litre/minute (Morrow 2001).

3.0 REGULATORY CONTEXT

The *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. Federal environmental legislation applicable to Burrard Inlet adjacent to the Site includes the *Canada Fisheries Act*.

3.1 CONTAMINATED SITES REGULATION

The MoE has established standards for evaluating contamination and associated remediation requirements in the CSR. The CSR came into effect April 1, 1997. The CSR provides a framework to investigate, assess, and remediate contaminated sites in British Columbia. Nine significant amendments to the CSR have been completed since 1997. On October 27, 2016, the MoE released the Stage 10 (Omnibus) amendments. The changes in the amendments will come into effect on November 1, 2017. The amendments included changes to some of the numerical values of the groundwater standards. For convenience, the analytical results have been compared to both the current Stage 9 standards and the updated Stage 10 amended standards. In addition, there are protocols, procedures, technical guidance and administrative guidance that have been developed by the MoE to guide the contaminated site process.

Under the CSR, there are three types of numerical remediation standards. 1) Generic Numerical Standards refer to concentrations of given substances in soil or water for a particular land use. 2) Matrix Numerical Standards are applied for some substances in soil, taking into account various site-specific factors such as proximity to receiving waters, likelihood of human ingestion, and use of land for livestock rearing. 3) Site-Specific Numerical Standards involve the generation of a standard for a specific site, based on a protocol outlined by the MoE.

Water quality standards are classified into four levels, based on the use of the water:

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

Sites at which parameters exceed the specific standard for the type of water use at the property are considered contaminated.

Additionally, numeric water standards for generic petroleum hydrocarbon parameters volatile hydrocarbons (VHw_{C6-C10}) and extractable petroleum hydrocarbons ($EPHw_{C10-C19}$) are applicable at all sites regardless of water use. These standards are referred to as the CSR no water use (NU)

standards. According to the MoE, concentrations greater than CSR NU standards could be considered as proof of the presence of NAPL[1].

The MoE requires specific analysis for 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 in the PMP. 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.

Applicable CSR standards at the Site are presented in Section 3.4.

3.2 HAZARDOUS WASTE REGULATION

The Hazardous Waste Regulation (HWR) classifies substances as hazardous wastes if they contain leachable contaminants at concentrations in excess of a specified maximum. Hazardous wastes may also be defined by their total content of certain substances. Soil or groundwater contaminated in excess of HWR standards must be handled and disposed of as hazardous wastes in accordance with the regulation.

3.3 CANADA FISHERIES ACT

The Canada Fisheries Act administered by the Federal Department of Fisheries and Oceans prohibits the discharge of a deleterious substance to an aquatic environment and is enforced by Environment Canada, Fisheries and Oceans Canada, and the BC MoE. Deleterious substances include contaminants regulated by the CSR.

3.4 APPLICABLE STANDARDS

The Site is zoned for heavy industrial use. The following is a discussion of the applicable groundwater standards at the Site.

Under MoE guidance, drinking water standards are applicable at sites unless they can be removed using Protocol 21 (MoE 2015), or an exemption is granted by the MoE.

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

[1] BC Ministry of Environment, 1999. Contaminated Sites Protocol 7: "Regulation of Petroleum Hydrocarbons in Water under the Contaminated Sites and Special Waste Regulations".
http://www2.gov.bc.ca/assets/gov/environment/air-land-water/site-remediation/docs/protocols/protocol_7.pdf

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. Area 3 was assessed separately from Area 1. The assessment is shown in the Tables A, B and C below.

Table A - 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 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 B - 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.
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 site is not an aquifer mapped in the BC Water Resource Atlas. Yes. The unconfined aquifer has a bulk hydraulic conductivity < 10-6 m/s based on a pumping test in Area 2. The yield in Area 2 till is ≥1.3 L/min.

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 metres. 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 metres below grade. The average depth to water (measured seasonally over more than 10 years) ranged from 0.9 to 4.9 metres below grade. The average saturated thickness in the unconsolidated material ranged from 0 to 3.2 metres with an average saturated thickness over the 10 locations of 1.1 metres.[2]*
Conclusion	Future DW use does not apply to the unconsolidated non-bedrock groundwater in Area 1.

Table C - 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.
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.
Conclusion	Future DW use does not apply to Area 1.

Therefore, drinking water does not apply to any of the areas of the Chevron Burnaby Refinery.

[2] 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.

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].

3.5 GROUNDWATER SITE-SPECIFIC SCREENING LEVELS

AECOM, with the support of SLR Consulting Canada Ltd. (SLR), on behalf of CCL, proposes the use of groundwater site-specific screening levels (SSSLs) for the PMP. The SSSLs are based on the updated screening levels and risk-based management targets developed for application along the Foreshore down slope of Area 2 of the refinery. Specifically, the measured groundwater concentrations from PMP wells located in Area 1, 2 and 3 were compared against the SSSLs to evaluate the site-specific risk the groundwater contaminants pose to Burrard Inlet. The SSSLs are listed in Table D below, and the basis for the SSSLs is presented in Appendix E. While the groundwater concentrations in this report were also compared against the CSR AW and/or NU standards, for those parameters which have SSSLs, the SSSLs will be the basis for remedial action by CCL.

Table D – Site-Specific Screening Levels

PHCs	
PCOC	SSSL (µg/L)
LEPHw	3000
VPHw	15000
$EPHw_{10-19}$	5000
VHw (C6-C10)	15000
Benzene	21000
Ethylbenzene	3200
Styrene	7200
Toluene	7700
Xylenes	3300

PAHs	
PCOC	SSSL (µg/L)
Acenaphthene	60
Acridine	30
Anthracene	40
Benz[a]anthracene	1
Benzo[a]pyrene	2.8
Chrysene	1
Fluoranthene	40
Fluorene	120
Naphthalene	440
Phenanthrene	3
Pyrene	40
Quinoline	34

Metals	
PCOC	SSSL (µg/L)
Antimony	2500
Arsenic	125
Barium	5000
Beryllium	1000
Boron	12000
Cadmium	90
Chromium	500
Cobalt	1100
Copper	62
Lead	1400
Molybdenum	10000
Nickel	750
Selenium	20
Thallium	3
Uranium	1000
Zinc	900

[3] http://www2.gov.bc.ca/assets/gov/environment/air-land-water/site-remediation/docs/protocols/protocol_21.pdf

4.0 SCOPE OF WORK

The 2015 and 2016 scope of work included:

- Updating and following the Refinery-wide Health and Safety Plan (HASP).

- Completing the 2015 and 2016 PMP in accordance with the CCL's work plan submitted to the MoE on October 31, 2003 and AECOM's work plan dated March 29, 2004. This work included completing two groundwater monitoring and sampling events per year over the two years (for a total of four events), 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 PHCs, PAHs, and/or dissolved metals, and comparing the analytical results to the provincial CSR standards. The specific dates and number of wells for each area of the Refinery are included in Appendices A and B.

- 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 groundwater and effluent monitoring. The specifics are included in Appendix C.

5.0 AREAS 1 AND 3 PERIMETER MONITORING

Details of the groundwater monitoring and sampling results in Areas 1 and 3 are included in Appendix A. Areas 1 and 3 are shown in Figure 2. In 2015 and 2016, concentrations of PHCs and PAHs in groundwater samples were either below the laboratory reported detection limits (RDLs) or the SSSLs, in 29 of the 30 wells. One well, U07-10S, had four samples, from both the wet season and dry season sampling events for both 2015 and 2016, which had exceedances above the SSSLs.

In that well, U07-10S, concentrations of LEPHw and the following PAHs: acenaphthene, acridine, anthracene, benz(a)anthracene, benzo(a)pyrene, chrysene, fluoranthene, fluorene, naphthalene, phenanthrene, and pyrene were above the SSSLs. Concentrations of LEPHw and the above PAHs have consistently exceeded the SSSLs since 2011, when the consistent sampling and analysis of LEPHw and PAHs was initiated. The LEPHw and PAHs found in U07-10S are vertically and horizontally delineated and limited to a small area in the immediate vicinity of U07-10S. The downgradient concentrations of LEPHw and PAHs were below the SSSLs for 2015 and 2016. Therefore, the LEPHw and PAHs in U07-10S do not represent a risk to Burrard Inlet. Remaining PHC and PAH concentrations in U07-10S were below the SSSLs.

Groundwater quality in 26 of the 30 wells sampled (55 of 60 samples) in 2015 were either below RDLs and/or the CSR AW standards. These analytical results are generally consistent with previous years. Concentrations were above the CSR AW standards in five samples collected from four wells. Two of these samples were from U07-10S, which as noted previously, were

above their SSSLs.. The remaining three samples were from three wells (A3MW02-06, A3MW03-02, and U07-10I). During the wet season, groundwater collected from A3MW02-06 and U07-10I contained concentrations of pyrene (0.44 and 0.39 micrograms per litre [µg/L], respectively) which were slightly above the CSR AW standard (but below the SSSL). Another well (A3MW03-02) during the wet season contained groundwater above the CSR AW standard for LEPHw (but below the SSSL). Remaining PHC and PAH concentrations from groundwater in these wells were below the CSR AW and NU standards.

Groundwater quality in 23 of the 30 wells sampled (52 of 60 samples) in 2016 were below the CSR AW standards. These analytical results are generally consistent with previous years, and were below the SSSLs, which are the primary basis to evaluate the need for further assessment or remedial action. Concentrations were above the CSR AW standards in eight samples collected from seven wells. Two of these samples were from U07-10S were also above their respective SSSLs and CSR NU standards, but as noted above, do not represent a risk to Burrard Inlet. The remaining six samples were from six wells A3MW02-05, A3MW02-06, A3MW02-07, A3MW02-08, A3MW03-02, and U07-10I:

- During both seasons, groundwater collected from A3MW03-02 contained concentrations of LEPHw (930 and 720 µg/L) slightly above the CSR AW standard, but below the SSSL.

- During the wet season, groundwater collected from A3MW02-05 contained concentrations of benzo(a)pyrene (0.26µg/L), fluoranthene (2.52 µg/L) and pyrene (2.32 µg/L) slightly above the CSR AW standards (benzo(a)pyrene standard of 0.1 µg/L and fluoranthene standard of 2 µg/L), but below the SSSLs.

- During the dry season, groundwater collected from A3MW02-06 contained concentrations of pyrene (0.39 µg/L) above the CSR AW standard, but below the SSSL.

- During the wet season, groundwater collected from A3MW02-07, A3MW02-08 and U07-10I contained concentrations of pyrene (0.22 µg/L, 0.21 µg/L, and 0.29 µg/L, respectively) above the CSR AW standard, but below the SSSL.

- Based on analytical results collected in 2015 and 2016, and when compared to the results from 2014, the Site perimeter groundwater quality conditions have not significantly changed and the concentrations were below the SSSLs (aside from the groundwater in U07-10S), which are the primary basis to evaluate the need for further assessment or remedial action.

5.1 AREA 3 AIR SPARGE SYSTEM

In 2010, a remedial air sparge (AS) system was installed in Area 3. From 2010 to 2015, the dissolved phase concentrations of benzene, toluene, ethylbenzene, xylenes, VHw and VPHw were generally reduced and by 2015 were all below the CSR AW standards. In October of 2015, the AS was temporarily turned off to assess whether further active remediation in Area 3 using the air sparge system was required. This report presents data from two rounds of semi-annual sampling (the wet and dry season sampling events in 2016) that have been completed since the system was temporarily turned off. Following the temporary shut down of the air sparge system, the concentrations of PHCs and PAHs in Area 3 in 2016 were similar to the concentrations from 2014 and 2015, indicating that the shut down of the air sparge system has not resulted in a rebound and/or increase in the concentrations of PHC and PAHs in groundwater in Area 3. For further details on the AS, please see Appendix A.

The Area 1 and 3 PMP is being continued under similar scope and analytical program as the 2015 and 2016 program.

6.0 AREA 2 PERIMETER MONITORING

Details of the Area 2 monitoring analytical results are included in Appendix B. The wells sampled in Area 2 are presented in Figures 3 and 4. Samples were collected along the Area 2 Refinery perimeter from 43 monitoring wells in 2015 and 55 wells in 2016. Groundwater quality in all of the wells sampled over both years was either below the RDLs and/or below the SSSLs with the exception of the concentration of VHw in A2MW09-11 which was above the SSSL in the May 2015 sample. A sample collected the following year in March 2016 was below the SSSL.

Groundwater quality in 39 of the 43 wells sampled (75 of 79 samples) in 2015 and 49 of the 55 wells sampled (81 of 89 samples) in 2016, were either below RDLs and/or below the CSR AW and NU standards.

Concentrations of PHCs, PAHs and dissolved metals in groundwater were above the CSR AW standards in 12 samples collected from seven wells.

- Of these 12 samples, nine had PHC exceedances, four had PAH (naphthalene) exceedances, and three (MW11-4S) had minor dissolved copper exceedances above the CSR AW standards, but all below the SSSL.

- Six of these wells are within the influence of the PES located immediately down slope of the PES on the Lower Bench and substantially up slope of Burrard Inlet. The seventh well (MW11-4S) had a marginal exceedance. MW11-4S is located more than 40 metres east of the easternmost end of the PES.

- All groundwater concentrations in 2015 and 2016 are consistent with historical results or within an order of magnitude of the 2014 results and have been generally stable since monitoring and sampling of these wells began.

Further, as previously noted, the concentrations of the above PHCs and PAHs in these wells were below the SSSLs (with the one exception), which are the primary basis to evaluate the need for further assessment or remedial action.

6.1 MTBE REMEDIATION

The methyl tertiary butyl ether (MTBE) groundwater analytical data collected in 2015 supported the 2014 PMP Sentry report findings that MTBE remediation is complete in the impacted area, i.e., that groundwater MTBE concentrations continue to remain below the CSR AW standard of 4,400 µg/L. The MTBE remediation area and surrounding wells are shown in Figure 4. Since sampling in the MTBE remediation area began in 2004, only eight wells had groundwater with MTBE concentrations above the CSR AW standard, and by 2010, only two wells had groundwater MTBE concentrations above the standard. Since 2011, the groundwater MTBE concentrations in the remediation area have been below the CSR AW standard and exhibit generally declining concentrations. Since the pump in EW2 was put on standby, in November 2014, the MTBE concentrations in the 20 wells in the surrounding area have remained either within an order of magnitude of the 2013 and 2014 concentrations or have decreased. The MTBE concentrations measured in the 20 wells in 2015 and 2016 were generally an order of magnitude below the CSR AW standard of 4,400 µg/L. Based on these results, the remediation of MTBE in this area is considered complete, and the sampling of the 20 wells in this area based on the MTBE remediation will be discontinued after 2016. Regular sampling of five wells as part of the larger PMP will continue in this area, specifically G2-9A, G2-9B, G2-10, WS2-D and WS2-D2 as these wells are screened across the water table and provide appropriate coverage to monitoring groundwater quality in the area.

The Area 2 2017 PMP is being continued under similar scope and analytical program as the 2015 and 2016 program with the exception that monitoring in the (former) MTBE groundwater remediation area will revert to the general PMP program by sampling the following five wells on a semi-annual basis: G2-9A, G2-9B, G2-10, WS2-D and WS2-D2.

7.0 PERIMETER EXTRACTION SYSTEM OPERATIONS AND PERFORMANCE

The PES operates by drawing down the water table in extraction wells to the elevation of the pump intakes. This creates a groundwater depression along the northern fence line of the Refinery which intercepts NAPL and impacted groundwater and precludes off-site migration. The system was checked twice a month in 2015 and 2016 to ensure water levels in the extraction wells are at the pump intake and that the system is generally operating as designed. The PES, relative to NAPL measured in 2015 and 2016, is shown in Figure 5.

Effective levels of drawdown and capture were maintained in all PES areas in 2015 and 2016. A capture zone assessment, which included plotting the groundwater elevations, groundwater contours and projecting groundwater travel direction, indicated that the PES effectively precluded the migration of NAPL and dissolved contaminants in 2015 and 2016. Details are included in Appendix C and summarized below.

Groundwater elevations along the Upper and Lower Benches were measured in surrounding monitoring wells on a quarterly basis in 2015 and 2016. Groundwater remained generally drawn down in the Central and West Sections indicating good hydraulic connection between the extraction wells and the surrounding subsurface. When compared to the static groundwater elevations measured in January 2012 groundwater drawdown in 2015 and 2016 ranged from 4.9 m to 6.1 m along the Upper Bench and 1.1 m to 3.7 m along the Lower Bench.

A summary of the total fluids and NAPL removed by the PES each year is listed in the table below:

Table E: Summary of Total Fluids and NAPL Removed by the PES

Year	Total fluids extracted	NAPL extracted
2016	33,823 m^3	~ 200 L
2015	43,919 m^3	~ 240 L
2014	55,000 m^3	~ 500 L
2013	49,000 m^3	~ 300 L
2012	48,700 m^3	~ 500 L
2011	12,900 m^3	~ 21,700 L

Annual pump maintenance, and annual extraction well redevelopment were completed in September 2015 and August and September 2016 when the pumps were removed from the wells, disassembled, and cleaned. While disassembled, an inspection of all pump parts and components was completed to identify visible signs of wear, corrosion, discoloration, evidence of rubbing, damage, clogging, presence of foreign objects/debris, and missing parts. Despite applying a downhole power washer and use of a hoist and tripod, two pumps in the East Section remained stuck within two extraction wells: UEIB-20 and UEIB-31. In October 2016, additional system enhancements, notably the construction of a larger diameter 3-inch header line for the Central and West Sections, was completed to further enhance system operation. During December 2015 and December 2016, minor maintenance was conducted on a subset of wells to replace worn parts and to clean biofouling build-up.

In 2014, some PES wells in the East Section did not adequately draw down the water in the extraction wells to the elevation of the pump intake due to inadvertent blockages in the discharge pipes. A capture zone assessment indicated that the PES effectively precluded the migration of NAPL in the Central and West Sections in 2014, where NAPL was generally found in the past. As discussed in the 2014 PMP and PES report, the groundwater velocity in the area between the PES and the Refinery property boundary is estimated to be 30.5 m/yr, indicating that it would take an estimated six months for contaminated groundwater to travel from the PES to the Refinery property boundary under non-pumping conditions. Downgradient well monitoring and data collection in 2014 at Lower Bench wells and Foreshore wells had not exhibited changes (visual or analytical) indicative of increased off-site migration of impacted groundwater and/or NAPL. As such, the overall impact of the reduced drawdown effectiveness in the East Section of the PES in 2014 is considered to be minimal to negligible. This issue was addressed by CCL in March 2015 via installation of a temporary bypass and then with the construction of system enhancements in the East Section of the PES in October 2015.

Throughout 2015 and 2016, the system generally functioned as required. Biofouling was observed in all extraction wells along the Central and Eastern sections with a few exceptions. Occasionally, several pumps in the East Section would malfunction due to biofouling or sediment build-up which was addressed quickly by Chevron and AECOM by removing the pumps and cleaning them. The biofouling should be further mitigated by the planned installation of a chemical dosing system that will be installed by Chevron in 2017. Other additional minor maintenance issues in 2015 and 2016 included: malfunctioning check valves, regular parts wear and pumps that were stuck due to sediment build up between the well casing and pump casing. Details regarding the pump maintenance and the operational issues in 2015 and 2016 are discussed in Appendix C. However, as noted above effective levels of drawdown and capture were maintained in all PES areas in 2015 and 2016.

8.0 CONCLUSIONS

PMP

Areas 1 and 3

In 2015 and 2016, 29 of the 30 Areas 1 and 3 PMP wells had groundwater concentrations of PHCs and PAHs below their SSSLs. Groundwater from one well, U07-10S, had concentrations of LEPHw and PAHs above their SSSLs. Concentrations of LEPHw and PAHs have consistently exceeded the SSSLs in this well since 2011, when the consistent sampling and analysis of LEPHw and PAHs was initiated.

In 2015, groundwater concentrations in 26 of the 30 PMP wells were below the CSR standards. Concentrations were above their CSR standards in five samples collected from four wells. Two of these samples were from U07-10S, which as noted previously, were above their SSSLs. The remaining three samples were from three wells (A3MW02-06, A3MW03-02 and U07-10I) and were due to minor exceedances of pyrene or LEPHw. These analytical results were generally consistent with previous years.

In 2016, groundwater concentrations in 23 of the 30 PMP wells (52 of 60 samples) were below the CSR standards. Concentrations were above their CSR standards in eight samples collected from seven wells. Two of these samples were from U07-10S, which as noted previously, were also above their SSSLs. The remaining six samples were from six wells (A3MW02-05, A3MW02-06, A3MW02-07, A3MW02-08, A3MW03-02 and U07-10I) and were due to minor exceedances of benzo(a)pyrene, fluoranthene, pyrene or LEPHw. Similar to the 2015 concentrations, these 2016 analytical results were generally consistent with previous years.

In 2010, a remedial AS system was installed in Area 3 to mitigate the concentrations of PHCs greater than the CSR AW and NU standards. In October of 2015, the AS was temporarily turned off to assess whether further active remediation in the area was required. This report presents data from two rounds of semi-annual sampling (the wet and dry season sampling events in 2016) that have been completed since the system was temporarily turned off. Following the temporary shut down of the air sparge system, the concentrations of PHCs and PAHs in Area 3 in 2016 were similar to the concentrations from 2014 and 2015, indicating that the shut down of the air sparge system has not resulted in an increase in the concentrations of PHC and PAHs in groundwater in Area 3. Therefore the AS has been put on permanent standby.

The Area 1 and 3 PMP is being continued under similar scope and analytical program as the 2015 and 2016 program.

Area 2

Groundwater samples were collected along the Area 2 Refinery perimeter from 43 monitoring wells in 2015 and 55 wells in 2016. Groundwater concentrations in all of the PMP wells sampled over both years were below their SSSLs with the exception of the concentration of VHw in A2MW09-11 which was above the SSSL in the May 2015 sample. A sample collected the following year in March 2016 was below the SSSL.

Groundwater concentrations in 39 of the 43 wells sampled (75 of 79 samples) in 2015 and 49 of the 55 wells sampled (81 of 89 samples) in 2016, were below the CSR standards. Concentrations were above the CSR standards in 12 samples collected from seven wells. Six of these seven wells are within the influence of the PES, located immediately downslope of the PES on the Lower Bench and substantially upslope of Burrard Inlet.

- Of these groundwater samples, nine had PHC exceedances, four had PAH (naphthalene) exceedances, and three samples from one well (MW11-4S) had a minor exceedance of dissolved copper above the CSR AW standards; and

- All groundwater concentrations are consistent with historical results or within an order of magnitude of the 2014 results.

Further, as noted above, the concentrations of the above PHCs and PAHs in these wells were below the SSSLs (with the one exception), which are the primary basis to evaluate the need for further assessment or remedial action.

Groundwater data associated with the MTBE remediation area are collected from 20 wells and assessed as part of the PMP. The MTBE groundwater analytical data collected in 2015 and 2016 support the 2014 PMP report findings, that MTBE remediation is essentially complete in in the impacted area; i.e. that groundwater MTBE concentrations continue to remain below the CSR AW standard of 4,400 µg/L. Since sampling in the MTBE remediation area began in 2004, only eight wells had groundwater with MTBE concentrations above the CSR AW standard: WS1-D, WS2-D, WS2-D2, WS2-D3, WS2-D4, WS3-D, WS3-D2 and WS3-D4. By 2010, only two wells had groundwater MTBE concentrations above the CSR AW standard: WS2-D2 and WS2-D3. By 2011, the groundwater MTBE concentrations in those two wells dropped to below the CSR AW standard. Since 2011, groundwater MTBE concentrations in all eight wells that previously exceeded the CSR AW MTBE standard, have been below the standard and exhibit generally declining concentrations. The pump in extraction well EW2, shown in Figure 4, was put on stand-by on November 3, 2014 in order to observe the effects of non-pumping on groundwater MTBE concentrations. Since the pump in EW2 was put on standby, the MTBE concentrations in the 20 wells in the surrounding area have remained either within an order of magnitude of the 2013 and 2014 concentrations or have decreased. The MTBE concentrations measured in the 20 wells in 2015 and 2016 were generally an order of magnitude below the CSR AW standard of 4,400 µg/L. Based on these results, the remediation of MTBE in this area is considered complete, and the sampling of the 20 wells in this area based on the MTBE remediation will be discontinued. Regular sampling of five wells as part of the larger PMP will continue in this area,

specifically G2-9A, G2-9B, G2-10, WS2-D and WS2-D2 as these wells are screened across the water table and provide appropriate coverage to monitoring groundwater quality in the area.

The Area 2 2017 PMP is being continued under similar scope and analytical program as the 2015 and 2016 program with the exception of monitoring in the (former) MTBE groundwater remediation area as discussed above.

PES Operation

The PES operates by drawing down the water table in extraction wells to the elevation of the pump intakes. This creates a groundwater depression along the northern fence line of the Refinery which intercepts NAPL and impacted groundwater and prevents off-site migration.

Effective levels of drawdown and capture were maintained in all PES areas in 2015 and 2016.

In 2014, some PES wells in the East Section did not adequately draw down the water in the extraction wells to the elevation of the pump intake due to inadvertent blockages in the discharge pipes. As discussed in the 2014 PMP and PES report, the groundwater velocity in the area between the PES and the Refinery property boundary is estimated to be 30.5 m/yr, indicating that it would take an estimated six months for contaminated groundwater to travel from the PES to the Refinery property boundary under non-pumping conditions. Downgradient well monitoring and data collection in 2014 at Lower Bench wells and Foreshore wells had not exhibited changes (visual or analytical) indicative of increased off-site migration of impacted groundwater and/or NAPL. As such, the overall impact of the reduced drawdown effectiveness in the East Section of the PES in 2014 is considered to be minimal to negligible. Further, this issue was addressed by CCL in March 2015 via installation of a temporary bypass and then with the construction of system enhancements in the East Section of the PES in October 2015. A capture zone assessment indicated that the PES effectively precluded the migration of NAPL in the Central and West Sections in 2014, where NAPL was generally found in the past.

9.0 REPORT USE AND LIMITATIONS

The findings and conclusions documented in this report have been prepared for specific application to this project and have been developed in a manner consistent with that level of care and skill normally exercised by members of the environmental science profession currently practicing under similar conditions in the area, and in accordance with AECOM's standard terms and conditions. No other warranty, expressed or implied, is made. This report is for the exclusive use of Chevron Canada Limited, Port of Vancouver, and MoE who may rely upon this report. This report has been prepared in accordance with BC MoE CSR (2014 and 2017).

Testing conducted on the Site was in locations and for parameters consistent with the identified contamination for the subject property uses. Furthermore, the sampling was of sufficient quantity and location to provide adequate spatial coverage. However, as conditions between sampling locations may vary, a potential always remains for the presence of unknown, unidentified, or unforeseen surface and subsurface contamination. Further evidence against such potential Site contamination would require additional surface and subsurface exploration and chemical analytical testing.

Conclusions and recommendations in this report are based on comparison of chemical analytical results to the BC MoE CSR (2017). In the event these standards are changed, new standards are introduced, or new information is developed in future Site work, AECOM should be contacted to re-evaluate the conclusions of this report, and to provide amendments as required.

AECOM's objective is to perform our work with care, exercising the customary thoroughness and competence of earth science, environmental, and engineering consulting professionals, in accordance with the standard for professional services at the time and location those services are rendered. It is important to recognize that even the most comprehensive scope of services may fail to detect environmental liability on a particular site. Therefore, AECOM cannot act as insurers and cannot "certify" or "underwrite" that a site is free of environmental contamination, and no expressed or implied representation or warranty is included or intended in our reports, except that our work was performed, within the limits prescribed by our client, with the customary thoroughness and competence of our profession.

10.0 DISCLAIMER

In the event that this report is provided in electronic format, AECOM is not responsible for uses of the data outside of or beyond the scope of our original agreement with our client. Our paper report represents our official work product. Also, because data stored on electronic media or transmitted by electronic means can deteriorate undetected or be modified without AECOM's knowledge, AECOM is not liable for the compatibility, completeness or correctness of the data.

11.0 PROFESSIONAL STATEMENT

All information compiled for this document has been prepared in accordance with all requirements of the *Environmental Management Act* and its Regulations.

AECOM certifies that the persons signing this document have demonstrable experience in the assessment and remediation of industrial sites. The work has been performed by AECOM personnel under the guidance and supervision of the signatories below.

AECOM Canada Ltd.

per:

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PROFESSIONAL ENGINEER
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M. F. GILL
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April 29, 2017

Michael Gill, P.Eng., CSAP
Environmental Engineer
Program Manager

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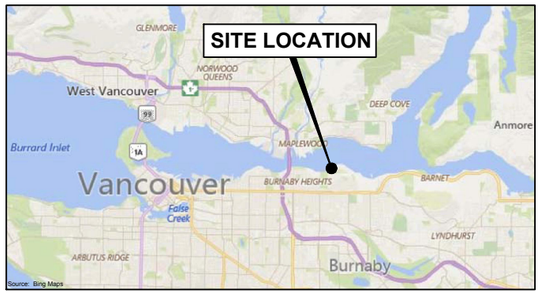
FIGURES



LEGEND:

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

NOTE: Zoning information taken from City of Burnaby website, Burnaby Map. (August 16, 2011)

N W E S

metres 0 150 300

AECOM

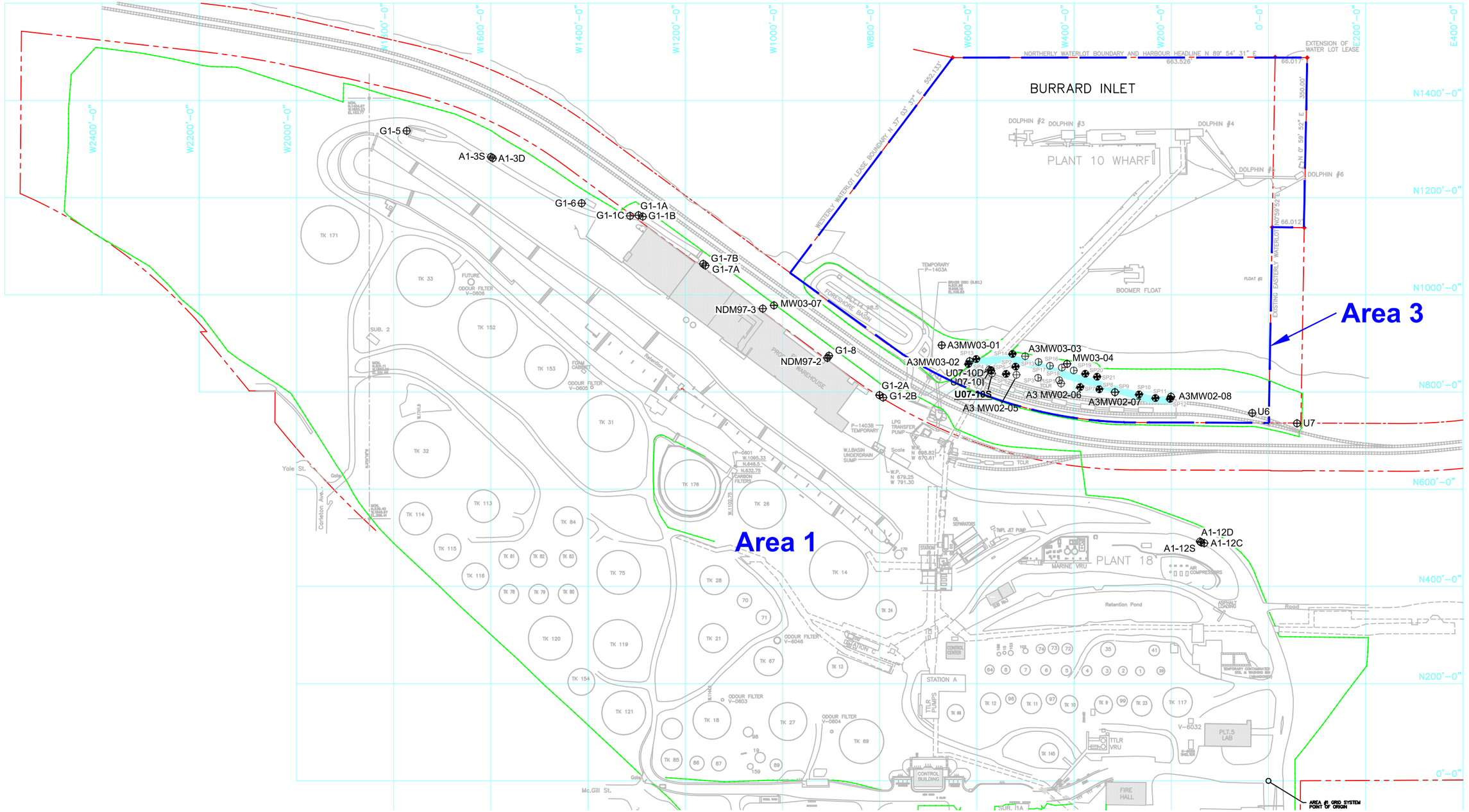
REFINERY SITE PLAN AND LOCATION MAP AREAS 1, 2 AND 3

The 2015 and 2016 Perimeter Monitoring Program and Perimeter Extraction System
Chevron Burnaby Refinery, Burnaby, BC

CHEVRON CANADA LIMITED

DATE:	PROJECT NO.:	DRAWN BY:	REVISION NO.:	DRAWING NO.:
June 2017	60486755	TS	0	FIGURE 1

FILE NAME: H:\URS-CHEVRON\60486755. 2016 PMP\5. Deliverables\2015 and 2016 MOE PMP PES Report\Figures\01 Site Plan.dwg



LEGEND:

- Property Line
- Fence Line
- Sentry Monitoring Well
- Sparge Well
- Sparge Well Destroyed
- Sparge Well System
- Concentration Exceeding CSR AW, NU or GRBMTs (bold well name), details in the text and tables of Appendix A. **A3MW03-02**

ABBREVIATIONS:

CSR	Contaminated Sites Regulation
AW	Aquatic Life
NU	No Water Use
GRBMT	Groundwater Risk Based Management Target

GRID NORTH

N W E S

0 50 100 m

AECOM

AREAS 1 AND 3 SENTRY WELLS

The 2015 and 2016 Perimeter Monitoring Program and Perimeter Extraction System
Chevron Burnaby Refinery, Burnaby, BC

CHEVRON CANADA LIMITED

DATE:	PROJECT NO.:	DRAWN BY:	REVISION NO.:	DRAWING NO.:
June 2017	60486755	TS	0	FIGURE 2

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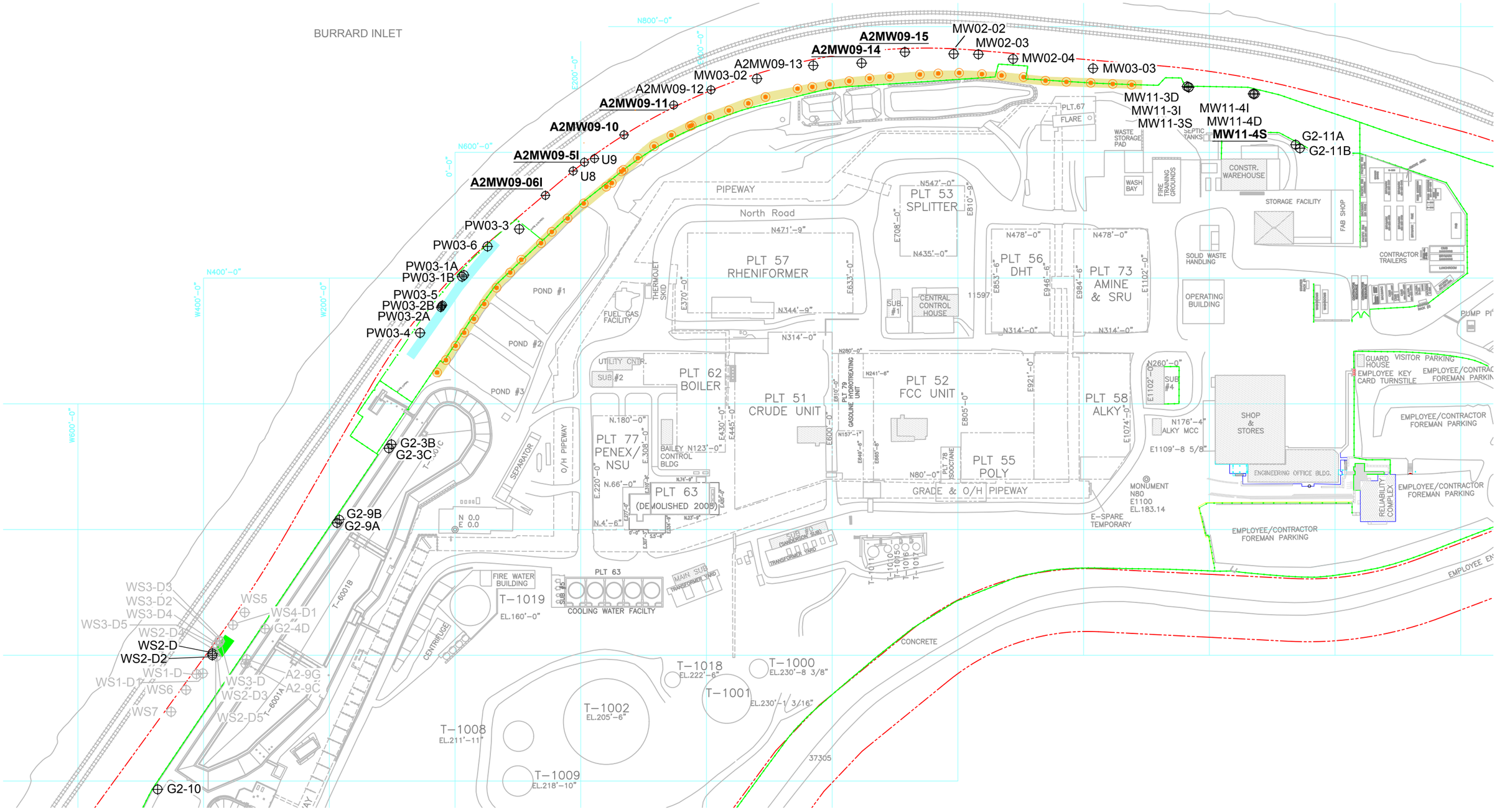

LEGEND:

- Property Line
- Fence Line
- Sentry Monitoring Well
- Extraction Well
- Perimeter Extraction Well System
- Sparge Well System
- EW2 Extraction Well (MTBE)
- Concentration Exceeding CSR AW or NU (bold well name) in 2015, details in the text and tables of Appendix B. — **A2MW09-05I**
- Greyed out wells will not be included in the PMP in 2017

ABBREVIATIONS:

MTBE	Methyl Tertiary Butyl Ether
CSR	Contaminated Sites Regulation
AW	Aquatic Life
NU	No Water Use

GRID NORTH

N W E S

metres 0 50 100

AECOM

AREA 2 SENTRY WELLS

The 2015 and 2016 Perimeter Monitoring Program and Perimeter Extraction System
Chevron Burnaby Refinery, Burnaby, BC

CHEVRON CANADA LIMITED

DATE:	PROJECT NO.:	DRAWN BY:	REVISION NO.:	DRAWING NO.:
June 2017	60486755	TS	0	FIGURE 3

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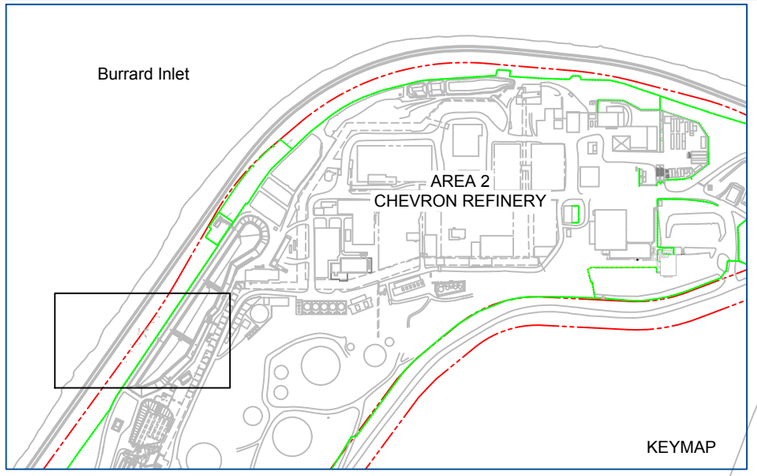


Burrard Inlet

WS5
WS4-D1
G2-4D
WS3-D2
WS3-D3
WS3-D4
WS3-D5
WS3-D
WS2-D4
WS2-D
WS2-D3
WS2-D5
WS2-D2
A2-9G
A2-9C
WS1-D
WS1-D1
WS6
WS7
G2-10
T-600
T-6001A

LEGEND:

- Property Line
- Fence Line
- Sentry Monitoring Well
- Greyed out wells will not be included in the PMP in 2017
- EW2 Extraction Well (MTBE)

ABBREVIATION:

MTBE Methyl Tertiary Butyl Ether

GRID NORTH

N
W E
S

metres
0 10 20

AECOM

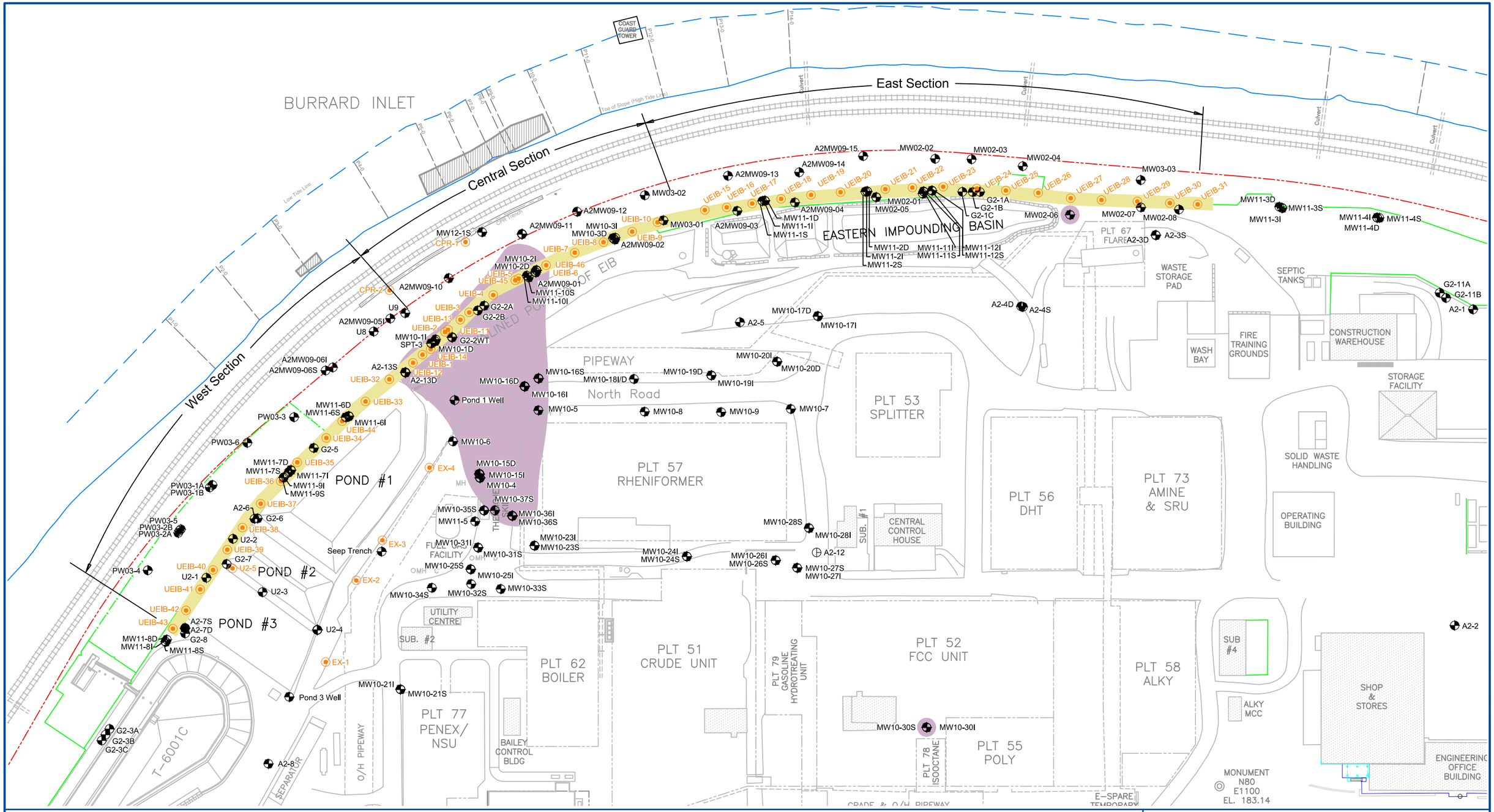
AREA 2
WS SENTRY WELLS

The 2015 and 2016 Perimeter Monitoring Program and Perimeter Extraction System
Chevron Burnaby Refinery, Burnaby, BC

CHEVRON CANADA LIMITED

DATE:	PROJECT NO.:	DRAWN BY:	REVISION NO.:	DRAWING NO.:
June 2017	60486755	TS	0	FIGURE 4

FILE NAME: H:\URS-CHEVRON\60486755. 2016 PMP\5. Deliverables\2015 and 2016 MOE PMP PES Report\Figures\04 Area 2 WS Sentry Wells.dwg



LEGEND:

- Property Line
- Fence Line
- Perimeter Well Extraction System
- Foreshore Sampling Transect
- Foreshore Interim Remedial Action
- Monitoring Well
- Extraction Well
- NAPL Plume Extents 2015 and 2016

GRID NORTH

N

W E

S

metres

0 20 40

AECOM

AREA 2 PERIMETER EXTRACTION SYSTEM

The 2015 and 2016 Perimeter Monitoring Program and Perimeter Extraction System
Chevron Burnaby Refinery, Burnaby, BC

CHEVRON CANADA LIMITED

DATE:	PROJECT NO.:	DRAWN BY:	REVISION NO.:	DRAWING NO.:
June 2017	60486755	TS	0	FIGURE 5

FILE NAME: H:\URS-CHEVRON\60486755. 2016 PMP\5. Deliverables\2015 and 2016 MOE PMP PES Report\Figures\05 Area 2 Perimeter Extraction System.dwg

APPENDIX A

AREAS 1 AND 3 PERIMETER MONITORING PROGRAM

APPENDIX A – AREAS 1 AND 3 PERIMETER MONITORING PROGRAM

1 SCOPE OF WORK

As noted in the cover report, AECOM completed four groundwater monitoring and sampling events for the semi-annual Perimeter Monitoring Program (PMP), two in 2015 and two in 2016.

For Areas 1 and 3, the wet season events occurred from April 1 to July 8, 2015 and March 15 to April 5, 2016. The dry season events occurred from September 1 to September 23, 2015 and September 19 to October 21, 2016. In Areas 1 and 3, 31 wells were included in the 2015 and 2016 program; however, one well (A1-3S) did not contain sufficient water for sampling during either program (Figure 2, cover report).

2 GROUNDWATER ANALYTICAL RESULTS

Groundwater monitoring data collected in Areas 1 and 3 of the Site are summarized in Table A-1. A total of 60 samples (not including duplicates) were collected from 30 wells in 2015 and 2016, and analyzed for petroleum hydrocarbons (PHCs) including light and heavy extractable petroleum hydrocarbons (LEPHw/HEPHw) and/or extractable petroleum hydrocarbons ($EPHw_{C10-C19}$/$EPHw_{C19-C32}$), volatile hydrocarbons (VHw), volatile petroleum hydrocarbons (VPHw), benzene/toluene/ethylbenzene/xylene (BTEX), and polycyclic aromatic hydrocarbons (PAHs). Of the 60 samples collected in 2015 and 2016, 29 were analyzed for PAHs each year. The reported analytical results for groundwater samples from these wells are presented in the laboratory Certificates of Analysis provided in Appendix G and summarized in Tables A-2 and A-3.

In 2015 concentrations of PHCs and PAHs in groundwater samples were below the reported detection limits (RDLs) and/or SSSLs, if available, or the CSR AW or NU standards if SSSLs were not available in 29 of the 30 wells, or 58 of the 60 samples. Groundwater from one well (U07-10S) during the both events had LEPHw and concentrations of the following PAHs: acenaphthene, anthracene, benz(a)anthracene, benzo(a)pyrene, chrysene, fluoranthene, fluorene, naphthalene, phenanthrene, and pyrene above the SSSLs or the CSR AW standards. The LEPHw and PAHs found in U07-10S were vertically and horizontally delineated and limited to a small area in the immediate vicinity of U07-10S. The downgradient concentrations of LEPHw and PAHs were below the SSSLs for 2015. Therefore, the LEPHw and PAHs in U07-10S do not represent a risk to Burrard Inlet. Groundwater quality in 26 of the 30 wells sampled (55 of 60 samples) in 2015 were either below detection and/or below the CSR AW standards. These analytical results are generally consistent with previous years. Concentrations were above the CSR AW or NU standards in five samples collected from four wells. Two of these samples were from U07-10S, which is discussed above. The remaining three samples were from three wells (A3MW02-06, A3MW03-02, and U07-10I). During the wet season, groundwater collected from A3MW02-06 and U07-10I contained concentrations of pyrene (0.44 and 0.39 micrograms per

litre [µg/L], respectively) which were slightly above the CSR AW standard (but below the SSSL). Another well (A3MW03-02) during the wet season contained groundwater above the CSR AW standard for LEPHw (but below the SSSL). Remaining PHC and PAH concentrations from groundwater in these wells were below the CSR AW, NU standards or SSSLs.

In 2016 concentrations of PHCs and PAHs in groundwater samples were below the reported detection limits (RDLs) and/or SSSLs, if available, or the CSR AW or NU standards if SSSLs were not available in 29 of the 30 wells, or 58 of the 60 samples. Groundwater from one well (U07-10S) during both events had LEPHw and concentrations of the following PAHs: acenaphthene, acridine, anthracene, benz(a)anthracene, benzo(a)pyrene, chrysene, fluoranthene, fluorene, naphthalene, phenanthrene, and/or pyrene above the SSSLs. The LEPHw and PAHs found in U07-10S were vertically and horizontally delineated and limited to a small area in the immediate vicinity of U07-10S. The downgradient concentrations of LEPHw and PAHs were below the SSSLs for 2016. Therefore, the LEPHw and PAHs in U07-10S do not represent a risk to Burrard Inlet.

Groundwater quality in 23 of the 30 wells sampled (52 of 60 samples) in 2016 were below the CSR AW standards and SSSLs. These analytical results are generally consistent with previous years. Concentrations were above the CSR AW standards in eight samples collected from seven wells. Two of these samples were from U07-10S and were also above their SSSLs and the CSR NU standards., but as noted above, do not represent a risk to Burrard Inlet. The remaining six samples were from six wells A3MW02-05, A3MW02-06, A3MW02-07, A3MW02-08, A3MW03-02, and U07-10I:

- During the both seasons, groundwater collected from A3MW03-02 contained concentrations of LEPHw (930 and 720 µg/L) slightly above the CSR AW standard, but below the SSSL.

- During the wet season, groundwater collected from A3MW02-05 contained concentrations of benzo(a)pyrene (0.26 µg/L), fluoranthene (2.52 µg/L) and pyrene (2.32 µg/L) slightly above the CSR AW standards (benzo(a)pyrene standard of 0.1 µg/L and fluoranthene standard of 2 µg/L), but below the SSSLs.

- During the dry season, groundwater collected from A3MW02-06 contained concentrations of pyrene (0.39 µg/L) above the CSR AW standard, but below the SSSL.

- During the wet season, groundwater collected from A3MW02-07, A3MW02-08, and U07-10I contained concentrations of pyrene (0.22 µg/L, 0.21 µg/L, and 0.29 µg/L, respectively) above the CSR AW standard, but below the SSSL.

3 AREA 3 AIR SPARGE SYSTEM

In 2010, a remedial air sparge (AS) system was installed in Area 3. From 2010 to 2015, the dissolved phase concentrations of benzene, toluene, ethylbenzene, xylenes, VHw and VPHw were generally reduced and by 2015 were all below the Contaminated Sites Regulation (CSR)

protection of marine aquatic life (AW) and no water use (NU) standards. In October of 2015, the AS was temporarily turned off to assess whether further active remediation in the area was required. This report presents data from two rounds of semi-annual sampling (the wet and dry season sampling events in 2016) that have been completed since the system was temporarily turned off.

Graphs of VPHw, LEPHw and benzene for four key monitoring wells from Area 3 are presented as Graphs A-1 to A-4. The graphs indicate that, in general, benzene and VPHw decreased during the system operation and are currently, generally, not detected. LEPHw also appeared to decrease during system operation in two of the four wells that were graphed (A3MW02-06 and A3MW03-04), and possibly in a third (A3MW03-03). In general, following the temporary shut down of the air sparge system, the concentrations of PHCs and PAHs in Area 3 in 2016 were similar to the concentrations from 2014 and 2015, indicating that the shut down of the air sparge system has not resulted in rebound and/or increase in the concentrations of PHC and PAHs in groundwater in Area 3. Based on the above results, the AS has been put on permanent standby.

4 QUALITY ASSURANCE/QUALITY CONTROL (QA/QC)

To ensure the integrity and reliability of the data, AECOM field staff followed pre-existing QA/QC protocols during the 2015 and 2016 PMP. These procedures have resulted in a high-quality dataset that is representative of the groundwater quality and achieves the project objectives for monitoring as described in Appendix H.

4.1 Trip Blanks

Trip blank samples were submitted with groundwater samples during the 2015 and 2016 wet and dry season sampling events and analyzed for BTEX/VPHw and VHw. Concentrations for all samples were less than the RDLs and the CSR AW and/or NU standards (Tables A-2).

4.2 Equipment Blanks

Five equipment blank samples were collected during the 2015 and 2016 sampling events to check for possible cross-contamination during sample collection. The equipment blanks were analyzed for BTEX/VPHw, VHw, LEPHw/HEPHw, $EPHw_{C10-C19}$/$EPHw_{C19-C32}$, and PAHs. Concentrations in the samples were less than the RDLs and the CSR AW and/or NU standards (Table A-2).

4.3 Precision

Relative percent differences (RPDs) are presented for duplicate samples in Tables A-2 and A-3.

RPDs were calculated for BTEX/VPHw, VHw_{C6-C10}, LEPHw/HEPHw, $EPHw_{C10-C19}$/$EPHw_{C19-C32}$, PAHs, and MTBE in instances where the concentrations were five times the reported detection limit or greater. The average and median values were calculated using the absolute RPD numbers. It should be noted that the data set is small for statistical purposes as the majority of reported concentrations were less than the RDLs. Twenty three duplicates from 14 wells

contained a total of 27 RPD calculations. The average, median, maximum, and minimum RPDs of the field duplicates are presented below:

Relative Percent Differences (RPDs) of Duplicate Analyses

Sample Type	Average RPD (%)	Median RPD (%)	Maximum RPD (%)	Minimum RPD (%)
Groundwater Samples				
Organic Parameters (LEPHw/HEPHw, EPHw, VPHw, VHw, BTEX, MTBE, and PAHs)	11.5	7	65	1

The average RPD values of organic parameters (11.5%) indicates a sufficient correlation for duplicate pairings for the entire analytical program. The maximum RPD value of 65% was calculated using the reported acenaphthene concentrations from well A3MW03-02 and its corresponding duplicate (DUP-9). The second highest RPD value of 52% was for the same duplicate and parent pair, but for fluorine. Both measured parameters were an order of magnitude below the CSR AW standards.

The MoE has provided guidance indicating that field RPDs within 1.5 times the laboratory RPDs as defined in the BC Environmental Laboratory Manual[4] are acceptable. Organics in water therefore has an acceptable field RPD of 45%. Based on this guidance and the above results, the calculated RPDs for organic parameters in groundwater are within acceptable limits; therefore, they do not add uncertainty to the findings of the monitoring program.

4.4 Accuracy

Analytical accuracy was confirmed in a review of percent recoveries reported in the laboratory reports. Percent recoveries are obtained when the project laboratory analyzes samples with known concentrations and compares their analytical results to the known concentrations. The laboratory provided percent recoveries for the majority of the organic parameter analyses. All reported laboratory control spike (LCS) sample recoveries and matrix control spike (MS) sample recoveries were within laboratory quality control (QC) limits or were outside of laboratory QC limits but associated results were not affected.

It is AECOM's opinion that the analytical results are valid with respect to accuracy.

4.5 Completeness

No samples from either sampling program were invalidated by ALS. Completeness for the 2015 and 2016 programs were therefore 100%.

[4] BC MoE, 2015. British Columbia Environmental Laboratory Manual: 2015. Victoria, BC. http://www2.gov.bc.ca/gov/content/environment/research-monitoring-reporting/monitoring/sampling-methods-quality-assurance/bc-environmental-laboratory-manual

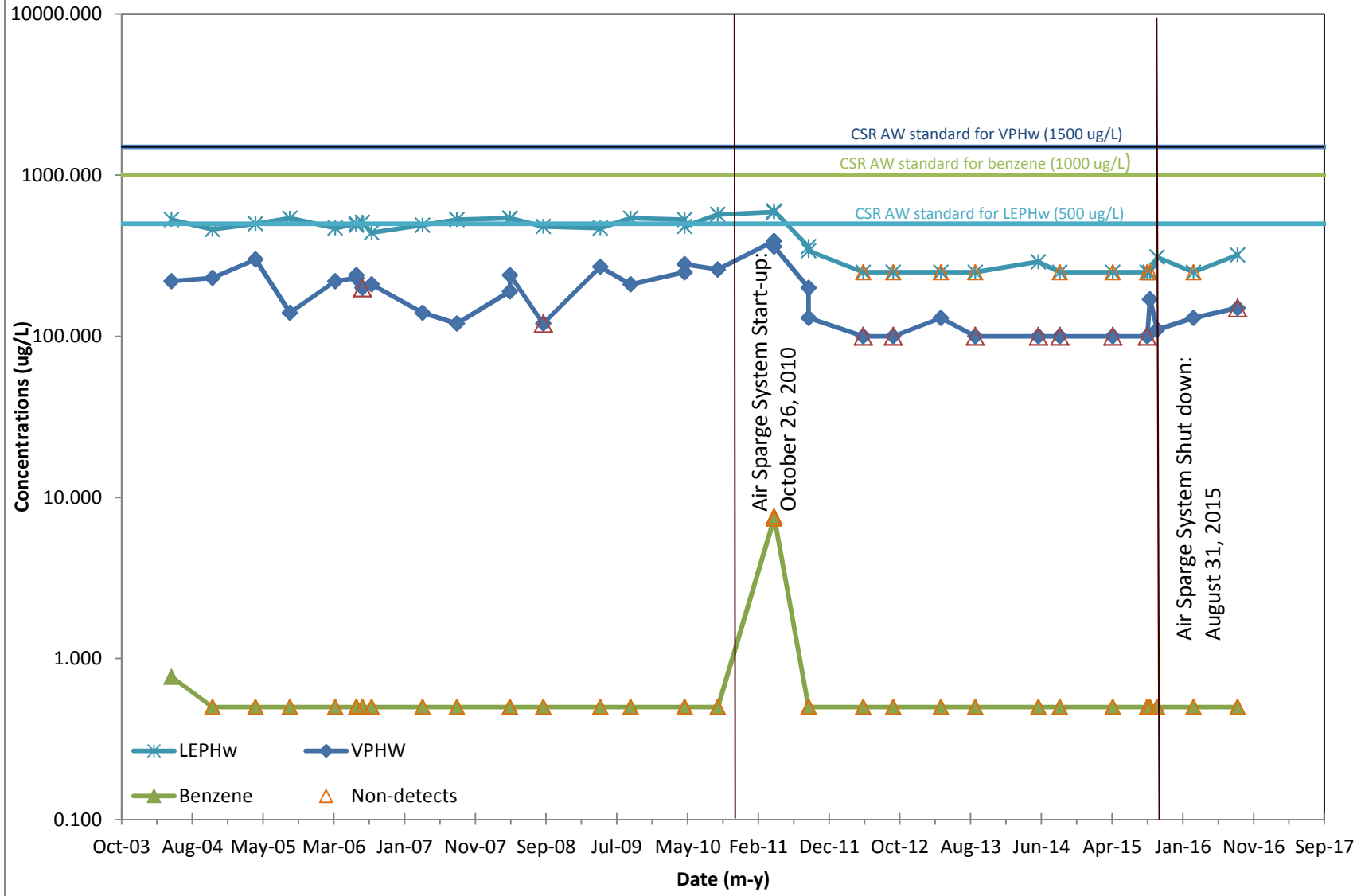
5 SUMMARY AND CONCLUSIONS

In Areas 1 and 3, concentrations of PHCs and PAHs in groundwater samples in 2015 and 2016 were below the reported detection limits (RDLs) and/or SSSLs, if available, or the CSR AW or NU standards, if SSSLs were not available in 29 of the 30 wells, or 58 of the 60 samples. One well, U07-10S, had four samples, from both the wet season and dry season sampling events for both 2015 and 2016, which had exceedances of the SSSLs. In that well concentrations of LEPHw and the following PAHs: acenaphthene, acridine, anthracene, benz(a)anthracene, beno(a)pyrene, chrysene, fluoranthene, fluorene, naphthalene, phenanthrene, and pyrene were above the SSSLs, if available, or the CSR AW or NU standards, if SSSLs were not available. Concentrations of LEPHw and the above PAHs have consistently exceeded the SSSLs and/or CSR AW standards since 2011, when the consistent sampling and analysis of LEPHw and PAHs was initiated.

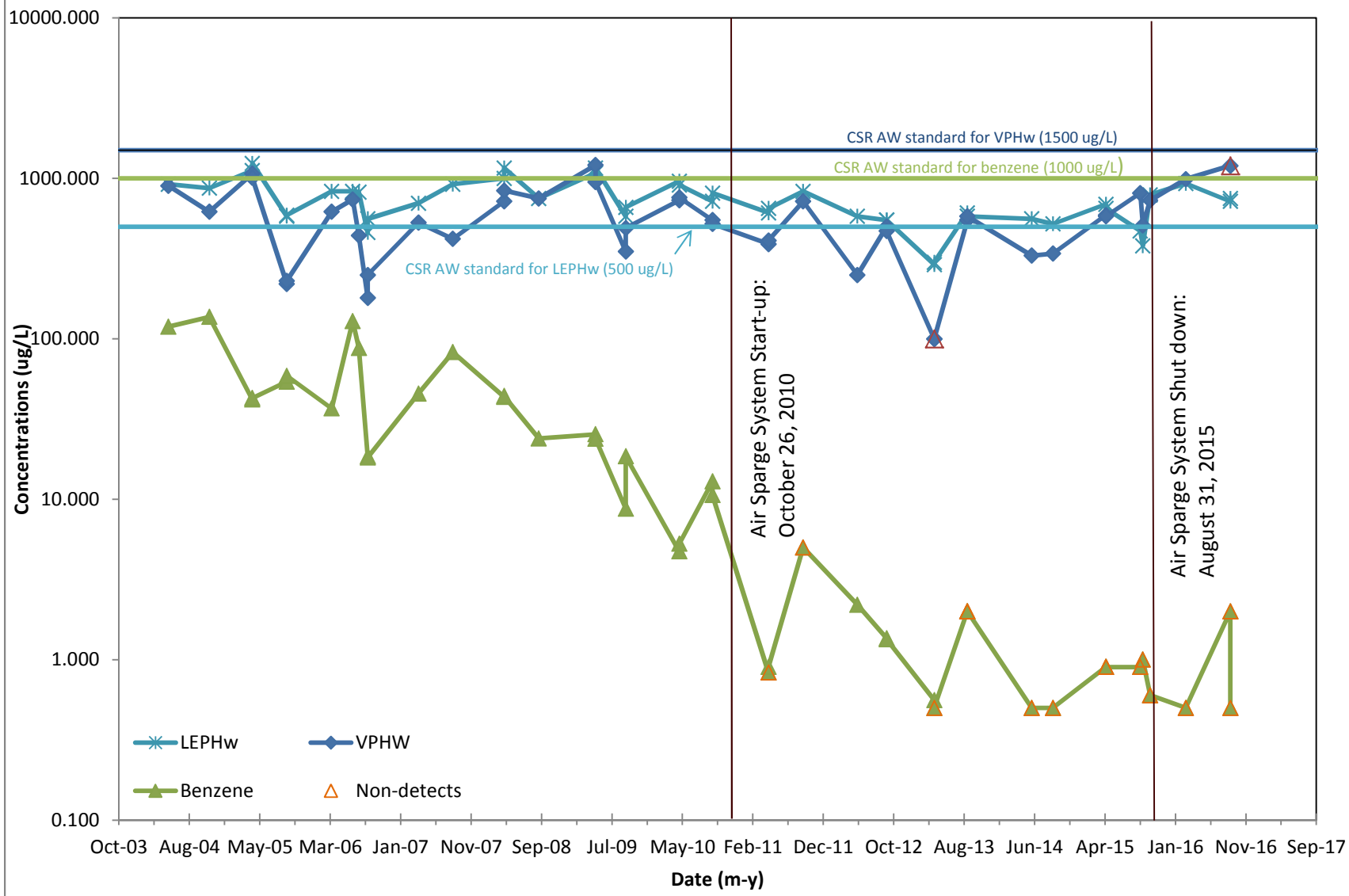
Remaining PHC and PAH concentrations in U07-10S were below the CSR AW, or NU standards, or SSSLs.

In 2010, a remedial AS system was installed in Area 3 to mitigate the concentrations of PHCs greater than the CSR AW and NU standards. In October of 2015, the AS was temporarily turned off to assess whether further active remediation in the area was required. This report presents data from two rounds of semi-annual sampling (the wet and dry season sampling events in 2016) that have been completed since the system was temporarily turned off. Following the temporary shut down of the air sparge system, the concentrations of PHCs and PAHs in Area 3 in 2016 were similar to the concentrations from 2014 and 2015, indicating that the shut down of the air sparge system has not resulted in an increase in the concentrations of PHC and PAHs in groundwater in Area 3. Therefore the AS can be put on permanent standby.

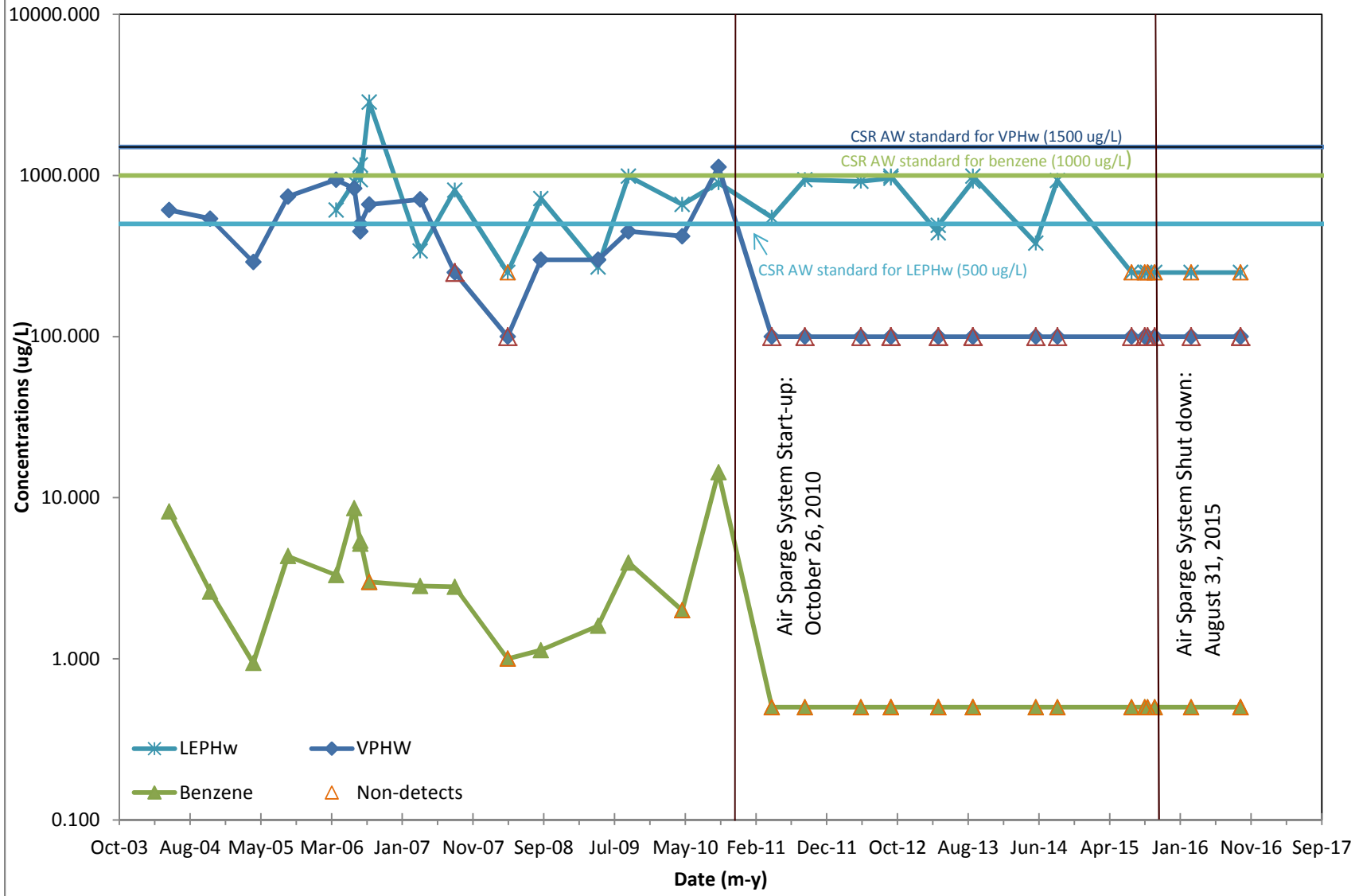
Graph A-1 Concentrations vs. Time
A3MW02-06



Graph A-2 Concentrations vs. Time
A3MW03-02



Graph A-3 Concentrations vs. Time
A3MW03-03



Graph A-4 Concentrations vs. Time
A3MW03-04

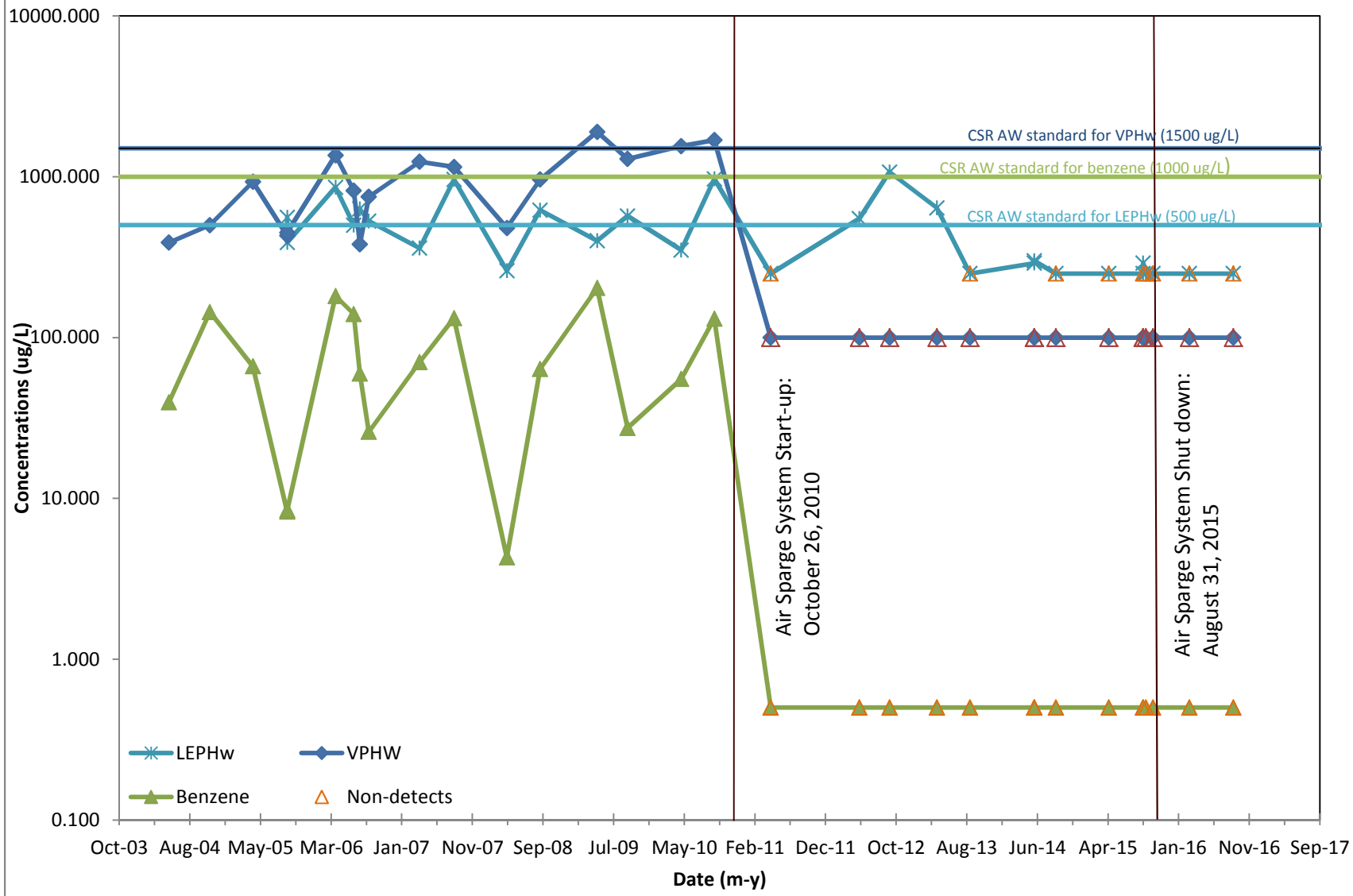


TABLE A-1
AREAS 1 AND 3 GROUNDWATER MONITORING DATA
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
CHEVRON BURNABY REFINERY
WELLS

Well ID	Sample ID	Screened Interval (mbgs)	Date Sampled	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	Salinity(ppt)	ORP	Observations
A1-12C	A1-12C	5.2-6.7	6-May-04	6.520	55.453	55.346	60	nd	na	3.460	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	3.290	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	3.680	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	3.310	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	3.740	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	3.620	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	3.620	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	3.320	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	3.600	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	3.560	51.786	0.31	5.90	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	3.410	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	3.630	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	3.670	51.676	0.32	6.10	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	3.300	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	3.480	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	3.340	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	3.630	51.716	0.5	6.41	14.43	418.	0.34	0.25	11.7	Clear
A1-12D	A1-12D	1.7-3.2	6-May-04	3.980	55.143	55.029	25	nd	na	1.600	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	1.830	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	1.110	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	1.930	53.099	nm	6.50	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	1.420	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	1.640	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	1.600	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	1.060	53.969	0.06	6.23	9.4	680.	nm	nm	nm	Clear, mini sediment
A1-12D	A1-12D	1.7-3.2	7-Sep-10	3.930	55.143	55.029	20	nd	na	1.410	53.619	0.09	6.35	17.3	732.	nm	nm	nm	Clear, OA/OC 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	1.400	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	1.210	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	1.140	53.889	0.77	6.30	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	1.300	53.729	0.49	5.90	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	1.420	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	1.000	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	1.150	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	1.030	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	1.310	53.719	0.29	6.34	15.98	428.	0.336	0.25	5.9	Clear: DUP-10
A1-12S	A1-12S	0.98-2.48	6-May-04	2.340	55.225	55.141	175	nd	na	1.570	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	6.40	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	1.110	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	0.880	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	1.100	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	2.020	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	1.360	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	1.700	53.441	0.33	5.90	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
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	1.380	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	53.850	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	1.450	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	1.130	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	1.080	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	1.260	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	1.390	53.751	1.40	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	0.920	54.221	5.13	5.67	11.10	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	1.040	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	1.040	54.101	5.80	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	1.160	53.981	2.23	5.97	16.49	313.	0.243	0.18	197.3	Clear
A1-3D	A1-3D	10.9-15.5	3-May-04	15.430	46.105	45.948	20	nd	na	8.920	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	8.010	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	7.280	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	7.830	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	7.040	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	7.940	38.008	0.25	9.26	15.8	483.	nm	nm	nm	---
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	8.250	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	8.150	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 onSept 20 b/c 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	7.910	38.038	8.6	9.20	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	8.410	37.538	5.24	8.70	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	8.610	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	8.350	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.23
A1-3D	A1-3D	10.9-15.5	13-May-15	15.120	46.105	45.948	65	nd	na	8.360	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	10.40	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	6.870	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	7.850	38.098	4.01	9.01	14.72	363.	0.294	0.22	84.4	Clear
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	3.160	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	3.000	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	3.130	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	3.470	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	2.730	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	42.870	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/Jplug 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
A3MW02-05	MW02-05	2.4-6.1	5-May-04	6.000	33.145	33.042	10450	nd	na	3.880	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	3.220	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	4.420	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	4.480	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	3.270	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	4.400	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	27.720	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	3.090	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: OA/OC 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	2.840	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	3.040	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	2.390	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	3.360	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	2.750	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	3.200	29.842	1.51	6.00	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	6.30	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	3.500	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	25	nd	na	2.690	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	3.870	29.172	0.03	6.35	16.02	335.	0.263	0.19	-49.1	Clear
A3MW02-06	MW02-06	3.4-6.4	5-May-04	6.24	33.191	33.121	10450	nd	na	3.280	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	---
A3MW02-06	MW02-06	3.4-6.4	26-Apr-05	6.200	33.191	33.121	>11000	nd	na	3.140	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	3.620	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	3.050	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	3.650	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	3.080	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	3.460	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	30.220	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	3.600	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	2.750	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	2.170	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	2.950	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	3.110	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	3.360	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	3.310	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	2.230	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	3.880	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	2.370	30.751	0.28	5.60	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	3.220	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	2.100	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	3.250	29.871	0.31	6.50	15.98	396.	0.31	0.23	-87.4	Slightly turbid

TABLE A-1
AREAS 1 AND 3 GROUNDWATER MONITORING DATA
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
CHEVRON BURNABY REFINERY
WELLS

Well ID	Sample ID	Screened Interval (mbgs)	Date Sampled	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	Salinity(ppt)	ORP	Observations
A3MW02-07	MW02-07	3.1-6.2	5-May-04	6.340	33.453	33.371	8800	nd	na	3.220	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	2.970	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	3.700	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	3.760	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	2.910	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	3.450	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	2.900	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	3.230	30.141	0.8	6.60	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	30.470	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	2.990	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	3.530	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	3.830	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	4.150	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	2.540	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	4.500	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	2.620	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	3.070	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	2.250	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	3.330	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	2.140	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	3.100	30.271	1.21	6.38	15.55	1352.	1.072	0.84	-25.6	---
A3MW02-08	MW02-08	1.5-5.5	5-May-04	5.30	33.145	33.072	6050	nd	na	2.020	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	1.680	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	2.800	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	1.590	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	2.910	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	1.600	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	2.430	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	31.210	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	2.590	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	2.210	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	1.940	31.132	1.60	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	2.620	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	1.140	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	2.730	30.342	0.81	5.70	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	1.530	31.542	0.18	6.10	13.60	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	2.280	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	1.770	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	1.190	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	1.700	31.372	0.53	6.11	16.67	559.	0.431	0.32	-88.7	Clear
A3MW03-01	MW03-01	1.5-6.1	5-May-04	6.050	32.024	31.896	nm	nd	na	3.920	27.976	nm	7.24	10.70	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	27.980	nm	6.67	13.20	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	3.900	27.996	nm	6.83	12.10	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	3.970	27.926	nm	6.79	14.60	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	3.910	27.986	5.18	6.51	11.00	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	4.300	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	4.050	27.846	0.13	6.82	9.70	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	3.900	27.996	2.05	6.78	15.90	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	8.40	12920.	nm	nm	nm	---
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	4.80	6.72	14.20	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	3.40	6.54	10.00	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	3.840	28.056	6.00	6.55	15.10	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	2.860	29.036	3.00	6.74	9.30	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	3.860	28.036	0.50	6.17	14.90	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	12.40	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	13.10	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	3.970	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	2.950	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	3.820	28.076	1.40	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	3.440	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	3.890	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	3.360	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	3.030	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	2.720	29.176	0.40	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	2.920	28.976	5.59	7.14	15.31	34071.	27.18	26.87	149.6	Clear
A3MW03-02	MW03-02	2.3-8.3	5-May-04	8.20	33.292	33.185	nm	nd	na	4.830	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	28.580	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	4.620	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	5.100	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	4.500	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	5.150	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	4.980	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	4.270	28.915	0.52	7.00	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	4.580	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	6.70	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	4.780	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	4.250	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	28.350	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	4.920	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	28.790	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	5.070	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	4.100	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	4.240	28.945	0.28	7.00	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	4.650	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	4.580	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	4.520	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	4.350	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	4.500	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	3.680	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	4.460	28.725	0.02	6.78	14.93	1231.	0.99	0.77	-70	DUP-7
A3MW03-03	MW03-03	0.8-6.9	5-May-04	6.450	32.972	32.868	nm	nd	na	4.630	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	5.550	27.318	nm	6.71	14.3	643.	nm	0	nm	---
A3MW03-03	MW03-03	0.8-6.9	26-Apr-05	6.530	32.972	32.868	>11000	nd	na	4.360	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	4.790	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	4.420	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	4.960	27.908	0.65	6.20	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	4.740	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	4.600	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	4.410	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	28.250	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	3.680	29.188	0.12	6.53	10.6	909.	nm	nm	nm	Slightly turbid with organic smell; Peristalic 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	28.350	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	5.000	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	5.140	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	4.720	28.148	5.22	7.00	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	4.630	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	4.760	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	4.560	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	4.650	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	4.610	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	4.400	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	3.950	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	4.830	28.038	0.23	6.25	14.32	390.	0.31	0.23	-52.1	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	---
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	---
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	15	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	nd	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	---

TABLE A-1
AREAS 1 AND 3 GROUNDWATER MONITORING DATA
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
CHEVRON BURNABY REFINERY
WELLS

Well ID	Sample ID	Screened Interval (mbgs)	Date Sampled	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	Salinity(ppt)	ORP	Observations
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	4.270	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	---
G1-1B	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
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
G1-1C	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	Transperent, sample a little murkey
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	30.540	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	9.900	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	9.760	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	9.930	30.475	4.91	9.27	12.04	427	0.369	0.28	-37	Turbid; DUP-8
G1-2A	G1-2A	1.8-3.4	4-May-04	3.150	34.462	34.352	75	nd	na	1.090	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	1.550	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	1.490	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	1.350	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	1.430	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	1.660	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	1.450	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	1.070	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	1.410	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	1.710	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	1.630	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	1.580	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	0.990	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	1.180	33.172	4.66	7.46	15.93	1012	0.795	0.61	150.6	---
G1-2B	G1-2B	4.6-6.1	4-May-04	6.020	34.398	34.255	450	nd	na	2.220	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	30.960	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	1.500	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	1.050	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	32.640	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	1.560	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	1.440	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	1.570	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	1.250	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	1.450	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	1.380	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	33.050	4.75	9.58	17.92	1679	nm	nm	nm	Clear; Purged dry at 10 L - sampled on sameday recharge
G1-2B	G1-2B	4.6-6.1	10-Apr-13	6.260	34.398	34.255	45	nd	na	1.350	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	32.870	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	32.890	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	1.300	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	1.270	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	1.320	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	1.160	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	1.230	33.025	1.00	8.38	16.67	890	0.597	0.45	-71.2	Clear
G1-5	G1-5	9.1-12.2	3-May-04	12.550	51.856	51.740	60	nd	na	7.680	44.060	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	7.600	44.140	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	8.200	43.540	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	6.600	45.140	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	8.180	43.560	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	6.480	45.260	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	7.950	43.790	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	6.840	44.900	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	6.560	45.180	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	7.240	44.500	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	7.350	44.390	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	6.850	44.890	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	7.240	44.500	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	6.620	45.120	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	7.390	44.350	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	6.650	45.090	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	7.180	44.560	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	6.390	45.350	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	7.060	44.680	2.95	6.75	14.89	269	0.216	0.16	46.9	Clear
G1-6	G1-6	7.9-11	3-May-04	10.740	42.28	42.179	40	nd	na	6.130	36.049	nm	8.45	11.7	383	nm	nm	nm	---
G1-6	G1-6	7.9-11	20-Oct-04	10.820	42.28	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	42.28	42.179	50	nd	na	5.370	36.809	nm	7.63	12.5	466	nm	nm	nm	---
G1-6	G1-6	7.9-11	21-Sep-05	10.735	42.28	42.179	nm	nd	na	6.280	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	42.28	42.179	55	nd	na	5.590	36.589	4.37	7.12	12.6	71	nm	nm	nm	---
G1-6	G1-6	7.9-11	30-Aug-06	10.800	42.28	42.179	10	nd	na	6.660	35.519	2.52	7.23	16.2	526	nm	nm	nm	---
G1-6	G1-6	7.9-11	4-Apr-07	10.800	42.28	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	42.28	42.179	40	nd	na	6.300	35.879	0.54	7.9	15	517	nm	nm	nm	---
G1-6	G1-6	7.9-11	3-Apr-08	10.800	42.28	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	42.28	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	42.28	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	42.28	42.179	75	nd	na	6.180	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	42.28	42.179	nd	nd	na	5.220	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	42.28	42.179	nd	nd	na	6.080	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	42.28	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	42.28	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	42.28	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	42.28	42.179	5	nd	na	6.110	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	42.28	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	42.28	42.179	35	nd	na	6.140	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	42.28	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	42.28	42.179	10	nd	na	6.040	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	42.28	42.179	70	nd	na	5.840	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	42.28	42.179	nd	nd	na	5.790	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	42.28	42.179	nd	nd	na	5.250	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	42.28	42.179	95	nd	na	5.810	36.369	0.01	7.28	13.11	478	0.402	0.3	-10	---

TABLE A-1
AREAS 1 AND 3 GROUNDWATER MONITORING DATA
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
CHEVRON BURNABY REFINERY
WELLS

Well ID	Sample ID	Screened Interval (mbgs)	Date Sampled	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	Salinity(ppt)	ORP	Observations
G1-7A	G1-7A	0.9-2.4	4-May-04	2.320	35.038	34.913	70	nd	na	0.920	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	0.940	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	1.180	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	0.930	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	1.560	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	0.910	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	1.070	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	0.960	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	Transperent, sample slightly murkey
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	Transperent, sample slightly murkey
G1-7A	G1-7A	0.9-2.4	2-Sep-10	2.650	35.038	34.913	nd	nd	na	1.710	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	1.700	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
G1-7A	G1-7A	0.9-2.4	9-Aug-12	2.710	35.038	34.913	nd	nd	na	1.640	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	1.580	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	1.970	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	1.500	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	1.800	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	1.550	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	1.630	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	1.510	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	1.650	33.263	0.51	7.41	16.06	1742	1.383	1.09	11.2	Clear
G1-7B	G1-7B	6.1-9.1	4-May-04	8.950	35.047	34.910	550	nd	na	1.220	33.690	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	1.580	33.330	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	2.020	32.890	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	1.590	33.320	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	1.690	33.220	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	2.120	32.790	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	3.160	31.750	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	2.970	31.940	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	2.970	31.940	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	3.150	31.760	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	3.180	31.730	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	3.220	31.690	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	3.060	31.850	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	3.160	31.750	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	2.870	32.040	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	2.930	31.980	0.92	8.56	12.68	380	0.323	0.24	66.4	---
G1-8	G1-8	7.0-13.1	4-May-04	13.710	34.791	34.663	770	nd	na	4.150	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	3.860	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	4.460	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	3.280	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	3.750	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	3.260	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	3.540	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	3.870	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	3.570	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	3.370	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	3.410	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	2.450	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	2.630	32.033	0.56	8.15	14.74	470	0.38	0.28	-83.5	---
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
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. Repurged 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. Repurged 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 Seacan 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 watera 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	---
NDM97-3	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	---
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
U07-10I	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	Slity
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 stong 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; Hydro carbon 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

TABLE A-1
AREAS 1 AND 3 GROUNDWATER MONITORING DATA
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
CHEVRON BURNABY REFINERY
WELLS

Well ID	Sample ID	Screened Interval (mbgs)	Date Sampled	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	Salinity (ppt)	ORP	Observations
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	175.8	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-Mar-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
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	28-Mar-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 samole: 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

Abbreviations:

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

Notes:

1 Elevations are in Chevron Datum = Geodetic Datum + 91.51 feet.

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

					LEPH w [3]	HEPHw [3]	EPH w (C10-<C19) [2, 3]	EPH w (C19-C32) [3]	VH w (C6-C10)	VPHw	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
CSR - Stage 9	Marine/Estuarine Aquatic Life Standards			(AW)	500	NS	NS	NS	NS	1500	1000	3300	2500	NS	4400.
CSR - Stage 9	No Specified Water Use Standards[1]			(NU)	NS	NS	5000	NS	15000	NS	NS	NS	NS	NS	NS
CSR - Stage 10	Marine/Estuarine Aquatic Life Standards			(AW)	500	NS	NS	NS	NS	1500	1000	2000	2500	300.	4400.
CSR - Stage 10	No Specified Water Use Standards[1]			(NU)	NS	NS	5000	NS	15000	NS	NS	NS	NS	NS	NS
	Site-Specific Screening Levels (SSSLs)				3000		5000		15000	15000	21000	7700	3200	3300.	4400.
Well ID	**Sample ID**	**Screened Interval (m bgs)**	**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.	---
A1-3D	A1-3D	10.9-15.5		20-Oct-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-3D	A1-3D	10.9-15.5		21-Apr-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-3D	A1-3D	10.9-15.5		22-Sep-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-3D	A1-3D	10.9-15.5		4-Apr-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-3D	A1-3D	10.9-15.5		31-Aug-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-3D	A1-3D	10.9-15.5		5-Apr-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-3D	A1-3D	10.9-15.5		28-Aug-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-3D	A1-3D	10.9-15.5		10-Apr-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-3D	A1-3D	10.9-15.5		26-Aug-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-3D	A1-3D	10.9-15.5		21-Apr-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-3D	A1-3D	10.9-15.5		25-Aug-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-3D	A1-3D	10.9-15.5		22-Sep-10	---	---	<250.	310.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
A1-3D	A1-3D	10.9-15.5		3-May-11	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
A1-3D	A1-3D	10.9-15.5		20-Sep-11	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
A1-3D	A1-3D	10.9-15.5		16-May-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
A1-3D	A1-3D	10.9-15.5		4-Sep-12	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
A1-3D	A1-3D	10.9-15.5		5-Sep-12	---	---	<250.	<250.	---	---	---	---	---	---	---
A1-3D	A1-3D	10.9-15.5		3-Apr-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
A1-3D	A1-3D	10.9-15.5		27-Aug-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
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	---
A1-3D	DUP-30	10.9-15.5	L1464702-4	3-Jun-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				3-Jun-14	---	---	---	---	---	---	---	---	---	---	---
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	---
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	---
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	---
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	---
A1-3D	A1-3D	10.9-15.5	L1833762-2	22-Sep-16	---	---	<250.	<250.	---	---	<0.5	<0.5	<0.5	<0.75	0.55
A1-3S	A1-3S	1.1-4.1		30-Mar-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-3S	A1-3S	1.1-4.1		20-Apr-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-3S	A1-3S	1.1-4.1		20-Sep-10	---	---	<250.	350.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
A1-3S	A1-3S	1.1-4.1		3-May-11	---	---	<250.	510.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
A1-12S	A1-12S	1.0-2.5		6-May-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-12S	A1-12S	1.0-2.5		19-Oct-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-12S	A1-12S	1.0-2.5		19-Apr-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-12S	A1-12S	1.0-2.5		15-Sep-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-12S	A1-12S	1.0-2.5		4-Apr-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-12S	A1-12S	1.0-2.5		5-Sep-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-12S	A1-12S	1.0-2.5		2-Apr-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-12S	A1-12S	1.0-2.5		28-Aug-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-12S	A1-12S	1.0-2.5		8-Apr-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-12S	A1-12S	1.0-2.5		2-Sep-08	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<1.	---
A1-12S	A1-12S	1.0-2.5		21-Apr-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-12S	A1-12S	1.0-2.5		25-Aug-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-12S	A1-12S	1.0-2.5		7-Apr-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-12S	A1-12S	1.0-2.5		7-Sep-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
A1-12S	A1-12S	1.0-2.5		26-Apr-11	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
A1-12S	A1-12S	1.0-2.5		20-Sep-11	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
A1-12S	A1-12S	1.0-2.5		18-May-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
A1-12S	A1-12S	1.0-2.5		23-Aug-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
A1-12S	A1-12S	1.0-2.5		16-Apr-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
A1-12S	A1-12S	1.0-2.5		3-Sep-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
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	---
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	---
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	---
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	---
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	---
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	---
A1-12C	A1-12C	5.2-6.7		6-May-04	<300.	<1000.	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-12C	A1-12C	5.2-6.7		19-Oct-04	300.	<1000.	300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-12C	DUP 10	5.2-6.7		19-Oct-04	370.	<1000.	370.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
QA/QC RPD				19-Oct-04	---	---	---	---	---	---	---	---	---	---	---
A1-12C	A1-12C	5.2-6.7		19-Apr-05	<300.	<1000.	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-12C	A1-12C	5.2-6.7		15-Sep-05	<300.	<1000.	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-12C	A1-12C	5.2-6.7		4-Apr-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-12C	A1-12C	5.2-6.7		5-Sep-06	---	---	310.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-12C	DUP14	5.2-6.7		5-Sep-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
QA/QC RPD				5-Sep-06	---	---	---	---	---	---	---	---	---	---	---
A1-12C	A1-12C	5.2-6.7		2-Apr-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-12C	A1-12C	5.2-6.7		28-Aug-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-12C	A1-12C	5.2-6.7		8-Apr-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-12C	A1-12C	5.2-6.7		26-Aug-08	---	---	280.	280.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-12C	A1-12C	5.2-6.7		21-Apr-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-12C	A1-12C	5.2-6.7		25-Aug-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-12C	A1-12C	5.2-6.7		7-Apr-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-12C	A1-12C	5.2-6.7		7-Sep-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
A1-12C	A1-12C	5.2-6.7		26-Apr-11	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
A1-12C	A1-12C	5.2-6.7		20-Sep-11	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
A1-12C	DUP-31	5.2-6.7		20-Sep-11	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				20-Sep-11	---	---	---	---	---	---	---	---	---	---	---
A1-12C	A1-12C	5.2-6.7		18-May-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
A1-12C	A1-12C	5.2-6.7		23-Aug-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
A1-12C	A1-12C	5.2-6.7		16-Apr-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
A1-12C	A1-12C	5.2-6.7		3-Sep-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
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	---
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	---
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	---
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	---
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	---
A1-12C	DUP-7	5.2-6.7	L1745658-4	16-Mar-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				16-Mar-16	---	---	---	---	---	---	---	---	---	---	---

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

					LEPH $_w$ [3]	HEPH$_w$ [3]	EPH $_w$ (C10-<C19) [2, 3]	EPH $_w$ (C19-C32) [3]	VH $_w$ (C6-C10)	VPH$_w$	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
CSR - Stage 9	Marine/Estuarine Aquatic Life Standards			(AW)	500	NS	NS	NS	NS	1500	1000	3300	2500	NS	4400.
CSR - Stage 9	No Specified Water Use Standards[1]			(NU)	NS	NS	5000	NS	15000	NS	NS	NS	NS	NS	NS
CSR - Stage 10	Marine/Estuarine Aquatic Life Standards			(AW)	500	NS	NS	NS	NS	1500	1000	2000	2500	300.	4400.
CSR - Stage 10	No Specified Water Use Standards[1]			(NU)	NS	NS	5000	NS	15000	NS	NS	NS	NS	NS	NS
	Site-Specific Screening Levels (SSSLs)				3000		5000		15000	15000	21000	7700	3200	3300.	4400.
Well ID	**Sample ID**	**Screened Interval (m bgs)**	**Laboratory Report #**	**Sample Date**											
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	---
A1-12D	A1-12D	1.7-3.2		6-May-04	---	---	520.	<1000.	180.	180.	<0.5	<1.	<0.5	<1.	---
A1-12D	A1-12D	1.7-3.2		19-Oct-04	---	---	630.	<1000.	160.	160.	<0.5	<1.	<0.5	<1.	---
A1-12D	A1-12D	1.7-3.2		19-Apr-05	---	---	560.	<1000.	120.	120.	<0.5	<1.	<0.5	<1.	---
A1-12D	A1-12D	1.7-3.2		15-Sep-05	400.	<1000.	400.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-12D	DUP200	1.7-3.2		15-Sep-05	390.	<1000.	390.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
QA/QC RPD				15-Sep-05	---	---	---	---	---	---	---	---	---	---	---
A1-12D	A1-12D	1.7-3.2		4-Apr-06	400.	<250.	400.	<250.	120.	120.	<0.5	<1.	<0.5	<1.	---
A1-12D	DUP13	1.7-3.2		4-Apr-06	490.	<250.	490.	<250.	110.	110.	<0.5	<1.	<0.5	<1.	---
QA/QC RPD				4-Apr-06	---	---	---	---	---	---	---	---	---	---	---
A1-12D	A1-12D	1.7-3.2		5-Sep-06	480.	<250.	480.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-12D	DUP15	1.7-3.2		5-Sep-06	460.	<250.	460.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
QA/QC RPD				5-Sep-06	---	---	---	---	---	---	---	---	---	---	---
A1-12D	A1-12D	1.7-3.2		2-Apr-07	**540.**	<250.	540.	<250.	120.	120.	<0.5	<1.	<0.5	<1.	---
A1-12D	A1-12D	1.7-3.2		28-Aug-07	350.	<250.	350.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-12D	A1-12D	1.7-3.2		8-Apr-08	**550.**	<250.	550.	<250.	110.	110.	<0.5	<1.	<0.5	<1.	---
A1-12D	A1-12D	1.7-3.2		28-Aug-08	**510.**	<250.	510.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-12D	A1-12D	1.7-3.2		21-Apr-09	450.	<250.	450.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-12D	A1-12DX	1.7-3.2		21-Apr-09	440.	<250.	440.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
QA/QC RPD				21-Apr-09	---	---	---	---	---	---	---	---	---	---	---
A1-12D	A1-12D	1.7-3.2		25-Aug-09	---	---	470.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-12D	A1-12DX	1.7-3.2		25-Aug-09	---	---	480.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
QA/QC RPD				25-Aug-09	---	---	---	---	---	---	---	---	---	---	---
A1-12D	A1-12D	1.7-3.2		7-Apr-10	---	---	470.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A1-12D	A1-12DX	1.7-3.2		7-Apr-10	---	---	450.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
QA/QC RPD				7-Apr-10	---	---	---	---	---	---	---	---	---	---	---
A1-12D	A1-12D	1.7-3.2		7-Sep-10	---	---	480.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
A1-12D	DUP-5	1.7-3.2		7-Sep-10	---	---	400.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
QA/QC RPD				7-Sep-10	---	---	---	---	---	---	---	---	---	---	---
A1-12D	A1-12D	1.7-3.2		26-Apr-11	---	---	380.	<250.	110.	110.	<0.5	<1.	<0.5	<0.71	---
A1-12D	DUP-19	1.7-3.2		26-Apr-11	---	---	350.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
QA/QC RPD				26-Apr-11	---	---	---	---	---	---	---	---	---	---	---
A1-12D	A1-12D	1.7-3.2		20-Sep-11	---	---	340.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
A1-12D	A1-12D	1.7-3.2		18-May-12	---	---	380.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
A1-12D	A1-12D	1.7-3.2		23-Aug-12	---	---	330.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
A1-12D	DUP-18	1.7-3.2		23-Aug-12	---	---	340.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				23-Aug-12	---	---	---	---	---	---	---	---	---	---	---
A1-12D	A1-12D	1.7-3.2		16-Apr-13	---	---	280.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
A1-12D	DUP-24	1.7-3.2		16-Apr-13	---	---	350.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				16-Apr-13	---	---	---	---	---	---	---	---	---	---	---
A1-12D	A1-12D	1.7-3.2		3-Sep-13	---	---	310.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
A1-12D	DUP-21	1.7-3.2		3-Sep-13	---	---	280.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				3-Sep-13	---	---	---	---	---	---	---	---	---	---	---
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	---
A1-12D	DUP-24	1.7-3.2	L1459753-4	23-May-14	---	---	430.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				23-May-14	---	---	---	---	---	---	---	---	---	---	---
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	---
A1-12D	DUP-20	1.7-3.2	L1511474-4	2-Sep-14	---	---	300.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				2-Sep-14	---	---	---	---	---	---	---	---	---	---	---
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	---
A1-12D	DUP-6	1.7-3.2	L1594270-4	1-Apr-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				1-Apr-15	---	---	---	---	---	---	---	---	---	---	---
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	---
A1-12D	DUP-10	1.7-3.2	L1666479-4	1-Sep-15	---	---	280.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				1-Sep-15	---	---	---	---	---	---	---	---	---	---	---
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	---
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	---
A1-12D	DUP-10	1.7-3.2	L1838680-4	4-Oct-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				4-Oct-16	---	---	---	---	---	---	---	---	---	---	---
A3MW02-05	MW02-05	2.4-6.1		5-May-04	<300.	<1000.	<300.	<1000.	<100.	<100.	0.73	<1.	0.72	<1.	---
A3MW02-05	MW02-05	2.4-6.1		25-Oct-04	330.	<1000.	420.	<1000.	<100.	<100.	4.85	<1.	1.99	2.5	---
A3MW02-05	MW02-05	2.4-6.1		26-Apr-05	<300.	<1000.	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A3MW02-05	MW02-05	2.4-6.1		20-Sep-05	**620.**	<1000.	790.	<1000.	<100.	<100.	14.2	<1.	2.52	3.4	---
A3MW02-05	A3 MW02-05	2.4-6.1		30-Mar-06	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A3MW02-05	A3 MW02-05	2.4-6.1		28-Jun-06	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
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	---
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	---
A3MW02-05	MW02-05	2.4-6.1		4-Apr-07	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A3MW02-05	MW02-05X	2.4-6.1		4-Apr-07	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
QA/QC RPD				4-Apr-07	---	---	---	---	---	---	---	---	---	---	---
A3MW02-05	MW02-05	2.4-6.1		28-Aug-07	**510.**	560.	540.	560.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A3MW02-05	A3 MW02-05	2.4-6.1		9-Apr-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A3MW02-05	A3 MW02-05	2.4-6.1		28-Aug-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A3MW02-05	A3 MW02-05	2.4-6.1		4-Sep-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A3MW02-05	A3 MW02-05	2.4-6.1		27-Apr-09	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A3MW02-05	A3 MW02-05	2.4-6.1		3-Sep-09	320.	<250.	350.	<250.	<100.	<100.	0.51	<1.	<0.5	<1.	---
A3MW02-05	A3 MW02-05	2.4-6.1		19-Apr-10	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
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	---
A3MW02-05	DUP-15	2.4-6.1		20-Sep-10	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
QA/QC RPD				20-Sep-10	---	---	---	---	---	---	---	---	---	---	---
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	---
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	---
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	---
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	---
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	---
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	---
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	---
A3MW02-05	DUP-29	2.4-6.1	L1461846-6	28-May-14	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				28-May-14	---	---	---	---	---	---	---	---	---	---	---
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	---
A3MW02-05	DUP-19	2.4-6.1	L1509397-7	27-Aug-14	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				27-Aug-14	---	---	---	---	---	---	---	---	---	---	---

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

					LEPH w [3]	HEPHw [3]	EPH w (C10-<C19) [2, 3]	EPH w (C19-C32) [3]	VH w (C6-C10)	VPHw	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
CSR - Stage 9	Marine/Estuarine Aquatic Life Standards			(AW)	500	NS	NS	NS	NS	1500	1000	3300	2500	NS	4400.
CSR - Stage 9	No Specified Water Use Standards[1]			(NU)	NS	NS	5000	NS	15000	NS	NS	NS	NS	NS	NS
CSR - Stage 10	Marine/Estuarine Aquatic Life Standards			(AW)	500	NS	NS	NS	NS	1500	1000	2000	2500	300.	4400.
CSR - Stage 10	No Specified Water Use Standards[1]			(NU)	NS	NS	5000	NS	15000	NS	NS	NS	NS	NS	NS
	Site-Specific Screening Levels (SSSLs)				3000		5000		15000	15000	21000	7700	3200	3300.	4400.
Well ID	**Sample ID**	**Screened Interval (m bgs)**	**Laboratory Report #**	**Sample Date**											
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	---
A3MW02-05	DUP-8	2.4-6.1	L1597132-3	9-Apr-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				9-Apr-15	---	---	---	---	---	---	---	---	---	---	---
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	---
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	---
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	<0.5
A3MW02-06	MW02-06	3.4-6.4		5-May-04	**530.**	<1000.	540.	<1000.	220.	220.	0.77	<1.	<0.5	1.8	---
A3MW02-06	MW02-06	3.4-6.4		25-Oct-04	460.	<1000.	460.	<1000.	230.	230.	<0.5	<1.	<0.5	2.	---
A3MW02-06	MW02-06	3.4-6.4		26-Apr-05	500.	<1000.	500.	<1000.	300.	300.	<0.5	<1.	<0.5	3.8	---
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	---
A3MW02-06	A3 MW02-06	3.4-6.4		30-Mar-06	470.	<250.	460.	<250.	230.	220.	<0.5	<1.	<0.5	<2.	---
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	---
A3MW02-06	DUP1	3.4-6.4		28-Jun-06	490.	<250.	500.	<250.	240.	240.	<0.5	<1.	<0.5	1.7	---
QA/QC RPD				28-Jun-06	---	---	---	---	---	---	---	---	---	---	---
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	---
A3MW02-06	MW02-06	3.4-6.4		4-Apr-07	490.	<250.	490.	<250.	140.	140.	<0.5	<2.	<0.5	2.5	---
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	---
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	---
A3MW02-06	A3 MW02-06X	3.4-6.4		9-Apr-08	**540.**	<250.	550.	<250.	240.	240.	<0.5	<1.	<0.5	<2.5	---
QA/QC RPD				9-Apr-08	---	---	---	---	---	---	---	---	---	---	---
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	---
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	---
A3MW02-06	A3 MW02-06	3.4-6.4		3-Sep-09	**540.**	<250.	550.	<250.	210.	210.	<0.5	<1.	<0.5	1.	---
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	---
A3MW02-06	A3 MW02-06X	3.4-6.4		19-Apr-10	480.	<250.	480.	<250.	280.	280.	<0.5	<1.	<0.5	2.6	---
QA/QC RPD				19-Apr-10	---	---	---	---	---	---	---	---	---	---	---
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	---
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	---
A3MW02-06	DUP-25	3.4-6.4		4-May-11	**600.**	<250.	630.	<250.	370.	360.	<7.6	<1.	7.33	3.63	---
QA/QC RPD				4-May-11	---	---	---	---	---	---	---	---	5.5%	---	---
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	---
A3MW02-06	DUP-36	3.4-6.4		27-Sep-11	340.	<250.	350.	<250.	130.	130.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				27-Sep-11	---	---	---	---	---	---	---	---	---	---	---
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	---
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	---
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	---
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	---
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	---
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	---
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	---
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	---
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	---
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	2.06
A3MW02-07	MW02-07	3.1-6.2		5-May-04	---	---	<300.	<1000.	<100.	<100.	0.69	<1.	<0.5	<1.	---
A3MW02-07	MW02-07X	3.1-6.2		5-May-04	---	---	<300.	<1000.	<100.	<100.	0.66	<1.	<0.5	<1.	---
QA/QC RPD				5-May-04	---	---	---	---	---	---	---	---	---	---	---
A3MW02-07	MW02-07	3.1-6.2		25-Oct-04	---	---	390.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A3MW02-07	MW02-07	3.1-6.2		26-Apr-05	---	---	450.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A3MW02-07	A3-MW02-07	3.1-6.2		19-Sep-05	<300.	<1000.	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A3MW02-07	A3 MW02-07	3.1-6.2		30-Mar-06	280.	<250.	350.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A3MW02-07	A3 MW02-07	3.1-6.2		31-Aug-06	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A3MW02-07	A3 MW02-07	3.1-6.2		4-Apr-07	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A3MW02-07	A3 MW02-07	3.1-6.2		28-Aug-07	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A3MW02-07	A3 MW02-07	3.1-6.2		9-Apr-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A3MW02-07	A3 MW02-07	3.1-6.2		28-Aug-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A3MW02-07	A3 MW02-07	3.1-6.2		27-Apr-09	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A3MW02-07	A3 MW02-07	3.1-6.2		3-Sep-09	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A3MW02-07	A3 MW02-07	3.1-6.2		19-Apr-10	340.	<250.	440.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
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	---
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	---
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	---
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	---
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	---
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	---
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	---
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	---
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	---
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	---
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	---
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	<0.5
A3MW02-08	MW02-08	1.5-5.5		4-May-04	---	---	<300.	<1000.	<100.	<100.	2.76	<1.	1.33	<1.	---
A3MW02-08	MW02-08	1.5-5.5		25-Oct-04	---	---	<300.	<1000.	<100.	<100.	0.64	<1.	<0.5	<1.	---
A3MW02-08	MW02-08	1.5-5.5		26-Apr-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A3MW02-08	MW02-08	1.5-5.5		19-Sep-05	<300.	<1000.	<300.	<1000.	<100.	<100.	0.51	<1.	<0.5	2.9	---
A3MW02-08	A3 MW02-08	1.5-5.5		30-Mar-06	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
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	---
A3MW02-08	A3 MW02-08	1.5-5.5		4-Apr-07	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
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	---
A3MW02-08	A3 MW02-08	1.5-5.5		9-Apr-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A3MW02-08	A3 MW02-08	1.5-5.5		28-Aug-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A3MW02-08	A3 MW02-08	1.5-5.5		27-Apr-09	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A3MW02-08	A3 MW02-08	1.5-5.5		3-Sep-09	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	0.87	<1.	---
A3MW02-08	A3 MW02-08	1.5-5.5		19-Apr-10	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
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	---
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	---
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	---
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	---
A3MW02-08	A3MW02-08	1.5-5.5		10-Apr-13	<250.	270.	<250.	270.	<100.	200.	<0.5	8.58	31.4	133.	---
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	---
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	---
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	---

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

					LEPH w [3]	HEPHw [3]	EPH w (C10-<C19) [2, 3]	EPH w (C19-C32) [3]	VH w (C6-C10)	VPHw	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
CSR - Stage 9	Marine/Estuarine Aquatic Life Standards			(AW)	500	NS	NS	NS	NS	1500	1000	3300	2500	NS	4400.
CSR - Stage 9	No Specified Water Use Standards[1]			(NU)	NS	NS	5000	NS	15000	NS	NS	NS	NS	NS	NS
CSR - Stage 10	Marine/Estuarine Aquatic Life Standards			(AW)	500	NS	NS	NS	NS	1500	1000	2000	2500	300.	4400.
CSR - Stage 10	No Specified Water Use Standards[1]			(NU)	NS	NS	5000	NS	15000	NS	NS	NS	NS	NS	NS
	Site-Specific Screening Levels (SSSLs)				3000		5000		15000	15000	21000	7700	3200	3300.	4400.
Well ID	**Sample ID**	**Screened Interval (m bgs)**	**Laboratory Report #**	**Sample Date**											
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	---
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	---
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	---
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	<0.5
A3MW03-01	MW03-01	1.5-6.1		4-May-04	---	---	<300.	<1000.	<100.	<100.	4.52	<1.	0.99	<1.	---
A3MW03-01	MW03-01	1.5-6.1		25-Oct-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A3MW03-01	MW03-01	1.5-6.1		26-Apr-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A3MW03-01	A3-MW03-01	1.5-6.1		20-Sep-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A3MW03-01	A3 MW03-01	1.5-6.1		30-Mar-06	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A3MW03-01	A3 MW03-01	1.5-6.1		31-Aug-06	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A3MW03-01	A3 MW03-01	1.5-6.1		4-Apr-07	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A3MW03-01	A3 MW03-01	1.5-6.1		28-Aug-07	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A3MW03-01	A3 MW03-01	1.5-6.1		3-Apr-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A3MW03-01	A3 MW03-01	1.5-6.1		28-Aug-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A3MW03-01	A3 MW03-01	1.5-6.1		27-Apr-09	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A3MW03-01	A3 MW03-01	1.5-6.1		3-Sep-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A3MW03-01	A3 MW03-01	1.5-6.1		19-Apr-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
A3MW03-01	A3 MW03-01	1.5-6.1		7-Sep-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
A3MW03-01	A3 MW03-01	1.5-6.1		4-May-11	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
A3MW03-01	A3 MW03-01	1.5-6.1		28-Sep-11	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
A3MW03-01	A3 MW03-01	1.5-6.1		16-May-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
A3MW03-01	A3MW03-01	1.5-6.1		18-Sep-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
A3MW03-01	A3MW03-01	1.5-6.1		9-Apr-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
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	---
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	---
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	---
A3MW03-01	DUP-18	1.5-6.1	L1509407-8	27-Aug-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				27-Aug-14	---	---	---	---	---	---	---	---	---	---	---
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	---
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	---
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	---
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	<0.5
A3MW03-02	MW03-02	2.3-8.3		4-May-04	**920.**	<1000.	930.	<1000.	1020.	900.	119.	<2.	1.9	<2.	---
A3MW03-02	MW03-02	2.3-8.3		25-Oct-04	**870.**	<1000.	870.	<1000.	770.	620.	137.	1.4	2.18	3.6	---
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	---
A3MW03-02	Dup 106	2.3-8.3		26-Apr-05	**1240.**	<1000.	1260.	<1000.	1070.	1010.	42.7	2.2	9.39	3.4	---
QA/QC RPD				26-Apr-05	---	---	---	---	4.6%	5.8%	2.1%	---	1.1%	---	---
A3MW03-02	A3-MW03-02	2.3-8.3		20-Sep-05	**580.**	<1000.	580.	<1000.	270.	220.	54.	<1.	0.76	<1.	---
A3MW03-02	DUP205	2.3-8.3		20-Sep-05	**590.**	<1000.	590.	<1000.	280.	230.	58.8	<1.	0.83	<1.	---
QA/QC RPD				20-Sep-05	---	---	---	---	---	---	8.5%	---	---	---	---
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	---
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	---
A3MW03-02	DUP11	2.3-8.3		31-Aug-06	**560.**	<250.	560.	<250.	270.	250.	18.2	<1.	<0.5	<1.	---
QA/QC RPD				31-Aug-06	---	---	---	---	---	---	1.6%	---	---	---	---
A3MW03-02	MW03-02	2.3-8.3		4-Apr-07	**700.**	<250.	700.	<250.	580.	530.	45.5	<2.	2.64	2.3	---
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	---
A3MW03-02	MW03-02	2.3-8.3		3-Apr-08	**1000.**	<250.	1000.	<250.	770.	720.	43.4	<2.	<1.	<7.	---
A3MW03-02	MW03-02X	2.3-8.3		3-Apr-08	**1160.**	<250.	1170.	<250.	890.	840.	44.	<3.	<2.	6.2	---
QA/QC RPD				3-Apr-08	---	---	---	---	14.5%	15.4%	1.4%	---	---	---	---
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	---
A3MW03-02	MW03-02	2.3-8.3		27-Apr-09	**1080.**	<250.	1090.	<250.	1240.	1210.	25.4	<2.	1.	7.6	---
A3MW03-02	MW03-02X	2.3-8.3		27-Apr-09	**1160.**	<250.	1170.	<250.	980.	950.	23.8	<2.	<1.	6.7	---
QA/QC RPD				27-Apr-09	---	---	---	---	23.4%	24.1%	6.5%	---	---	12.6%	---
A3MW03-02	MW03-02	2.3-8.3		3-Sep-09	**580.**	<250.	580.	<250.	360.	350.	8.73	<1.	<0.5	<1.	---
A3MW03-02	MW03-02X	2.3-8.3		3-Sep-09	**660.**	<250.	670.	<250.	500.	490.	18.5	<1.	<0.5	<1.	---
QA/QC RPD				3-Sep-09	---	---	---	---	---	---	71.8%	---	---	---	---
A3MW03-02	MW03-02	2.3-8.3		19-Apr-10	**960.**	<250.	960.	<250.	740.	730.	4.73	<1.	<0.5	4.8	---
A3MW03-02	MW03-02X	2.3-8.3		19-Apr-10	**910.**	<250.	920.	<250.	770.	760.	5.27	<1.	0.59	6.1	---
QA/QC RPD				19-Apr-10	---	---	---	---	4.0%	4.0%	10.8%	---	---	---	---
A3MW03-02	MW03-02	2.3-8.3		7-Sep-10	**720.**	<250.	720.	<250.	530.	550.	12.9	<1.	<0.5	0.72	---
A3MW03-02	DUP-4	2.3-8.3		7-Sep-10	**810.**	<250.	810.	<250.	510.	520.	10.6	<1.	<0.5	<0.71	---
QA/QC RPD				7-Sep-10	---	---	---	---	3.8%	5.6%	19.6%	---	---	---	---
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	---
A3MW03-02	DUP-26	2.3-8.3		4-May-11	**650.**	<250.	650.	<250.	410.	410.	0.9	<1.	<0.5	0.79	---
QA/QC RPD				4-May-11	---	---	---	---	---	---	---	---	---	---	---
A3MW03-02	MW03-02	2.3-8.3		28-Sep-11	**830.**	<250.	830.	<250.	720.	720.	<5.	0.98	<0.5	1.81	---
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	---
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	---
A3MW03-02	DUP24	2.3-8.3		18-Sep-12	**550.**	<250.	550.	<250.	470.	470.	1.34	0.51	<0.5	<0.75	---
QA/QC RPD				18-Sep-12	---	---	---	---	---	---	---	---	---	---	---
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	---
A3MW03-02	DUP-18	2.3-8.3		9-Apr-13	300.	<250.	300.	<250.	100.	100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				9-Apr-13	---	---	---	---	---	---	---	---	---	---	---
A3MW03-02	A3MW03-02	2.3-8.3		28-Aug-13	**610.**	<250.	610.	<250.	550.	550.	<2.	0.87	<0.5	1.3	---
A3MW03-02	DUP-19	2.3-8.3		28-Aug-13	**580.**	<250.	580.	<250.	580.	580.	<2.	0.9	<0.5	1.38	---
QA/QC RPD				28-Aug-13	---	---	---	---	5.3%	5.3%	---	---	---	---	---
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	---
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	---
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	---
A3MW03-02	DUP-9	2.3-8.3	L1597689-3	10-Apr-15	**650.**	<250.	660.	<250.	580.	580.	<0.9	1.42	<0.5	3.78	---
QA/QC RPD				10-Apr-15	---	---	---	---	1.7%	1.7%	---	---	---	---	---
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	---
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	---
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	226.
A3MW03-02	DUP-7	2.3-8.3	L1832800-4	21-Sep-16	**750.**	<250.	760.	<250.	---	---	<0.5	<0.5	<0.5	<0.75	<0.5
QA/QC RPD				21-Sep-16	---	---	---	---	---	---	---	---	---	---	---
A3MW03-03	MW03-03	0.8-6.9		4-May-04	---	---	1290.	<1000.	710.	610.	8.2	<5.	82.5	10.1	---
A3MW03-03	MW03-03	0.8-6.9		25-Oct-04	---	---	820.	<1000.	590.	540.	2.61	<1.	42.1	9.4	---
A3MW03-03	MW03-03	0.8-6.9		26-Apr-05	---	---	490.	<1000.	330.	290.	0.94	<1.	41.2	1.7	---
A3MW03-03	A3-MW03-03	0.8-6.9		20-Sep-05	---	---	1290.	<1000.	920.	740.	4.34	<1.	164.	9.6	---
A3MW03-03	A3 MW03-03	0.8-6.9		12-Apr-06	**610.**	340.	620.	340.	960.	940.	3.31	<1.	11.3	<1.	---

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

					LEPH w [3]	HEPHw [3]	EPH w (C10-<C19) [2, 3]	EPH w (C19-C32) [3]	VH w (C6-C10)	VPHw	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
CSR - Stage 9	Marine/Estuarine Aquatic Life Standards			(AW)	500	NS	NS	NS	NS	1500	1000	3300	2500	NS	4400.
CSR - Stage 9	No Specified Water Use Standards[1]			(NU)	NS	NS	5000	NS	15000	NS	NS	NS	NS	NS	NS
CSR - Stage 10	Marine/Estuarine Aquatic Life Standards			(AW)	500	NS	NS	NS	NS	1500	1000	2000	2500	300.	4400.
CSR - Stage 10	No Specified Water Use Standards[1]			(NU)	NS	NS	5000	NS	15000	NS	NS	NS	NS	NS	NS
	Site-Specific Screening Levels (SSSLs)				3000		5000		15000	15000	21000	7700	3200	3300.	4400.
Well ID	**Sample ID**	**Screened Interval (m bgs)**	**Laboratory Report #**	**Sample Date**											
A3MW03-03	A3 MW03-03	0.8-6.9		31-Aug-06	**2860.**	2050.	2870.	2060.	730.	660.	<3.	<5.	74.	<7.	---
A3MW03-03	A3 MW03-03	0.8-6.9		4-Apr-07	340.	260.	340.	260.	720.	710.	2.83	<1.	2.86	<1.	---
A3MW03-03	A3 MW03-03	0.8-6.9		28-Aug-07	**810.**	300.	810.	300.	<250.	<250.	2.8	<5.	42.3	<5.	---
A3MW03-03	A3 MW03-03	0.8-6.9		9-Apr-08	<250.	<250.	<250.	<250.	<100.	<100.	<1.	<1.	<0.5	<1.	---
A3MW03-03	A3 MW03-03	0.8-6.9		28-Aug-08	**720.**	260.	730.	260.	310.	300.	1.13	<1.	10.4	<1.	---
A3MW03-03	A3 MW03-03	0.8-6.9		27-Apr-09	270.	<250.	270.	<250.	300.	300.	1.6	<1.	<0.5	<1.	---
A3MW03-03	A3 MW03-03	0.8-6.9		3-Sep-09	**990.**	400.	990.	400.	460.	450.	3.95	<1.	5.28	<1.	---
A3MW03-03	A3 MW03-03	0.8-6.9		19-Apr-10	**660.**	610.	660.	610.	420.	420.	<2.	<1.	<0.5	<1.	---
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	---
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	---
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	---
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	---
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	---
A3MW03-03	DUP25	0.8-6.9		20-Sep-12	**990.**	470.	990.	470.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				20-Sep-12	---	---	---	---	---	---	---	---	---	---	---
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	---
A3MW03-03	DUP-19	0.8-6.9		9-Apr-13	490.	340.	490.	340.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				9-Apr-13	---	---	---	---	---	---	---	---	---	---	---
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	---
A3MW03-03	DUP-20	0.8-6.9		3-Sep-13	**990.**	480.	990.	480.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				3-Sep-13	---	---	---	---	---	---	---	---	---	---	---
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	---
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	---
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	---
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	---
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	---
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	---
A3MW03-04	MW03-04	1.5-6.7		4-May-04	---	---	830.	<1000.	540.	390.	39.6	1.3	58.8	47.	---
A3MW03-04	MW03-04	1.5-6.7		25-Oct-04	---	---	1060.	<1000.	860.	500.	144.	5.3	69.3	141.	---
A3MW03-04	MW03-04	1.5-6.7		26-Apr-05	---	---	600.	<1000.	1080.	930.	66.2	2.3	28.7	55.3	---
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	---
A3MW03-04	DUP202	1.5-6.7		19-Sep-05	390.	<1000.	400.	<1000.	500.	450.	8.45	<1.	40.2	7.2	---
QA/QC RPD				19-Sep-05	---	---	---	---	---	---	2.3%	---	1.0%	5.7%	---
A3MW03-04	MW03-04	1.5-6.7		12-Apr-06	**860.**	<250.	870.	<250.	1640.	1360.	181.	4.5	22.3	78.4	---
A3MW03-04	MW03-04	1.5-6.7		31-Aug-06	**530.**	<250.	540.	<250.	800.	750.	25.9	<2.	12.9	6.6	---
A3MW03-04	MW03-04	1.5-6.7		4-Apr-07	360.	<250.	370.	<250.	1350.	1240.	70.3	2.2	15.	21.1	---
A3MW03-04	MW03-04	1.5-6.7		28-Aug-07	**960.**	<250.	960.	<250.	1390.	1150.	132.	10.5	13.7	85.6	---
A3MW03-04	MW03-04	1.5-6.7		9-Apr-08	260.	<250.	260.	<250.	490.	480.	4.3	<1.	1.45	1.6	---
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	---
A3MW03-04	MW03-04	1.5-6.7		27-Apr-09	400.	<250.	410.	<250.	2300.	**1900.**	203.	8.3	77.4	117.	---
A3MW03-04	MW03-04	1.5-6.7		3-Sep-09	**570.**	<250.	570.	<250.	1340.	1290.	27.4	<3.	2.4	12.3	---
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	---
A3MW03-04	MW03-04	1.5-6.7		7-Sep-10	**970.**	<250.	970.	<250.	1420.	**1690.**	131.	8.1	76.7	53.1	---
A3MW03-04	MW03-04	1.5-6.7		4-May-11	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
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	---
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	---
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	---
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	---
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	---
A3MW03-04	DUP-28	1.5-6.7	L1461850-5	28-May-14	300.	<250.	300.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				28-May-14	---	---	---	---	---	---	---	---	---	---	---
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	---
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	---
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	---
A3MW03-04	DUP-12	1.5-6.7	L1667287-6	2-Sep-15	290.	<250.	290.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				2-Sep-15	---	---	---	---	---	---	---	---	---	---	---
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	---
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	4.78
G1-1A	G1-1A	3.1-6.1		3-May-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-1A	G1-1AX	3.1-6.1		3-May-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
QA/QC RPD				3-May-04	---	---	---	---	---	---	---	---	---	---	---
G1-1A	G1-1A	3.1-6.1		20-Oct-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-1A	DUP12	3.1-6.1		20-Oct-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
QA/QC RPD				20-Oct-04	---	---	---	---	---	---	---	---	---	---	---
G1-1A	G1-1A	3.1-6.1		20-Apr-05	<300.	<1000.	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-1A	Dup 104	3.1-6.1		20-Apr-05	<300.	<1000.	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
QA/QC RPD				20-Apr-05	---	---	---	---	---	---	---	---	---	---	---
G1-1A	A1-G1-1A	3.1-6.1		22-Sep-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<0.5	<1.	<1.	---
G1-1A	G1-1A	3.1-6.1		30-Mar-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-1A	G1-1A	3.1-6.1		5-Apr-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-1A	G1-1AX	3.1-6.1		5-Apr-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
QA/QC RPD				5-Apr-07	---	---	---	---	---	---	---	---	---	---	---
G1-1A	G1-1A	3.1-6.1		30-Aug-07	---	---	<250.	320.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-1A	G1-1A	3.1-6.1		3-Apr-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-1A	G1-1A	3.1-6.1		26-Aug-08	---	---	370.	1740.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-1A	G1-1A	3.1-6.1		21-Apr-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-1A	G1-1A	3.1-6.1		5-May-09	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-1A	G1-1A	3.1-6.1		24-Aug-09	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-1A	G1-1A	3.1-6.1		6-Apr-10	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-1A	G1-1A	3.1-6.1		2-Sep-10	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
G1-1A	G1-1A	3.1-6.1		28-Apr-11	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
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	---
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	---
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	---
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	---
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	---
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	---
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	---
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	---
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	---
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	---
G1-1A	DUP-13	3.1-6.1	L1752106-4	4-Apr-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---

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

					LEPH $_w$ [3]	HEPH$_w$ [3]	EPH $_w$ (C10-<C19) [2, 3]	EPH $_w$ (C19-C32) [3]	VH $_w$ (C6-C10)	VPH$_w$	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
CSR - Stage 9	Marine/Estuarine Aquatic Life Standards			(AW)	500	NS	NS	NS	NS	1500	1000	3300	2500	NS	4400.
CSR - Stage 9	No Specified Water Use Standards[1]			(NU)	NS	NS	5000	NS	15000	NS	NS	NS	NS	NS	NS
CSR - Stage 10	Marine/Estuarine Aquatic Life Standards			(AW)	500	NS	NS	NS	NS	1500	1000	2000	2500	300.	4400.
CSR - Stage 10	No Specified Water Use Standards[1]			(NU)	NS	NS	5000	NS	15000	NS	NS	NS	NS	NS	NS
	Site-Specific Screening Levels (SSSLs)				3000		5000		15000	15000	21000	7700	3200	3300.	4400.
Well ID	**Sample ID**	**Screened Interval (m bgs)**	**Laboratory Report #**	**Sample Date**											
QA/QC RPD				4-Apr-16	---	---	---	---	---	---	---	---	---	---	---
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	---
G1-1B	G1-1B	10.8-12.3		3-May-04	<300.	<1000.	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-1B	G1-1B	10.8-12.3		20-Oct-04	<300.	<1000.	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-1B	G1-1B	10.8-12.3		21-Apr-05	<300.	<1000.	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-1B	A1-G1-1B	10.8-12.3		22-Sep-05	<300.	<1000.	<300.	<1000.	<100.	<100.	<0.5	<0.5	<1.	<1.	---
G1-1B	G1-1B	10.8-12.3		30-Mar-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-1B	G1-1B	10.8-12.3		6-Nov-06	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-1B	G1-1B	10.8-12.3		5-Apr-07	---	---	<250.	380.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-1B	G1-1B	10.8-12.3		30-Aug-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-1B	G1-1B	10.8-12.3		3-Apr-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-1B	G1-1B	10.8-12.3		26-Aug-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-1B	G1-1B	10.8-12.3		21-Apr-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-1B	G1-1B	10.8-12.3		25-Aug-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-1B	G1-1B	10.8-12.3		7-Apr-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-1B	G1-1B	10.8-12.3		2-Sep-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
G1-1B	G1-1B	10.8-12.3		3-May-11	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
G1-1B	G1-1B	10.8-12.3		19-Sep-11	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-1B	DUP-28	10.8-12.3		19-Sep-11	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				19-Sep-11	---	---	---	---	---	---	---	---	---	---	---
G1-1B	G1-1B	10.8-12.3		14-May-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-1B	G1-1B	10.8-12.3		4-Sep-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-1B	G1-1B	10.8-12.3		3-Apr-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-1B	G1-1B	10.8-12.3		26-Aug-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
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	---
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	---
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	---
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	---
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	---
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	---
G1-1C	G1-1C	19.8-21.3		3-May-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-1C	G1-1C	19.8-21.3		20-Oct-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-1C	G1-1C	19.8-21.3		21-Apr-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-1C	A1-G1-1C	19.8-21.3		22-Sep-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<0.5	<1.	<1.	---
G1-1C	DUP209	19.8-21.3		22-Sep-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<0.5	<1.	<1.	---
QA/QC RPD				22-Sep-05	---	---	---	---	---	---	---	---	---	---	---
G1-1C	G1-1C	19.8-21.3		30-Mar-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-1C	G1-1C	19.8-21.3		31-Aug-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-1C	G1-1C	19.8-21.3		5-Apr-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-1C	G1-1C	19.8-21.3		30-Aug-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-1C	A1 Sentry Dup3	19.8-21.3		30-Aug-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
QA/QC RPD				30-Aug-07	---	---	---	---	---	---	---	---	---	---	---
G1-1C	G1-1C	19.8-21.3		3-Apr-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-1C	G1-1CX	19.8-21.3		3-Apr-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
QA/QC RPD				3-Apr-08	---	---	---	---	---	---	---	---	---	---	---
G1-1C	G1-1C	19.8-21.3		26-Aug-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-1C	G1-1C	19.8-21.3		21-Apr-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-1C	G1-1C	19.8-21.3		25-Aug-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-1C	G1-1C	19.8-21.3		7-Apr-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-1C	G1-1C	19.8-21.3		2-Sep-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
G1-1C	G1-1C	19.8-21.3		4-May-11	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
G1-1C	DUP-23	19.8-21.3		4-May-11	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
QA/QC RPD				4-May-11	---	---	---	---	---	---	---	---	---	---	---
G1-1C	G1-1C	19.8-21.3		20-Sep-11	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-1C	G1-1C	19.8-21.3		15-May-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-1C	G1-1C	19.8-21.3		4-Sep-12	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-1C	DUP-21	19.8-21.3		4-Sep-12	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				4-Sep-12	---	---	---	---	---	---	---	---	---	---	---
G1-1C	G1-1C	19.8-21.3		5-Sep-12	---	---	<250.	<250.	---	---	---	---	---	---	---
G1-1C	DUP-21	19.8-21.3		5-Sep-12	---	---	<250.	<250.	---	---	---	---	---	---	---
QA/QC RPD				5-Sep-12	---	---	---	---	---	---	---	---	---	---	---
G1-1C	G1-1C	19.8-21.3		3-Apr-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-1C	G1-1C	19.8-21.3		26-Aug-13	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
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	---
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	---
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	---
G1-1C	DUP-11	19.8-21.3	L1606759-6	4-May-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				4-May-15	---	---	---	---	---	---	---	---	---	---	---
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	---
QA/QC RPD				4-May-15	---	---	---	---	---	---	---	---	---	---	---
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	---
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	---
G1-1C	DUP-8	19.8-21.3	L1833762-7	22-Sep-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				22-Sep-16	---	---	---	---	---	---	---	---	---	---	---
G1-2A	G1-2A	1.8-3.4		4-May-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-2A	G1-2A	1.8-3.4		21-Oct-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-2A	G1-2A	1.8-3.4		27-Apr-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-2A	A1-G1-2A	1.8-3.4		21-Sep-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-2A	G1-2A	1.8-3.4		4-Apr-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-2A	G1-2A	1.8-3.4		5-Sep-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-2A	DUP16	1.8-3.4		5-Sep-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
QA/QC RPD				5-Sep-06	---	---	---	---	---	---	---	---	---	---	---
G1-2A	G1-2A	1.8-3.4		13-Apr-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-2A	G1-2A	1.8-3.4		30-Aug-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-2A	A1 Sentry Dup1	1.8-3.4		30-Aug-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
QA/QC RPD				30-Aug-07	---	---	---	---	---	---	---	---	---	---	---
G1-2A	G1-2A	1.8-3.4		9-Apr-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-2A	G1-2AX	1.8-3.4		9-Apr-08	---	---	<250.	<250.	---	---	---	---	---	---	---
QA/QC RPD				9-Apr-08	---	---	---	---	---	---	---	---	---	---	---
G1-2A	G1-2A	1.8-3.4		26-Aug-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-2A	G1-2A	1.8-3.4		21-Apr-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---

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

					LEPH w [3]	HEPHw [3]	EPH w (C10-<C19) [2, 3]	EPH w (C19-C32) [3]	VH w (C6-C10)	VPHw	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
CSR - Stage 9	Marine/Estuarine Aquatic Life Standards			(AW)	500	NS	NS	NS	NS	1500	1000	3300	2500	NS	4400.
CSR - Stage 9	No Specified Water Use Standards[1]			(NU)	NS	NS	5000	NS	15000	NS	NS	NS	NS	NS	NS
CSR - Stage 10	Marine/Estuarine Aquatic Life Standards			(AW)	500	NS	NS	NS	NS	1500	1000	2000	2500	300.	4400.
CSR - Stage 10	No Specified Water Use Standards[1]			(NU)	NS	NS	5000	NS	15000	NS	NS	NS	NS	NS	NS
	Site-Specific Screening Levels (SSSLs)				3000		5000		15000	15000	21000	7700	3200	3300.	4400.
Well ID	**Sample ID**	**Screened Interval (m bgs)**	**Laboratory Report #**	**Sample Date**											
G1-2A	G1-2A	1.8-3.4		24-Aug-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-2A	G1-2A	1.8-3.4		7-Apr-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-2A	G1-2A	1.8-3.4		2-Sep-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
G1-2A	G1-2A	1.8-3.4		27-Apr-11	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
G1-2A	G1-2A	1.8-3.4		14-Sep-11	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-2A	G1-2A	1.8-3.4		15-May-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-2A	G1-2A	1.8-3.4		9-Aug-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-2A	G1-2A	1.8-3.4		10-Apr-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-2A	G1-2A	1.8-3.4		26-Aug-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
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	---
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	---
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	---
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	---
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	---
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	<0.5
G1-2B	G1-2B	4.6-6.1		4-May-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-2B	G1-2B	4.6-6.1		21-Oct-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-2B	G1-2B	4.6-6.1		27-Apr-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-2B	A1-G1-2B	4.6-6.1		21-Sep-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-2B	DUP208	4.6-6.1		21-Sep-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
QA/QC RPD				21-Sep-05	---	---	---	---	---	---	---	---	---	---	---
G1-2B	G1-2B	4.6-6.1		4-Apr-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-2B	G1-2B	4.6-6.1		5-Sep-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-2B	G1-2B	4.6-6.1		13-Apr-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-2B	G1-2B	4.6-6.1		30-Aug-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-2B	A1 Sentry Dup2	4.6-6.1		30-Aug-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
QA/QC RPD				30-Aug-07	---	---	---	---	---	---	---	---	---	---	---
G1-2B	G1-2B	4.6-6.1		9-Apr-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-2B	G1-2B	4.6-6.1		26-Aug-08	---	---	<250.	330.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-2B	G1-2B	4.6-6.1		21-Apr-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-2B	G1-2B	4.6-6.1		24-Aug-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-2B	G1-2B	4.6-6.1		7-Apr-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-2B	G1-2B	4.6-6.1		2-Sep-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
G1-2B	G1-2B	4.6-6.1		27-Apr-11	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
G1-2B	G1-2B	4.6-6.1		14-Sep-11	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-2B	G1-2B	4.6-6.1		15-May-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-2B	DUP-9	4.6-6.1		15-May-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				15-May-12	---	---	---	---	---	---	---	---	---	---	---
G1-2B	G1-2B	4.6-6.1		9-Aug-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-2B	G1-2B	4.6-6.1		10-Apr-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-2B	G1-2B	4.6-6.1		26-Aug-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
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	---
G1-2B	DUP-34	4.6-6.1	L1466577-2	5-Jun-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				5-Jun-14	---	---	---	---	---	---	---	---	---	---	---
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	---
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	---
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	---
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	---
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	---
G1-5	G1-5	9.1-12.2		4-May-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-5	G1-5	9.1-12.2		20-Oct-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-5	G1-5	9.1-12.2		21-Apr-05	---	---	440.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-5	A1-G1-5	9.1-12.2		23-Sep-05	---	---	310.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-5	G1-5	9.1-12.2		30-Mar-06	---	---	340.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-5	G1-5	9.1-12.2		31-Aug-06	---	---	360.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-5	G1-5	9.1-12.2		4-Apr-07	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-5	G1-5	9.1-12.2		28-Aug-07	350.	330.	350.	330.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-5	G1-5	9.1-12.2		3-Apr-08	310.	310.	310.	310.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-5	G1-5	9.1-12.2		26-Aug-08	450.	330.	450.	330.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-5	G1-5	9.1-12.2		21-Apr-09	390.	<250.	390.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-5	G1-5X	9.1-12.2		21-Apr-09	350.	250.	350.	250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
QA/QC RPD				21-Apr-09	---	---	---	---	---	---	---	---	---	---	---
G1-5	G1-5	9.1-12.2		25-Aug-09	---	---	440.	250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-5	G1-5X	9.1-12.2		25-Aug-09	---	---	590.	380.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
QA/QC RPD				25-Aug-09	---	---	---	---	---	---	---	---	---	---	---
G1-5	G1-5	9.1-12.2		7-Apr-10	370.	<250.	370.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-5	G1-5X	9.1-12.2		7-Apr-10	330.	<250.	340.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
QA/QC RPD				7-Apr-10	---	---	---	---	---	---	---	---	---	---	---
G1-5	G1-5	9.1-12.2		2-Sep-10	400.	<250.	400.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
G1-5	DUP-1	9.1-12.2		2-Sep-10	340.	<250.	340.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
QA/QC RPD				2-Sep-10	---	---	---	---	---	---	---	---	---	---	---
G1-5	G1-5	9.1-12.2		4-May-11	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
G1-5	DUP-24	9.1-12.2		4-May-11	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
QA/QC RPD				4-May-11	---	---	---	---	---	---	---	---	---	---	---
G1-5	G1-5	9.1-12.2		19-Sep-11	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-5	G1-5	9.1-12.2		20-Sep-11	---	---	<250.	<250.	---	---	---	---	---	---	---
G1-5	G1-5	9.1-12.2		14-May-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-5	G1-5	9.1-12.2		4-Sep-12	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-5	G1-5	9.1-12.2		5-Sep-12	---	---	<250.	<250.	---	---	---	---	---	---	---
G1-5	G1-5	9.1-12.2		3-Apr-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-5	DUP-12	9.1-12.2		3-Apr-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				3-Apr-13	---	---	---	---	---	---	---	---	---	---	---
G1-5	G1-5	9.1-12.2		26-Aug-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-5	DUP-15	9.1-12.2		26-Aug-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				26-Aug-13	---	---	---	---	---	---	---	---	---	---	---
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	---
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	---
G1-5	DUP-21	9.1-12.2	L1511464-2	2-Sep-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				2-Sep-14	---	---	---	---	---	---	---	---	---	---	---
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	---
G1-5	DUP-14	9.1-12.2	L1611514-6	13-May-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				13-May-15	---	---	---	---	---	---	---	---	---	---	---

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

					LEPH w [3]	HEPHw [3]	EPH w (C10-<C19) [2, 3]	EPH w (C19-C32) [3]	VH w (C6-C10)	VPHw	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
CSR - Stage 9	Marine/Estuarine Aquatic Life Standards			(AW)	500	NS	NS	NS	NS	1500	1000	3300	2500	NS	4400.
CSR - Stage 9	No Specified Water Use Standards[1]			(NU)	NS	NS	5000	NS	15000	NS	NS	NS	NS	NS	NS
CSR - Stage 10	Marine/Estuarine Aquatic Life Standards			(AW)	500	NS	NS	NS	NS	1500	1000	2000	2500	300.	4400.
CSR - Stage 10	No Specified Water Use Standards[1]			(NU)	NS	NS	5000	NS	15000	NS	NS	NS	NS	NS	NS
	Site-Specific Screening Levels (SSSLs)				3000		5000		15000	15000	21000	7700	3200	3300.	4400.
Well ID	**Sample ID**	**Screened Interval (m bgs)**	**Laboratory Report #**	**Sample Date**											
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	---
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	---
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	---
G1-6	G1-6	7.9-11		3-May-04	---	---	<300.	<1000.	<100.	<100.	1.09	<1.	8.65	13.7	4.91
G1-6	G1-6	7.9-11		20-Oct-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-6	DUP13	7.9-11		20-Oct-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
QA/QC RPD				20-Oct-04	---	---	---	---	---	---	---	---	---	---	---
G1-6	G1-6	7.9-11		21-Apr-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-6	Dup 105	7.9-11		21-Apr-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
QA/QC RPD				21-Apr-05	---	---	---	---	---	---	---	---	---	---	---
G1-6	A1-G1-6	7.9-11		22-Sep-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<0.5	<1.	<1.	---
G1-6	G1-6	7.9-11		30-Mar-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-6	G1-6	7.9-11		31-Aug-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-6	G1-6	7.9-11		4-Apr-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-6	G1-6	7.9-11		28-Aug-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-6	G1-6	7.9-11		3-Apr-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-6	G1-6	7.9-11		26-Aug-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-6	G1-6	7.9-11		21-Apr-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-6	G1-6	7.9-11		25-Aug-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-6	G1-6	7.9-11		7-Apr-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-6	G1-6	7.9-11		2-Sep-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
G1-6	G1-6	7.9-11		28-Apr-11	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
G1-6	G1-6	7.9-11		4-Sep-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-6	G1-6	7.9-11		3-Apr-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-6	DUP-14	7.9-11		3-Apr-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				3-Apr-13	---	---	---	---	---	---	---	---	---	---	---
G1-6	G1-6	7.9-11		26-Aug-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-6	G1-6	7.9-11	L1463846-2	2-Jun-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-6	G1-6	7.9-11	L1521897-1	22-Sep-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-6	G1-6	7.9-11	L1611514-2	13-May-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-6	G1-6	7.9-11	L1677757-1	23-Sep-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-6	G1-6	7.9-11	L1752106-1	4-Apr-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-6	G1-6	7.9-11	L1833762-3	22-Sep-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-7A	G1-7A	0.9-2.4		4-May-04	---	---	<300.	<1000.	<100.	<100.	2.22	<1.	8.18	11.7	2.25
G1-7A	G1-7A	0.9-2.4		20-Oct-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-7A	G1-7A	0.9-2.4		21-Apr-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-7A	A1-G1-7A	0.9-2.4		22-Sep-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<0.5	<1.	<1.	---
G1-7A	G1-7A	0.9-2.4		30-Mar-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-7A	G1-7A	0.9-2.4		5-Sep-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-7A	G1-7A	0.9-2.4		5-Apr-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-7A	G1-7A	0.9-2.4		27-Aug-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-7A	G1-7A	0.9-2.4		9-Apr-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-7A	G1-7A	0.9-2.4		25-Aug-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-7A	G1-7A	0.9-2.4		20-Apr-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-7A	G1-7A	0.9-2.4		24-Aug-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-7A	G1-7A	0.9-2.4		2-Sep-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
G1-7A	G1-7A	0.9-2.4		28-Apr-11	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
G1-7A	G1-7A	0.9-2.4		19-Sep-11	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-7A	G1-7A	0.9-2.4		20-Sep-11	---	---	<250.	<250.	---	---	---	---	---	---	---
G1-7A	G1-7A	0.9-2.4		14-May-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-7A	G1-7A	0.9-2.4		9-Aug-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-7A	G1-7A	0.9-2.4		3-Apr-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-7A	G1-7A	0.9-2.4		26-Aug-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
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	---
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	---
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	---
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	---
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	---
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	---
G1-7B	G1-7B	6.1-9.1		4-May-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-7B	G1-7B	6.1-9.1		20-Oct-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-7B	G1-7B	6.1-9.1		21-Apr-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-7B	G1-7B	6.1-9.1		22-Sep-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<0.5	<1.	<1.	---
G1-7B	G1-7B	6.1-9.1		30-Mar-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-7B	G1-7B	6.1-9.1		5-Sep-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-7B	G1-7B	6.1-9.1		5-Apr-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-7B	G1-7B	6.1-9.1		27-Aug-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-7B	G1-7B	6.1-9.1		9-Apr-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-7B	G1-7B	6.1-9.1		25-Aug-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-7B	G1-7BX	6.1-9.1		25-Aug-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
QA/QC RPD				25-Aug-08	---	---	---	---	---	---	---	---	---	---	---
G1-7B	G1-7B	6.1-9.1		20-Apr-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-7B	G1-7B	6.1-9.1		24-Aug-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-7B	G1-7B	6.1-9.1		2-Sep-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
G1-7B	G1-7B	6.1-9.1		3-May-11	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
G1-7B	G1-7B	6.1-9.1		19-Sep-11	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-7B	DUP-27	6.1-9.1		19-Sep-11	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				19-Sep-11	---	---	---	---	---	---	---	---	---	---	---
G1-7B	G1-7B	6.1-9.1		14-May-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-7B	G1-7B	6.1-9.1		9-Aug-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-7B	G1-7B	6.1-9.1		3-Apr-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-7B	G1-7B	6.1-9.1		27-Aug-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
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	---
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	---
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	---
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	---
G1-7B	DUP-16	6.1-9.1	L1677757-7	23-Sep-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				23-Sep-15	---	---	---	---	---	---	---	---	---	---	---
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	---
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	---

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

					LEPH $_w$ [3]	HEPH$_w$ [3]	EPH $_w$ (C10-<C19) [2, 3]	EPH $_w$ (C19-C32) [3]	VH $_w$ (C6-C10)	VPH$_w$	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
CSR - Stage 9	Marine/Estuarine Aquatic Life Standards			(AW)	500	NS	NS	NS	NS	1500	1000	3300	2500	NS	4400.
CSR - Stage 9	No Specified Water Use Standards[1]			(NU)	NS	NS	5000	NS	15000	NS	NS	NS	NS	NS	NS
CSR - Stage 10	Marine/Estuarine Aquatic Life Standards			(AW)	500	NS	NS	NS	NS	1500	1000	2000	2500	300.	4400.
CSR - Stage 10	No Specified Water Use Standards[1]			(NU)	NS	NS	5000	NS	15000	NS	NS	NS	NS	NS	NS
	Site-Specific Screening Levels (SSSLs)				3000		5000		15000	15000	21000	7700	3200	3300.	4400.
Well ID	**Sample ID**	**Screened Interval (m bgs)**	**Laboratory Report #**	**Sample Date**											
G1-8	G1-8	7.0-13.1		4-May-04	---	---	540.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-8	G1-8	7.0-13.1		21-Oct-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-8	G1-8	7.0-13.1		27-Apr-05	---	---	400.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-8	A1-G1-8	7.0-13.1		22-Sep-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<0.5	<1.	<1.	---
G1-8	G1-8	7.0-13.1		4-Apr-06	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-8	G1-8	7.0-13.1		31-Aug-06	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-8	G1-8	7.0-13.1		13-Apr-07	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-8	G1-8X	7.0-13.1		13-Apr-07	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
QA/QC RPD				13-Apr-07	---	---	---	---	---	---	---	---	---	---	---
G1-8	G1-8	7.0-13.1		28-Aug-07	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-8	G1-8	7.0-13.1		3-Apr-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-8	G1-8	7.0-13.1		4-Apr-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-8	G1-8	7.0-13.1		4-Sep-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-8	G1-8	7.0-13.1		21-Apr-09	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-8	G1-8	7.0-13.1		25-Aug-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-8	G1-8	7.0-13.1		7-Apr-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
G1-8	G1-8	7.0-13.1		2-Sep-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
G1-8	G1-8	7.0-13.1		28-Apr-11	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
G1-8	G1-8	7.0-13.1		15-Sep-11	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-8	G1-8	7.0-13.1		15-May-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-8	G1-8	7.0-13.1		4-Sep-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-8	G1-8	7.0-13.1		27-Aug-13	---	---	<250.	310.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
G1-8	DUP-14	7.0-13.1		27-Aug-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				27-Aug-13	---	---	---	---	---	---	---	---	---	---	---
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	---
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	---
G1-8	DUP-27	7.0-13.1	L1522243-8	23-Sep-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				23-Sep-14	---	---	---	---	---	---	---	---	---	---	---
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	---
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	---
G1-8	DUP-17	7.0-13.1	L1677757-8	23-Sep-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				23-Sep-15	---	---	---	---	---	---	---	---	---	---	---
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	---
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	---
MW03-07	MW03-07	0.6-2.2		3-May-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
MW03-07	MW03-07	0.6-2.2		21-Oct-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
MW03-07	MW03-07	0.6-2.2		27-Apr-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
MW03-07	MW03-07	0.6-2.2		4-Apr-06	---	---	<250.	400.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
MW03-07	MW03-07	0.6-2.2		7-Apr-07	<250.	390.	<250.	390.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
MW03-07	MW03-07	0.6-2.2		27-Aug-07	<250.	720.	<250.	720.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
MW03-07	MW03-07	0.6-2.2		3-Apr-08	<250.	300.	<250.	300.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
MW03-07	MW03-07	0.6-2.2		26-Aug-08	<250.	260.	<250.	260.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
MW03-07	MW03-07	0.6-2.2		20-Apr-09	<250.	390.	<250.	390.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
MW03-07	MW03-07	0.6-2.2		24-Aug-09	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
MW03-07	MW03-07	0.6-2.2		6-Apr-10	<250.	<400.	<250.	<400.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
MW03-07	MW03-07	0.6-2.2		2-Sep-10	<250.	480.	<250.	480.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
MW03-07	MW03-07	0.6-2.2		28-Apr-11	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
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	---
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	---
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	---
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	---
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	---
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	---
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	---
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	---
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	---
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	---
MW03-07	DUP-8	0.6-2.2	L1746133-3	17-Mar-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				17-Mar-16	---	---	---	---	---	---	---	---	---	---	---
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	---
NDM97-2	NDM97-2	2.3-5.1		3-May-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
NDM97-2	NDM97-2	2.3-5.1		21-Oct-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
NDM97-2	NDM97-2	2.3-5.1		27-Apr-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
NDM97-2	A1-NDM97-2	2.3-5.1		21-Sep-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
NDM97-2	NDM97-2	2.3-5.1		4-Apr-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
NDM97-2	NDM97-2	2.3-5.1		31-Aug-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
NDM97-2	DUP10	2.3-5.1		31-Aug-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
QA/QC RPD				31-Aug-06	---	---	---	---	---	---	---	---	---	---	---
NDM97-2	NDM97-2	2.3-5.1		13-Apr-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
NDM97-2	NDM97-2	2.3-5.1		28-Aug-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
NDM97-2	NDM97-2	2.3-5.1		3-Apr-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
NDM97-2	NDM97-2	2.3-5.1		26-Aug-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
NDM97-2	NDM97-2	2.3-5.1		21-Apr-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
NDM97-2	NDM97-2	2.3-5.1		24-Aug-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
NDM97-2	NDM97-2	2.3-5.1		7-Apr-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
NDM97-2	NDM97-2	2.3-5.1		2-Sep-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
NDM97-2	NDM97-2	2.3-5.1		27-Apr-11	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
NDM97-2	NDM97-2	2.3-5.1		14-Sep-11	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
NDM97-2	NDM97-2	2.3-5.1		15-May-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
NDM97-2	NDM97-2	2.3-5.1		9-Aug-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
NDM97-2	NDM97-2	2.3-5.1		26-Aug-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
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	---
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	---
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	---
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	---
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	---
NDM97-2	DUP-10	2.3-5.1	L1747001-3	21-Mar-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				21-Mar-16	---	---	---	---	---	---	---	---	---	---	---
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	---
NDM97-3	NDM97-3	6.1-9.1		3-May-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
NDM97-3	NDM97-3	6.1-9.1		20-Oct-04	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---

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

					LEPH $_w$ [3]	HEPH$_w$ [3]	EPH $_w$ (C10-<C19) [2, 3]	EPH $_w$ (C19-C32) [3]	VH $_w$ (C6-C10)	VPH$_w$	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
CSR - Stage 9	Marine/Estuarine Aquatic Life Standards			(AW)	500	NS	NS	NS	NS	1500	1000	3300	2500	NS	4400.
CSR - Stage 9	No Specified Water Use Standards[1]			(NU)	NS	NS	5000	NS	15000	NS	NS	NS	NS	NS	NS
CSR - Stage 10	Marine/Estuarine Aquatic Life Standards			(AW)	500	NS	NS	NS	NS	1500	1000	2000	2500	300.	4400.
CSR - Stage 10	No Specified Water Use Standards[1]			(NU)	NS	NS	5000	NS	15000	NS	NS	NS	NS	NS	NS
	Site-Specific Screening Levels (SSSLs)				3000		5000		15000	15000	21000	7700	3200	3300.	4400.
Well ID	**Sample ID**	**Screened Interval (m bgs)**	**Laboratory Report #**	**Sample Date**											
NDM97-3	NDM97-3	6.1-9.1		27-Apr-05	---	---	<300.	<1000.	<100.	<100.	1.14	<1.	<0.5	<1.	---
NDM97-3	A1-NDM97-3	6.1-9.1		21-Sep-05	---	---	<300.	<1000.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
NDM97-3	NDM97-3	6.1-9.1		30-Mar-06	---	---	<250.	260.	<100.	<100.	0.94	<1.	<0.5	<1.	---
NDM97-3	NDM97-3	6.1-9.1		5-Sep-06	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
NDM97-3	NDM97-3	6.1-9.1		12-Apr-07	---	---	<250.	<250.	<100.	<100.	0.56	<1.	<0.5	<1.	---
NDM97-3	NDM97-3	6.1-9.1		27-Aug-07	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
NDM97-3	NDM97-3	6.1-9.1		3-Apr-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
NDM97-3	NDM97-3	6.1-9.1		25-Aug-08	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
NDM97-3	NDM97-3	6.1-9.1		20-Apr-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
NDM97-3	NDM97-3	6.1-9.1		24-Aug-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
NDM97-3	NDM97-3	6.1-9.1		6-Apr-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
NDM97-3	NDM97-3	6.1-9.1		2-Sep-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
NDM97-3	NDM97-3	6.1-9.1		28-Apr-11	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
NDM97-3	NDM97-3	6.1-9.1		14-Sep-11	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
NDM97-3	NDM97-3	6.1-9.1		14-May-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
NDM97-3	NDM97-3	6.1-9.1		9-Aug-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
NDM97-3	NDM97-3	6.1-9.1		4-Apr-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
NDM97-3	DUP-15	6.1-9.1		4-Apr-13	---	---	<250.	360.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				4-Apr-13	---	---	---	---	---	---	---	---	---	---	---
NDM97-3	NDM97-3	6.1-9.1		28-Aug-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
NDM97-3	DUP-17	6.1-9.1		28-Aug-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				28-Aug-13	---	---	---	---	---	---	---	---	---	---	---
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	---
NDM97-3	DUP-32	6.1-9.1	L1464701-2	3-Jun-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				3-Jun-14	---	---	---	---	---	---	---	---	---	---	---
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	---
NDM97-3	DUP-24	6.1-9.1	L1512995-3	4-Sep-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				4-Sep-14	---	---	---	---	---	---	---	---	---	---	---
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	---
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	---
NDM97-3	DUP-15	6.1-9.1	L1673248-9	15-Sep-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				15-Sep-15	---	---	---	---	---	---	---	---	---	---	---
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	---
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	---
U6	A3-U6	0.9-3.9		21-Sep-05	<300.	<1000.	<300.	<1000.	<100.	<100.	<0.5	<0.5	<1.	<1.	---
U6	U6	0.9-3.9		30-Mar-06	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
U6	Dup11	0.9-3.9		30-Mar-06	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
QA/QC RPD				30-Mar-06	---	---	---	---	---	---	---	---	---	---	---
U6	U6	0.9-3.9		31-Aug-06	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
U6	U6	0.9-3.9		4-Apr-07	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
U6	U6X	0.9-3.9		4-Apr-07	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
QA/QC RPD				4-Apr-07	---	---	---	---	---	---	---	---	---	---	---
U6	U6	0.9-3.9		28-Aug-07	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
U6	U6	0.9-3.9		9-Apr-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
U6	U6	0.9-3.9		28-Aug-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
U6	U6	0.9-3.9		27-Apr-09	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
U6	U6	0.9-3.9		3-Sep-09	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
U6	U6	0.9-3.9		19-Apr-10	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
U6	U6	0.9-3.9		7-Sep-10	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
U6	U6	0.9-3.9		4-May-11	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
U6	U6	0.9-3.9		22-Sep-11	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
U6	U6	0.9-3.9		15-May-12	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
U6	U6	0.9-3.9		18-Sep-12	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
U6	U6	0.9-3.9		10-Apr-13	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
U6	U6	0.9-3.9		27-Aug-13	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
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	---
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	---
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	---
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	---
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	---
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	<0.5
U7	A3-U7	1.2-5.8		21-Sep-05	<300.	<1000.	<300.	<1000.	<100.	<100.	<0.5	<0.5	<1.	<1.	---
U7	U7	1.2-5.8		30-Mar-06	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
U7	Dup12	1.2-5.8		30-Mar-06	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
QA/QC RPD				30-Mar-06	---	---	---	---	---	---	---	---	---	---	---
U7	U7	1.2-5.8		31-Aug-06	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
U7	U7	1.2-5.8		4-Apr-07	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
U7	U7	1.2-5.8		28-Aug-07	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	1.9	<0.5	<1.	---
U7	U7	1.2-5.8		9-Apr-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
U7	U7	1.2-5.8		28-Aug-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
U7	U7	1.2-5.8		27-Apr-09	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
U7	U7	1.2-5.8		3-Sep-09	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
U7	U7	1.2-5.8		19-Apr-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
U7	U7	1.2-5.8		7-Sep-10	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
U7	U7	1.2-5.8		4-May-11	---	---	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
U7	U7	1.2-5.8		22-Sep-11	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	0.78	<0.5	<0.75	---
U7	DUP-35	1.2-5.8		22-Sep-11	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	0.56	<0.5	<0.75	---
QA/QC RPD				22-Sep-11	---	---	---	---	---	---	---	---	---	---	---
U7	U7	1.2-5.8		15-May-12	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
U7	U7	1.2-5.8		18-Sep-12	---	---	4120.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
U7	U7	1.2-5.8		15-Apr-13	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
U7	U7	1.2-5.8		27-Aug-13	---	---	<250.	<250.	<100.	<100.	<0.5	2.71	<0.5	<0.75	---
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	---
U7	U7	1.2-5.8	L1509407-7	27-Aug-14	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
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	---
U7	U7	1.2-5.8	L1667287-5	2-Sep-15	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
U7	U7	1.2-5.8	L1745659-5	16-Mar-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
U7	U7	1.2-5.8	L1832800-3	21-Sep-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	<0.5
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	---
U07-10S	U07-10S	4.7-6.2		28-Aug-07	**5100.**	450.	**6890.**	450.	360.	230.	94.8	10.1	5.7	204.	---
U07-10S	U07-10S	4.7-6.2		9-Apr-08	**7710.**	1430.	**11400.**	1740.	350.	270.	49.2	9.1	5.	19.7	---

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

					LEPH w [3]	HEPHw [3]	EPH w (C10-<C19) [2, 3]	EPH w (C19-C32) [3]	VH w (C6-C10)	VPHw	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
CSR - Stage 9	Marine/Estuarine Aquatic Life Standards			(AW)	500	NS	NS	NS	NS	1500	1000	3300	2500	NS	4400.
CSR - Stage 9	No Specified Water Use Standards[1]			(NU)	NS	NS	5000	NS	15000	NS	NS	NS	NS	NS	NS
CSR - Stage 10	Marine/Estuarine Aquatic Life Standards			(AW)	500	NS	NS	NS	NS	1500	1000	2000	2500	300.	4400.
CSR - Stage 10	No Specified Water Use Standards[1]			(NU)	NS	NS	5000	NS	15000	NS	NS	NS	NS	NS	NS
	Site-Specific Screening Levels (SSSLs)				3000		5000		15000	15000	21000	7700	3200	3300.	4400.
Well ID	**Sample ID**	**Screened Interval (m bgs)**	**Laboratory Report #**	**Sample Date**											
U07-10S	U07-10S	4.7-6.2		27-Apr-09	**3490.**	1070.	**7190.**	1380.	270.	<200.	42.4	7.8	5.	17.7	---
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	---
U07-10S	U07-10S	4.7-6.2		21-Sep-11	**10400.**	2390.	**18100.**	2830.	110.	<100.	39.	8.57	11.7	16.5	---
U07-10S	U7-10S	4.7-6.2		3-Sep-13	**47000.**	33300.	**108000.**	54500.	250.	110.	58.	12.8	26.9	38.	---
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	---
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	---
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	---
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	---
U07-10S	DUP-13	4.7-6.2	L1668445-2	3-Sep-15	**8230.**	350.	**15400.**	450.	230.	110.	56.2	10.4	22.6	31.5	---
QA/QC RPD				3-Sep-15	1.1%	---	3.2%	---	---	---	3.2%	2.8%	1.8%	1.9%	---
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	---
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	293.
U07-10I	U07-10I	6.65-8.15		4-Jul-07	**2380.**	630.	2400.	630.	120.	120.	0.6	<1.	<0.5	3.3	---
U07-10I	U07-10DUPED	6.65-8.15		4-Jul-07	**740.**	<250.	740.	<250.	130.	120.	0.68	<1.	0.55	3.9	---
QA/QC RPD				4-Jul-07	---	---	---	---	---	---	---	---	---	---	---
U07-10I	U07-10I	6.65-8.15		28-Aug-07	**1330.**	420.	1340.	420.	<100.	<100.	1.84	<1.	<0.5	3.4	---
U07-10I	U07-10I	6.65-8.15		9-Apr-08	**1010.**	610.	1010.	610.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
U07-10I	U07-10I	6.65-8.15		28-Aug-08	**610.**	320.	620.	330.	110.	110.	0.9	<1.	<0.5	<1.	---
U07-10I	U07-10IX	6.65-8.15		28-Aug-08	**1410.**	840.	1410.	840.	<100.	<100.	0.88	<1.	<0.5	<1.	---
QA/QC RPD				28-Aug-08	---	---	---	---	---	---	---	---	---	---	---
U07-10I	U07-10I	6.65-8.15		27-Apr-09	**640.**	360.	640.	370.	<100.	<100.	0.91	<1.	<0.5	<1.	---
U07-10I	U07-10I	6.65-8.15		3-Sep-09	450.	<250.	450.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
U07-10I	U07-10I	6.65-8.15		19-Apr-10	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
U07-10I	U07-10I	6.65-8.15		7-Sep-10	440.	<250.	450.	<250.	120.	120.	0.8	<1.	<0.5	0.79	---
U07-10I	U07-10I	6.65-8.15		4-May-11	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
U07-10I	DUP-27	6.65-8.15		4-May-11	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
QA/QC RPD				4-May-11	---	---	---	---	---	---	---	---	---	---	---
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	---
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	---
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	---
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	---
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	---
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	---
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	---
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	---
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	---
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	12.9
U07-10D	U07-10D	8.5-10.65		4-Jul-07	420.	<250.	450.	<250.	210.	210.	0.57	<1.	<0.5	<1.	---
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	---
U07-10D	U07-10D	8.5-10.65		9-Apr-08	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
U07-10D	U07-10D	8.5-10.65		28-Aug-08	<250.	<250.	<250.	<250.	330.	330.	<0.5	<1.	<0.5	<1.	---
U07-10D	U07-10D	8.5-10.65		27-Apr-09	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
U07-10D	U07-10D	8.5-10.65		3-Sep-09	500.	<250.	530.	<250.	360.	360.	<0.5	<1.	<0.5	1.4	---
U07-10D	U07-10D	8.5-10.65		19-Apr-10	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<1.	---
U07-10D	U07-10D	8.5-10.65		7-Sep-10	<250.	<250.	<250.	<250.	120.	120.	<0.5	<1.	<0.5	<0.71	---
U07-10D	U07-10D	8.5-10.65		4-May-11	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<1.	<0.5	<0.71	---
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	---
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	---
U07-10D	DUP-10	8.5-10.65		16-May-12	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
QA/QC RPD				16-May-12	---	---	---	---	---	---	---	---	---	---	---
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	---
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	---
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	---
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	---
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	---
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	---
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	---
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	---
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	10.2
Travel Blank	TRAVEL BLANK		L1594270-5	1-Apr-15	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
Travel Blank	TRAVEL BLANK		L1594881-3	2-Apr-15	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
Travel Blank	TRAVEL BLANK 1		L1597689-4	10-Apr-15	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
Travel Blank	TRAVEL BLANK		L1598022-3	13-Apr-15	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
Travel Blank	TRAVEL BLANK		L1601618-2	21-Apr-15	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
Travel Blank	TRAVEL BLANK		L1602111-2	22-Apr-15	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
Travel Blank	TRAVEL BLANK		L1606759-7	4-May-15	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
Travel Blank	TRAVEL BLANK		L1611514-7	13-May-15	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
Travel Blank	ALS TRAVEL BLANK 1		L1639257-2	8-Jul-15	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
Travel Blank	TRAVEL BLANK-1		L1666485-4	1-Sep-15	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
Travel Blank	TRAVEL BLANK-2		L1666481-3	1-Sep-15	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
Travel Blank	TRAVEL BLANK		L1667287-7	2-Sep-15	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
Travel Blank	TRAVEL BLANK 1		L1668411-3	3-Sep-15	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
Travel Blank	ALS TRAVEL BLANK 1		L1668270-5	3-Sep-15	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
Travel Blank	ALS TRAVEL BLANK 1		L1678538-5	24-Sep-15	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
Travel Blank	ALS TRAVEL BLANK 1		L1745069-5	15-Mar-16	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
Travel Blank	ALS TRAVEL BLANK 1		L1745659-6	16-Mar-16	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
Travel Blank	ALS TRAVEL BLANK 1		L1746135-3	17-Mar-16	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
Travel Blank	ALS TRAVEL BLANK 1		L1747001-4	21-Mar-16	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
Travel Blank	ALS TRAVEL BLANK 1		L1752106-6	4-Apr-16	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
Travel Blank	TRAVEL BLANK-1		L1830885-7	19-Sep-16	---	---	---	---	---	---	<0.5	<0.5	<0.5	<0.75	<0.5
Travel Blank	TRAVEL BLANK-1		L1832800-5	21-Sep-16	---	---	---	---	---	---	<0.5	<0.5	<0.5	<0.75	<0.5
Travel Blank	TRAVEL BLANK-1		L1835097-4	26-Sep-16	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
Travel Blank	TRAVEL BLANK-1		L1838680-5	4-Oct-16	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
Travel Blank	TRAVEL BLANK-1		L1843040-2	12-Oct-16	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
Travel Blank	TRAVEL BLANK-1		L1847163-2	21-Oct-16	---	---	---	---	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
Equipment Blank	EB-1		L1668270-4	3-Sep-15	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
Equipment Blank	EB-2		L1745070-3	15-Mar-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
Equipment Blank	EB-3		L1745070-4	15-Mar-16	<250.	<250.	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
Equipment Blank	EB-4		L1746133-4	17-Mar-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---
Equipment Blank	EB-5		L1747001-5	21-Mar-16	---	---	<250.	<250.	<100.	<100.	<0.5	<0.5	<0.5	<0.75	---

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

Well ID	Sample ID	Screened Interval (m bgs)	Laboratory Report #	Sample Date	LEPH w [3]	HEPHw [3]	EPH w (C10-<C19) [2, 3]	EPH w (C19-C32) [3]	VH w (C6-C10)	VPHw	Benzene	Toluene	Ethylbenzene	Xylenes	MTBE
CSR - Stage 9	Marine/Estuarine Aquatic Life Standards			(AW)	500	NS	NS	NS	NS	1500	1000	3300	2500	NS	4400.
CSR - Stage 9	No Specified Water Use Standards[1]			(NU)	NS	NS	5000	NS	15000	NS	NS	NS	NS	NS	NS
CSR - Stage 10	Marine/Estuarine Aquatic Life Standards			(AW)	500	NS	NS	NS	NS	1500	1000	2000	2500	300.	4400.
CSR - Stage 10	No Specified Water Use Standards[1]			(NU)	NS	NS	5000	NS	15000	NS	NS	NS	NS	NS	NS
	Site-Specific Screening Levels (SSSLs)				3000		5000		15000	15000	21000	7700	3200	3300.	4400.
Reported Detection Limit					250.	250.	250.	250.	100.	100.	0.5	1.	0.5	1.	1.

Abbreviations:

CSR	Contaminated Sites Regulation (including Stage 9 amendments, January 2014, Stage 10 amendments, October 2016).
EPHw	Extractable petroleum hydrocarbons in water
LEPHw/HEPHw	Light/Heavy extractable petroleum hydrocarbons in water
MTBE	Methyl tertiary-butyl ether
VHw	Volatile hydrocarbons in water
VPHw	Volatile petroleum hydrocarbons in water
QA/QC	Quality assurance / quality control
RPD	Relative percent difference
NC	No criteria established for indicated parameter.
NO	No objective established for indicated parameter.
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.

BOLD	Sample concentration greater than CSR standard for aquatic life (AW).
SHADE	Sample concentration greater than CSR standard for no specified water use (NU).
BOLD RED HIGHLIGHTED	Exceeds Site Specific Screening Levels (SSSLs)

Notes:

1 CSR No Water Use Standards are applicable at all sites, irrespective of water use.

2 BCMOE groundwater standard 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 A-3
AREAS 1 AND 3 CONCENTRATIONS OF POLYCYCLIC AROMATIC HYDROCARBONS IN GROUNDWATER
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
CHEVRON 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	Benzo(ghi)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	Quinoline	Groundwater Classification
Generic Numerical Water Standards																					
CSR - Stage 9	Aquatic Life Standards			(AW)[1]	60.	0.5	1.	1.	0.1	NS	NS	1.	NS	2.	120.	NS	10.	3.	0.2	34.	
CSR - Stage 10	Aquatic Life Standards			(AW)[1]	60.	0.5	1.	1.	0.1	NS	NS	1.	NS	2.	120.	NS	10.	3.	0.2	34.	
	Site-Specific Screening Levels (SSSLs)				60.	30.	40.	1.	2.8			1.		40.	120.		440.	3.	40.	34.	
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	DUP 10	5.2-6.7		19-Oct-04	0.157	<0.05	<0.05	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	0.393	<0.05	<0.5	<0.05	<0.05	<0.05	AW-
QA/QC RPD				19-Oct-04	---	---	---	---	---	---	---	---	---	---	15.0%	---	---	---	---	---	
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	DUP200	1.7-3.2		15-Sep-05	0.358	<0.08	<0.05	<0.05	<0.01	<0.1	<0.05	<0.05	<0.05	<0.05	0.95	<0.05	<0.4	<0.05	<0.05	<0.05	AW-
QA/QC RPD				15-Sep-05	7.0%	---	---	---	---	---	---	---	---	---	3.2%	---	---	---	---	---	
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	DUP13	1.7-3.2		4-Apr-06	0.365	<0.1	<0.05	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	0.893	<0.05	<1.	<0.05	<0.05	<0.4	AW-
QA/QC RPD				4-Apr-06	10.4%	---	---	---	---	---	---	---	---	---	16.2%	---	---	---	---	---	
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	DUP15	1.7-3.2		5-Sep-06	0.449	<0.1	<0.05	<0.05	<0.01	<0.1	<0.05	<0.05	<0.05	<0.05	1.05	<0.05	<1.	<0.05	<0.05	<0.5	AW-
QA/QC RPD				5-Sep-06	8.8%	---	---	---	---	---	---	---	---	---	8.0%	---	---	---	---	---	
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-
A1-12D	A1-12DX	1.7-3.2		21-Apr-09	0.408	<0.08	<0.05	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	1.22	<0.05	<1.5	<0.05	<0.05	<0.3	AW-
QA/QC RPD				21-Apr-09	1.0%	---	---	---	---	---	---	---	---	---	4.0%	---	---	---	---	---	
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	MW02-05X	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	<0.05	<0.05	<0.05	<0.05	AW-
QA/QC RPD				4-Apr-07	0.0%	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
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	DUP-15	2.4-6.1		20-Sep-10	1.21	<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	<0.05	<0.05	AW-
QA/QC RPD				20-Sep-10	5.6%	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
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	A3 MW02-05	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	DUP-29	2.4-6.1	L1461846-6	28-May-14	0.418	<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-
QA/QC RPD				28-May-14	5.6%	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
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	DUP-19	2.4-6.1	L1509397-7	27-Aug-14	0.161	<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-
QA/QC RPD				27-Aug-14	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
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	DUP-8	2.4-6.1	L1597132-3	9-Apr-15	0.68	<0.08	<0.04	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	<0.01	0.097	<0.01	<0.05	<0.02	0.023	<0.05	AW-
QA/QC RPD				9-Apr-15	3.3%	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
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-
A3MW02-06	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	DUP1	3.4-6.4		28-Jun-06	3.9	<0.05	<0.05	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	0.979	<0.05	<0.7	0.307	<0.05	<0.05	AW-
QA/QC RPD				28-Jun-06	0.8%	---	---	---	---	---	---	---	---	---	0.8%	---	---	4.0%	---	---	
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	A3MW02-06X	3.4-6.4		9-Apr-08	4.77	<0.05	0.061	<0.05	<0.01	<0.1	<0.05	<0.05	<0.05	<0.05	1.13	<0.05	<2.	0.47	<0.05	<0.4	AW-
QA/QC RPD				9-Apr-08	4.9%	---	---	---	---	---	---	---	---	---	5.5%	---	---	8.2%	---	---	
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	A3MW02-06X	3.4-6.4		19-Apr-10	3.73	<0.05	0.093	<0.05	0.078	0.175	0.059	0.063	<0.05	0.113	0.834	0.061	<0.7	0.332	0.123	<0.35	AW-
QA/QC RPD				19-Apr-10	3.7%	---	---	---	---	---	---	---	---	---	5.0%	---	---	15.0%	---	---	
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	DUP-25	3.4-6.4		4-May-11	7.59	<0.2	0.48	<0.05	0.021	<0.1	<0.05	<0.05	<0.05	1.72	5.47	<0.05	8.54	**4.48**	**1.02**	<0.7	**AW+**
QA/QC RPD				4-May-11	0.5%	---	3.7%	---	---	---	---	---	---	3.4%	0.2%	---	0.1%	0.2%	3.8%	---	
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	DUP-36	3.4-6.4		27-Sep-11	4.28	<0.05	0.119	<0.05	<0.03	<0.1	<0.05	<0.05	<0.05	0.575	2.48	<0.05	2.12	0.507	**0.448**	<0.3	**AW+**
QA/QC RPD				27-Sep-11	6.3%	---	---	---	---	---	---	---	---	3.9%	0.4%	---	12.5%	6.1%	4.8%	---	
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+**
A3MW02-07	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-
A3MW02-08	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+**

TABLE A-3
AREAS 1 AND 3 CONCENTRATIONS OF POLYCYCLIC AROMATIC HYDROCARBONS IN GROUNDWATER
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
CHEVRON 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	Benzo(ghi)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	Quinoline	Groundwater Classification
Generic Numerical Water Standards																					
CSR - Stage 9	Aquatic Life Standards			(AW)[1]	60.	0.5	1.	1.	0.1	NS	NS	1.	NS	2.	120.	NS	10.	3.	0.2	34.	
CSR - Stage 10	Aquatic Life Standards			(AW)[1]	60.	0.5	1.	1.	0.1	NS	NS	1.	NS	2.	120.	NS	10.	3.	0.2	34.	
	Site-Specific Screening Levels (SSSLs)				60.	30.	40.	1.	2.8			1.		40.	120.		440.	3.	40.	34.	
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+**
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-
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	Dup 106	2.3-8.3		26-Apr-05	2.19	<0.05	<0.05	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	1.91	<0.05	**17.7**	0.405	<0.05	<0.6	**AW+**
QA/QC RPD				26-Apr-05	3.7%	---	---	---	---	---	---	---	---	---	2.7%	---	9.7%	1.5%	---	---	
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	DUP205	2.3-8.3		20-Sep-05	1.31	<0.05	<0.05	<0.05	<0.01	<0.1	<0.05	<0.05	<0.05	<0.05	1.15	<0.05	<0.5	0.122	<0.05	<0.4	AW-
QA/QC RPD				20-Sep-05	7.4%	---	---	---	---	---	---	---	---	---	16.0%	---	---	---	---	---	
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	DUP11	2.3-8.3		31-Aug-06	0.967	<0.05	<0.05	<0.05	<0.01	<0.1	<0.05	<0.05	<0.05	<0.05	0.878	<0.05	<0.9	0.139	<0.05	<0.05	AW-
QA/QC RPD				31-Aug-06	11.8%	---	---	---	---	---	---	---	---	---	11.7%	---	---	---	---	---	
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	A3 MW03-02	2.3-8.3		3-Apr-08	2.43	<0.05	<0.05	<0.05	<0.01	<0.1	<0.05	<0.05	<0.05	<0.05	1.74	<0.05	<2.	0.344	<0.05	<0.2	AW-
QA/QC RPD				3-Apr-08	1.7%	---	---	---	---	---	---	---	---	---	1.7%	---	---	6.9%	---	---	
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 MW03-02X	2.3-8.3		27-Apr-09	2.27	<0.05	<0.05	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	1.77	<0.05	<1.5	0.432	<0.05	<0.65	AW-
QA/QC RPD				27-Apr-09	1.3%	---	---	---	---	---	---	---	---	---	6.4%	---	---	6.5%	---	---	
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 MW03-02X	2.3-8.3		3-Sep-09	4.3	<0.05	<0.05	<0.05	<0.01	<0.1	<0.05	<0.05	<0.05	<0.05	1.65	<0.05	<0.7	0.134	<0.05	<0.3	AW-
QA/QC RPD				3-Sep-09	4.5%	---	---	---	---	---	---	---	---	---	1.2%	---	---	---	---	---	
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 MW03-02X	2.3-8.3		19-Apr-10	2.49	<0.05	<0.05	<0.05	<0.01	<0.1	<0.05	<0.05	<0.05	<0.05	1.91	<0.05	<1.	0.404	<0.05	<0.65	AW-
QA/QC RPD				19-Apr-10	2.8%	---	---	---	---	---	---	---	---	---	3.6%	---	---	3.6%	---	---	
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	DUP-4	2.3-8.3		7-Sep-10	1.37	0.053	<0.05	<0.05	<0.01	<0.1	<0.05	<0.05	<0.05	<0.05	1.6	<0.05	<0.6	0.269	<0.05	<0.2	AW-
QA/QC RPD				7-Sep-10	5.2%	---	---	---	---	---	---	---	---	---	7.1%	---	---	3.8%	---	---	
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	DUP-26	2.3-8.3		4-May-11	3.65	<0.07	0.076	0.084	0.029	<0.1	<0.05	0.067	<0.05	0.423	2.26	<0.05	<2.	0.974	**0.321**	<0.6	**AW+**
QA/QC RPD				4-May-11	3.1%	---	---	---	---	---	---	---	---	2.6%	8.3%	---	---	5.7%	3.5%	---	
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	DUP24	2.3-8.3		18-Sep-12	1.49	<0.05	<0.05	<0.05	<0.01	<0.1	<0.05	<0.05	<0.05	<0.05	1.54	<0.05	<0.7	<0.05	<0.05	<0.25	AW-
QA/QC RPD				18-Sep-12	2.7%	---	---	---	---	---	---	---	---	---	2.0%	---	---	---	---	---	
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	DUP-18	2.3-8.3		9-Apr-13	1.6	<0.05	<0.05	<0.05	<0.01	<0.1	<0.05	<0.05	<0.05	<0.05	0.96	<0.05	<0.2	<0.05	<0.05	<0.08	AW-
QA/QC RPD				9-Apr-13	0.6%	---	---	---	---	---	---	---	---	---	5.9%	---	---	---	---	---	
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	DUP-19	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	1.34	<0.05	<1.	<0.05	<0.05	<0.09	AW-
QA/QC RPD				28-Aug-13	---	---	---	---	---	---	---	---	---	---	2.3%	---	---	---	---	---	
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	DUP-9	2.3-8.3	L1597689-3	10-Apr-15	1.33	<0.05	<0.03	<0.01	<0.01	<0.02	<0.01	<0.01	<0.01	0.021	1.05	<0.01	<0.95	0.159	<0.03	<0.8	AW-
QA/QC RPD				10-Apr-15	65.3%	---	---	---	---	---	---	---	---	---	51.6%	---	---	---	---	---	
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	DUP-7	2.3-8.3	L1832800-4	21-Sep-16	1.38	<0.05	<0.05	<0.05	<0.005	<0.01	<0.05	<0.05	<0.05	<0.05	1.39	<0.05	<0.8	0.252	<0.05	<0.4	AW-
QA/QC RPD				21-Sep-16	0.7%	---	---	---	---	---	---	---	---	---	0.0%	---	---	1.2%	---	---	
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	DUP	0.8-6.9		24-Jul-06	0.703	<0.4	0.057	0.091	0.092	<0.1	0.052	0.137	<0.05	<0.05	0.465	<0.05	3.11	0.378	0.145	<0.05	AW-
QA/QC RPD				24-Jul-06	---	---	---	---	---	---	---	---	---	---	24.4%	---	14.6%	60.1%	---	---	
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	DUP25	0.8-6.9		20-Sep-12	0.142	<0.3	<0.2	<0.09	<0.09	<0.1	0.052	<0.1	<0.05	0.163	0.241	<0.05	<0.05	<0.05	**0.206**	<0.05	**AW+**
QA/QC RPD				20-Sep-12	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
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	DUP-19	0.8-6.9		9-Apr-13	0.066	<0.3	<0.1	0.165	**0.154**	<0.148	0.069	0.203	<0.05	0.239	0.15	<0.05	<0.05	<0.05	**0.329**	<0.05	**AW+**
QA/QC RPD				9-Apr-13	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
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	DUP-20	0.8-6.9		3-Sep-13	0.057	<0.2	<0.05	<0.07	<0.07	<0.1	<0.05	<0.1	<0.05	0.087	0.104	<0.05	<0.08	<0.05	0.158	<0.05	AW-
QA/QC RPD				3-Sep-13	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
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-
A3MW03-04	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	DUP 202	1.5-6.7		19-Sep-05	0.172	<0.05	<0.05	<0.05	<0.01	<0.1	<0.05	<0.05	<0.05	<0.05	0.154	<0.05	3.35	0.133	<0.05	<0.05	AW-
QA/QC RPD				19-Sep-05	---	---	---	---	---	---	---	---	---	---	---	---	11.5%	---	---	---	
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-

TABLE A-3
AREAS 1 AND 3 CONCENTRATIONS OF POLYCYCLIC AROMATIC HYDROCARBONS IN GROUNDWATER
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
CHEVRON 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	Benzo(ghi)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	Quinoline	Groundwater Classification
Generic Numerical Water Standards																					
CSR - Stage 9	Aquatic Life Standards			(AW)[1]	60.	0.5	1.	1.	0.1	NS	NS	1.	NS	2.	120.	NS	10.	3.	0.2	34.	
CSR - Stage 10	Aquatic Life Standards			(AW)[1]	60.	0.5	1.	1.	0.1	NS	NS	1.	NS	2.	120.	NS	10.	3.	0.2	34.	
	Site-Specific Screening Levels (SSSLs)				60.	30.	40.	1.	2.8			1.		40.	120.		440.	3.	40.	34.	
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	DUP-28	1.5-6.7	L1461850-5	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-
OA/OC RPD				28-May-14	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
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	DUP-12	1.5-6.7	L1667287-6	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	<0.2	<0.05	<0.05	<0.05	AW-
QA/QC RPD				2-Sep-15	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
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-
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	Dup 104	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-
QA/QC RPD				20-Apr-05	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
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-
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	DUP-13	3.1-6.1	L1752106-4	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-
QA/QC RPD				4-Apr-16	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
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-
G1-1B	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	G1-5X	9.1-12.2		21-Apr-09	0.214	<0.05	<0.05	<0.05	<0.01	<0.05	<0.05	<0.05	<0.05	<0.05	0.066	<0.05	<0.2	<0.05	0.069	<0.05	AW-
OA/OC RPD				21-Apr-09	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
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	G1-5X	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-
OA/OC RPD				7-Apr-10	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
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-
G1-5	DUP-1	9.1-12.2		2-Sep-10	0.064	<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	0.053	<0.05	AW-
OA/OC RPD				2-Sep-10	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
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	G1-8X	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-
QA/QC RPD				13-Apr-07	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
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	DUP-8	0.6-2.2	L1746133-8	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-
QA/QC RPD				17-Mar-16	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
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-
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	Dup11	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-
QA/QC RPD				30-Mar-06	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
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	U6X	0.9-3.9		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-
QA/QC RPD				4-Apr-07	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
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-

TABLE A-3
AREAS 1 AND 3 CONCENTRATIONS OF POLYCYCLIC AROMATIC HYDROCARBONS IN GROUNDWATER
SEMI-ANNUAL PERIMETER MONITORING PROGRAM
CHEVRON 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	Benzo(ghi)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	Quinoline	Groundwater Classification
Generic Numerical Water Standards																					
CSR - Stage 9	Aquatic Life Standards			(AW)[1]	60.	0.5	1.	1.	0.1	NS	NS	1.	NS	2.	120.	NS	10.	3.	0.2	34.	
CSR - Stage 10	Aquatic Life Standards			(AW)[1]	60.	0.5	1.	1.	0.1	NS	NS	1.	NS	2.	120.	NS	10.	3.	0.2	34.	
	Site-Specific Screening Levels (SSSLs)				60.	30.	40.	1.	2.8			1.		40.	120.		440.	3.	40.	34.	
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-
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	Dup12	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-
QA/QC RPD				30-Mar-06	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
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	DUP-35	1.2-5.8		22-Sep-11	<0.05	<0.05	<0.05	<0.05	<0.01	<0.1	<0.05	<0.05	<0.05	0.052	<0.05	<0.05	<0.05	0.052	<0.05	<0.05	AW-
QA/QC RPD				22-Sep-11	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
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-
U07-10S	U07-10S	4.7-6.2		4-May-11	690	**<20**	51	**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**	**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	**8.9**	**13**	**14**	5.5	12.21	1.22	**9.95**	0.4	77.8	**132**	1.56	4060	**213**	55	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**	**2.4**	4.98	0.48	**5.19**	0.155	65.2	**173**	0.658	6850	**234**	45.4	<0.2	**AW+**
U07-10S	DUP-13	4.7-6.2	L1668445-2	3-Sep-15	461	**9.19**	**<20**	**4.96**	**2.28**	4.66	0.444	**3.67**	0.142	54.6	**162**	0.605	6340	**211**	37.7	<0.2	**AW+**
QA/QC RPD				3-Sep-15	8.9%	1.5%	---	36.6%	6.8%	6.6%	7.8%	34.3%	---	17.7%	6.6%	8.4%	7.7%	10.3%	18.5%	---	
U07-10S	U07-10S	4.7-6.2	L1745069-1	15-Mar-16	12600	**<200**	1620	**1800.0**	648.0	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**	**7**	**2.6**	**0.7**	1.409	0.147	**1.68**	0.048	**17**	87	0.199	11400	**102**	**11**	<0.2	**AW+**
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	U07-10IX	6.65-8.15		28-Aug-08	<2.5	**<2.5**	**<2.5**	**<2.5**	**0.17**	0.254	0.057	**<2.5**	<0.05	**3.1**	<2.5	0.058	<2.5	2.5	**2.6**	<2.5	**AW+**
QA/QC RPD				28-Aug-08	---	---	---	---	---	26.6%	---	---	---	27.5%	---	---	---	62.6%	20.4%	---	
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	U7-10I	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	DUP-27	6.65-8.15		4-May-11	0.069	<0.05	<0.05	<0.05	<0.01	<0.1	<0.05	<0.05	<0.05	<0.05	<0.05	<0.05	0.386	0.099	<0.05	<0.05	AW-
QA/QC RPD				4-May-11	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
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	0.141	<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	U7-10I	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-
U07-10D	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	DUP-10	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-
QA/QC RPD				16-May-12	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	
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	U7-10D	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-
Equipment Blank	EB-1		L1668270-4	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-
Equipment Blank	EB-2		L1745070-3	15-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-
Equipment Blank	EB-3		L1745070-4	15-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-
Reported Detection Limit					0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	AW-

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

			Acenaphthene	Acridine	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b+k)fluoranthene	Benzo(ghi)perylene	Chrysene	Dibenz(a,h)anthracene	Fluoranthene	Fluorene	Indeno(1,2,3-c,d)pyrene	Naphthalene	Phenanthrene	Pyrene	Quinoline	Groundwater Classification
Generic Numerical Water Standards																			
CSR - Stage 9	Aquatic Life Standards	(AW)[1]	60.	0.5	1.	1.	0.1	NS	NS	1.	NS	2.	120.	NS	10.	3.	0.2	34.	
CSR - Stage 10	Aquatic Life Standards	(AW)[1]	60.	0.5	1.	1.	0.1	NS	NS	1.	NS	2.	120.	NS	10.	3.	0.2	34.	
	Site-Specific Screening Levels (SSSLs)		60.	30.	40.	1.	2.8			1.		40.	120.		440.	3.	40.	34.	
Well ID	**Sample ID**	**Screened Interval**	**ALS Laboratory Report #**	**Sample Date**															

Abbreviations:

CSR	Contaminated Sites Regulation (including Stage 9 amendments, January 2014, Stage 10 amendments, October 2016).
NS	No standard established for indicated parameter.
QA/QC	Quality assurance / quality control
RPD	Relative percent difference
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.
BOLD	Sample concentration greater than CSR standard for aquatic life (AW).
BOLD RED HIGHLIGHTED	Exceeds Site Specific Screening Levels (SSSLs)

Notes

1	CSR AW standards apply to both freshwater and marine receiving environments.
2	Benzo(b)flouranthene concentration of 0.095 added to benzo(k)flouranthene concentration of <0.05
3	Benzo(b)flouranthene concentration of 0.106 added to benzo(k)flouranthene concentration of <0.05
4	Detection limit adjusted for sample matrix effects
5	Criterion concentration reported in µg/L