2021 ANNUAL SITE REPORT
SITE: FORMER BP HARBOR ISLAND TERMINAL
CLEANUP SITE ID: 4426
1652 SW LANDER STREET
SEATTLE, WASHINGTON

CONSENT DECREE NO. 00-2-05714-8SEA

APRIL 2022

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Northwest Regional Office
3190 160th Avenue SE
Bellevue, Washington 98008-5452

Prepared for
TLP Management Services, LLC
1670 Broadway
Suite 3100
Denver, CO 80202

Prepared by
TechSolve Environmental, Inc.
7518 NE 169th Street
Kenmore, Washington 98028
www.techsolveinc.com

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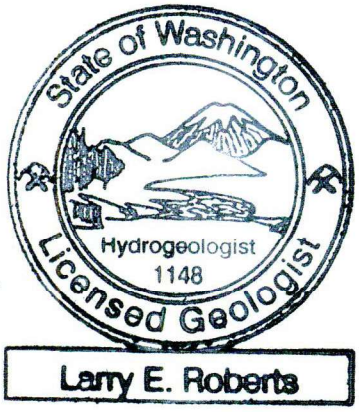
Scott K. Larsen, CHMM
Project Scientist/Project Manager
TechSolve Environmental, Inc.

Larry E. Roberts, LG, LHG
Principal, WA Licensed Geologist/Hydrogeologist
TechSolve Environmental, Inc.



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List of Abbreviations and Acronyms

ARCO	-	Atlantic Richfield Company
BP	-	British Petroleum West Coast Products Company
BTEX	-	Benzene, Toluene, Ethylbenzene, Xylenes
cPAHs	-	Carcinogenic Polycyclic Aromatic Hydrocarbons
CAP	-	Cleanup Action Plan
CCR	-	Construction Completion Report
DAS	-	Diffused Air Stripper
Ecology	-	The Washington State Department of Ecology
EDR	-	Engineering Design Report
EPA	-	United States Environmental Protection Agency
ft./ft.	-	Feet per Foot
GPM	-	Gallons Per Minute
GWCMCP	-	Groundwater Compliance Monitoring & Contingency Program
HASP	-	Health and Safety Plan
IHSs	-	Indicator Hazardous Substances
KCDNR	-	King County Department of Natural Resources
LNAPL	-	Light Non-Aqueous Phase Liquid
µg/L	-	Micrograms per Liter
mg/kg	-	Milligrams per Kilogram
OWS	-	Oil Water Separator
OU	-	Operable Unit
O&M	-	Operation and Maintenance
PSCAA	-	Puget Sound Clean Air Agency
RI	-	Remedial Investigation
RI/FS	-	Remedial Investigation and Feasibility Study
Seaport	-	Seaport Midstream Partners, LLC
SVE	-	Soil Vapor Extraction
TLP	-	TLP Management Services, LLC
TPH	-	Total Petroleum Hydrocarbons

Executive Summary

This report summarizes remedial actions conducted in 2021 at the Former BP Harbor Island Terminal (the Site) located on Harbor Island, Seattle, Washington. Remedial actions were conducted in 2021 on behalf of TLP Management Services, LLC (TLP). Remedial actions have been conducted since 2002 per Consent Decree No. 00-2-05714-8SEA and build upon interim actions conducted from 1992 to 2002. The Consent Decree, which was entered into in 2000, required implementation of remedies to address petroleum hydrocarbon impacted soil and groundwater. Remedies included operating active remediation systems in inaccessible areas (e.g., beneath structures) adjacent to the Duwamish Waterway, excavation of accessible soil "hot spots" at inland areas, and natural attenuation of inaccessible soil hot spots (e.g., adjacent to above-ground storage tanks). A Groundwater Monitoring and Contingency Program is used to confirm that cleanup requirements are achieved. The Consent Decree established restoration timetables for removal of petroleum product (light non-aqueous phase liquid [LNAPL]) and groundwater restoration, measured at property boundaries. Timetables have been extended and remedial actions are ongoing to meet cleanup objectives.

Inland soil remedial actions (excavation, natural attenuation, and SVE) have been effective in protecting groundwater at property boundaries. At Plant 2, in the north central portion of Harbor Island, Ecology determined that remedial actions appear complete. At Plant 1, a source of weathered hydrocarbons was located in the groundwater "smear" zone, inland from the waterfront, near the Site's southern boundary. A second SVE system was operated in this area from 2008 to 2014 to improve soil and groundwater conditions. Operation of the inland SVE system was discontinued in 2015, as the system no longer benefited ongoing remedial actions. In 2018 Ecology approved a limited decommissioning of the inland SVE system.

Monitoring data show that waterfront remedial actions are achieving cleanup goals. Ecology has previously determined that Plant 1 waterfront remediation systems effectively protect the Duwamish Waterway and have removed most LNAPL and hydrocarbons in this area. Currently, the waterfront groundwater/LNAPL recovery system is the only active remediation system in operation. Waterfront soil vapor extraction (SVE) and air sparging systems have been discontinued, per Ecology's approval, as operation no longer benefited ongoing remedial actions. Groundwater samples from Performance/Confirmation Wells located along the Plant 1 waterfront have met cleanup criterion levels for indicator hazardous substances (IHSs), with no exceedances along the waterfront for over six years.

A 2019 probing investigation, completed in the area of the waterfront groundwater/LNAPL recovery system, evaluated the extent of remaining hydrocarbons and if the system had recovered LNAPL to the extent practicable. The results of the investigation indicated that no recoverable LNAPL remains in this area of the Site and that the groundwater/LNAPL recovery system has met the performance criterion of recovering LNAPL to the extent practicable.

A study to reevaluate Site hydrology was approved by Ecology in March 2021 and conducted in April and May of 2021. Ecology requested the study be completed to evaluate how the installation of a new seawall affected Site hydrology. Installation of the new seawall

was completed in 2018, along the northern half of the waterfront, to enhance the seismic stability of the Site. The study also evaluated if established conditional points of compliance remain appropriate and if continuation of, or revisions to, remedial actions are needed to meet Site cleanup objectives. Over the course of the three-week study, water level and salinity data were collected from 23 separate groundwater monitoring wells and a surface water stilling well. Collected data were evaluated and compared to historical studies to evaluate hydraulic conditions and potential changes that have occurred over time. A summary report was prepared and submitted to Ecology in February 2022, which presented the findings of the study. The results of the study indicated that the new seawall had not significantly altered groundwater gradients or flow directions at the Site and that localized mounding of groundwater behind the new seawall appeared minimal. The new seawall did appear to locally attenuate both tidal response and surface water mixing in shallow groundwater directly inland of the new seawall. The bulk of surface water and groundwater exchange continues to occur along the waterfront in deeper sediments (i.e., deeper groundwater) and beneath shallower fill materials. However, a few areas of higher exchange in shallow sediments (i.e., shallow groundwater) were observed when compared to adjacent shallow areas. The localized areas of higher surface water and shallow groundwater exchange appear tied to reduced waterward barriers. The findings of the investigation support the applicability of established points of compliance at the Site, which measure if performance and confirmational objectives have been met. The study can be used to evaluate the appropriateness of any proposed modification to the compliance well network.

1. Introduction

TechSolve Environmental Inc. (TechSolve, formerly TechSolv Consulting Group, Inc.) has prepared this report on behalf of TLP Management Services, LLC (TLP) to summarize remedial investigation (RI) and cleanup activities conducted through 2021 at the Former BP Harbor Island Site, currently the Seaport Seattle Terminal (formerly BP West Coast Products [BP] and Atlantic Richfield Company [ARCO]) (the Site) located on Harbor Island in Seattle, Washington. This report was prepared to satisfy Annual Reporting Requirements of Consent Decree No. 00-2-05714-8SEA, cooperatively entered into between ARCO and the Washington State Department of Ecology (Ecology). The Consent Decree was entered into court on March 24, 2000 (Ecology, 2000b) by the Washington State Attorney General.

This report is organized into seven sections and includes three appendices. Many of the required background and general discussion components summarized in this Annual Site Report have been further explained in previous documents submitted to Ecology and are referenced in appropriate sections. The report is organized as follows:

- Section 1 – Provides a summary of the project, descriptions of Site reporting requirements, and summarizes the organization of this report.
- Section 2 – Provides descriptions of Site history, regulatory status, historical investigations, selection of remedial actions, Site cleanup action levels, monitoring requirements, and cleanup requirements.
- Section 3 – Summarizes remedial actions that have occurred at the Site and associated monitoring activities.
- Section 4 – Summarizes groundwater monitoring activities conducted at the Site and provides results and findings of these activities.
- Section 5 – Summarizes additional activities conducted in 2021, including completing an evaluation of how Site hydrology was impacted by a new seawall that was installed along the northern half of the waterfront at Plant 1.
- Section 6 – Summarizes the information presented in this report.
- Section 7 – Documents the references cited in this report.
- Appendix A: KCDNR Discharge Reports – Provides the two 2021 semi-annual discharge reports provided to the King County Department of Natural Resources (KCDNR).
- Appendix B: Sheen Observations – Documents the occurrence of sheens within booms located on the Duwamish Waterway from 1996 through 2021.
- Appendix C: Groundwater Monitoring Hydrocarbon Results – Graphs of hydrocarbon analytical results for active groundwater monitoring wells.

2. Site Description History, and Cleanup Standards

The Site is located on Harbor Island and consists of two separate bulk fuel storage plants (Figure 1). Harbor Island is a 455-acre man-made island that lies between the East and West Waterways of the Duwamish River. Plant 1 occupies about 12 acres on the western portion of the island, along the West Waterway of the Duwamish River. Plant 2 occupies about 3.5 acres in the north-central part of the island. Both plants were constructed in the 1930s and have operated as bulk fuel storage and transfer facilities under several owners since that time. In 2017, Seaport purchased the facilities and TLP assumed operation and ongoing environmental responsibility.

Harbor Island was created primarily from marine sediments dredged from the Duwamish River. Currently, about 95 percent of the island is covered with industrial buildings, paved roads, or other impervious surfaces. The island's pervious surfaces consist primarily of land located adjacent to aboveground storage tanks and by railroad tracks.

In the northern portion of the island, where the Site is located, groundwater flows radially outward from the island center and enters marine surface waters at the island's edge. This flow pattern was reconfirmed in 2021, as discussed in Section 4.1.6. Local groundwater is recharged from precipitation and, possibly, leaking underground utilities (e.g., storm sewers and public water supply piping). Recharge of groundwater from precipitation has decreased over past decades due to increases in impermeable surfaces from island redevelopment. Ecology and the United States Environmental Protection Agency (EPA) have determined that groundwater beneath Harbor Island is non-potable, which is unlikely to change due to the island's extensive industrial land usage.

2.1. Site Regulatory Status

Harbor Island was placed on the National Priorities List in 1983 as a Superfund Site due to elevated levels of hazardous substances in soil, primarily lead. The Harbor Island Superfund Site consists of seven operable units (OUs). The Former BP Harbor Island Terminal Site is part of the Tank Farm OU, which includes the adjacent Shell (formerly Equiva Services, LLC, Equilon, and Texaco) and Kinder Morgan (formerly GATX and Shell) terminals. Ecology is the lead regulatory agency for the Tank Farm OU.

ARCO and Ecology cooperatively entered into Agreed Order No. DE 92 TC-N158 in 1992 (Ecology, 1992) to conduct Site characterization activities and develop remedial actions. Remedial Investigation/Feasibility Studies (RI/FS) completed in 1997 (Geraghty & Miller, 1994, 1996, and 1997) showed hazardous substances present in groundwater and soil at the Site were primarily highly weathered total petroleum hydrocarbons (TPH) as diesel (TPH-D), with lesser amounts of weathered gasoline (TPH-G) and heavier oil (TPH-O). The weathered TPH likely resulted from historic spills at the Site. The RI/FS showed the primary area of impact at the Site was a petroleum-based LNAPL plume located beneath the warehouse and loading rack area adjacent to the Duwamish Waterway at Plant 1. Secondary areas of concern included petroleum impacted soils located within the Plant 1 and Plant 2 tank farms (Figures 2 and 3). Site-specific

cleanup alternatives for groundwater and soil were then developed to protect human health and the environment at the Site.

ARCO entered into Consent Decree No. 00-2-05714-8SEA with Ecology in 2000 for implementing remedial actions at the Site. Separate cleanup actions for the Plant 1 Waterfront area and for the inland Plant 1 and 2 soils were developed and specified in the Cleanup Action Plan (CAP) (Ecology, 1999) and in the Engineering Design Report (EDR) (TechSolv and AG&M, 2000a). Cleanup actions were selected from site-specific cleanup action alternatives developed as part of the Focused Feasibility Study (Geraghty & Miller, 1997). Elements of the selected cleanup actions include:

- Pumping and treatment for containment of a LNAPL plume that affected shallow groundwater along the waterfront of Plant 1.
- Excavation of accessible TPH impacted soil "hot spots" in the inland portions of Plant 1 and Plant 2.
- Natural attenuation of inaccessible soils.
- Air Sparging and SVE for accelerated mass removal of residual hydrocarbons in inaccessible soils at Plant 1.
- Groundwater compliance monitoring.
- Deed restrictions.
- Institutional controls.

A target period of 18 months was established for removal of LNAPL beneath the warehouse at Plant 1, and 5 years for groundwater restoration as measured at the property and surface water boundaries. Due to Site complexities, additional contingency actions have been implemented at the Site, including continued operation of the waterfront recovery system beyond 5 years and operation of a SVE system to address inaccessible hot spot soils inland from the waterfront at Plant 1, as further discussed in Section 3.3.

2.2. Cleanup Levels

IHS cleanup levels for the Site were identified and defined in the CAP and are summarized below.

The TPH cleanup action level for subsurface soil at the primary area of concern (Plant 1) was established to meet remedial objectives for protecting surface water at property boundaries and shorelines of the Duwamish Waterway. The Total TPH (TPH-G+TPH-D+TPH-O) cleanup level is also protective for other chemical constituents in petroleum product (i.e., benzene, toluene, ethylbenzene, xylenes [BTEX]) and is:

Total TPH	10,000 milligrams/kilogram (mg/kg)

The TPH cleanup action level for subsurface soil at the secondary area of concern (Plant 2) was set to meet remedial objectives of protecting surface water at property boundaries by improving general groundwater conditions at the source. This cleanup level was also set to enhance the timely restoration of impacted areas through natural attenuation, and is:

Total TPH	20,000 mg/kg

Site groundwater cleanup levels established by Ecology were based on surface water standards, to be protective of aquatic organisms in the Duwamish River. These standards were based on adopted ambient water quality criteria (Washington Administrative Code 173-201A and Section 304 of the Federal Clean Water Act). Surface water standards were not established for TPH when the CAP was approved; therefore, groundwater cleanup levels for TPH-G, TPH-D, and TPH-O were selected by Ecology as protective cleanup goals. Site groundwater cleanup levels are:

Product (LNAPL)	No sheen
Benzene	71 micrograms/liter (µg/L)
Carcinogenic Polycyclic Aromatic Hydrocarbons (cPAHs)	0.031 µg/L
Copper	2.9 µg/L
TPH-G	1,000 µg/L
TPH-D	10,000 µg/L
TPH-O	10,000 µg/L

2.3. Points of Compliance

The achievement of cleanup criteria are to be met at conditional points of compliance, which were established in the Groundwater Compliance Monitoring and Contingency Program (GWCMCP) (TechSolv, 1999b), Exhibit F of the Consent Decree.

The goal of soil cleanup standards for TPH are intended to protect the beneficial use of groundwater (surface water quality and associated ecosystem). The cleanup actions have resulted in substantive compliance with the soil cleanup standards by reducing concentrations of contaminants in soils to levels that support and maintain compliance with groundwater quality standards.

The achievement of cleanup levels in groundwater is measured at compliance points of performance and confirmation located within LNAPL plume areas, at the downgradient edge of the Site, and where groundwater discharges to surface water.

2.4. Compliance Monitoring Types and Criteria

Three types of compliance monitoring are required to be performed at the Site, as specified in the GWCMCP to meet the monitoring program objectives, and include the following:

- Protection Monitoring. Protection monitoring is performed to confirm that human health and the environment are protected during all phases of the cleanup actions. Protection monitoring is addressed in a health and safety plan (HASP) that was prepared in conjunction with the EDR, construction plans and specifications, and operation and maintenance (O&M) plans. The HASP is a working field document and is maintained on-site. The HASP is updated as system operations or procedures change.

- Performance Monitoring. Performance Monitoring is performed to confirm that the cleanup actions are attaining cleanup standards and other performance standards.

- Confirmation Monitoring is performed to confirm the long-term effectiveness of the cleanup action once cleanup actions and other performance standards have been attained.

2.4.1. Performance Monitoring

The objective of performance monitoring is to confirm that the cleanup actions have attained cleanup standards and other performance standards as appropriate. Performance monitoring requires free product (LNAPL) monitoring during LNAPL recovery activities and groundwater sampling to evaluate the effectiveness of soil and groundwater cleanup actions and natural attenuation.

The results of performance monitoring are discussed in the following two sections. The criteria established in the GWCMCP to be used to determine if compliance performance standards have been met include the following:

- Plant 1 Separate-Phase Hydrocarbons (LANPL): Removal to the maximum extent practicable or a lack of measurable LNAPL thickness in compliance monitoring wells, LNAPL recovery systems and until a persistent sheen is no longer observed on the waterway. A measurable thickness of free LNAPL is defined as greater than or equal to 0.01 feet thick.

- Plant 1 Dissolved TPH Constituents: Groundwater cleanup levels (Section 2.2.) are based on protection of aquatic organisms and on human ingestion of such organisms. The Point of Compliance for the Site groundwater is the property boundary and is represented by the Confirmation Monitoring Wells (Sections 2.4.2.).

- Plant 1 Natural Attenuation: To demonstrate that natural attenuation is occurring to reduce contaminant concentrations, the performance criteria is periodic monitoring of constituent plume data (i.e., benzene and TPH) and other indicators of natural attenuation processes. Evaluations will focus primarily on documenting loss of contaminant mass in groundwater and monitoring trends in biogeochemical parameters.

- Plant 1 SVE System Performance Criteria: Operation of an SVE system will continue until volatile petroleum hydrocarbons are recovered and residual hydrocarbons are degraded to a level that ensures continued compliance of cleanup criteria in the warehouse area Confirmation Wells.

- Plant 1 Air Sparging Performance Criteria: An air sparging system will be operated until the effect on LNAPL recovery becomes negligible (measurable LNAPL thickness), and residual hydrocarbons are degraded to level that ensures continued compliance of cleanup criteria in the warehouse area Confirmation Wells.

- Plant 1 Surface Water Boom Monitoring: The presence of sheens on the waterway will be monitored by visual observation. The results of sheen monitoring will be used to determine the effectiveness of remedial actions on reducing sheen and evaluate if adjustments to remedial actions are necessary along the waterfront. Booms will be maintained until there are no persistent sheens associated with the terminal detected.

- Plant 2 Performance Criteria: Removal of free LNAPL to the maximum extent practicable or a lack of measurable LNAPL thickness in compliance monitoring well(s). A measurable thickness of free LNAPL is defined as greater than or equal to 0.01 feet thick. Additionally, the effectiveness of continued natural attenuation at the Site will be evaluated as part of the performance monitoring program. This evaluation will focus primarily on documenting loss of contaminant mass in groundwater and monitoring trends in biogeochemical parameters.

2.4.2. Confirmation Monitoring

The objective of confirmation monitoring is to confirm the long-term effectiveness of the cleanup actions once performance standards have been met. Confirmation Monitoring Wells at Plant 1 consist of six wells (inland well AR-03 at the southern property boundary and five waterfront wells AMW-01, AMW-02, AMW-03, AMW-04, and AMW-05). Confirmation Monitoring Wells at Plant 2 consisted of five wells (GM-19S, GM-19D, GM-22S, GM-21S and MW-03R).

The results of confirmation monitoring are discussed in the following sections. The compliance criteria for confirmation monitoring established in the GWCMCP to be used to determine the long-term effectiveness of cleanup actions include the following:

- Plant 1 and Plant 2 Separate-Phase Hydrocarbons: To demonstrate that free LNAPL removal has been accomplished, the confirmation criterion will be a lack of sheen in compliance monitoring wells for a period of 1 year.

- Plant 1 and Plant 2 Groundwater: The point of compliance where cleanup levels (Section 2.2.) will be met is at the property boundary of the Site and is represented by the Confirmation Monitoring Wells listed above. Groundwater samples shall be collected from the Confirmation Monitoring Wells for a maximum of five years following attainment of cleanup levels, or until the concentrations are determined as no longer being affected by on-site sources. Indications of that criterion are groundwater concentrations below cleanup levels for four quarters, or concentration of analytes have stabilized and reached equilibrium. Groundwater quality is evaluated based on trends and not based on a single event or cleanup exceedance in a single well. Equilibrium concentrations of each analyte may be determined using statistical methods or another method approved by Ecology. If groundwater quality data indicate that at least 95 percent of the wells are below cleanup levels for four or more consecutive quarters, Ecology can be petitioned for Site delisting.

3. Summary of Selected Remedial Actions and Implementation

The following sections summarize remedial actions selected for the Site based on the RI/FS and subsequent investigations, and their implementation status. Accessible soil remedies have been completed, as detailed in referenced documents. The remedies for inaccessible soil and groundwater are ongoing and, therefore, discussed at greater length than completed remedies.

3.1. Waterfront Remedial Actions

Groundwater remedial actions have been conducted along the waterfront at Plant 1 (Figure 2) since 1992. An interim groundwater/LNAPL recovery system operated from 1992 through 2002, and an interim SVE system operated from 1996 through 2002. Final remediation systems were installed in 2002, as described in the EDR, and are summarized below.

Final remediation system designs were based upon the success of interim systems, and consisted of a combination of SVE, groundwater/LNAPL recovery, and air sparging. The groundwater/LNAPL recovery system was designed to capture LNAPL and dissolved hydrocarbons in groundwater and provide hydraulic control along the waterfront. The air sparging system was designed to mobilize LNAPL to aid in capture, to enhance in-situ biodegradation of residual hydrocarbons, and to strip volatile hydrocarbons from groundwater. The SVE system was designed to capture volatile hydrocarbons vapors and enhance in-situ biodegradation of residual hydrocarbons in the vadose zone. System components are located along the waterfront, in the warehouse and by the truck loading rack areas of Plant 1 (Figure 4) and are further discussed in the following sections.

The 2001 Nisqually earthquake damaged the warehouse, delaying installation of final remediation systems until repairs were completed (TechSolv, 2002). System construction activities were completed in 2003 and were detailed in the Construction Completion Report (CCR) (TechSolv, 2003c). The CCR was prepared following system testing and startup and documented that requirements of the Consent Decree and EDR were followed during system construction. The CCR was approved by Ecology in 2004 (Ecology, 2004a).

The O&M requirements for the final remediation system were presented in the Final O&M Manual (TechSolv, 2003d), which was approved by Ecology in 2004 (Ecology, 2004a). The O&M Manual presents system descriptions, startup and shutdown procedures, alarm conditions and remedies, normal operating conditions, system safety features, waste handling, and vendor-supplied literature. The O&M manual is a working field document, maintained on-site, and updated as system operations or procedures change or as equipment is replaced.

3.1.1. Waterfront Groundwater/LNAPL Recovery System

The waterfront groundwater/LNAPL recovery system depresses groundwater and captures LNAPL and shallow groundwater containing dissolved hydrocarbons. The system utilizes total-fluid pumps in recovery wells to pump LNAPL and groundwater to the remediation system treatment area. The system currently consists of 9 recovery wells (RW-1, RW-2, RW-4, RW-5, RW-6, RW-7, RW-8, RW-9, RW-10) located along the waterfront at Plant 1 (Figure 4).

Recovered LNAPL and groundwater are pumped into an oil water separator (OWS), which separates LNAPL from groundwater. Recovered LNAPL was historically recycled off-site, however LANPL has not been recovered since 2008 as detailed in the following sections. Separated groundwater enters a diffused air stripper (DAS), which strips dissolved volatile hydrocarbons from wastewater. Treated groundwater flows through a totalizing flowmeter prior to discharge to the sanitary sewer. The OWS, DAS, and flowmeter are utilized to comply with KCDNR sanitary sewer discharge requirements, as detailed in Table 1 and Appendix A.

3.1.1.1. Recovery System History

Well RW-1 has been utilized for groundwater recovery since startup of the interim system in 1992. Well RW-4 was brought online as part of the interim system in 1998. Wells RW-2, RW-5, and RW-6 have operated since 2001, following system installation activities north of the warehouse. Wells RW-7, RW-8, RW-9, and RW-10 were completed during final system construction and brought online in 2002.

GM-11S was converted from a monitoring well to a recovery well in 2000 after LNAPL was observed in the well. Well GM-11S was taken offline in May 2013 and has remained offline through 2021 as conveyance line blockages prevent operation of this well. Due to measured improvements in groundwater quality from Well GM-11S, groundwater pumping is no longer performed. LNAPL is no longer measurable in Well GM-11S. Observed sheen in well GM-11S is infrequent, with only a slight sheen observed in one of the monthly monitoring events in 2021 and a sheen had last been observed in August 2018 (Section 4.1.5.). Voluntary groundwater monitoring (Table 2) shows that GM-11S has been below dissolved phase cleanup levels, applicable at conditional points of compliance, since 2014.

In 2003, decreased LNAPL recovery triggered a soil investigation at Plant 1 (TechSolv, 2003b). Soil cores evaluated for LNAPL presence showed no LNAPL existing outside the capture zone of the recovery wells, supporting data that show most of the LNAPL has been recovered from the warehouse area.

A probing investigation completed in 2019 (TechSolve, 2020a), involving the collection and analysis of soil and groundwater samples, further supports that the groundwater/LNAPL recovery system has recovered LNAPL to the extent practicable and has met the performance criterion listed in the GWCMCP (Section 2.4.1.) for the discontinuation of system operation.

3.1.1.2. Recovery System Permit Compliance

The groundwater/LNAPL recovery system is monitored weekly and maintenance is performed as needed to maintain system operation in accordance with permit requirements. Testing of influent and effluent streams (Table 1) is conducted monthly to ensure compliance with groundwater discharge requirements under a sanitary sewer permit (KCDNR Permit 7592-05 for Sample Site A43262) and an air discharge permit (Puget Sound Clean Air Agency [PSCAA] Discharge Authorization No. 9817).

PSCAA Notice of Construction No. 9817 allows for continued air discharge from the DAS portion of the groundwater/LNAPL recovery system. Air monitoring data are collected to verify compliance with PSCAA's air discharge limits, and are provided to PSCAA upon request. In 2021, air discharges from the DAS were below permitted levels and below PSCAA's exemption thresholds for soil and groundwater remediation projects listed in PSCAA Regulation I, Article 6, Section 6.03(c)(94), indicating air permitting is no longer required. Permits and air data are retained by TechSolve and are available upon request.

In 2021, the sanitary sewer discharge permit (KCDNR Permit 7592-06) required semi-annual submittal of monitoring data and monthly submittal of total gallons of processed groundwater discharged to sanitary sewer. The two 2021 semi-annual KCDNR Waste Discharge Self-Monitoring Reports are included in Appendix A. Results from testing (Table 1, Figures 5 through 7) show that the treatment system effectively met discharge permit requirements. Should discharges exceed permit guidelines, recovery systems will be shut down and KCDNR contacted regarding the exceedance.

The 2021 monitoring results from testing recovered and treated groundwater (Table 1) show that concentrations of benzene and TPH in both influent (recovered groundwater that has not been treated with the DAS) and effluent (wastewater sampled following OWS and DAS treatment and prior to sanitary sewer discharge) water were below both the permitted discharge limits and the IHS cleanup levels (Section 2.2.) during all monitoring periods. These data provide an additional line of evidence that the groundwater/LNAPL recovery system has recovered LNAPL to the extent technically practicable and dissolved phase hydrocarbons within the system's capture zone are mainly below cleanup levels applicable at the conditional point of compliance.

3.1.1.3. Recovery System Drawdown and Capture

The groundwater/LNAPL recovery system pumps shallow groundwater, with water table drawdown at recovery wells designed not to extend deeper than the bottom of the LNAPL smear zone (approximately 4 feet in total height, which was created by seasonal and tidal fluctuations in water table elevation). Pumping tests (TechSolv, 1999a) showed that an appropriate capture zone could be achieved with pumping rates from 0.7 to 0.9 gallons per minute per well. Recovery system startup testing confirmed these pumping rates achieved desired groundwater drawdown and capture.

Operation data for the groundwater/LNAPL recovery system collected through 2021 (Table 1) show that desired hydraulic capture/control has been achieved. During the first five years of system operation following startup (2002-2006), the average annual system flow rates ranged from 4 to 11 gallons per minute (GPM), which represents the combined total pumping rate from operating 10 recovery wells. From 2007 through 2010 average annual flow rates ranged from 2.2 to 3.2 GPM. The average annual flow rates have ranged from 1.0 to 1.9 GPM since 2011. While some of the reduction in recovery rates is attributable to system downtime for O&M and the elimination of pumping well GM-11S, as discussed in the previous section, these data and observations indicate fouling in soil formations surrounding the recovery wells

has decreased recovery over time. Fouling is mainly from biological and mineral deposits generated by high iron and manganese concentrations in groundwater. Deposits are routinely cleaned from wells, pumps, and piping to prevent fouling and blockages. Preventative maintenance and redevelopment activities were performed on groundwater recovery wells in 2021 to remove fouling and attempt to improve pumping rates, as further discussed in Section 3.1.1.6. While fouling may reduce pumping rates, desired capture appears to have achieved the performance criterion for the system, which is to recover LNAPL to the extent practicable.

Groundwater elevations vary daily in groundwater/LNAPL recovery wells due to tidal fluctuations in the adjacent Duwamish Waterway. Testing has shown that while the Duwamish Waterway fluctuates up to 16 feet during a daily tidal cycle, shallow groundwater only fluctuates about 1 foot over the same period (TechSolv, 2004). The RI determined that the difference in tidal response for shallow groundwater versus deeper groundwater is due to the dampening effect of the western warehouse foundation (driven interlocking sheet piling underlying the warehouse foundation), bulkheads at the island edge, and decreased seepage through a silty/clay layer that partially separates upper and lower water tables in some areas (Figure 8). A hydraulic investigation (TechSolve, 2022a), conducted in 2021 and detailed in Section 5.2, reevaluated site hydrologic conditions and showed current hydrologic conditions at the site are consistent with those observed during the RI.

Pumping rate data, collected multiple times daily during various tidal stages, have shown that fluctuations in tidal elevation affect groundwater/LNAPL recovery system pumping. Data show correlation between tidal elevation and groundwater recovery rates, which indicates that groundwater/LNAPL recovery system operation affects deeper groundwater and that the desired capture is achieved without adjustment to account for tidal fluctuations (i.e., total fluid pumps automatically pump faster during high tides).

3.1.1.4. LNAPL/Groundwater Recovery

LNAPL and groundwater recovery data collected from the operation of the groundwater/LNAPL recovery system provide another line of evidence that free LNAPL has been recovered to the extent technically practicable within the capture zone of the system, (beneath the warehouse paved drive areas, and loading rack areas along the Plant 1 waterfront) and have met associated performance criteria (Section 2.4.1.). Table 1 details quantities of LNAPL and dissolved hydrocarbon concentrations recovered since final groundwater/LNAPL recovery system startup in 2002. LNAPL collection data, shown in Table 1, are recorded when a sufficient quantity has been generated to warrant off-site recycling, which has not occurred since 2008.

Low LNAPL and dissolved hydrocarbon recovery rates (Section 3.1.1.3.) over the past decade of system operation indicate little to no recoverable LNAPL remains within the capture zone of the groundwater/LNAPL recovery system. Additional lines of evidence provided in the 2019 Plant 1 Probing Investigation Report (TechSolve, 2020a) support this assertion.

The cumulative amount of LNAPL recovered by both interim and final groundwater/LNAPL recovery systems is approximately 10,124 gallons (Figure 9 and Table 3). The final system has

recovered 395 gallons of LNAPL from October 2002 through December 2021, and 417 gallons of dissolved hydrocarbons (Tables 1 and 3). The total combined recovery including recovered LNAPL, dissolved hydrocarbons, historical SVE recovery, and biodegradation processes (discussed in Section 3.1.2.), is about 29,781 gallons to date (Tables 1 and 3). Influent concentrations of IHSs in recovered groundwater for 2021 are shown on Figures 5 through 7, and listed in Table 1.

Influent concentrations of dissolved IHSs in recovered groundwater have decreased over time (Section 3.1.1.3.), which is consistent with decreasing IHS concentrations seen in individual recovery wells. Groundwater samples are voluntarily collected semi-annually from individual recovery wells to evaluate trends in IHS concentrations in shallow groundwater (Table 2). This voluntary monitoring is intended to evaluate the attainment of the groundwater/LNAPL recovery system performance criterion; has LNAPL been recovered to the extent practicable (Section 2.4.1.), as elevated IHS concentration are an indicator of LNAPL above residual saturation levels that may be recoverable. The dissolved phase IHS cleanup levels for groundwater that are listed in Section 2.2. and referenced in Table 2 are applicable at the conditional point of compliance established for the Site, which is in deeper groundwater where groundwater and surface water exchange occurs and where Confirmation Monitoring Wells located along the waterfront (Section 2.4.2.) are screened. These IHS cleanup levels are not applicable to recovery wells, as detailed in the GWCMCP, and are included in Table 2 for reference purposes only.

In 2021, a sample from one well (RW-2) exceeded the benzene cleanup level. Samples from two wells (RW-2 and RW-4) exceeded the gasoline (TPH-G) cleanup level. Samples from three wells (RW-2, RW-4, and RW-9) exceeded the diesel and oil (TPH-D and TPH-O) cleanup level. TPH and benzene concentrations detected in samples from six active recovery wells (RW-1, RW-5, RW-6, RW-7, RW-8, and RW-10) and one former recovery well (GM-11S) were below all IHS cleanup levels in 2021. These results show that recovery wells with groundwater concentrations of dissolved IHSs above cleanup levels appear to be limited to the northern end of the recovery system located south of the truck loading rack area (Wells RW-2 and RW-4) and in the southern portion of the warehouse area (Well RW-9). These data have been consistent over the past several years and are also consistent with the results of the Waterfront Probing Investigation (TechSolve, 2020a), which show a marked improvement in groundwater quality along the waterfront and that recoverable LNAPL is no longer present.

3.1.1.5. Recovery System Maintenance and Repairs

Since startup, the groundwater/LNAPL recovery system has remained operational to date. The system, or portions of the system, were taken off-line periodically in 2021 for maintenance or repair activities. Portions of the system were also temporarily shut down to address sediment, scale, and biofouling buildup on pumps and in groundwater piping, attributed to high concentrations of iron and manganese in groundwater.

Independent corrosion engineers have performed annual integrity inspections on steel total fluids piping since 2003. Piping is also inspected as part of routine system O&M activities.

Inspections evaluate piping at recovery wellheads, along the waterway, and at other accessible areas. Corrosion inspections monitor losses in pipe wall thickness and serve to confirm that systems can safely continue operation, and also identify portions of the system that may need replacement. Annual reports, prepared by corrosion engineers, summarize the inspections. Reports are kept on file at TechSolve's office and are available for review upon request.

The most recent corrosion inspection was conducted in July 2021. The results of this inspection are similar to past inspections, which have determined that while steel total fluids piping is susceptible to corrosion, the thickness of system piping is adequate to safely convey recovered remediation fluids.

3.1.1.6. Recovery Well Redevelopment

Well redevelopment is conducted as needed to maintain recovery well productivity by cleaning and removing sediment, scale, and biofouling from well screens and surrounding sand packs. Redevelopment activities have been conducted during previous years, as discussed in past reports (TechSolve, 2012 and TechSolve, 2013). The most recent redevelopment activities were conducted in October 2020 and consisted of recovery wells being jetted and pumped to remove sediment and fouling. Redevelopment activities will be conducted if needed in 2022 to maintain productivity from groundwater recovery wells.

3.1.2. Waterfront Soil Vapor Extraction System

Operation of the waterfront SVE system was discontinued in May 2008 as the system had met associated performance criteria (Section 2.4.1.) and no longer recovered measurable concentrations of hydrocarbons and no longer enhanced biodegradation in inaccessible hot spot soils. SVE system shutdown was approved by Ecology during a 5-year review (Ecology, 2008).

About 3,582 gallons of TPH-G (as vapor) was recovered by the waterfront SVE system. Additionally, enhanced biodegradation from SVE system operation added about 16,075 gallons, for a total of 19,657 gallons of petroleum hydrocarbons recovered by SVE (Table 3, Figure 9), as calculated from SVE vapor stream monitoring data. Waterfront SVE system operation was discussed in greater detail in previous Annual Reports prepared during system operation (e.g. TechSolv, 2009).

3.1.3. Waterfront Air Sparging System

Air sparging along the waterfront was discontinued in 2008 as the system had met the associated performance criteria (Section 2.4.1.) and SVE air monitoring data indicated air-sparging operations no longer volatilized measurable quantities of hydrocarbons. Additionally, air-sparging operations likely contributed to fouling in the groundwater/LNAPL recovery system. Information on air sparging system operation was presented in previous Annual Reports prepared during system operation (e.g., TechSolv, 2009).

3.2. Containment Boom Monitoring

Oil sorbent booms have been maintained on the West Duwamish Waterway adjacent to Plant 1 to contain oil sheens that appeared on surface water. Booms are currently located alongside the warehouse (Figure 4). Boom locations are selected to best contain occasional sheens observed on the Western Duwamish Waterway that appear to emanate from marine sediments directly adjacent to the Site.

The Western Duwamish Waterway adjacent to the Terminal is also monitored for "orphan" sheens from off-site sources, occurring outside boomed areas. Orphan sheen occurrences often cannot be correlated to specific sources; however, some sheens appear to emanate from the Lander Street and Florida Street stormwater outfalls (Figure 2). The Terminal does not connect to storm sewer systems that feed these outfalls. The Terminal and TechSolve continue to monitor for orphan sheens and these sheens are reported when observed to the City of Seattle's and Ecology's spill response hotlines.

Booms and the waterway are monitored weekly, at a minimum, for the presence of oil sheens and boom integrity, and augmented by checks made by Terminal personnel. Booms are replaced, as necessary. A Containment Boom Log (Table 4) is maintained to document sheens occurrences, or lack thereof, within boomed areas and the adjacent waterway. The extent of observed sheens are recorded on a scale from zero to two, with zero representing no sheen, one representing a light sheen visible in a portion of the boom, and two representing a heavy sheen visible throughout the boom. The Duwamish Waterway tidal stage is also recorded to evaluate if sheen occurrences correlate with tidal stage. Table 4 includes all observances from 1996 through March 2022. Yearly charts of waterway sheen monitoring from 1996 through 2021 are presented in Appendix B.

Sheens were historically observed in the waterway adjacent to the loading rack but were not observed from February 2009 through July 2017. Ecology was petitioned to discontinue the use of recovery booms in this area in 2016 (TechSolve, 2016), which Ecology subsequently approved (Ecology, 2016). During seawall construction (2017-2018) sheens were detected, contained, and captured in this area, and were directly attributable to sediment and ground disturbance activities associated with construction of a new seawall, as detailed in the Water Quality Monitoring Summary Report (ERM and TechSolve 2018). No sheen has been observed on the waterway adjacent to the loading rack area following completion of seawall construction activities. Sheen inspections will continue to occur in the loading rack area and a recovery boom will be reinstalled if sheens are observed in this area.

Sheen monitoring results (Table 4 and Appendix B) show that sheens observed in the waterway adjacent to the warehouse have been infrequent and minor since startup of the final system in October 2002. Sheen events adjacent to the warehouse in 2021 were also infrequent, with only one light sheen observed within the Northern Warehouse Boom in 2021 out of the 62 observations made. No sheen was observed within the Southern Warehouse Boom in 2021. No sheen has been observed in either boom area to date in 2022. The

absorbent boom appeared to effectively contain and capture the sheen. The northern and southern portions of the warehouse (the Northern and Southern Warehouse Booms) have been monitored separately since sheens were first detected in two distinctly separate areas in 2016, to provide a more detailed evaluation of trends in this area of the Site. The single sheen detected in 2021 dissipated quickly and appeared to be from a third-party source, a creosote piling, and not from terminal activities. The creosote piling was observed floating in the waterway and rubbing on underlying riprap directly adjacent to the Northern Warehouse Boom and was possibly the cause of the slight sheen.

The Waterfront Probing Investigation completed in 2019 (TechSolve, 2020a) evaluated if there was a LNAPL source or pathway for migration from inland soils and groundwater to surface water in locations where a sheen has historically been observed on surface water. Figure 8 provides a cross-sectional depiction of the typical tidal stage and location of sheens observed in the waterway and the construction details for the island bulkhead and warehouse foundation. It has been theorized in previous reports that the observed sheens on surface water originated from small cracks and discontinuities in the concrete warehouse foundation and underlying sheet piling, or island bulkhead. The foundation and bulkhead act as a "hanging" wall, trapping LNAPL while allowing groundwater to flow beneath the base of the foundation and bulkhead, as depicted in Figure 8.

The Waterfront Probing Investigation showed no free LNAPL exited on groundwater adjacent to the locations where surface water sheens are observed (Figure 4). The investigation also showed that detected TPH in soil appears to be below residual LNAPL saturation limits and that remaining LNAPL is no longer mobile.

Sheen observances have occurred in what has been historically referred to as "targeting" where small bubbles create a sheen in the waterway, several feet away from the shoreline. The mechanism for sheen occurrence most closely resembles what has been defined by others (ITRC, 2018) as ebullition, where:

> "Biodegradation of naturally-occurring organic compounds or of the petroleum itself that is affecting sediments, can generate gases that migrate upward through sediments due to buoyancy. NAPLs are hydrophobic and preferentially attach to the surface of a gas bubble passing through, which subsequently transports the NAPL to the air-water interface. NAPL-coated bubbles reaching the surface of a water body yield a sheen because the surface tension of water is much higher than petroleum."

Determining the source of the observed sheens in the waterway was beyond the scope of the Waterfront Probing investigation. Sources for observed sheen could be from the adjacent island bulkhead, which was created with creosote timbers, or from a historic release that migrated or occurred waterward of the existing warehouse foundation, underlying sheet piling, and island bulkhead. The source is assumed to be limited, as sheen has been observed in less than 5% of the monitoring conducted over the last decade, the observed sheens have been light to very light in strength, are not widespread, and have occurred in limited and defined

locations that have been contained and captured with booms. The appearance of just two observable sheens on the waterway in over two years preceding preparation of this report, with one of the sheens appearing to originate from an offsite source, indicates that the performance criterion for there to be no detected persistent sheens associated with the terminal (Section 2.4.1.), has been met. Due to the lack of sheen in the southern warehouse boom for over two- and one-half years, Ecology was notified that the use of the Southern Warehouse Boom will be discontinued going forward (TechSolve, 2022b). The boom will be reinstalled if a sheen was observed in this area in the future. Additional monitoring will be conducted in 2022 to further evaluate the obtainment of this performance criterion.

3.3. Inland Soil and Groundwater Remedial Actions

Excavation of accessible "hot spot" soils was the primary remedy for soils above IHS soil cleanup action levels (Section 2.2.). In-situ treatment methods, including natural attenuation and SVE, were also selected to treat remaining inaccessible hot spot soils located beneath buildings, paved drive areas, etc. Areas identified for cleanup actions are shown on Figures 2 and 3. Additionally, a Restrictive Covenant, effective May 30, 2000, restricts property to "industrial use" only and imposes restrictions on activities in selected areas of the Site (primarily soil disturbance activities or those that create new exposure routes in identified areas). Excavation and in-situ soil remedy plans were described in the EDR (TechSolv and AG&M, 2000a) and in the Inland Soils Plans and Specifications (TechSolv and AG&M, 2000b).

Cleanup actions for inland soils accessible to excavation at Plants 1 and 2 were completed in 2000. Excavations focused on predetermined areas with additional areas excavated as needed. A total of 3,470 cubic yards of contaminated soil was removed from Plant 1 and Plant 2, detailed the TPH Hot Spot Soils Excavation Completion Report (TechSolv and AG&M, 2001).

Inaccessible hot spot soils were identified at Plant 2 following soil excavations activities (Figure 10). Natural attenuation is treating these remaining soils. Ongoing performance and confirmation groundwater monitoring, conducted following the soil excavations, showed that both the performance and confirmation cleanup criteria (Sections 2.4.1. and 2.4.2.) for inland groundwater at Plant 2 had been met. In 2004, Ecology concurred that "remedial actions appear to be complete at Plant 2" (Ecology, 2004a).

Inaccessible hot spot soils were identified at Plant 1 following soil excavation activities (Figure 11). At the southern property boundary of Plant 1 groundwater monitoring indicated that excavations had not restored groundwater quality to meet cleanup levels within the 5 years restoration period. Groundwater monitoring showed that detected concentrations of benzene and TPH-G fluctuated and exceeded cleanup levels, most notably in Performance/Confirmation Well AR-03 (Section 4., Appendix C). The historically fluctuating concentrations of TPH detected in Well AR-03 correlated to seasonal fluctuations in water table elevation, indicating the source was in the vadose zone.

A 2005 soil probing investigation showed TPH-G and benzene to exist within an approximate one-acre source area (Figure 12), which was responsible for continued

groundwater impacts at the southern property boundary (TechSolv, 2006). Additional wells were installed in this area to monitor groundwater conditions, as discussed in Section 4.1.2., and contingency remedial actions were implemented as discussed below.

3.3.1. Inland SVE System

Contingency remedial actions for soil and groundwater were evaluated in 2007 to address the hydrocarbon source area at the southern property boundary of Plant 1 described in the previous section. SVE was selected as the preferred remedial alternative. SVE system designs (Figure 13) were submitted to Ecology (TechSolv, 2007b), and Ecology subsequently approved system installation (Ecology, 2007). Installation, pilot testing, and SVE system startup occurred in 2008 (TechSolv, 2009). Pilot testing showed the SVE system had a radius of influence that obtained capture throughout the source zone (Figure 12). The Inland SVE System operated from August 2008 through December 2014.

Air samples from the SVE vapor stream showed that the system recovered 1,291 gallons of TPH-G and 2.5 gallons of benzene (Table 5, Figure 14) over 6 years of operation. Concentrations of TPH-G and benzene in recovered vapor streams decreased rapidly after startup (Figure 15), as anticipated, as soil investigations (TechSolv, 2006) showed homogeneity and high porosity of shallow unsaturated soils in the source zone.

SVE induced airflow within soils enhanced the biodegradation of residual hydrocarbons. Calculations estimated that an additional 4,355 gallons of hydrocarbons were reduced by enhanced biodegradation, bringing combined biodegradation and vapor recovery of petroleum hydrocarbons to 5,642 gallons (Table 5 and Figure 16). Reductions in biodegradation rates occurred over time as the source zone was recovered and degraded, as shown by decreasing monthly carbon dioxide concentrations (Figure 15). From 2012 through 2014, carbon dioxide concentrations in the recovered SVE vapor stream were not detected above atmospheric levels.

SVE system operation was discontinued in December 2014 as the system had met the associated performance criteria (Section 2.4.1.) and capture data indicated the bulk of available hydrocarbons to direct capture or enhanced biodegradation had been captured or reduced, respectively. While SVE system operation was discontinued, the system was maintained in an operative state through 2017. Ecology was petitioned in 2017 to decommission the Inland SVE system (TechSolve 2017). Based upon subsequent negotiations, Ecology approved (Ecology, 2018) a proposed limited SVE decommissioning (TechSolve, 2018) where system operation could be resumed in the future if warranted, which was completed in 2018.

Groundwater conditions have improved at the southern property boundary since the Inland SVE System began operation. TPH-G and benzene concentrations measured in groundwater are now mainly below IHS cleanup levels listed in Section 2.2., as discussed in the following sections.

4. Groundwater Monitoring Activities

Groundwater monitoring activities have been conducted at the Site since 1997 on a network of selected wells. Monitoring activities were conducted voluntarily from 1997 through 1999. Since 2000, groundwater monitoring has been conducted per the requirements of the Consent Decree's GWCMCP, with periodic revisions as noted below, and in accordance with the methods and procedures described in the Sampling and Analysis Plan included with the RI.

Groundwater samples are analyzed for selected IHSs including TPH-G, TPH-D, TPH-O, benzene, and cPAHs. Monitoring activities also include monthly inspections for the presence of LNAPL in selected wells. Analytes and selected wells have been periodically deleted from the monitoring program with Ecology's approval, due to analyte concentrations consistently below cleanup levels. Wells have also been installed and added to the program. Compliance groundwater monitoring data and some voluntary data are included in Tables 6 through 9. The results of groundwater monitoring activities are summarized in the following sections.

4.1. Plant 1 Compliance Monitoring

Compliance monitoring at Plant 1 has included quarterly groundwater monitoring for TPH-G, TPH-D, TPH-O, benzene, cPAHs, biochemical parameters, groundwater elevations, and monthly monitoring for the presence of LNAPL. While many of the confirmation compliance monitoring criteria (Section 2.4.2.) have been met, Plant 1 is in the performance phase (Section 2.4.1.) of compliance monitoring as remedial actions are ongoing. Monitoring results at Plant 1 (Tables 6 through 9) and revisions to the monitoring program are discussed in the following sections.

4.1.1. Plant 1 Monitoring Well Network

In 2021, the Plant 1 Performance Monitoring Well Network (Figure 17) included Wells AMW-01 through AMW-05, GM-14S, GM-15S, GM-16S, GM-17S, GM-24S, AR-03, and MW-1-T9 through MW-3-T9. The monitoring history and rationale for these wells is based on the following:

- Monitoring Wells AMW-01 through AMW-05 are the Performance/Confirmation Monitoring Wells for the Plant 1 waterfront. These wells were installed and first sampled in 2000 as Performance/Confirmation Wells along the waterfront, per requirements of the Consent Decree. These wells are screened to allow representative sampling in the zone of groundwater discharge located beneath the existing warehouse foundation and Island bulkhead and above brackish groundwater. These wells are screened deeper than other wells in the monitoring well network utilized to monitor shallower groundwater conditions.

- Monitoring Well GM-14S is an inland Performance Monitoring Well that was added to the Performance Monitoring Well Network in 2007, as requested by Ecology. GM-14S was originally utilized to monitor for sheen presence on groundwater. As sheens are no

longer being detected in this well, performance monitoring was initiated to monitor water quality in this area of the Site.

- Well GM-15S is a Performance Monitoring Well that is located down-gradient from Plant 1 soil remedy excavations (Figure 2) and was within the Inland SVE System's capture zone. Based upon limited hydrocarbon detections, the monitoring frequency of GM-15S was reduced, with concurrence from Ecology (Ecology, 2009), from quarterly to semi-annually. Following detections of IHSs (TPH-G and benzene) above cleanup levels in 2013, the monitoring frequency of GM-15S was voluntarily increased to quarterly. By the fourth quarter of 2013, concentrations of IHSs fell to historic levels and below cleanup levels. In 2018, Ecology agreed (Ecology, 2018) to a plan (TechSolve, 2018) to resume monitoring Well GM-15S on a semi-annual frequency in the first and third quarters, if concentrations of IHSs remain below cleanup levels.

- Wells GM-16S and GM-17S are Performance Monitoring Wells that are hydraulically up-gradient of the Site. Monitoring for IHSs was discontinued, with Ecology's approval in 2000 (Ecology, 2000a), as enough background data had been collected from these wells. Monitoring for IHSs resumed in 2007, as recommended by Ecology, to monitor for IHSs potentially migrating onto the property from up-gradient, off-site sources. The groundwater sampling frequency in these wells was reduced in 2009, with concurrence from Ecology (Ecology, 2009), from quarterly to semi-annually as IHS concentrations have been below cleanup levels since resuming sampling.

- Well GM-24S is a Performance Monitoring Well that is located within the Plant 1 soil remedy excavation area.

- Well AR-03 is a Performance/Confirmation well that is located south of the southern property boundary, down-gradient from the Plant 1 soil remedy excavations, and was within the Inland SVE System's capture zone. In 2018, Ecology agreed (Ecology, 2018) to a plan (TechSolve, 2018) to monitor Well AR-03 on a semi-annual frequency in in the first and third quarters, provided that concentrations of IHSs remain below cleanup levels.

- Wells MW-1-T9 through MW-4-T9 were installed and added to the Performance Monitoring Well Network in 2005 to further evaluate groundwater quality down-gradient from Plant 1 soil remedy excavations (TechSolv, 2007a). These wells were located within the Inland SVE system's capture zone. In 2018, Ecology agreed (Ecology, 2018) to a plan (TechSolve, 2018) to discontinue monitoring of Well MW-4-T9 and to monitor Wells MW-1-T9, MW-2-T9, and MW-3-T9 on a semi-annual frequency in in the first and third quarters, provided that concentrations of IHSs remain below cleanup levels.

4.1.2. Petroleum Hydrocarbon Monitoring

IHS monitoring results for benzene, TPH-G, TPH-D, and TPH-O in groundwater from Plant 1 Monitoring wells are documented in Table 6, Figures 18-21, and Appendix C. Table 6 provides all monitoring results from all wells since project inception. Figures 18-21 provide groundwater concentration maps of petroleum hydrocarbon results for each quarter in 2021 at Plant 1. Appendix C provides hydrocarbon concentration vs. time graphs for all Performance and Confirmation Monitoring Wells.

4.1.2.1. Point of Compliance Petroleum Hydrocarbon Monitoring

The GWCMCP identified that IHS cleanup levels are to be met at conditional points of compliance for the Site, which at Plant 1 are Performance/Confirmation Monitoring Wells AMW-01 through AMW-05 along the waterfront and Well AR-03 along the southern property boundary.

Analyses of all groundwater samples from Performance/Confirmation Monitoring Wells AMW-01 through AMW-05, located along the waterfront, were below cleanup levels for all IHSs in 2021 (Table 6 and Appendix C). These wells have been below cleanup levels for TPH-G, TPH-D, and TPH-O for all quarterly groundwater monitoring events since installation and been below the benzene cleanup level since March 2014.

Wells AMW-03, AMW-04, and AMW-05 have never exceeded the 71 µg/L cleanup level for benzene (Table 6 and Appendix C). Well AMW-01 has exceeded the benzene cleanup level in 40 of 85 quarters since monitoring began in 2000. However, benzene has been below the cleanup level in AMW-01 for the last 31 quarters, since June 2014. Well AMW-02 exceeded the benzene cleanup level in 13 of 85 quarters. However, benzene has been below the cleanup level in AMW-02 for the last 38 quarters, since September 2012. Remedial actions to mitigate the sources of benzene have been successful in reducing groundwater benzene concentrations in the area of Wells AMW-01 and AMW-02. The Inland SVE system, which operated from 2008 to 2014 (Section 3.3.1.), improved up-gradient groundwater quality. Additionally, improvements in shallow groundwater quality above these wells have been observed due to ongoing waterfront remedial actions (Section 3.1.).

Well AR-03 along the southern property boundary was below the cleanup levels for all IHSs in 2021. This well has been below the cleanup levels for benzene, TPH-G, TPH-D, and TPH-O for over a decade, since September 2010 (Table 6 and Appendix C).

4.1.2.2. Performance Petroleum Hydrocarbon Monitoring Results

Petroleum hydrocarbon monitoring is performed in additional wells throughout Plant 1 to evaluate the effectiveness of ongoing remedial actions, in accordance with Performance Monitoring requirements (Section 2.4.1.).

In the up-gradient area of Plant 1, groundwater concentrations in Performance Wells GM-16S and GM-17S were below cleanup levels for all IHSs in 2021, indicating that up-gradient

sources have not been impacting these wells. IHSs have not been detected at or above cleanup levels in Wells GM-16S and GM-17S since monitoring was resumed in 2007. These wells will be monitored semi-annually in the first and third quarters of 2022 to evaluate for the potential migration of IHSs onto the Site from upgradient off-site sources.

In 2021 near the middle of Plant 1, groundwater concentrations detected in Performance Well GM-14S exceeded the TPH-G cleanup level in two of four quarters and exceeded the benzene cleanup level in one of four quarters. Concentrations of TPH-G have been detected above the cleanup level in 38 of 58 quarters since monitoring resumed in this well in 2007. TPH-G concentrations detected in Well GM-14S appear stable, and this well is located hydraulically upgradient from the groundwater/LNAPL recovery system operating along the waterfront. The benzene exceedance in the third quarter of 2021 was the first benzene exceedance in this well since 2007. Benzene was again detected but below the cleanup level in the fourth quarter of 2021. Groundwater concentrations in Well GM-14S have been below cleanup levels for TPH-D and TPH-O (Table 6 and Appendix C) since sampling resumed in 2007.

Results of groundwater monitoring from wells in and down-gradient of the former soil hot spot area in Plant 1 (Performance Wells GM-24S, GM-15S, MW-1-T9, MW-2-T9, MW-3-T9, MW-4-T9, and Performance/Confirmation Well AR-03,) show that soil excavations completed in 2000 (Section 3.3.) stabilized concentrations of dissolved hydrocarbons in this area. Groundwater quality improved further in this area from the operation of the Inland SVE System from 2008 through 2014, (Section 3.3.1.). Groundwater quality improvements due to SVE operation can be seen in the decreasing concentrations of benzene and TPH-G in monitoring wells located within the SVE capture zone (Appendix C: Wells AR-03, GM-15S, MW-1-T9, MW-2-T9, MW-3-T9). Data presented in Table 6 show concentrations of IHSs detected in groundwater in 2021 were below cleanup levels in the wells listed above except for TPH-G in Well GM-24S in the first of four quarters in 2020. Concentrations of TPH-G detected in Well GM-24S in 2020 were within historic ranges and appear to be stable (Appendix C).

The performance monitoring exceedances of IHSs in groundwater at Plant 1 in 2021, limited to TPH-G and benzene in Well GM-14S and TPH-G in Well GM-24S, indicate that IHSs have been stabilized or reduced by the remedial actions listed in Section 3. Monitoring data will continue to be evaluated in 2022 and trends will be discussed in future reports.

4.1.3. cPAH Monitoring

Groundwater from selected wells at Plant 1 has been monitored for cPAHs. Monitoring for cPAHs was discontinued in 2003, per Ecology's approval (Ecology, 2003), as historical monitoring rarely detected these compounds (Table 7). Monitoring for cPAHs was voluntarily resumed in waterfront Performance/Confirmation Wells AMW-01 through AMW-05 in 2004 following a recommendation by Ecology and to assist in determining when cleanup objectives have been met. Since resuming monitoring, concentrations of cPAHs have rarely been detected, and occasional detections have often been associated with laboratory quality control deficiencies that affect the validity of reported data. These laboratory issues have been discussed in more detail in previous Annual Site Reports. The limited detections of cPAHs in

these wells have only slightly exceeded laboratory detection limits (typically 0.02 to 0.025 µg/L) for these compounds. Based upon these findings, the cPAH sampling frequency was decreased in 2009 to an annual basis, with concurrence from Ecology (Ecology, 2009).

There were no exceedances of the cPAH cleanup level in Wells AMW-01 through AMW-05 in 2021 (Table 7). The last exceedances of the cPAH cleanup level were in 2017 in Wells AMW-02, AMW-03, AMW-04, and AMW-05. The 2017 exceedances of the cPAH cleanup level established in the Consent Decree, and most of the historical exceedances, have been low concentration exceedances that are below the current Model Toxics Control Act (MTCA) Method A Cleanup Level for Groundwater (WAC-173-340-900, Table 720-1). The current MTCA method A Cleanup Level for cPAH considers the varying toxicities of individual cPAH compounds in determining if a cPAH mixture meets the cleanup level (WAC 173-340-708(8)(e)). The cPAH cleanup level agreed upon in the Consent Decree predated this policy and set a single cleanup level applicable to all cPAH compounds in a cPAH mixture.

Monitoring for cPAHs in Performance/Confirmation Wells AMW-01 through AMW-05 is scheduled to next occur in December 2022.

4.1.4. Biochemical Parameter Monitoring

Performance monitoring for biochemical parameters has been conducted at the Site to determine the effectiveness of natural attenuation in inaccessible soils containing TPH above cleanup levels. Monitoring of biochemical parameters has been suspended until additional Site Performance Criteria are achieved, including free LNAPL removal along the waterfront by the active LNAPL/Groundwater Recovery System (TechSolv, 2005). Results of the last biochemical sampling were included in the 2006 Annual Site Report (TechSolv, 2007a). Discussions have been ongoing with Ecology about potentially resuming biochemical monitoring in upland wells, such as GM-14S and GM-24S.

4.1.5. LNAPL Monitoring

The performance monitoring program includes monthly inspection for LNAPL presence by visual observation in three monitoring wells in Plant 1 (Wells GM-11S, GM-12S, and GM-13S). Monitoring Well GM-14S (located inside the main Plant 1 tank farm) was removed from the monthly LNAPL monitoring program in 2004, with concurrence from Ecology (Ecology, 2004b), as this well had been free of LNAPL and sheens since June 1999.

Results of LNAPL monitoring have shown a general reduction in LNAPL occurrence at Plant 1 (Table 8) over time. No sheen was observed in Well GM-12S in 2021 and through March 2022. A slight sheen, but no recoverable LNAPL, was observed in GM-11S in 1 of the 15 monitoring events from 2021 to date in 2022. A slight sheen, but no recoverable LNAPL, was observed in well GM-13S in 4 of the 15 monitoring events from 2021 to date in 2022

No sheens or LNAPL have ever been observed in Well GM-12S (located up-gradient from the warehouse), indicating no continuing or on-going sources of LNAPL in this area. Sheens have

been periodically observed in Well GM-13S (located inside the southern end of the warehouse). Prior to 2021, a sheen was last observed in Well GM-13S in October 2018. Measurable LNAPL was historically detected in Well GM-11S (located outside the northeast end of the warehouse) in 1999 and the well was subsequently converted to an LNAPL recovery well in April 2000. Only a sheen was detected in this well after it was converted for recovery. Prior to the single sheen observed in 2021, a sheen was last observed in Well GM-11S in August 2018. Voluntary sampling for concentrations of IHSs in groundwater from Well GM-11S (Table 2) show that it has been below the cleanup levels, applicable at conditional points of compliance, over the last 15 semi-annual sampling events, since 2014.

4.1.6. Groundwater Elevation Monitoring

Water table elevations were recorded quarterly in 2021 for Plant 1 (Table 9) and corresponding water table elevation maps were prepared to show overall groundwater flow patterns for 2021 (Figures 18 through 21). Plant 2 monitoring has been discontinued as discussed in the following section. Monitoring Well MW-06, located in Plant 1 east of the northeast corner of the warehouse, is not part of the groundwater monitoring program but is used to provide water level data in this area. Wells closest to the waterfront that are part of the monitoring program (GM-13S, and AMW-01 through AMW-05) are not used for water table elevation maps due to tidal fluctuations that affect these wells. Additionally along the waterfront, startup testing showed that groundwater elevation is depressed by operation of the groundwater/LNAPL recovery system, affecting wells such as GM-13S.

Groundwater contour maps for the four quarters of 2021 (Figures 18 through 21) show that the third and fourth quarters represent the lowest and highest groundwater elevations recorded, respectively. Groundwater elevations and flow patterns shown for 2021 are similar to those observed during the RI and in previous years. Groundwater contour maps are no longer required for this report (Ecology, 2009) due to consistent yearly flow patterns and are included voluntarily. Site flow directions can vary seasonally but are generally west towards the waterway, and south to southwest along the southern property boundary. Groundwater gradients are similar each year and range from approximately 0.001 feet per foot (ft./ft.) from the main tank farm to the waterfront, to 0.01 ft./ft. at the southern boundary of Plant 1.

Hydrographs for selected wells in the waterfront area (Figure 22) and in the southern boundary area of Plant 1 (Figure 23) show trends in water table elevations over time for the Site. Data for both areas show similar seasonal fluctuations of the water table and show that all wells respond to these fluctuations (i.e., no wells are screened in groundwater isolated from the groundwater monitored by other wells, such as would occur with “perched” groundwater). Hydrographs show higher water table elevations occur during wetter winter and spring periods, when compared to the drier summer and fall periods. Groundwater elevations appear to have trended upward slightly over the past decade. These variations and trends in water table elevation coincide with precipitation data for the area. Groundwater elevation data will continue to be monitored in 2022 to evaluate ongoing trends.

4.2. Plant 2 Performance and Confirmation Monitoring

At the Plant 2 diesel tank farm (the tank farm is only used for diesel storage and does not store gasoline or lighter hydrocarbon products), ongoing performance and confirmation groundwater monitoring, conducted following soil excavations, showed that cleanup objectives for diesel impacted inland soils had been met (see Section 3.3.). However, concentrations of TPH-G and benzene in groundwater were detected above cleanup levels following excavation activities in well GM-19S. A subsequent investigation conducted in 2002 (TechSolv, 2003a) concluded that TPH-G and benzene detected in Well GM-19S was from an unidentified off-site source of gasoline. The Confirmation Compliance Criteria for Plant 2 (Section 2.4.2.) were achieved once the TPH-G and benzene cleanup levels exceedances were determined to be from an off-site source. As such, monitoring at Plant 2 was discontinued except for TPH-G and benzene in Monitoring Well GM-19S (Figure 24), as agreed to by Ecology (Ecology, 2004b). This monitoring was considered voluntary and was conducted to evaluate how the off-site gasoline source was affecting the Site. Additional details regarding discontinuing Plant 2 monitoring were included in previous reports (e.g. TechSolv, 2009). The voluntary monitoring of Well GM-19S for TPH-G and benzene was discontinued in 2018, as detected concentrations of benzene and TPH-G were below cleanup levels for 5-years. Benzene concentrations last exceeded the cleanup level in September 2013. TPH-G concentrations last exceeded the cleanup level in March 2007.

4.3. Data Validation

Laboratory analytical results were reported with associated laboratory quality assurance/quality control data. The analytical reports were reviewed and the data were validated per the requirements of the CAP. Data validation resulted in qualification of some analytical results. Data qualifiers modify the values reported by the laboratory, but do not affect our understanding of the overall conditions of the Site. The data qualifiers are included in Tables 6 and 7. Laboratory reports and additional information regarding the justification for data qualification are retained by TechSolve and are available upon request. Minimal data from the four quarters of 2021 were qualified as estimated values, and the qualifiers were detailed in the associated quarterly progress report submitted to Ecology. Qualifiers from 2021 did not affect the interpretation of data.

5. Additional Activities

Notable additional activities that occurred in 2021 included the completion of a hydraulic evaluation to evaluate how Site hydrology was affected by the installation of a new seawall along the northern portion of the Plant 1 waterfront. Associated activities are discussed in further detail below.

5.1. Plant 1 Hydraulic Investigation

A hydraulic study was conducted in 2021 at the Site, as requested by Ecology. The associated summary report was submitted to Ecology in February 2022 (TechSolve, 2022a). The study was completed to evaluate changes in Site hydrology due to the installation of a new seawall, installed in 2017 and 2018 along the northern half of the waterfront of Plant 1 to enhance the seismic stability of the Site. The study was based upon a work plan (TechSolve, 2019b), which was approved by Ecology with some caveats (Ecology, 2021). In addition to evaluating changes to Site hydrology, this study was intended to aide in determining if established conditional points of compliance remain appropriate and if continuation of, or revisions to, remedial actions are needed to meet Site cleanup objectives.

Over the course of the study, water level and salinity data were collected from 23 separate groundwater monitoring wells and a surface water stilling well (Figure 25) at Plant 1. The monitoring wells were selected with Ecology's input to include areas along the waterfront, upland areas of the Site, shallow and deeper groundwater, and eight nested well pairs (i.e., two adjacent wells with one screened in shallow and the other in deeper groundwater). The period of data collection occurred in the spring, as this typically represents the end of the annual period when groundwater to surface water gradients are highest, as detailed above in Section 4.1.6. Water level and salinity data, which were collected for 23 days on 10-minute intervals, were evaluated, and then compared to historical studies, including the RI. Due to highly dynamic conditions along the waterfront, which are driven by large daily tidal fluctuations in surface water, many of the evaluations were conducted using mean values computed from study data to evaluate overall flow patterns at the Site.

The results of this investigation showed the following:

- The new seawall does not appear to have altered groundwater gradients at the Site, which remain to the west and towards the waterway.
- Localized mounding of groundwater behind the new wall appeared minimal.
- The new seawall has locally attenuated both tidal response and surface water mixing in shallow groundwater directly inland of the new wall.

- Tidal response and surface water mixing in deeper groundwater directly inland of the new seawall appears more pronounced than in shallow groundwater.

- Tidal response and surface water mixing in shallow groundwater along the waterfront appears to be most pronounced along a short area of the waterfront (approximately 15 feet north/south by Well RW-6) located just beyond the southern terminus of the new seawall and the northern terminus of the warehouse foundation.

- The warehouse foundation remains an effective barrier to the migration of shallow groundwater to surface water and continues to function as a "hanging wall," which allows for greater deeper groundwater/surface water exchange below the foundation.

- In the area south of the warehouse foundation, groundwater/surface water mixing and tidal effects continue to appear more pronounced in deeper groundwater when compared to shallow groundwater.

The results of this investigation support earlier studies and the conceptual Site model, which showed the bulk of surface water and groundwater exchange occurs along the waterfront in deeper sediments (i.e., deeper groundwater) and beneath shallower fill materials. These historical studies served as the basis for selecting waterfront wells screened in deeper groundwater as the agreed points of compliance at the Site. While surface water and groundwater exchange continues to appear greatest in deeper sediments, a few areas of higher exchange in shallow sediments (i.e., shallow groundwater) were observed when compared to adjacent shallow areas. These localized areas of higher surface water and shallow groundwater exchange appear tied to reduced waterward barriers.

The investigation supports recent studies and ongoing monitoring summarized elsewhere in this report, indicating that remedial actions have been effective in protecting surface water and groundwater along the waterfront. These studies also show that remedial actions have met their intended remedial objectives. The findings of the investigation support the applicability of established points of compliance at the Site, which measure if performance and confirmational objectives have been met and can be used to evaluate the appropriateness of any proposed modification to the compliance well network.

6. Summary of Activities/Conclusions

Activities completed at the Site during 2021 and resulting conclusions are summarized below.

- Operation of the groundwater/LNAPL recovery system has protected the Duwamish Waterway by removing petroleum hydrocarbons from groundwater. The system provides hydraulic control along the waterfront and appears to have achieved associated performance monitoring criteria.

- Maintenance and inspection of the groundwater/LNAPL recovery system indicate the system operates as designed, is intact, and can continue operation. Routine inspection and maintenance activities continue to be conducted to ensure system integrity and components are replaced or upgraded, as necessary.

- The groundwater/LNAPL recovery system appears to have removed recoverable LNAPL to the extent practicable from beneath the warehouse and truck loading rack areas. No measurable free LNAPL (>0.01 feet) was detected in any well (monitoring or recovery) in 2021.

- Monitoring results show that recovery systems have reduced both dissolved hydrocarbons in groundwater and the frequency of hydrocarbon sheens in the Duwamish Waterway. Concentrations of IHSs detected in all Performance/Confirmation Wells waterfront (AMW-01 through AMW-05) were below cleanup levels in 2021. A sheen was observed on surface water only once, in one of the two maintained booms, in the 62 observations recorded in 2021. The observed sheen appeared to originate from a creosote piling that had floated down the waterway and was not from an onsite source.

- Groundwater data collected in and down-gradient of a former soil hot spot area at Plant 1 indicate that remedial actions have stabilized and reduced petroleum hydrocarbons in this area. Excavations and SVE operations have captured or reduced the bulk of residual hydrocarbons in this area. Due to decreases in hydrocarbons capture and biodegradation and improved groundwater conditions, the Inland SVE system was shutoff in December 2014. The Performance/Confirmation Well (AR-03) located in this area has been below cleanup levels in every quarterly monitoring event since June 2010.

- Voluntary groundwater monitoring at Plant 2 was discontinued in 2018 after Monitoring Well GM-19S, which was impacted by an off-site source of gasoline, was at or below TPH-G and benzene cleanup levels for 5 years. All other remediation and monitoring activities required for Plant 2 have been successfully completed and Ecology has previously determined that remedial actions at Plant 2 appear complete.

- A study was conducted in 2021 to evaluate changes in Site hydrology due to the installation of a new seawall along the northern half of the waterfront at Plant 1. The results of the study were presented in a report submitted to Ecology in early 2022. The

study showed some localized impacts of the new seawall on Site hydrology and some limited changes to hydrology, not related to seawall construction, which may have occurred since the RI was completed in the early 1990s. While some change in flow mechanisms were observed, the results of this study were similar to historic studies that were the basis for selecting points of compliance at the Site. The findings of this investigation will be utilized to evaluate the applicability of established points of compliance and the need for continued remedial actions at the Site, as will be discussed further with Ecology.

7. References

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TABLES

Table 1. Waterfront Groundwater System Petroleum Hydrocarbon Recovery Rates
Site: Former BP Harbor Island Terminal

GROUNDWATER SYSTEM EFFICIENCIES

SAMPLE DATE	UNITS	Influent Benzene	Effluent Benzene	% Reduction	Influent Diesel	Effluent Diesel	% Reduction	Influent Ethylbenzene	Effluent Ethylbenzene	% Reduction	Influent Gasoline	Effluent Gasoline	% Reduction	Influent Oil	Effluent Oil	% Reduction	Influent Toluene	Effluent Toluene	% Reduction	Influent Xylenes	Effluent Xylenes	% Reduction
2002 Averages	µg/L	225.3	14.3	91%	7,315	7,020	NA	55.2	6.2	75%	1,770	336	82%	831	804	NA	17.0	2.5	88%	88.8	9.9	87%
2003 Averages	µg/L	137.7	19.5	76%	4,945	4,648	NA	44.5	12.9	69%	1,854	678	62%	760	763	NA	42.7	5.4	61%	154.1	50.3	68%
2004 Averages	µg/L	93.5	3.2	82%	10,285	9,342	NA	76.8	4.7	79%	4,383	840	59%	762	1,026	NA	116.6	2.2	82%	356.6	23.0	75%
2005 Averages	µg/L	76.7	14.5	84%	4,162	5,987	NA	170.8	45.4	81%	10,090	3,229	70%	864	750	NA	566.9	121.0	84%	1,327.7	367.9	78%
2006 Averages	µg/L	38.9	1.2	89%	11,263	2,174	NA	42.1	0.9	90%	4,944	202	94%	665	666	NA	55.6	0.8	77%	485.1	5.2	96%
2007 Averages	µg/L	8.8	1.5	60%	1,223	906	NA	6.6	0.8	56%	407	115	63%	598	598	NA	1.0	0.5	21%	19.8	1.9	50%
2008 Averages	µg/L	10.0	1.1	70%	540	468	NA	5.5	0.7	39%	279	76	61%	505	504	NA	0.7	0.5	40%	10.6	1.6	65%
2009 Averages	µg/L	5.2	1.0	48%	369	561	NA	4.1	1.6	31%	407	182	46%	497	489	NA	0.8	0.7	44%	15.2	7.4	33%
2010 Averages	µg/L	3.9	0.7	76%		2,193	NA	6.8	1.7	78%	915	336	*65%*		*410*	NA	*0.9*	*0.9*	NA	26.3	6.7	69%
2011 Averages	µg/L	3.2	0.5	80%		1,714	NA	2.4	1.0	53%	439	89	*69%*		*492*	NA	*1.0*	*1.0*	NA	7.1	3.0	29%
2012 Averages	µg/L	3.6	1.3	48%		2,787	NA	1.9	1.2	37%	362	144	*61%*		*636*	NA	*1.0*	*1.0*	NA	5.7	3.4	48%
2013 Averages	µg/L	1.0	0.5	45%		1,333	NA	1.1	0.5	49%	356	124	*57%*		*433*	NA	*0.5*	*0.5*	NA	2.4	1.0	78%
2014 Averages	µg/L	1.7	0.3	61%		1,699	NA	0.6	0.3	46%	539	122	*79%*		*236*	NA	*0.5*	0.3	NA	1.5	0.5	61%
2015 Averages	µg/L	2.3	0.4	66%		5,175	NA	1.6	0.4	60%	1,146	406	*64%*		*396*	NA	*0.5*	*0.4*	NA	2.8	0.5	74%
2016 Averages	µg/L	2.2	0.6	76%		2,292	NA	2.3	0.5	81%	1,282	582	*50%*		*248*	NA	*0.4*	*0.4*	NA	2.9	1.0	62%
2017 Averages	µg/L	1.9	0.4	74%		4,325	NA	1.0	0.4	63%	1,421	641	*56%*		*349*	NA	*0.5*	*0.4*	NA	1.0	0.7	55%
2018 Averages	µg/L	1.1	0.7	60%		1,673	NA	0.7	0.7	7%	359	136	*62%*		*346*	NA	*0.5*	*0.5*	NA	1.3	0.9	30%
2019 Averages	µg/L	0.5	0.4	50%		1,539	NA	0.7	0.7	NA	231	68	*60%*		*584*	NA	*0.7*	*0.7*	NA	2.0	2.0	NA
2020 Averages	µg/L	0.7	*0.5*	NA		588	NA	*1.0*	*1.0*	NA	100	51	*65%*		*750*	NA	*1.0*	*1.0*	NA	*3.0*	*3.0*	NA
2021 Averages	µg/L	1.6	0.5	*NA*		756	NA	*1.0*	*1.0*	*NA*	110	50	NA		*750*	*NA*	*1.0*	*1.0*	*NA*	3.3	*3.0*	*NA*
1/21/2021	µg/L	1.8	*0.5*	NA		3,900	NA	*1.0*	*1.0*	NA	140	*50*	NA		*750*	NA	*1.0*	*1.0*	NA	*3.0*	*3.0*	NA
2/18/2021	µg/L	9.5	*0.5*	NA		1,000	NA	*1.0*	*1.0*	NA	170	*50*	NA		*750*	NA	*1.0*	*1.0*	NA	6.6	*3.0*	NA
3/18/2021	µg/L	0.71	*0.5*	NA		610	NA	*1.0*	*1.0*	NA	78	*50*	NA		*750*	NA	*1.0*	*1.0*	NA	*3.0*	*3.0*	NA
4/15/2021	µg/L	0.8	*0.5*	NA		560	NA	*1.0*	*1.0*	NA	200	*50*	NA		*750*	NA	*1.0*	*1.0*	NA	*3.0*	*3.0*	NA
5/20/2021	µg/L	*0.5*	*0.5*	NA		260	NA	*1.0*	*1.0*	NA	97	*50*	NA		*750*	NA	*1.0*	*1.0*	NA	*3.0*	*3.0*	NA
6/24/2021	µg/L	*0.5*	*0.5*	NA		*250*	NA	*1.0*	*1.0*	NA	140	*50*	NA		*750*	NA	*1.0*	*1.0*	NA	*3.0*	*3.0*	NA
7/22/2021	µg/L	*0.5*	*0.5*	NA		*250*	NA	*1.0*	*1.0*	NA	110	*50*	NA		*750*	NA	*1.0*	*1.0*	NA	*3.0*	*3.0*	NA
8/26/2021	µg/L	*1.8*	*0.5*	NA		*250*	NA	*1.0*	*1.0*	NA	160	*50*	NA		*750*	NA	*1.0*	*1.0*	NA	*3.0*	*3.0*	NA
9/16/2021	µg/L	*0.5*	*0.5*	NA		280	NA	*1.0*	*1.0*	NA	*50*	*50*	NA		*750*	NA	*1.0*	*1.0*	NA	*3.0*	*3.0*	NA
10/21/2021	µg/L	*0.5*	*0.5*	*NA*		260	NA	*1.0*	*1.0*	*NA*	50	*50*	NA		*750*	*NA*	*1.0*	*1.0*	*NA*	*3.0*	*3.0*	*NA*
11/18/2021	µg/L	*1.8*	*0.5*	*NA*		580	NA	*1.0*	*1.0*	*NA*	74	*50*	*NA*		*750*	*NA*	*1.0*	*1.0*	*NA*	3.0	*3.0*	*NA*
12/16/2021	µg/L	0.5	*0.5*	*NA*		870	*NA*	*1.0*	*1.0*	*NA*	50	*50*	*NA*		*750*	*NA*	*1.0*	*1.0*	*NA*	*3.0*	*3.0*	*NA*
1/20/2022	µg/L	1.8	*0.5*	*NA*		710	*NA*	*1.0*	*1.0*	*NA*	120	*50*	*NA*		*750*	*NA*	*1.0*	*1.0*	*NA*	*3.0*	*3.0*	*NA*
2/17/2022	µg/L	1.2	*0.5*	*NA*		*250*	*NA*	*1.0*	*1.0*	*NA*	*50*	*50*	*NA*		*750*	*NA*	*1.0*	*1.0*	*NA*	*3.0*	*3.0*	*NA*
3/17/2022	µg/L	1.4	*0.5*	*NA*		440	*NA*	*1.0*	*1.0*	*NA*	100	*50*	*NA*		*750*	*NA*	*1.0*	*1.0*	*NA*	*3.0*	*3.0*	*NA*
2022 Averages	µg/L	1.5	0.5	*NA*		467	*NA*	*1.0*	*1.0*	*NA*	90	50	*NA*		*750*	*NA*	*1.0*	*1.0*	*NA*	*3.3*	*3.0*	*NA*
SURFACE WATER CLEANUP LEVELS		71 µg/L			10,000 µg/L			NA			1,000 µg/L			10,000 µg/L			NA			NA		
KCDNR DISCHARGE LIMITS		70 µg/L			100,000 µg/L			1,700 µg/L			NA			100,000 µg/L			1,400 µg/L			NA		

METRO DISCHARGE DATA

Observation Date	Days since last monitoring reading	Average flow (GPM)	Total Flow Between Observation dates (gallons)	Pounds of Benzene Removed	Pounds of Gasoline Removed	Pounds of Diesel Removed	Pounds of Oil Removed	Pounds of Toluene Removed	Pounds of Ethylbenzene Removed	Pounds of Xylenes Recovered	Total Gallons Gas, Diesel, and Oil
2002 Totals and Averages	65	4.18	322,785	0.62	4.99	19.42	2.30	0.05	0.13	0.22	**3.90**
2003 Totals and Averages	361	8.03	4,114,867	4.43	62.20	169.14	26.05	1.18	1.47	5.05	**37.76**
2004 Totals and Averages	338	9.58	4,570,461	3.54	175.70	419.25	28.95	5.35	3.16	14.66	**92.43**
2005 Totals and Averages	359	11.17	5,827,144	3.43	447.43	155.78	41.55	25.29	7.69	59.98	**100.52**
2006 Totals and Averages	365	6.40	3,220,733	0.80	192.72	663.65	19.09	2.85	1.89	20.04	**128.92**
2007 Totals and Averages	360	3.17	1,599,607	0.15	9.08	18.30	8.40	0.02	0.11	0.48	**5.20**
2008 Totals and Averages	363	3.19	1,645,810	0.14	3.95	7.21	6.95	0.01	0.08	0.15	**2.59**
2009 Totals and Averages	369	2.98	1,569,390	0.07	5.75	7.81	6.40	0.01	0.06	0.22	**2.89**
2010 Totals and Averages	372	2.17	1,185,127	0.037	8.62	18.84	4.26	0.01	0.05	0.19	**4.66**
2011 Totals and Averages	356	1.90	949,880	0.026	5.13	17.55	3.54	0.01	0.03	0.13	**3.81**
2012 Totals and Averages	371	1.89	948,600	0.034	3.97	25.92	3.47	0.01	0.02	0.04	**4.81**
2013 Totals and Averages	365	1.33	700,450	0.014	2.26	8.80	3.43	0.003	0.01	0.02	**2.08**
2014 Totals and Averages	332	1.62	761,480	0.010	3.43	10.95	1.55	0.003	0.00	0.01	**2.33**
2015 Totals and Averages	358	1.71	874,680	0.015	6.56	36.53	2.92	0.004	0.01	0.02	**6.68**
2016 Totals and Averages	370	1.90	999,770	0.021	13.12	20.02	1.94	0.004	0.03	0.03	**5.26**
2017 Totals and Averages	364	1.65	866,030	0.014	11.96	33.39	2.62	0.004	0.01	0.01	**7.52**
2018 Totals and Averages	371	1.20	641,740	0.006	2.16	9.61	1.79	0.002	0.004	0.007	**1.96**
2019 Totals and Averages	357	1.26	611,500	0.002	1.30	8.72	2.89	0.003	0.003	0.009	**1.84**
2020 Totals and Averages	378	1.06	572,320	0.003	0.46	2.70	3.58	0.005	0.005	0.014	**0.93**
2021 Totals and Averages	358	1.01	572,321	0.008	0.47	3.72	3.19	0.004	0.004	0.014	**1.03**
January-21	29	1.44	60,290	0.0010	0.07	1.21	0.38	0.0005	0.0005	0.0015	**0.23**
February-21	28	1.28	51,720	0.0024	0.07	1.06	0.32	0.0004	0.0004	0.0021	**0.20**
March-21	28	0.95	38,490	0.0016	0.04	0.26	0.24	0.0003	0.0003	0.0015	**0.08**
April-21	28	0.91	36,890	0.0002	0.04	0.18	0.23	0.0003	0.0003	0.0009	**0.06**
May-21	35	0.35	17,770	0.0001	0.02	0.06	0.11	0.0001	0.0001	0.0004	**0.03**
June-21	35	0.77	39,040	0.0002	0.04	0.08	0.24	0.0003	0.0003	0.0010	**0.05**
July-21	28	0.93	37,480	0.0002	0.04	0.08	0.23	0.0003	0.0003	0.0009	**0.05**
August-21	35	0.86	43,520	0.0004	0.05	0.09	0.27	0.0004	0.0004	0.0011	**0.06**
September-21	21	0.86	26,100	0.0003	0.02	0.06	0.16	0.0002	0.0002	0.0007	**0.03**
October-21	35	0.93	46,830	0.0002	0.02	0.11	0.29	0.0004	0.0004	0.0012	**0.06**
November-21	28	1.44	58,060	0.0006	0.03	0.20	0.36	0.0005	0.0005	0.0015	**0.08**
December-21	28	1.34	54,040	0.0005	0.03	0.33	0.34	0.0005	0.0005	0.0014	**0.10**
January-22	35	1.01	50,750	0.0005	0.04	0.33	0.32	0.0004	0.0004	0.0013	**0.10**
February-22	28	1.09	43,810	0.0005	0.03	0.18	0.27	0.0004	0.0004	0.0011	**0.07**
March-22	28	0.73	29,330	0.0003	0.02	0.08	0.18	0.0002	0.0002	0.0007	**0.04**
2022 Totals and Averages	91	0.94	123,890	0.001	0.085	0.594	0.775	0.001	0.001	0.003	**0.20**
		TOTALS:	**32,678,585 gal**	**13.4**	**961.3**	**1657.9**	**175.7**	**34.8**	**14.8**	**101.3**	
Maximum permitted GPM:		**17.5**	**Gallons Gas, Diesel, & Oil Recovered:**		**156.3**	**237.5**	**23.0**		**Total Gallons Recovered:**		**417.30**

Oil Water Separator Data

Observation Date	Monthly LNAPL Recovery (gal)
February-03	19.6
April-03	6.9
May-03	2.5
July-03	2
December-03	20
January-04	25
June-04	35
August-04	50
September-04	8
November-04	10
December-04	3.5
January-05	0
February-05	35
July-05	110
February-06	5
March-06	2
December-06	30
March-08	30
Total Gallons LNAPL Recovered:	**395**

TOTAL PETROLEUM RECOVERY	
Total lbs. Dissolved Gas, Diesel, and Oil Recovered in Groundwater (2002-Present)	2,795 lbs
Total Gallons Dissolved Gas, Diesel, and Oil Recovered in Groundwater (2002-Present)*	**417 gal**
Total Gallons LNAPL Recovered by Final Recovery System (2002-Present)	**395 gal**
Total Gallons LNAPL Recovered by Interim Recovery System (1992-2002)	**9,312 gal**
Total Gallons of TPH Vapor Recovered by Final SVE System (2003-2008)**	**2,334 gal**
Total Gallons of TPH Vapor Recovered by Interim SVE System (1996-2002)**	**1,248 gal**
Total Gallons TPH Recovered from Final SVE System due to Biodegradation (2003-2008)***	**11,411 gal**
Total Gallons TPH Recovered from Interim SVE System due to Biodegradation (1996-2002)***	**4,664 gal**
Total Gallons Recovered by Final Recovery Systems (2002-Present)	**14,558 gal**
Total Gallons Recovered by Interim Recovery Systems (1992-2002)	**15,223 gal**
Total Gallons of Petroleum Removed (1992-Present)	**29,781 gal**

Definitions:

gal - gallons
GPM - Gallons per minute
NA - Not available or could not be calculated due to non-detection
LNAPL - Light non-aqueous phase liquid (oil)
SVE - Soil vapor extraction
TPH - Total petroleum hydrocarbons
µg/L - micrograms per liter

Notes:

LNAPL recovery is recorded periodically when sufficient product has been accumulated to be transported off-site for disposal.
Influent diesel and oil samples are no longer analyzed. Influent and effluent samples are collected before and after, respectively, a diffused air stripper, which does not remove diesel or oil.
Effluent sample data are representative of the outflow water to King County Metro sanitary sewer.
The average µg/L of the preceding month and the month of reference are used to calculate pounds of compound removed.
Data presented in *italicized text* represent non-detections. The listed *italicized value* is the laboratory reporting limit
If influent concentrations are below the laboratories reporting limit, the percent reduction is calculated using the reporting limit. The actual percent reduction is ≥ the reported value.

* Calculation of lbs. of Recovered Product:
To convert µg/L to lbs./gallon - (µg/L)x(3.785l/gal)=ug/gal, (ug/gal)x(ug/(2.2046x10-9lbs))=lbs./gal
lbs./gal of chemical constituent x total gallons recovered =lbs. of chemical recovered
Density of Gasoline utilized for conversions from pounds to gallons is 6.15 lbs./gal
Density of Diesel utilized for conversions from pounds to gallons 6.98 lbs./gal
Density of Oil utilized for conversions from pounds to gallons 7.63 lbs./gal
Benzene, toluene, ethylbenzene, and xylenes volumes are not included in the Total Gallons calculations, as they are assumed to be included in TPH as gasoline.

** / *** SVE Recovery Calculations for TPH and Biodegradation, which are maintained in separate tables.
C = Average Influent TPH concentration (ppmv)
Q = Influent Flow Rate (SCFM)
Mc = Molecular wt. of Carbon Dioxide = 44
Mg = Molecular wt. of Gasoline = 87
Density of Gasoline for conversions is 6.15 lbs./gal

** TPH recovered by SVE system was calculated in lbs./hr. = C x Q x Mg x 1.583×10^{-7}
1.583×10^{-7} is a constant and is derived as follows:
10^{-6} ppmv x 60min/1hr x 1 lb. Mole/379 cu.ft.
SVE TPH recovery calculations are based on TPH concentrations in the SVE stream, SVE hrs. of operation, and SVE measured flow rates.

Table 2. Waterfront Groundwater Recovery Wells Petroleum Hydrocarbon History
Site: Former BP Harbor Island Terminal

Well ID	Date	Gasoline mg/l	Diesel mg/l	Oil mg/l	Benzene µg/l	Toluene ug/l	Ethylbenzene ug/l	Xylenes (total) ug/l
RW-10	Nov-03	0.625			1.2	0.892	2.42	3.07
RW-10	Aug-04	0.661	**36.2**	3.46	0.5	0.5	0.653	1.99
RW-10	Feb-05	0.473	1.21	0.75	0.5	0.5	0.5	1.41
RW-10	Nov-05	0.420	13.3	1.63	0.5	0.5	0.5	1
RW-10	Mar-06	0.066	4.14	0.75	0.5	0.5	0.5	1
RW-10	Nov-06	0.930	3.48	1.09	0.5	0.5	0.5	1
RW-10	May-07	0.073	0.255	*0.5*	0.5	0.5	0.5	1
RW-10	Nov-07	0.246	4.65	0.841	0.5	0.5	0.5	1
RW-10	Apr-08	0.235	1.91	*0.515*	0.5	0.5	0.5	1
RW-10	Nov-08	0.347	8.21	0.946	0.5	0.5	0.5	1
RW-10	Apr-09	0.448	5.95	0.804	0.5	0.5	0.5	1.36
RW-10	Nov-09	0.320	5.2	0.78	*0.5*	*1*	*1*	*2*
RW-10	Apr-10	0.460	2.3	*0.49*	*0.5*	*1*	*1*	*2*
RW-10	Nov-10	0.251	2.4	0.65	*0.5*	*1*	*1*	*3*
RW-10	Apr-11	0.6	1.5	0.68	*0.5*	*1*	*1*	*3*
RW-10	Nov-11	0.171	0.22	*0.39*	*0.5*	*1*	*1*	*3*
RW-10	Apr-12	0.366	0.51	0.46	*0.5*	*1*	*1*	*3*
RW-10	Nov-12	*0.1*	*0.11*	*0.11*	*0.5*	*0.5*	*0.5*	*1.5*
RW-10	Apr-13	0.2	0.36	*0.49*	*0.5*	*0.5*	*0.5*	*0.5*
RW-10	Nov-13	0.13	*0.25*	*0.25*	*0.5*	*0.5*	*0.5*	*1*
RW-10	Apr-14	0.16	1.6	0.73	*0.14*	*0.16*	*0.13*	0.13
RW-10	Nov-14	0.11	0.78	0.36	*1.0*	*1.0*	*1.0*	*3.0*
RW-10	Apr-15	0.091	0.97	0.8	*2.0*	*2.0*	*3.0*	*3.0*
RW-10	Nov-15	0.67	1.5	0.28	4.3	*2.0*	*3.0*	0.73
RW-10	Apr-16	0.28	1.9	1.4	*2.0*	*2.0*	*3.0*	*3.0*
RW-10	Nov-16	0.069	0.77	0.32	*0.2*	*0.2*	*0.2*	*0.5*
RW-10	Apr-17	*0.5*	*0.11*	*0.25*	*2.0*	*2.0*	*3.0*	*3.0*
RW-10	Nov-17	0.069	0.36	*0.25*	*0.2*	*0.2*	*0.2*	*0.5*
RW-10	Apr-18	0.12	0.33	*0.26*	*0.2*	*0.2*	*0.2*	*0.5*
RW-10	Nov-18	0.12	3.4	2.8	*0.2*	*0.2*	*0.2*	*0.5*
RW-10	Apr-19	0.073	1.6	0.96	*0.2*	*0.2*	*0.2*	*0.5*
RW-10	Nov-19	0.053	1.7	0.84	*0.5*	*2.0*	*2.0*	*4.0*
RW-10	Jul-20	0.062	1.8	1.00	*0.5*			
RW-10	Dec-20	*0.05*	0.34	*0.75*	*0.5*	*1.0*	*1.0*	*3.0*
RW-10	Jun-21	0.077	1.6	0.79	*0.5*	*1.0*	*1.0*	*3.0*
RW-10	Dec-21	*0.05*	7.30	2.80	*0.5*	*1.0*	*1.0*	*3.0*
RW-10	Average	0.3	3.4	0.8	0.7	0.8	1.0	1.7
RW-9	Nov-03	**13.1**			5	43.2	146	1180
RW-9	Aug-04	**1.24**	**94.9**	2.19	0.5	0.5	1.23	1.64
RW-9	Feb-05	0.907	**22.1**	<15	0.5	0.5	3.64	4.74
RW-9	Nov-05	0.568	4.31	0.708	0.5	0.5	0.968	1.45
RW-9	Mar-06	0.166	1.68	0.75	0.5	0.5	0.5	1
RW-9	Nov-06	0.359	5.98	1.17	0.5	0.5	0.647	1.09
RW-9	May-07	0.402	2.08	*0.5*	5.43	0.5	1.4	1.49
RW-9	Nov-07	0.184	**70.1**	**11.6**	0.5	*0.5*	*0.5*	*1*
RW-9	Apr-08	0.170	**18.2**	2.94	3.21	*0.5*	*0.5*	*1*
RW-9	Nov-08	0.130	**49.5**	8.21	0.5	*0.5*	*0.5*	*1*
RW-9	Apr-09	0.280	**45.1**	6.71	0.5	*0.5*	*0.5*	*1*
RW-9	Nov-09	0.670	**32**	6.8	1.5	*1*	*1*	*2*
RW-9	Apr-10	**6.0**	**110**	**24**	*0.5*	*1*	*1*	*2*
RW-9	Nov-10	0.207	2.0	0.53	*0.5*	*1*	*1*	*3*
RW-9	Apr-11	**1.12**	**276**	**45.9**	*0.5*	*1*	*1*	*3*
RW-9	Nov-11	0.289	2.3	*0.39*	*0.5*	*1*	*1*	*3*
RW-9	Apr-12	0.113	**33.2**	5.3	0.72	*1*	*1*	*3*
RW-9	Nov-12	*0.1*	8.2	8.4	0.5	*0.5*	*0.5*	*1.5*
RW-9	Apr-13	0.1	**44.0**	8.5	*0.5*	*0.5*	*0.5*	*0.5*
RW-9	Nov-13	0.062	**14.0**	2.6	*0.5*	*0.5*	*0.5*	*1*
RW-9	Apr-14	0.14	**56.0**	**16**	*0.14*	*0.16*	*0.13*	*0.12*
RW-9	Nov-14	0.14	7.1	2.7	*1.0*	*1.0*	*1.0*	*3.0*
RW-9	Apr-15	0.18	**14.0**	4.9	*2.0*	*2.0*	*3.0*	*3.0*
RW-9	Nov-15	0.32	**7.6**	3.0	*2.0*	*2.0*	*3.0*	*3.0*
RW-9	Apr-16	**1.5**	**180.0**	**38.0**	*2.0*	*2.0*	*3.0*	*3.0*
RW-9	Nov-16	0.17	**12.0**	3.8	*0.2*	*0.2*	*0.2*	*0.5*
RW-9	Apr-17	0.5	**64.0**	**17.0**	*2.0*	*2.0*	*3.0*	*3.0*
RW-9	Nov-17	0.14	**14.0**	4.4	*0.2*	*0.2*	*0.2*	*0.5*
RW-9	Apr-18	0.068	**11.0**	3.3	*0.2*	*0.2*	*0.2*	*0.5*
RW-9	Nov-18	0.093	**17.0**	7.2	*0.2*	*0.2*	*0.2*	*0.5*
RW-9	Apr-19	*0.05*	8.7	2.8	*0.2*	*0.2*	*0.2*	*0.5*
RW-9	Nov-19	0.054	7.5	2.4	*0.2*	*2.0*	*2.0*	*4.0*
RW-9	Jul-20	*0.05*	**11.0**	*3.8*	*0.5*	*1.0*	*1.0*	*3.0*
RW-9	Dec-20	*0.05*	**13.0**	*3.8*	*0.5*	*1.0*	*1.0*	*3.0*
RW-9	Jun-21	*0.05*	**66.0**	***19.0***	*0.5*	*1.0*	*1.0*	*3.0*
RW-9	Dec-21	*0.05*	**360.0**	***25.0***	*0.5*	*1.0*	*1.0*	*3.0*
RW-9	Average	**0.8**	**48.1**	8.2	1.0	2.1	5.5	37.5
Groundwater Cleanup Level		**1.0**	**10.0**	**10.0**	**71**			
Reporting Limits/Units		0.05 mg/l	0.25 mg/l	.750 mg/l	0.5 ug/l	Varies	Varies	Varies

Table 2. Waterfront Groundwater Recovery Wells Petroleum Hydrocarbon History
Site: Former BP Harbor Island Terminal

Well ID	Date	Gasoline mg/l	Diesel mg/l	Oil mg/l	Benzene µg/l	Toluene ug/l	Ethylbenzene ug/l	Xylenes (total) ug/l
RW-8	Nov-03	0.367			0.5	0.5	0.787	2.23
RW-8	Aug-04	0.181	**19.8**	2.19	0.5	0.5	0.53	2.13
RW-8	Feb-05	0.218	2.58	0.75	0.5	0.5	0.564	3.04
RW-8	Nov-05	0.099	0.575	0.721	0.5	0.5	0.5	1
RW-8	Mar-06	0.050	1.44	0.75	0.5	0.5	0.5	1
RW-8	Nov-06	0.050	3.58	0.762	0.5	0.5	0.5	1
RW-8	May-07	0.068	0.273	*0.5*	0.5	0.5	0.5	1
RW-8	Nov-07	0.065	0.29	0.543	0.5	0.5	0.5	1
RW-8	Apr-08	0.067	0.279	*0.529*	0.5	0.5	0.5	1
RW-8	Nov-08	0.088	3.85	0.492	0.5	0.5	0.5	1
RW-8	Apr-09	0.091	0.255	*0.476*	0.5	0.5	0.5	1
RW-8	Nov-09	0.140	1.3	*0.47*	*0.5*	*1*	*1*	*2*
RW-8	Apr-10	0.150	1.1	*0.49*	*0.5*	*1*	*1*	*2*
RW-8	Nov-10	0.105	1.0	*0.39*	*0.5*	*1*	*1*	*3*
RW-8	Apr-11	0.0995	2.6	0.59	*0.5*	*1*	*1*	*3*
RW-8	Nov-11	0.183	1.7	*0.39*	*0.5*	*1*	*1*	*3*
RW-8	Apr-12	*0.05*	1.3	*0.39*	*0.5*	*1*	*1*	*3*
RW-8	Nov-12	0.185	4.0	3.6	*0.5*	*0.5*	*0.5*	*1.5*
RW-8	Apr-13	0.062	2.7	0.52	*0.5*	*0.5*	*0.5*	*0.5*
RW-8	Nov-13	0.1	0.82	*0.25*	*0.5*	*0.5*	*0.5*	*1*
RW-8	Apr-14	0.13	3.40	0.91	0.15	*0.16*	*0.13*	0.52
RW-8	Nov-14	0.14	**10.0**	3.2	*1.0*	*1.0*	*1.0*	*3.0*
RW-8	Apr-15	0.13	5.2	2.0	*2.0*	*2.0*	*3.0*	*3.0*
RW-8	Nov-15	0.39	5.5	1.5	0.91	*2.0*	*3.0*	*3.0*
RW-8	Apr-16	0.28	**18.0**	7.7	*2.0*	*2.0*	*3.0*	*3.0*
RW-8	Nov-16	0.25	7.6	0.64	0.64	*0.2*	*0.2*	*0.5*
RW-8	Apr-17	0.5	2.0	0.37	2.00	*2.0*	*3.0*	*3.0*
RW-8	Nov-17	0.12	3.8	1.30	*0.20*	*0.2*	*0.2*	*0.5*
RW-8	Apr-18	0.11	4.0	1.20	*0.20*	*0.2*	*0.2*	*0.5*
RW-8	Nov-18	0.16	3.0	1.10	*0.20*	*0.2*	0.44	2.0
RW-8	Apr-19	0.091	0.95	*0.26*	*0.20*	*0.2*	*0.2*	*0.5*
RW-8	Nov-19	0.081	0.7	*0.75*	*0.50*	*2.0*	*2.00*	*4.0*
RW-8	Jul-20	0.087	1.1	*0.75*	*0.50*	*1.0*	*1.00*	*3.0*
RW-8	Dec-20	0.072	0.78	*0.75*	*0.50*	*1.0*	*1.00*	*3.0*
RW-8	Jun-21	0.11	2.10	*0.75*	*0.50*	*1.0*	*1.00*	*3.0*
RW-8	Dec-21	0.13	2.60	*0.75*	*0.50*	*1.0*	*1.00*	*3.0*
RW-8	Average	0.1	3.4	1.1	0.6	0.8	0.9	1.8
RW-7	Nov-03	0.148			0.5	0.5	0.518	2.87
RW-7	Aug-04	0.050	7.6	1.2	0.5	0.5	0.5	1.09
RW-7	Feb-05	0.050	1.21	0.75	0.5	0.5	0.5	1
RW-7	Nov-05	0.050	0.35	0.728	0.5	0.5	0.5	1
RW-7	Mar-06	0.050	0.25	0.75	0.5	0.5	0.5	1
RW-7	Nov-06	0.063	3.16	1.34	0.5	0.5	0.5	1
RW-7	May-07	0.414	0.49	*0.515*	0.5	0.5	0.5	1
RW-7	Nov-07	0.187	0.25	*0.5*	0.5	0.5	0.5	1
RW-7	Apr-08	0.063	0.25	*0.5*	0.5	0.5	0.5	1
RW-7	Nov-08	0.071	0.236	*0.472*	0.5	0.5	0.5	1
RW-7	Apr-09	0.123	0.238	*0.476*	0.5	0.5	0.5	1
RW-7	Nov-09	0.075	0.69	*0.47*	*0.5*	*1*	*1*	*2*
RW-7	Apr-10	0.140	0.85	*0.49*	*0.5*	*1*	*1*	*2*
RW-7	Nov-10	0.11	0.46	*0.4*	*0.5*	*1*	*1*	*3*
RW-7	Apr-11	0.207	1.1	*0.41*	*0.5*	*1*	*1*	*3*
RW-7	Nov-11	*0.05*	0.13	*0.4*	*0.5*	*1*	*1*	*3*
RW-7	Apr-12	*0.05*	0.21	*0.42*	*0.5*	*1*	*1*	*3*
RW-7	Nov-12	*0.1*	0.32	0.37	*0.5*	*0.5*	*0.5*	*1.5*
RW-7	Apr-13	0.081	0.63	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*
RW-7	Nov-13	*0.05*	0.45	*0.24*	*0.5*	*0.5*	*0.5*	*1*
RW-7	Apr-14	0.07	2.4	0.6	0.17	*0.16*	0.17	0.23
RW-7	Nov-14	0.064	0.92	*0.25*	*1.0*	*1.0*	*1.0*	*3.0*
RW-7	Apr-15	0.073	5.2	1.6	*2.0*	*2.0*	*3.0*	*3.0*
RW-7	Nov-15	0.11	0.41	0.88	*2.0*	*2.0*	*3.0*	*3.0*
RW-7	Apr-16	0.26	7.9	2.5	*2.0*	*2.0*	*3.0*	*3.0*
RW-7	Nov-16	0.11	0.89	*0.25*	*0.2*	*0.2*	*0.2*	*0.5*
RW-7	Apr-17	0.5	0.75	*0.27*	*2.0*	*2.0*	*3.0*	*3.0*
RW-7	Nov-17	0.05	0.21	*0.26*	*0.2*	*0.2*	*0.2*	*0.5*
RW-7	Apr-18	0.061	1.2	*0.26*	*0.2*	*0.2*	*0.2*	*0.5*
RW-7	Nov-18	0.065	0.48	*0.26*	*0.2*	*0.2*	*0.2*	*0.5*
RW-7	Apr-19	*0.05*	0.25	*0.26*	*0.2*	*0.2*	*0.2*	*0.5*
RW-7	Nov-19	*0.05*	*0.25*	*0.75*	*0.2*	*2.0*	*2.0*	*4.0*
RW-7	Jul-20	*0.05*	0.76	*0.75*	*0.5*	*1.0*	*1.0*	*3.0*
RW-7	Dec-20	*0.05*	1.0	*0.75*	*0.5*	*1.0*	*1.0*	*3.0*
RW-7	Jun-21	*0.05*	0.67	*0.75*	*0.5*	*1.0*	*1.0*	*3.0*
RW-7	Dec-21	*0.05*	2.50	*0.75*	*0.5*	*1.0*	*1.0*	*3.0*
RW-7	Average	0.1	1.2	0.6	0.6	0.8	0.9	1.7
Groundwater Cleanup Level		**1.0**	**10.0**	**10.0**	**71**			
Reporting Limits/Units		0.05 mg/l	0.25 mg/l	.750 mg/l	0.5 ug/l	Varies	Varies	Varies

Table 2. Waterfront Groundwater Recovery Wells Petroleum Hydrocarbon History
Site: Former BP Harbor Island Terminal

Well ID	Date	Gasoline mg/l	Diesel mg/l	Oil mg/l	Benzene µg/l	Toluene ug/l	Ethylbenzene ug/l	Xylenes (total) ug/l
RW-1	Nov-03	0.858	8.73	1.34	1.03	0.758	2.71	3.39
RW-1	Aug-04	**1.00**	**31.6**	2.08	0.685	0.787	2.1	4.18
RW-1	Feb-05	**1.03**	**18.9**	0.75	10.5	4.66	4.06	20.2
RW-1	Nov-05	0.547	2.19	0.708	0.5	0.5	0.5	1.67
RW-1	Mar-06	0.144	4.78	0.802	0.5	0.5	0.5	1
RW-1	Nov-06	0.173	3.28	*0.487*	0.5	0.5	0.5	1
RW-1	May-07	0.081	0.972	*0.526*	0.5	0.5	0.5	1
RW-1	Nov-07	0.056	0.596	*0.505*	0.5	0.5	0.5	1
RW-1	Apr-08	0.068	0.25	*0.5*	0.5	0.5	0.5	1
RW-1	Nov-08	0.050	0.274	*0.472*	0.5	0.5	0.5	1
RW-1	Apr-09	0.074	0.332	*0.481*	0.5	0.5	0.5	1
RW-1	Nov-09	0.073	0.44	*0.47*	*0.5*	*1*	*1*	*2*
RW-1	Apr-10	0.071	0.31	*0.49*	*0.5*	*1*	*1*	*2*
RW-1	Nov-10	0.143	0.32	*0.39*	*0.5*	*1*	*1*	*3*
RW-1	Apr-11	0.0991	0.95	*0.39*	*0.5*	*1*	*1*	*3*
RW-1	Nov-11	0.14	6.9	1.6	*0.5*	*1*	*1*	*3*
RW-1	Apr-12	0.131	0.86	*0.4*	0.53	*1*	*1*	*3*
RW-1	Nov-12	*0.1*	0.23	0.35	*0.5*	*0.5*	*0.5*	*1.5*
RW-1	Apr-13	0.15	0.47	*0.5*	*0.5*	*0.5*	*0.5*	*0.5*
RW-1	Nov-13	0.12	0.4	*0.25*	*0.5*	*0.5*	*0.5*	*1*
RW-1	Apr-14	0.17	0.9	0.34	0.3	*0.16*	0.35	0.44
RW-1	Nov-14	0.19	0.72	*0.25*	*1.0*	*1.0*	*1.0*	*3.0*
RW-1	Apr-15	0.18	5.0	1.2	*2.0*	*2.0*	*3.0*	*3.0*
RW-1	Nov-15	0.52	0.96	0.18	2.6	*2.0*	*3.0*	*3.0*
RW-1	Apr-16	0.24	2.5	0.69	*2.0*	*2.0*	*3.0*	*3.0*
RW-1	Nov-16	0.16	0.63	0.078	0.22	*0.2*	0.25	*0.5*
RW-1	Apr-17	0.5	0.17	0.26	*2.00*	*2.0*	*3.00*	*3.0*
RW-1	Nov-17	0.086	0.85	0.078	0.26	*0.2*	*0.20*	*0.5*
RW-1	Apr-18	0.2	0.69	*0.26*	0.23	*0.2*	0.31	*0.5*
RW-1	Nov-18	0.16	1.5	0.36	*0.20*	*0.2*	*0.20*	*0.5*
RW-1	Apr-19	0.11	0.73	*0.25*	*0.20*	*0.2*	0.25	*0.5*
RW-1	Nov-19	0.11	*0.25*	*0.75*	*0.50*	*2.0*	*2.00*	*4.0*
RW-1	Jul-20	0.15	1.3	*0.75*	*0.54*	*1.0*	*1.00*	*3.0*
RW-1	Dec-20	0.15	7.9	*1.5*	*0.50*	*1.0*	*1.00*	*3.0*
RW-1	Jun-21	0.11	0.29	*0.75*	*0.50*	*1.0*	*1.00*	*3.0*
RW-1	Dec-21	0.11	0.27	*0.75*	*0.50*	*1.0*	*1.00*	*3.0*
RW-1	Average	0.2	3.0	0.6	1.0	0.9	1.1	2.5
RW-6	Nov-03	**1.81**			**569**	23.1	10	116
RW-6	Aug-04	0.067	0.25	0.75	0.5	0.5	0.5	1
RW-6	Feb-05	0.101	0.25	0.75	0.5	0.5	0.788	1.3
RW-6	Nov-05	**8.19**	**115**	**14.7**	7.62	2.56	53.6	524
RW-6	Mar-06	**31.80**	**560**	**300**	12.7	9.15	96.7	568
RW-6	Nov-06	**1.14**	**26.8**	*1.05*	0.591	0.5	0.636	10
RW-6	May-07	**1.02**	**38.9**	*5.05*	34	1.44	16.6	15.2
RW-6	Nov-07	0.05	1.9	*5.32*	0.5	0.5	0.5	1
RW-6	Apr-08	0.33	5.56	0.542	10.2	1.22	9.56	6.9
RW-6	Nov-08	0.05	0.734	*0.472*	0.5	0.5	0.5	1
RW-6	Apr-09	0.175	1.14	*0.476*	6.93	0.5	3.08	3.32
RW-6	Nov-09	*0.050*	0.73	*0.47*	*0.5*	*1*	*1*	*2*
RW-6	Apr-10	**1.10**	3.2	*0.49*	53	2	9.4	6.7
RW-6	Nov-10	0.266	2.5	*0.39*	*0.5*	*1*	*1*	*3*
RW-6	Apr-11	0.595	*0.37*	*0.41*	15.1	*1*	9.5	6.7
RW-6	Nov-11	*0.05*	0.21	*0.38*	*0.5*	*1*	*1*	*3*
RW-6	Apr-12	*0.05*	0.98	*0.4*	1.1	*1*	*1*	*3*
RW-6	Nov-12	*0.1*	*0.11*	*0.11*	*0.5*	*0.5*	*0.5*	*1.5*
RW-6	Apr-13	0.18	1.1	*0.49*	0.82	*0.5*	*0.5*	0.55
RW-6	Nov-13	0.052	0.29	*0.25*	*0.5*	*0.5*	*0.5*	*1*
RW-6	Apr-14	0.19	1.4	0.36	2.1	0.34	1.3	0.64
RW-6	Nov-14	0.068	0.46	*0.25*	*1.0*	*1.0*	*1.0*	*3.0*
RW-6	Apr-15	0.13	0.46	*0.26*	*2.0*	*2.0*	*3.0*	*3.0*
RW-6	Nov-15	0.097	0.6	0.14	*2.0*	*2.0*	*3.0*	*3.0*
RW-6	Apr-16	0.21	6.3	2.4	*2.0*	*2.0*	*3.0*	*3.0*
RW-6	Nov-16	0.18	1.3	0.32	*0.2*	*0.2*	*0.2*	*0.5*
RW-6	Apr-17	0.5	0.66	0.51	*2.0*	*2.0*	*3.0*	*3.0*
RW-6	Nov-17	0.05	0.22	0.27	*0.2*	*0.2*	*0.2*	*0.5*
RW-6	Apr-18	0.11	0.54	*0.25*	*0.2*	*0.2*	*0.2*	*0.5*
RW-6	Nov-18	0.086	0.58	*0.25*	*0.2*	*0.2*	*0.2*	*0.5*
RW-6	Apr-19	0.053	0.14	*0.25*	*0.2*	*0.2*	*0.2*	*0.5*
RW-6	Nov-19	*0.05*	0.46	*0.75*	*0.5*	*2.0*	*2.0*	*4.0*
RW-6	Jul-20	0.081	0.26	*0.75*	*0.5*	*1.0*	*1.0*	*3.0*
RW-6	Dec-20	*0.05*	*0.25*	*0.75*	*0.5*	*1.0*	*1.0*	*3.0*
RW-6	Jun-21	*0.05*	0.32	*0.75*	*0.5*	*1.0*	*1.0*	*3.0*
RW-6	Dec-21	*0.05*	*0.25*	*0.75*	*0.5*	*1.0*	*1.0*	*3.0*
RW-6	Average	**1.4**	**22.1**	**9.8**	22.1	1.9	7.1	39.4
Groundwater Cleanup Level		**1.0**	**10.0**	**10.0**	**71**			
Reporting Limits/Units		0.05 mg/l	0.25 mg/l	.750 mg/l	0.5 ug/l	Varies	Varies	Varies

Table 2. Waterfront Groundwater Recovery Wells Petroleum Hydrocarbon History
Site: Former BP Harbor Island Terminal

Well ID	Date	Gasoline mg/l	Diesel mg/l	Oil mg/l	Benzene µg/l	Toluene ug/l	Ethylbenzene ug/l	Xylenes (total) ug/l
RW-5	Nov-03	**2.10**	4.13	0.75	5.21	0.657	83.5	186
RW-5	Aug-04	**7.60**	**14.5**	1.55	1.93	1.67	324	630
RW-5	Feb-05	**3.18**	**17.4**	**15**	**37.8**	40	38.5	287
RW-5	Nov-05	**19.60**	**1240**	**361**	**43.2**	42	66.2	879
RW-5	Mar-06	**1.79**	**13.3**	7.5	1.06	24.2	8.03	129
RW-5	Nov-06	0.741	8	1.67	0.5	0.5	0.732	4.23
RW-5	May-07	**2.920**	**13.9**	2.01	22.1	0.705	16.7	60.1
RW-5	Nov-07	1.430	2.16	0.639	1.08	0.5	1.87	2.07
RW-5	Apr-08	0.240	7.71	2.17	5.64	0.5	1.19	1.48
RW-5	Nov-08	**1.520**	0.916	*0.472*	6.32	0.5	2.85	3.55
RW-5	Apr-09	0.873	**11.7**	2.45	**93.3**	2.42	8.74	16.5
RW-5	Nov-09	0.066	0.4	*0.47*	*0.5*	*1*	*1*	*2*
RW-5	Apr-10	0.570	1.4	*0.49*	7.3	*1*	15	29
RW-5	Nov-10	0.785	0.9	*0.39*	30.5	*1*	2	5.3
RW-5	Apr-11	0.801	1.3	*0.41*	10.3	*1*	3.5	7
RW-5	Nov-11	0.18	1.2	*0.39*	9.2	*1*	5.6	3.9
RW-5	Apr-12	0.746	0.35	*0.41*	14.1	*1*	6.8	26
RW-5	Nov-12	*0.1*	0.38	0.41	1.6	*0.5*	*0.5*	*1.5*
RW-5	Apr-13	0.18	**26**	2.2	0.57	*0.5*	*0.5*	*0.5*
RW-5	Nov-13	0.22	*0.25*	*0.25*	0.83	*0.5*	*0.5*	*1*
RW-5	Apr-14	0.46	2.8	0.79	5.2	0.55	1.9	4.1
RW-5	Nov-14	0.28	1.7	0.56	*1.0*	*1.0*	*1.0*	*3.0*
RW-5	Apr-15	0.45	2.4	0.89	3.2	*2.0*	*3.0*	*3.0*
RW-5	Nov-15	0.39	2.2	0.36	*2.0*	*2.0*	*3.0*	*3.0*
RW-5	Apr-16	0.63	2.4	0.82	*2.0*	*2.0*	*3.0*	3.3
RW-5	Nov-16	0.72	4.4	1.00	0.59	*0.2*	0.40	0.41
RW-5	Apr-17	0.5	0.51	0.26	*2.00*	*2.0*	*3.00*	*3.00*
RW-5	Nov-17	0.32	1	0.26	1.10	*0.3*	2.60	0.74
RW-5	Apr-18	0.45	0.56	0.28	1.30	0.3	1.30	1.20
RW-5	Nov-18	0.25	4.2	2.10	1.40	*0.2*	0.76	4.50
RW-5	Apr-19	0.4	0.62	*0.26*	1.40	0.33	1.10	0.73
RW-5	Nov-19	*0.05*	0.55	*0.75*	0.50	*2.0*	*2.0*	*4.0*
RW-5	Jul-20	0.32	0.59	*0.75*	2.50	*1.0*	3.7	*3.0*
RW-5	Dec-20	0.94	0.31	*0.75*	0.82	*1.0*	*1.0*	*3.0*
RW-5	Jun-21	0.25	0.38	*0.75*	1.50	*1.0*	*1.0*	*3.0*
RW-5	Dec-21	0.23	*0.25*	*0.75*	*0.50*	*1.0*	*1.0*	*3.0*
RW-5	Average	**1.5**	**38.6**	**11.4**	8.9	3.8	18.1	64.4
RW-4	Nov-03	**4.89**			36.1	44.3	337	281
RW-4	Aug-04	**182.0**	**681**	**150**	**617**	7740	2750	15,200
RW-4	Feb-05	**49.4**	**2,610**	**765**	**347**	2830	834	7,210
RW-4	Nov-05	**77.5**	**3,650**	**1820**	**341**	6940	1100	8,010
RW-4	Mar-06	**26.1**	**440**	**150**	30.2	654	346	3,340
RW-4	Nov-06	**7.23**	**139**	*5.26*	65.2	157	47	1,090
RW-4	May-07	0.82	8.08	*0.543*	3.97	0.547	3.89	77.5
RW-4	Nov-07	**1.29**	0.553	*0.543*	1.97	0.536	3.5	106
RW-4	Apr-08	0.07	2.91	*0.532*	0.5	0.5	0.5	4.57
RW-4	Nov-08	0.73	6.43	*0.472*	6.86	0.5	3.6	28.2
RW-4	Apr-09	0.565	7.93	*0.481*	8.17	0.5	1.43	18.3
RW-4	Nov-09	**5.5**	**25**	1.2	22	1.9	30	310
RW-4	Apr-10	**4.2**	**10**	*0.49*	46	1.6	24	155
RW-4	Nov-10	**2.61**	**20**	0.86	39.9	*1.0*	15	47.9
RW-4	Apr-11	**5.73**	**29.5**	1.2	67.9	1.2	44.8	158
RW-4	Nov-11	**4.51**	**56.2**	1.4	48.5	*1.0*	43.6	98.3
RW-4	Apr-12	**6.24**	**38.1**	1.4	56.8	*1.2*	45.3	106
RW-4	Nov-12	0.771	**10.7**	9.2	7.5	*0.5*	3.9	10.1
RW-4	Apr-13	**1.1**	7.1	*0.5*	16	*0.5*	5.4	2.32
RW-4	Nov-13	0.77	0.63	*0.25*	12	*0.5*	6.2	12
RW-4	Apr-14	**3.7**	**50**	2.7	14	0.49	14	22
RW-4	Nov-14	**1.9**	8.7	0.57	15	*1.0*	16	23
RW-4	Apr-15	**3.0**	4.1	0.35	13	*2.0*	18	18
RW-4	Nov-15	**2.3**	**18**	0.95	13	0.45	5.3	7.6
RW-4	Apr-16	**3.1**	**22**	1.4	12	*2.0*	7	*3.0*
RW-4	Nov-16	0.86	**50**	2.9	1.9	*0.2*	0.41	*0.5*
RW-4	Apr-17	**2.2**	**22**	0.96	8.4	*2.0*	4	*3.0*
RW-4	Nov-17	**1.3**	**20**	1.2	22	1.2	2.7	1.3
RW-4	Apr-18	**1.3**	**24**	1.2	4.3	0.26	2.3	0.6
RW-4	Nov-18	**1.2**	**33**	1.9	12	0.34	0.45	1.1
RW-4	Apr-19	0.77	**28**	1.1	5.5	*0.20*	2.9	0.74
RW-4	Nov-19	0.48	**35**	*3.8*	10	*2.0*	*2.0*	*4.0*
RW-4	Jul-20	*0.5*	**390**	*4.3*	27	*10.0*	19.0	*30.0*
RW-4	Dec-20	***8.4***	**38**	***10.0***	42	*1.0*	1.0	*3.0*
RW-4	Jun-21	***2.4***	**47**	***15.0***	15.0	16.0	12.0	*30.0*
RW-4	Dec-21	**24.0**	**120**	***25.0***	7.9	*1.0*	*1.0*	*3.0*
RW-4	Average	**12.3**	**247**	**85**	55.5	574.7	168.8	1102.4
Groundwater Cleanup Level		**1.0**	**10.0**	**10.0**	**71**			
Reporting Limits/Units		0.05 mg/l	0.25 mg/l	.750 mg/l	0.5 ug/l	Varies	Varies	Varies

Table 2. Waterfront Groundwater Recovery Wells Petroleum Hydrocarbon History
Site: Former BP Harbor Island Terminal

Well ID	Date	Gasoline mg/l	Diesel mg/l	Oil mg/l	Benzene µg/l	Toluene ug/l	Ethylbenzene ug/l	Xylenes (total) ug/l
RW-2	Nov-03	**2.07**			**820**	369	34.5	124
RW-2	Aug-04	**7.03**	46	1.41	**2,270**	382	354	1,180
RW-2	Feb-05	**4.65**	1.02	0.75	**1,690**	450	296	752
RW-2	Nov-05	**2.82**	0.76	0.708	**1,540**	299	159	353
RW-2	Mar-06	**2.39**	6.84	3.75	**1,120**	112	138	224
RW-2	Nov-06	**13.10**	**14.3**	1.05	**1,830**	516	410	1,810
RW-2	May-07	**8.25**	6.35	*0.505*	**254**	33.1	237	1,150
RW-2	Nov-07	**3.55**	3.32	*0.538*	**895**	5	79.4	172
RW-2	Apr-08	**2.06**	**10.0**	*0.515*	**245**	5	58	190
RW-2	Nov-08	**1.42**	1.1	*0.481*	**360**	4.04	17.6	40
RW-2	Apr-09	0.497	0.864	*0.476*	49	1.78	9.49	22
RW-2	Nov-09	**2.4**	2.6	*0.48*	**400**	23	150	410
RW-2	Apr-10	**1.5**	1.0	*0.49*	**200**	1.5	66	98
RW-2	Nov-10	0.36	8.1	*0.6*	34.9	*1.0*	7.7	23.3
RW-2	Apr-11	**1.0**	1.5	*0.39*	**146**	1.3	27.8	51.7
RW-2	Nov-11	0.96	0.69	*0.39*	**363**	4.7	36.5	63.8
RW-2	Apr-12	0.57	**13.9**	*0.74*	**139**	*1.0*	13.7	17.4
RW-2	Nov-12	0.71	1.0	*0.91*	**196**	1.2	11.2	8.3
RW-2	Apr-13	0.47	3.0	*0.49*	**230**	2.0	20	6.6
RW-2	Nov-13	0.40	4.6	*0.25*	**80**	2.9	6.2	5.5
RW-2	Apr-14	**2.20**	7.2	0.53	**290**	100	84	79
RW-2	Nov-14	**2.30**	3.2	0.29	**460**	10	140	140
RW-2	Apr-15	**2.20**	2.7	0.3	**340**	28	77	55
RW-2	Nov-15	**1.6**	2.4	0.15	**330**	1.9	20	19
RW-2	Apr-16	**4.1**	**50**	2.3	**250**	16	40	31
RW-2	Nov-16	**3.6**	**170**	7.2	**330**	0.98	5.20	1.4
RW-2	Apr-17	**1.7**	7.4	0.28	**150**	130	29	15
RW-2	Nov-17	0.89	4.2	0.25	**390**	2.8	22	9.2
RW-2	Apr-18	**1.1**	**52**	2.2	**130**	6.6	4.9	2.2
RW-2	Nov-18	**2.4**	**16**	0.76	**180**	36	13	59
RW-2	Apr-19	0.66	8.1	0.32	26	0.49	5.4	1.2
RW-2	Nov-19	0.92	**20**	*3.8*	16	*2.0*	*2.0*	*4.0*
RW-2	Jul-20	**1.8**	9.4	*0.75*	**91**	170	16	*3.0*
RW-2	Dec-20	**1.1**	**76**	***20.0***	31	5.1	7.1	*47*
RW-2	Jun-21	**2.5**	**200**	***38.0***	11	*10*	11.0	*40*
RW-2	Dec-21	**4.4**	**220**	***38.0***	**320**	2.1	40	15
RW-2	Average	**2.5**	**16.8**	3.7	**450**	79.7	80.5	215.8
GM-11S	Nov-03	**2.28**			**614**	38.3	67.2	141
GM-11S	Aug-04	**2.06**	**57**	3.93	**506**	2.17	49.3	84.1
GM-11S	Feb-05	**2.42**	**25.1**	<15	55.6	0.848	25.5	17.3
GM-11S	Nov-05	**2.15**	**37.4**	<7.14	**124**	3.66	13.7	5.34
GM-11S	Mar-06	**1.41**	**17.8**	7.5	**218**	2.5	24.5	5
GM-11S	Nov-06	0.131	**10.8**	*1.05*	13.5	0.5	2.86	1.59
GM-11S	May-07	**1.68**	1.1	*0.556*	**175**	2.5	81.2	35.1
GM-11S	Nov-07	**2.20**	2.34	*0.505*	56.2	4.16	48.4	34.3
GM-11S	Apr-08	**1.93**	0.319	*0.532*	65.7	1.76	185	132
GM-11S	Nov-08	**1.66**	1.23	*0.472*	**95.3**	1.76	44.5	14.8
GM-11S	Apr-09	**1.26**	0.942	*0.481*	5.34	0.898	19.1	11.1
GM-11S	Aug-09	**1.90**	1.2	*0.48*	71	2.4	37	6.3
GM-11S	Nov-09	**1.50**	3.6	*0.48*	36	1.1	48	24
GM-11S	Apr-10	**3.00**	5	0.5	46	1.6	93	156
GM-11S	Nov-10	**1.39**	1.8	*0.48*	42	1.9	64.9	37.1
GM-11S	Apr-11	**1.42**	0.52	*0.4*	18.4	*1*	26.5	20.1
GM-11S	Nov-11	**2.28**	0.47	*0.38*	30.9	1.7	22.9	10.3
GM-11S	Apr-12	**2.24**	1.1	*0.38*	33	1.7	59.2	40.4
GM-11S	Nov-12	0.671	0.83	0.62	11.4	0.86	44.6	27.9
GM-11S	Apr-13	0.5	0.35	*0.49*	20	0.52	23	9.1
GM-11S pumping discontinued in May 2013 due to line blockage and concentrations mainly below cleanup levels.								
GM-11S	Nov-13	0.33	0.47	0.58	4.1	0.6	10	1
GM-11S	Apr-14	**1.2**	3.9	1.4	10	0.82	23	2.7
GM-11S	Nov-14	0.72	0.83	0.4	6.5	8.7	*1.0*	*3.0*
GM-11S	Apr-15	0.2	0.51	0.35	*2.0*	*2.0*	*3.0*	*3.0*
GM-11S	Nov-15	0.5	0.77	0.41	1.6	0.54	0.52	0.70
GM-11S	Apr-16	0.52	7.1	1.8	14.0	*2.0*	*3.0*	*3.0*
GM-11S	Nov-16	0.078	0.34	0.21	*0.2*	*0.2*	*0.2*	*0.5*
GM-11S	Apr-17	0.5	0.11	0.25	*2.0*	*2.0*	*3.0*	*3.0*
GM-11S	Nov-17	0.83	1.4	0.37	3.8	2.5	0.4	1.7
GM-11S	Apr-18	0.22	1.4	0.98	*0.2*	0.2	*0.2*	*0.5*
GM-11S	Nov-18	0.48	4.8	4.0	*0.2*	*0.2*	*0.2*	*0.5*
GM-11S	Apr-19	0.3	2.0	0.57	2.0	1.2	0.27	*0.5*
GM-11S	Nov-19	0.66	2.1	*0.75*	*0.5*	*2.0*	*2.0*	*4.0*
GM-11S	Jul-20	0.99	3.0	*0.75*	2.5	1.6	*1.0*	*3.0*
GM-11S	Dec-20	0.84	3.6	1.00	3.5	*1.0*	*1.0*	*3.0*
GM-11S	Jun-21	0.95	2.7	*0.75*	2.9	1.1	*1.0*	*3.0*
GM-11S	Dec-21	0.66	2.4	*0.75*	*0.5*	*1.0*	*1.0*	*3.0*
GM-11S	Average	**1.2**	5.7	1.0	**62.0**	2.7	27.9	22.9
Groundwater Cleanup Level		**1.0**	**10.0**	**10.0**	**71**			
Reporting Limits/Units		0.05 mg/l	0.25 mg/l	.750 mg/l	0.5 ug/l	Varies	Varies	Varies

Table 2. Waterfront Groundwater Recovery Wells Petroleum Hydrocarbon History
Site: Former BP Harbor Island Terminal

Well ID	Date	Gasoline mg/l	Diesel mg/l	Oil mg/l	Benzene µg/l	Toluene ug/l	Ethylbenzene ug/l	Xylenes (total) ug/l

Notes:
Detection limits for many of the Oil analyses were raised due to sample dilution for diesel analyses.
These samples are listed with a "<" notation.
Values in italics were not detected at the listed reporting limit.
Values in bold exceed the cleanup level for confirmational wells.
Note that the groundwater cleanup levels are included for reference only.
Cleanup levels are applicable to confirmational wells, which are more deeply screened than the recovery wells included in this table. The deeper groundwater represents the conditional point of compliance for the Site, where groundwater/surface water exchange is occurring.

Table 3. Waterfront Systems Recovered Petroleum Hydrocarbon History
Site: Former BP Harbor Island Terminal

Total Gallonage of Recovered Petroleum Hydrocarbons

Date	Monthly LNAPL Recovery	Dissolved LNAPL Recovery*	Cumulative LNAPL Recovery	Monthly SVE Recovery (Vapor Phase)	Monthly SVE Recovery (Biodegredation)	Cumulative SVE Recovery	Total Recovery
9-Aug-92	0.0	NA	0	NA	NA	NA	0
10-Aug-92	1.2	NA	1	NA	NA	NA	1
11-Aug-92	27.4	NA	29	NA	NA	NA	29
19-Aug-92	43.6	NA	72	NA	NA	NA	72
25-Aug-92	7.3	NA	80	NA	NA	NA	80
26-Aug-92	19.0	NA	99	NA	NA	NA	99
27-Aug-92	19.4	NA	118	NA	NA	NA	118
11-Sep-92	5.4	NA	123	NA	NA	NA	123
13-Sep-92	31.8	NA	155	NA	NA	NA	155
18-Dec-92	17.8	NA	173	NA	NA	NA	173
4-Jan-93	45.0	NA	218	NA	NA	NA	218
3-Feb-93	120.3	NA	338	NA	NA	NA	338
4-Feb-93	11.1	NA	349	NA	NA	NA	349
5-Feb-93	14.8	NA	364	NA	NA	NA	364
8-Feb-93	38.9	NA	403	NA	NA	NA	403
16-Feb-93	72.7	NA	476	NA	NA	NA	476
18-Feb-93	23.5	NA	499	NA	NA	NA	499
1-Mar-93	89.4	NA	589	NA	NA	NA	589
15-Mar-93	253.8	NA	842	NA	NA	NA	842
16-Mar-93	20.2	NA	863	NA	NA	NA	863
25-Mar-93	98.0	NA	961	NA	NA	NA	961
31-Mar-93	52.1	NA	1,013	NA	NA	NA	1,013
8-Apr-93	108.6	NA	1,121	NA	NA	NA	1,121
12-Apr-93	86.5	NA	1,208	NA	NA	NA	1,208
14-Apr-93	37.5	NA	1,245	NA	NA	NA	1,245
15-Apr-93	21.8	NA	1,267	NA	NA	NA	1,267
29-Apr-93	114.0	NA	1,381	NA	NA	NA	1,381
5-May-93	57.9	NA	1,439	NA	NA	NA	1,439
10-May-93	128.9	NA	1,568	NA	NA	NA	1,568
14-May-93	175.4	NA	1,743	NA	NA	NA	1,743
19-May-93	236.7	NA	1,980	NA	NA	NA	1,980
28-May-93	279.7	NA	2,260	NA	NA	NA	2,260
3-Jun-93	2.4	NA	2,262	NA	NA	NA	2,262
4-Jun-93	78.0	NA	2,340	NA	NA	NA	2,340
11-Jun-93	40.5	NA	2,380	NA	NA	NA	2,380
25-Jun-93	216.6	NA	2,597	NA	NA	NA	2,597
6-Jul-93	167.9	NA	2,765	NA	NA	NA	2,765
9-Jul-93	15.1	NA	2,780	NA	NA	NA	2,780
16-Jul-93	3.3	NA	2,783	NA	NA	NA	2,783
29-Jul-93	9.2	NA	2,792	NA	NA	NA	2,792
30-Oct-93	1007.6	NA	3,800	NA	NA	NA	3,800
15-Mar-94	900.0	NA	4,700	NA	NA	NA	4,700
30-Jun-94	900.0	NA	5,600	NA	NA	NA	5,600
28-Sep-94	300.0	NA	5,900	NA	NA	NA	5,900
27-Dec-94	300.0	NA	6,200	NA	NA	NA	6,200
27-Mar-95	300.0	NA	6,500	NA	NA	NA	6,500
25-Jun-95	300.0	NA	6,800	NA	NA	NA	6,800
23-Sep-95	100.0	NA	6,900	NA	NA	NA	6,900
22-Dec-95	98.0	NA	6,998	NA	NA	NA	6,998
1-Jan-96	103.0	NA	7,101	11.4	24.8	36	7,137
28-Feb-96	140.0	NA	7,241	22.7	49.6	108	7,349
28-Mar-96	229.0	NA	7,470	88.5	155.4	352	7,822
24-Apr-96	60.5	NA	7,531	64.9	126.4	544	8,074
31-May-96	56.0	NA	7,586	54.4	150.8	749	8,335

Note: NA - The soil vapor extraction system was not brought online until January of 1996
* - Dissolved LNAPL recovery was not recorded until completion of the final remediation system in Oct 2002.

Total Gallonage of Recovered Petroleum Hydrocarbons

Date	Monthly LNAPL Recovery	Dissolved LNAPL Recovery*	Cumulative LNAPL Recovery	Monthly SVE Recovery (Vapor Phase)	Monthly SVE Recovery (Biodegredation)	Cumulative SVE Recovery	Total Recovery
26-Jun-96	61.0	NA	7,648	60.7	139.8	949	8,597
17-Jul-96	201.9	NA	7,849	62.9	158.0	1,170	9,020
16-Aug-96	312.9	NA	8,162	85.3	242.3	1,498	9,660
18-Sep-96	216.2	NA	8,379	23.8	74.8	1,596	9,975
16-Oct-96	120.5	NA	8,499	72.9	248.3	1,918	10,417
20-Nov-96	99.3	NA	8,598	30.8	155.2	2,104	10,702
12-Dec-96	17.2	NA	8,615	8.4	79.5	2,192	10,807
16-Jan-97	38.9	NA	8,654	8.3	75.8	2,276	10,930
14-Feb-97	2.3	NA	8,657	6.4	53.8	2,336	10,993
13-Mar-97	23.1	NA	8,680	7.5	42.4	2,386	11,066
14-Apr-97	86.6	NA	8,766	14.3	16.3	2,417	11,183
15-May-97	164.9	NA	8,931	18.2	42.0	2,477	11,408
24-Jun-97	70.2	NA	9,001	0.0	0.0	2,477	11,478
24-Jul-97	41.1	NA	9,043	2.7	13.9	2,493	11,536
24-Aug-97	0.0	NA	9,043	1.9	9.6	2,505	11,547
30-Sep-97	6.26	NA	9,049	2.2	11.4	2,518	11,567
31-Oct-97	23.68	NA	9,072	0.0	0.0	2,518	11,591
30-Nov-97	9.04	NA	9,081	0.0	0.0	2,518	11,600
15-Dec-97	7.19	NA	9,089	0.5	2.5	2,521	11,610
14-Jan-98	10.29	NA	9,099	1.0	5.0	2,527	11,626
13-Feb-98	6.5	NA	9,105	3.4	17.5	2,548	11,654
16-Mar-98	5.72	NA	9,111	2.4	12.2	2,563	11,674
14-Apr-98	0.01	NA	9,111	4.1	20.9	2,588	11,699
19-May-98	0.0	NA	9,111	5.1	25.9	2,619	11,730
15-Jun-98	0.0	NA	9,111	0.6	3.1	2,622	11,734
15-Jul-98	0.0	NA	9,111	0.0	0.0	2,622	11,734
15-Aug-98	0.0	NA	9,111	0.0	0.0	2,622	11,734
15-Sep-98	0.0	NA	9,111	0.0	0.0	2,622	11,734
15-Oct-98	7.7	NA	9,119	2.6	13.1	2,638	11,757
18-Nov-98	0.33	NA	9,119	4.8	24.5	2,667	11,787
13-Dec-98	0.0	NA	9,119	3.5	18.0	2,689	11,808
14-Jan-99	0.08	NA	9,119	3.3	16.9	2,709	11,828
17-Feb-99	0.0	NA	9,119	4.6	23.8	2,737	11,857
15-Mar-99	0.0	NA	9,119	3.8	19.4	2,761	11,880
15-Apr-99	0.0	NA	9,119	4.0	20.6	2,785	11,905
13-May-99	0.0	NA	9,119	3.9	20.2	2,809	11,929
15-Jun-99	0.0	NA	9,119	3.9	19.7	2,833	11,952
15-Jul-99	0.0	NA	9,119	4.1	21.2	2,858	11,978
17-Aug-99	0.0	NA	9,119	4.0	20.6	2,883	12,002
16-Sep-99	0.0	NA	9,119	3.9	19.8	2,907	12,026
20-Oct-99	0.0	NA	9,119	4.1	20.8	2,932	12,051
19-Nov-99	0.0	NA	9,119	3.7	18.8	2,954	12,073
21-Dec-99	0.0	NA	9,119	3.7	18.9	2,977	12,096
21-Jan-00	0.0	NA	9,119	3.5	18.1	2,998	12,118
16-Feb-00	0.0	NA	9,119	3.2	16.6	3,018	12,137
21-Mar-00	0.0	NA	9,119	4.4	22.6	3,045	12,164
14-Apr-00	0.0	NA	9,119	4.5	23.2	3,073	12,192
15-May-00	0.0	NA	9,119	2.6	13.5	3,089	12,208
15-Jun-00	0.1	NA	9,119	4.2	21.3	3,114	12,234
19-Jul-00	0.0	NA	9,119	3.9	20.2	3,138	12,258
18-Aug-00	0.1	NA	9,119	1.5	7.7	3,148	12,267
20-Sep-00	7.3	NA	9,127	2.8	14.1	3,165	12,291
12-Oct-00	0.0	NA	9,127	2.4	12.3	3,179	12,306
14-Nov-00	32.9	NA	9,160	2.9	14.8	3,197	12,357

Note: NA - The soil vapor extraction system was not brought online until January of 1996
* - Dissolved LNAPL recovery was not recorded until completion of the final remediation system in Oct 2002.

Table 3. Waterfront Systems Recovered Petroleum Hydrocarbon History
Site: Former BP Harbor Island Terminal

Total Gallonage of Recovered Petroleum Hydrocarbons

Date	Monthly LNAPL Recovery	Dissolved LNAPL Recovery*	Cumulative LNAPL Recovery	Monthly SVE Recovery (Vapor Phase)	Monthly SVE Recovery (Biodegredation)	Cumulative SVE Recovery	Total Recovery
14-Dec-00	20.1	NA	9,180	2.6	13.5	3,213	12,393
11-Jan-01	0.9	NA	9,181	2.5	12.6	3,228	12,409
15-Feb-01	0.0	NA	9,181	0.5	2.5	3,231	12,412
15-Mar-01	0.2	NA	9,181	0.0	0.0	3,231	12,412
20-Apr-01	0.0	NA	9,181	0.0	0.1	3,231	12,412
18-May-01	0.0	NA	9,181	6.8	35.0	3,273	12,454
11-Jun-01	0.8	NA	9,182	10.8	55.1	3,339	12,520
24-Jul-01	0.1	NA	9,182	43.9	224.4	3,607	12,789
21-Aug-01	0.3	NA	9,182	0.0	0.0	3,607	12,789
6-Sep-01	0.1	NA	9,182	0.0	0.0	3,607	12,789
19-Oct-01	0.0	NA	9,182	13.5	69.2	3,690	12,872
15-Nov-01	106.9	NA	9,289	33.7	172.2	3,896	13,185
10-Dec-01	17.5	NA	9,306	0.0	0.0	3,896	13,202
16-Jan-02	5.6	NA	9,312	34.6	177.0	4,107	13,419
21-Feb-02	0.0	NA	9,312	39.5	202.1	4,349	13,661
15-Mar-02	0.0	NA	9,312	0.0	0.0	4,349	13,661
15-Apr-02	0.0	NA	9,312	0.0	0.0	4,349	13,661
15-May-02	0.0	NA	9,312	0.0	0.0	4,349	13,661
15-Jun-02	0.0	NA	9,312	0.0	0.0	4,349	13,661
15-Jul-02	0.0	NA	9,312	0.0	0.0	4,349	13,661
15-Aug-02	0.0	NA	9,312	0.0	0.0	4,349	13,661
24-Sep-02	0.0	NA	9,312	0.0	0.0	4,349	13,661
15-Oct-02	0.0	0.0	9,312	68.5	254.2	4,672	13,984
26-Nov-02	0.0	1.2	9,313	137.6	525.5	5,335	14,648
26-Dec-02	0.0	2.7	9,316	94.0	482.8	5,912	15,227
16-Jan-03	19.6	2.6	9,338	49.5	451.8	6,413	15,751
20-Feb-03	0.0	3.7	9,342	33.5	320.1	6,766	16,108
11-Mar-03	0.0	4.6	9,346	27.5	328.1	7,122	16,468
15-Apr-03	6.9	3.9	9,357	15.4	423.1	7,560	16,918
15-May-03	2.5	2.8	9,362	18.3	346.5	7,925	17,288
17-Jun-03	0.0	1.8	9,364	18.6	353.4	8,297	17,661
15-Jul-03	2.0	1.3	9,367	32.4	290.4	8,620	17,987
13-Aug-03	0.0	2.4	9,370	49.2	295.0	8,964	18,334
16-Sep-03	0.0	2.6	9,373	26.5	364.0	9,355	18,727
14-Oct-03	0.0	2.5	9,375	23.0	316.1	9,694	19,069
19-Nov-03	0.0	3.2	9,378	36.6	404.9	10,135	19,514
17-Dec-03	20.0	6.4	9,405	12.0	317.3	10,465	19,869
13-Jan-04	25.0	31.3	9,461	2.8	293.2	10,761	20,222
10-Feb-04	0.0	19.7	9,481	3.8	186.1	10,951	20,431
17-Mar-04	0.0	1.5	9,482	5.2	297.0	11,253	20,735
15-Apr-04	0.0	0.8	9,483	11.0	198.0	11,462	20,945
25-May-04	0.0	3.0	9,486	40.4	356.7	11,859	21,345
17-Jun-04	35.0	2.7	9,524	57.1	103.2	12,019	21,543
13-Jul-04	0.0	8.2	9,532	64.7	260.4	12,344	21,876
13-Aug-04	50.0	11.9	9,594	22.1	233.1	12,599	22,193
16-Sep-04	8.0	6.3	9,608	32.0	147.8	12,779	22,387
13-Oct-04	0.0	1.8	9,610	62.2	117.5	12,959	22,568
19-Nov-04	10.0	3.1	9,623	118.5	156.7	13,234	22,856
15-Dec-04	3.5	2.0	9,629	84.4	124.7	13,443	23,071
13-Jan-05	0.0	3.7	9,632	80.6	90.3	13,614	23,245
15-Feb-05	35.0	5.3	9,673	83.4	128.0	13,825	23,494
15-Mar-05	0.0	2.7	9,675	121.9	162.7	14,110	23,781
15-Apr-05	0.0	6.2	9,681	136.0	170.8	14,417	24,094
20-May-05	0.0	13.6	9,695	83.0	156.7	14,656	24,347

Note: NA - The soil vapor extraction system was not brought online until January of 1996
* - Dissolved LNAPL recovery was not recorded until completion of the final remediation system in Oct 2002.

Table 3. Waterfront Systems Recovered Petroleum Hydrocarbon History
Site: Former BP Harbor Island Terminal

Total Gallonage of Recovered Petroleum Hydrocarbons

Date	Monthly LNAPL Recovery	Dissolved LNAPL Recovery*	Cumulative LNAPL Recovery	Monthly SVE Recovery (Vapor Phase)	Monthly SVE Recovery (Biodegredation)	Cumulative SVE Recovery	Total Recovery
16-Jun-05	0.0	13.6	9,709	61.6	106.7	14,825	24,529
15-Jul-05	110.0	15.9	9,835	86.0	168.1	15,079	24,909
12-Aug-05	0.0	7.9	9,842	100.3	142.0	15,321	25,159
15-Sep-05	0.0	10.2	9,853	96.4	145.9	15,564	25,412
14-Oct-05	0.0	7.7	9,860	66.3	179.5	15,809	25,671
17-Nov-05	0.0	5.8	9,866	92.2	188.9	16,090	25,958
19-Dec-05	0.0	7.8	9,874	49.2	104.0	16,244	26,119
25-Jan-06	0.0	77.0	9,951	83.8	152.8	16,480	26,433
14-Feb-06	5.0	35.5	9,992	40.3	74.2	16,595	26,629
15-Mar-06	2.0	3.1	9,997	59.4	112.3	16,766	26,838
14-Apr-06	0.0	4.0	10,001	47.3	116.2	16,930	27,005
17-May-06	0.0	4.9	10,005	37.9	132.2	17,100	27,179
14-Jun-06	0.0	1.1	10,007	20.7	93.2	17,214	27,298
12-Jul-06	0.0	0.2	10,007	13.8	76.5	17,304	27,389
08-Aug-06	0.0	0.0	10,007	9.2	28.7	17,342	27,427
16-Aug-06	0.0	0.2	10,007	2.4	20.9	17,365	27,451
13-Sep-06	0.0	0.7	10,008	6.4	70.7	17,442	27,528
12-Oct-06	0.0	0.5	10,008	5.2	71.9	17,519	27,606
17-Nov-06	0.0	0.6	10,009	2.8	100.3	17,622	27,710
19-Dec-06	30.0	1.1	10,040	0.6	97.3	17,720	27,839
19-Jan-07	0.0	1.2	10,041	0.0	93.0	17,813	27,933
16-Feb-07	0.0	0.7	10,042	0.8	81.7	17,896	28,016
16-Mar-07	0.0	0.5	10,042	1.8	89.2	17,987	28,108
19-Apr-07	0.0	0.8	10,043	2.8	123.9	18,113	28,235
03-May-07	0.0	0.0	10,043	1.9	52.2	18,168	28,289
17-May-07	0.0	0.7	10,044	2.6	47.2	18,217	28,286
14-Jun-07	0.0	0.4	10,044	7.8	96.2	18,321	28,390
13-Jul-07	0.0	0.3	10,044	7.3	107.5	18,436	28,505
16-Aug-07	0.0	0.2	10,045	5.2	139.9	18,581	28,650
10-Sep-07	0.0	0.1	10,045	4.4	116.7	18,703	28,772
17-Oct-07	0.0	0.1	10,045	6.4	160.4	18,869	28,939
16-Nov-07	0.0	0.2	10,045	5.1	112.7	18,987	29,056
14-Dec-07	0.0	0.1	10,045	12.6	103.2	19,103	29,172
22-Jan-08	0.0	0.4	10,046	22.0	143.0	19,268	29,337
14-Feb-08	0.0	0.4	10,046	5.9	83.5	19,357	29,427
14-Mar-08	30.0	0.3	10,076	5.1	86.1	19,448	29,518
18-Apr-08	0.0	0.2	10,076	5.4	111.5	19,565	29,642
16-May-08	0.0	0.1	10,077	4.1	88.0	19,657	29,734
18-Jun-08	0.0	0.1	10,077	0.0	0.0	19,657	29,734
16-Jul-08	0.0	0.2	10,077	0.0	0.0	19,657	29,734
18-Aug-08	0.0	0.2	10,077	0.0	0.0	19,657	29,735
16-Sep-08	0.0	0.1	10,077	0.0	0.0	19,657	29,735
15-Oct-08	0.0	0.1	10,077	0.0	0.0	19,657	29,735
14-Nov-08	0.0	0.2	10,078	0.0	0.0	19,657	29,735
11-Dec-08	0.0	0.1	10,078	0.0	0.0	19,657	29,735
14-Jan-09	0.0	0.2	10,078	0.0	0.0	19,657	29,735
18-Feb-09	0.0	0.1	10,078	0.0	0.0	19,657	29,736
17-Mar-09	0.0	0.1	10,078	0.0	0.0	19,657	29,736
16-Apr-09	0.0	0.1	10,078	0.0	0.0	19,657	29,736
14-May-09	0.0	0.1	10,078	0.0	0.0	19,657	29,736
16-Jun-09	0.0	0.1	10,079	0.0	0.0	19,657	29,736
22-Jul-09	0.0	0.3	10,079	0.0	0.0	19,657	29,736
17-Aug-09	0.0	0.4	10,079	0.0	0.0	19,657	29,737
14-Sep-09	0.0	0.3	10,080	0.0	0.0	19,657	29,737

Note: NA - The soil vapor extraction system was not brought online until January of 1996
* - Dissolved LNAPL recovery was not recorded until completion of the final remediation system in Oct 2002.

Table 3. Waterfront Systems Recovered Petroleum Hydrocarbon History
Site: Former BP Harbor Island Terminal

Total Gallonage of Recovered Petroleum Hydrocarbons

Date	Monthly LNAPL Recovery	Dissolved LNAPL Recovery*	Cumulative LNAPL Recovery	Monthly SVE Recovery (Vapor Phase)	Monthly SVE Recovery (Biodegredation)	Cumulative SVE Recovery	Total Recovery
20-Oct-09	0.0	0.2	10,080	0.0	0.0	19,657	29,737
18-Nov-09	0.0	0.6	10,080	0.0	0.0	19,657	29,738
15-Dec-09	0.0	0.3	10,081	0.0	0.0	19,657	29,738
21-Jan-10	0.0	1.7	10,082	0.0	0.0	19,657	29,740
17-Feb-10	0.0	0.8	10,083	0.0	0.0	19,657	29,740
17-Mar-10	0.0	0.4	10,084	0.0	0.0	19,657	29,741
15-Apr-10	0.0	0.3	10,084	0.0	0.0	19,657	29,741
19-May-10	0.0	0.3	10,084	0.0	0.0	19,657	29,741
16-Jun-10	0.0	0.1	10,084	0.0	0.0	19,657	29,742
28-Jul-10	0.0	0.1	10,084	0.0	0.0	19,657	29,742
18-Aug-10	0.0	0.0	10,084	0.0	0.0	19,657	29,742
21-Sep-10	0.0	0.1	10,084	0.0	0.0	19,657	29,742
19-Oct-10	0.0	0.1	10,084	0.0	0.0	19,657	29,742
29-Nov-10	0.0	0.1	10,085	0.0	0.0	19,657	29,742
22-Dec-10	0.0	0.7	10,085	0.0	0.0	19,657	29,743
19-Jan-11	0.0	1.2	10,087	0.0	0.0	19,657	29,744
15-Feb-11	0.0	0.5	10,087	0.0	0.0	19,657	29,744
29-Mar-11	0.0	0.5	10,088	0.0	0.0	19,657	29,745
21-Apr-11	0.0	0.2	10,088	0.0	0.0	19,657	29,745
18-May-11	0.0	0.5	10,088	0.0	0.0	19,657	29,746
14-Jun-11	0.0	0.3	10,088	0.0	0.0	19,657	29,746
20-Jul-11	0.0	0.1	10,089	0.0	0.0	19,657	29,746
17-Aug-11	0.0	0.0	10,089	0.0	0.0	19,657	29,746
14-Sep-11	0.0	0.0	10,089	0.0	0.0	19,657	29,746
11-Oct-11	0.0	0.1	10,089	0.0	0.0	19,657	29,746
22-Nov-11	0.0	0.3	10,089	0.0	0.0	19,657	29,746
13-Dec-11	0.0	0.1	10,089	0.0	0.0	19,657	29,747
23-Jan-12	0.0	1.8	10,091	0.0	0.0	19,657	29,748
14-Feb-12	0.0	0.9	10,092	0.0	0.0	19,657	29,749
13-Mar-12	0.0	0.2	10,092	0.0	0.0	19,657	29,749
16-Apr-12	0.0	0.8	10,093	0.0	0.0	19,657	29,750
16-May-12	0.0	0.5	10,093	0.0	0.0	19,657	29,751
13-Jun-12	0.0	0.1	10,093	0.0	0.0	19,657	29,751
20-Jul-12	0.0	0.1	10,093	0.0	0.0	19,657	29,751
23-Aug-12	0.0	0.2	10,094	0.0	0.0	19,657	29,751
5-Sep-12	0.0	0.1	10,094	0.0	0.0	19,657	29,751
24-Oct-12	0.0	0.2	10,094	0.0	0.0	19,657	29,751
18-Dec-12	0.0	0.0	10,094	0.0	0.0	19,657	29,751
23-Jan-13	0.0	0.5	10,094	0.0	0.0	19,657	29,752
21-Feb-13	0.0	0.1	10,095	0.0	0.0	19,657	29,752
13-Mar-13	0.0	0.1	10,095	0.0	0.0	19,657	29,752
17-Apr-13	0.0	0.2	10,095	0.0	0.0	19,657	29,752
22-May-13	0.0	0.1	10,095	0.0	0.0	19,657	29,752
12-Jun-13	0.0	0.1	10,095	0.0	0.0	19,657	29,752
24-Jul-13	0.0	0.3	10,095	0.0	0.0	19,657	29,753
20-Aug-13	0.0	0.2	10,095	0.0	0.0	19,657	29,753
24-Sep-13	0.0	0.1	10,096	0.0	0.0	19,657	29,753
15-Oct-13	0.0	0.0	10,096	0.0	0.0	19,657	29,753
20-Nov-13	0.0	0.2	10,096	0.0	0.0	19,657	29,753
18-Dec-13	0.0	0.2	10,096	0.0	0.0	19,657	29,753
14-Jan-14	0.0	0.1	10,096	0.0	0.0	19,657	29,754
11-Feb-14	0.0	0.1	10,096	0.0	0.0	19,657	29,754
20-Mar-14	0.0	0.3	10,097	0.0	0.0	19,657	29,754
16-Apr-14	0.0	0.2	10,097	0.0	0.0	19,657	29,754

Note: NA - The soil vapor extraction system was not brought online until January of 1996
* - Dissolved LNAPL recovery was not recorded until completion of the final remediation system in Oct 2002.

Total Gallonage of Recovered Petroleum Hydrocarbons

Date	Monthly LNAPL Recovery	Dissolved LNAPL Recovery*	Cumulative LNAPL Recovery	Monthly SVE Recovery (Vapor Phase)	Monthly SVE Recovery (Biodegredation)	Cumulative SVE Recovery	Total Recovery
21-May-14	0.0	0.2	10,097	0.0	0.0	19,657	29,754
19-Jun-14	0.0	0.1	10,097	0.0	0.0	19,657	29,754
24-Jul-14	0.0	0.0	10,097	0.0	0.0	19,657	29,755
13-Aug-14	0.0	0.2	10,097	0.0	0.0	19,657	29,755
17-Sep-14	0.0	0.4	10,098	0.0	0.0	19,657	29,755
15-Oct-14	0.0	0.2	10,098	0.0	0.0	19,657	29,755
19-Nov-14	0.0	0.2	10,098	0.0	0.0	19,657	29,755
17-Dec-14	0.0	0.4	10,098	0.0	0.0	19,657	29,756
14-Jan-15	0.0	0.8	10,099	0.0	0.0	19,657	29,757
11-Feb-15	0.0	0.7	10,100	0.0	0.0	19,657	29,757
18-Mar-15	0.0	0.3	10,100	0.0	0.0	19,657	29,758
15-Apr-15	0.0	0.3	10,101	0.0	0.0	19,657	29,758
15-May-15	0.0	0.2	10,101	0.0	0.0	19,657	29,758
17-Jun-15	0.0	0.3	10,101	0.0	0.0	19,657	29,758
15-Jul-15	0.0	0.4	10,101	0.0	0.0	19,657	29,759
12-Aug-15	0.0	0.5	10,102	0.0	0.0	19,657	29,759
16-Sep-16	0.0	0.4	10,102	0.0	0.0	19,657	29,760
14-Oct-16	0.0	0.4	10,103	0.0	0.0	19,657	29,760
18-Nov-15	0.0	1.1	10,104	0.0	0.0	19,657	29,761
10-Dec-15	0.0	1.2	10,105	0.0	0.0	19,657	29,762
13-Jan-16	0.0	1.67	10,107	0.0	0.0	19,657	29,764
10-Feb-16	0.0	0.45	10,107	0.0	0.0	19,657	29,765
16-Mar-16	0.0	0.41	10,108	0.0	0.0	19,657	29,765
13-Apr-16	0.0	0.27	10,108	0.0	0.0	19,657	29,765
18-May-16	0.0	0.25	10,108	0.0	0.0	19,657	29,765
16-Jun-16	0.0	0.21	10,108	0.0	0.0	19,657	29,766
12-Jul-16	0.0	0.17	10,108	0.0	0.0	19,657	29,766
18-Aug-16	0.0	0.26	10,109	0.0	0.0	19,657	29,766
21-Sep-16	0.0	0.20	10,109	0.0	0.0	19,657	29,766
19-Oct-16	0.0	0.22	10,109	0.0	0.0	19,657	29,767
16-Nov-16	0.0	0.67	10,110	0.0	0.0	19,657	29,767
14-Dec-16	0.0	0.92	10,111	0.0	0.0	19,657	29,768
18-Jan-17	0.0	1.22	10,112	0.0	0.0	19,657	29,769
15-Feb-17	0.0	1.36	10,113	0.0	0.0	19,657	29,771
15-Mar-17	0.0	1.10	10,114	0.0	0.0	19,657	29,772
12-Apr-17	0.0	0.55	10,115	0.0	0.0	19,657	29,772
17-May-17	0.0	0.49	10,115	0.0	0.0	19,657	29,773
14-Jun-17	0.0	0.35	10,116	0.0	0.0	19,657	29,773
19-Jul-17	0.0	0.39	10,116	0.0	0.0	19,657	29,774
16-Aug-17	0.0	0.31	10,116	0.0	0.0	19,657	29,774
20-Sep-17	0.0	0.35	10,117	0.0	0.0	19,657	29,774
18-Oct-17	0.0	0.28	10,117	0.0	0.0	19,657	29,775
15-Nov-17	0.0	0.35	10,117	0.0	0.0	19,657	29,775
13-Dec-17	0.0	0.32	10,118	0.0	0.0	19,657	29,775
17-Jan-18	0.0	0.45	10,118	0.0	0.0	19,657	29,776
14-Feb-18	0.0	0.33	10,119	0.0	0.0	19,657	29,776
14-Mar-18	0.0	0.10	10,119	0.0	0.0	19,657	29,776
18-Apr-18	0.0	0.12	10,119	0.0	0.0	19,657	29,776
16-May-18	0.0	0.09	10,119	0.0	0.0	19,657	29,776
13-Jun-18	0.0	0.09	10,119	0.0	0.0	19,657	29,776
18-Jul-18	0.0	0.10	10,119	0.0	0.0	19,657	29,776
15-Aug-18	0.0	0.07	10,119	0.0	0.0	19,657	29,777
19-Sep-18	0.0	0.16	10,119	0.0	0.0	19,657	29,777
17-Oct-18	0.0	0.14	10,119	0.0	0.0	19,657	29,777

Note: NA - The soil vapor extraction system was not brought online until January of 1996
* - Dissolved LNAPL recovery was not recorded until completion of the final remediation system in Oct 2002.

Table 3. Waterfront Systems Recovered Petroleum Hydrocarbon History
Site: Former BP Harbor Island Terminal

Total Gallonage of Recovered Petroleum Hydrocarbons

Date	Monthly LNAPL Recovery	Dissolved LNAPL Recovery*	Cumulative LNAPL Recovery	Monthly SVE Recovery (Vapor Phase)	Monthly SVE Recovery (Biodegredation)	Cumulative SVE Recovery	Total Recovery
14-Nov-18	0.0	0.07	10,120	0.0	0.0	19,657	29,777
19-Dec-18	0.0	0.25	10,120	0.0	0.0	19,657	29,777
16-Jan-19	0.0	0.23	10,120	0.0	0.0	19657.4	29,777
13-Feb-19	0.0	0.21	10,120	0.0	0.0	19657.4	29,778
20-Mar-19	0.0	0.16	10,120	0.0	0.0	19657.4	29,778
24-Apr-19	0.0	0.11	10,120	0.0	0.0	19657.4	29,778
15-May-19	0.0	0.04	10,121	0.0	0.0	19657.4	29,778
11-Jun-19	0.0	0.09	10,121	0.0	0.0	19657.4	29,778
10-Jul-19	0.0	0.22	10,121	0.0	0.0	19657.4	29,778
14-Aug-19	0.0	0.23	10,121	0.0	0.0	19657.4	29,778
11-Sep-19	0.0	0.10	10,121	0.0	0.0	19657.4	29,779
17-Oct-19	0.0	0.15	10,121	0.0	0.0	19657.4	29,779
21-Nov-19	0.0	0.18	10,121	0.0	0.0	19657.4	29,779
11-Dec-19	0.0	0.12	10,122	0.0	0.0	19657.4	29,779
23-Jan-20	0.0	0.09	10,122	0.0	0.0	19657.4	29,779
20-Feb-20	0.0	0.08	10,122	0.0	0.0	19657.4	29,779
24-Mar-20	0.0	0.07	10,122	0.0	0.0	19657.4	29,779
23-Apr-20	0.0	0.06	10,122	0.0	0.0	19657.4	29,779
28-May-20	0.0	0.11	10,122	0.0	0.0	19657.4	29,779
18-Jun-20	0.0	0.06	10,122	0.0	0.0	19657.4	29,779
23-Jul-20	0.0	0.08	10,122	0.0	0.0	19657.4	29,780
20-Aug-20	0.0	0.07	10,122	0.0	0.0	19657.4	29,780
24-Sep-20	0.0	0.08	10,122	0.0	0.0	19657.4	29,780
22-Oct-20	0.0	0.04	10,122	0.0	0.0	19657.4	29,780
19-Nov-20	0.0	0.07	10,122	0.0	0.0	19657.4	29,780
23-Dec-20	0.0	0.12	10,123	0.0	0.0	19657.4	29,780
21-Jan-21	0.0	0.23	10,123	0.0	0.0	19657.4	29,780
18-Feb-21	0.0	0.20	10,123	0.0	0.0	19657.4	29,780
18-Mar-21	0.0	0.08	10,123	0.0	0.0	19657.4	29,780
15-Apr-21	0.0	0.06	10,123	0.0	0.0	19657.4	29,780
20-May-21	0.0	0.03	10,123	0.0	0.0	19657.4	29,781
24-Jun-21	0.0	0.05	10,123	0.0	0.0	19657.4	29,781
22-Jul-21	0.0	0.05	10,123	0.0	0.0	19657.4	29,781
26-Aug-21	0.0	0.06	10,123	0.0	0.0	19657.4	29,781
16-Sep-21	0.0	0.03	10,123	0.0	0.0	19657.4	29,781
21-Oct-21	0.0	0.06	10,123	0.0	0.0	19657.4	29,781
18-Nov-21	0.0	0.08	10,123	0.0	0.0	19657.4	29,781
16-Dec-21	0.0	0.10	10,124	0.0	0.0	19657.4	29,781
20-Jan-22	0.0	0.10	10,124	0.0	0.0	19657.4	29781
17-Feb-22	0.0	0.07	10,124	0.0	0.0	19657.4	29781
17-Mar-22	0.0	0.04	10,124	0.0	0.0	19657.4	29781

Total LNAPL Recovery (gal)	Total Dissolved LNAPL Recovery* (gal)	Total LNAPL Recovery (gal)	Total SVE Recovery (vapor phase) (gal)	Total SVE Recovery (biodegredation) (gal)	Total SVE Recovery (gal)	Total Recovery (gal)
9,706	417	10,124	3,582	16,075	19,657	29,781

Note: NA - The soil vapor extraction system was not brought online until January of 1996
* - Dissolved LNAPL recovery was not recorded until completion of the final remediation system in Oct 2002.

Table 4. Containment Boom Sheen Monitoring
Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
4/29/1996	high	2			**Yes**	2.0		
4/30/1996	low	0			**Yes**	1.0		
4/30/1996	flood	1			**Yes**	2.0		
5/15/1996	low	0			No	0.0		
5/20/1996					No	0.0		
5/22/1996	ebb	1			**Yes**	1.0		
5/24/1996					**Yes**	1.0		
6/7/1996	ebb	1			**Yes**	1.0		
6/10/1996					**Yes**	0.5		
6/13/1996					No	0.0		
6/19/1996	high	2			No	0.0		
6/24/1996	medium	1			No	0.0		
7/30/1996	ebb	1			No	0.0		
8/14/1996	medium	1			No	0.0		
8/16/1996	ebb	1			**Yes**	1.0		
8/19/1996	ebb	1			**Yes**	1.0		
8/29/1996	ebb	1			**Yes**	1.0		
10/3/1996	low	0			**Yes**	1.0		
10/4/1996	ebb	1			**Yes**	0.5		
10/7/1996	flood	1	No	0.0	**Yes**	2.0		
10/10/1996	low	0	No	0.0	No	0.0		
10/11/1996	low	0	No	0.0	No	0.0		
10/23/1996	low	0	No	0.0	No	0.0		
10/25/1996	high	2	No	0.0	No	0.0		
10/30/1996	high	2	No	0.0	**Yes**	2.0		
11/1/1996	medium	1	No	0.0	**Yes**	2.0		
11/4/1996	medium	1	No	0.0	No	0.0		
11/5/1996			No	0.0	No	0.0		
11/6/1996	low	0	No	0.0	**Yes**	2.0		
11/7/1996	low	0	No	0.0	**Yes**	2.0		
11/12/1996			No	0.0	**Yes**	0.5		
11/13/1996			No	0.0	No	0.0		
11/14/1996			No	0.0	**Yes**	1.0		
11/18/1996	high	2	No	0.0	No	0.0		
11/19/1996	low	0	No	0.0	**Yes**	1.0		
11/20/1996	low	0	No	0.0	**Yes**	1.0		
11/21/1996	low	0	No	0.0	**Yes**	1.0		
12/6/1996	ebb	1	No	0.0	No	0.0		
12/9/1996	medium	1	No	0.0	No	0.0		
12/10/1996	flood	1	**Yes**	0.5	No	0.0		
12/12/1996	flood	1	No	0.0	No	0.0		
12/13/1996	flood	1	No	0.0	No	0.0		
12/16/1996	flood	1	**Yes**	2.0	**Yes**	1.0		
12/17/1996	flood	1	No	0.0	**Yes**	1.0		
12/18/1996	flood	1	**Yes**	3.0	**Yes**	1.0		
1/2/1997	high	2	**Yes**	1.0	No	0.0		
1/8/1997	high	2	**Yes**	3.0	No	0.0		
1/9/1997			**Yes**	3.0	**Yes**	1.0		
1/9/1997	ebb	1	**Yes**	3.0	**Yes**	1.0		

Table 4. Containment Boom Sheen Monitoring
Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
1/9/1997	high	2	**Yes**	3.0	**Yes**	3.0		
1/14/1997	low	0	**Yes**	1.0	**Yes**	1.0		
1/15/1997	low	0	**Yes**	2.0	No	0.0		
1/16/1997	low	0	**Yes**	3.0	**Yes**	1.0		
1/17/1997			**Yes**	1.5	No	0.0		
1/20/1997	low	0	**Yes**	3.0	No	0.0		
1/20/1997	high	2	**Yes**	2.0	**Yes**	1.0		
1/21/1997	high	2	**Yes**	2.5	**Yes**	0.5		
1/22/1997	flood	1	**Yes**	1.0	No	0.0		
1/23/1997	flood	1	**Yes**	1.0	No	0.0		
1/24/1997	flood	1	**Yes**	2.0	**Yes**	0.5		
1/27/1997	low	0	**Yes**	1.0	**Yes**	1.0		
1/27/1997	low	0	**Yes**	3.0	No	0.0		
1/28/1997	low	0	No	0.0	**Yes**	1.0		
1/28/1997	high	2	**Yes**	2.0	No	0.0		
1/30/1997	low	0	**Yes**	0.5	**Yes**	1.0		
1/31/1997	low	0	**Yes**	0.5	**Yes**	0.5		
2/3/1997	flood	1	**Yes**	1.0	**Yes**	0.5		
2/4/1997	flood	1	**Yes**	3.0	**Yes**	3.0		
2/5/1997	high	2	**Yes**	0.5	**Yes**	0.5		
2/6/1997	flood	1	**Yes**	2.0	**Yes**	0.5		
2/7/1997	flood	1	**Yes**	2.0	**Yes**	1.0		
2/10/1997	low	0	No	0.0	No	0.0		
2/11/1997	low	0	No	0.0	No	0.0		
2/12/1997	low	0	No	0.0	No	0.0		
2/14/1997	low	0	**Yes**	0.5	**Yes**	0.5		
2/14/1997	flood	1	**Yes**	0.5	No	0.0		
2/20/1997	ebb	1	**Yes**	2.0	**Yes**	2.0		
12/3/1997	high	2	No	0.0	No	0		
12/4/1997	ebb	1	No	0.0	No	0		
1/11/2000	medium	1	**Yes**	1.0	No	0.0		
1/21/2000	high	2	No	0.0	No	0.0		
2/16/2000	medium	1	No	0.0	No	0.0		
2/22/2000	high	2	No	0.0	No	0.0		
2/23/2000	medium	1	No	0.0	No	0.0		
2/24/2000	low	0	No	0.0	No	0.0		
3/15/2000	medium	1	No	0.0	No	0.0		
3/16/2000	medium	1	No	0.0	No	0.0		
3/21/2000	low	0	**Yes**	**1.0**	No	0.0		
4/14/2000	medium	1	**Yes**	**1.0**	No	0.0		
6/15/2000	low	0	No	0.0	No	0.0		
6/28/2000	low	0	No	0.0	**Yes**	**1.0**		
6/29/2000	low	0	No	0.0	No	0.0		
7/11/2000	high	2	No	0.0	No	0.0		
7/19/2000	low	0	No	0.0	No	0.0		
8/15/2000	low	0	No	0.0	No	0.0		
10/12/2000	low	0	No	0.0	No	0.0		
11/14/2000	medium	1	No	0.0	No	0.0		
12/14/2000	high	2	No	0.0	No	0.0		

Table 4. Containment Boom Sheen Monitoring
Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
1/11/2001	medium	1	No	0.0	No	0.0		
2/15/2001	medium	1	No	0.0	No	0.0		
4/12/2001	medium	1	No	0.0	**Yes**	**1.0**		
4/13/2001	medium	1	No	0.0	No	0.0		
5/16/2001	low	0	No	0.0	No	0.0		
5/17/2001	low	0	No	0.0	No	0.0		
5/18/2001	low	0	No	0.0	No	0.0		
5/21/2001	low	0	No	0.0	No	0.0		
5/23/2001	low	0	No	0.0	No	0.0		
5/29/2001	low	0	No	0.0	No	0.0		
6/11/2001	medium	1	No	0.0	No	0.0		
7/23/2001	low	0	No	0.0	No	0.0		
8/21/2001	medium	1	No	0.0	No	0.0		
9/6/2001	high	2	No	0.0	No	0.0		
10/16/2001	low	0	No	0.0	No	0.0		
11/15/2001	medium	1	No	0.0	No	0.0		
12/10/2001	medium	1	No	0.0	No	0.0		
1/4/2002	high	2	No	0.0	No	0.0		
1/9/2002	medium	1	**Yes**	**1.0**	No	0.0		
1/11/2002	medium	1	**Yes**	**1.0**	No	0.0		
1/16/2002	high	2	**Yes**	**1.0**	No	0.0		
1/22/2002	medium	1	**Yes**	**1.0**	No	0.0		
1/23/2002	low	0	**Yes**	**1.0**	No	0.0		
2/4/2002	high	2	No	0.0	No	0.0		
2/18/2002	medium	1	No	0.0	**Yes**	**1.0**		
2/21/2002	medium	1	**Yes**	**2.0**	No	0.0		
3/21/2002	medium	1	**Yes**	**1.0**	No	0.0		
3/25/2002	medium	1	No	0.0	No	0.0		
3/26/2002	medium	1	No	0.0	No	0.0		
3/27/2002	medium	1	**Yes**	2.0	No	0.0		
4/4/2002	high	2	No	0.0	No	0.0		
5/3/2002	low	0	No	0.0	No	0.0		
5/7/2002	medium	1	No	0.0	**Yes**	**1.0**		
5/21/2002	medium	1	**Yes**	**1.0**	**Yes**	**1.0**		
6/6/2002	medium	1	No	0.0	**Yes**	**1.0**		
6/18/2002	low	0	No	0.0	No	0.0		
6/27/2002	high	2	**Yes**	**1.0**	**Yes**	**1.0**		
7/10/2002	medium	1	**Yes**	**1.0**	**Yes**	**1.0**		
7/29/2002	medium	1	No	0.0	**Yes**	**1.0**		
8/21/2002	low	0	No	0.0	No	0.0		
9/9/2002	high	2	**Yes**	**1.0**	**Yes**	**1.0**		
9/20/2002	medium	1	No	0.0	**Yes**	**1.0**		
10/9/2002	high	2	No	0.0	No	0.0		
11/25/2002	high	2	No	0.0	No	0.0		
11/27/2002	high	2	No	0.0	No	0.0		
12/19/2002	medium	1	No	0.0	No	0.0		
12/20/2002	high	2	No	0.0	No	0.0		

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Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
1/16/2003	medium	1	No	0.0	No	0.0		
2/3/2003	medium	1	No	0.0	No	0.0		
2/10/2003	medium	1	No	0.0	No	0.0		
2/10/2003	low	0	No	0.0	No	0.0		
2/11/2003	medium	1	No	0.0	No	0.0		
2/11/2003	high	2	No	0.0	No	0.0		
2/11/2003	low	0	No	0.0	No	0.0		
2/12/2003	medium	1	No	0.0	No	0.0		
2/13/2003	high	2	No	0.0	No	0.0		
2/13/2003	medium	1	No	0.0	No	0.0		
2/14/2003	high	2	No	0.0	No	0.0		
2/20/2003	high	2	No	0.0	No	0.0		
2/20/2003	medium	1	No	0.0	No	0.0		
2/20/2003	low	0	No	0.0	No	0.0		
2/21/2003	high	2	No	0.0	No	0.0		
2/21/2003	medium	1	No	0.0	No	0.0		
3/3/2003	medium	1	No	0.0	No	0.0		
3/10/2003	medium	1	No	0.0	No	0.0		
3/11/2003	high	2	No	0.0	No	0.0		
3/18/2003	medium	1	No	0.0	No	0.0		
4/1/2003	low	0	No	0.0	No	0.0		
4/8/2003	high	2	**Yes**	**2.0**	No	0.0		
4/15/2003	low	0	**Yes**	**2.0**	No	0.0		
4/21/2003	high	2	No	0.0	No	0.0		
5/15/2003	low	0	No	0.0	No	0.0		
5/20/2003	medium	1	No	0.0	No	0.0		
5/21/2003	medium	1	No	0.0	No	0.0		
5/27/2003	low	0	No	0.0	No	0.0		
6/3/2003	medium	1	No	0.0	No	0.0		
6/17/2003	medium	1	No	0.0	No	0.0		
7/15/2003	medium	1	No	0.0	No	0.0		
7/21/2003	low	0	No	0.0	No	0.0		
8/7/2003	low	0	No	0.0	No	0.0		
8/13/2003	medium	1	No	0.0	No	0.0		
9/15/2003	high	2	No	0.0	No	0.0		
9/16/2003	high	2	No	0.0	No	0.0		
9/17/2003	medium	1	No	0.0	No	0.0		
9/19/2003	medium	1	No	0.0	No	0.0		
10/9/2003	medium	1	No	0.0	**Yes**	**1.0**		
10/14/2003	high	2	No	0.0	No	0.0		
11/12/2003	high	2	No	0.0	No	0.0		
11/19/2003	high	2	No	0.0	No	0.0		
12/17/2003	medium	1	No	0.0	No	0.0		
12/23/2003	medium	1	No	0.0	No	0.0		
1/13/2004	medium	1	**Yes**	**1.0**	No	0.0		
1/24/2004	high	2	No	0.0	No	0.0		
2/10/2004	medium	1	**Yes**	**1.0**	No	0.0		
2/23/2004	medium	1	No	0.0	**Yes**	**1.0**		
3/17/2004	medium	1	No	0.0	No	0.0		

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Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
3/19/2004	medium	1	No	0.0	No	0.0		
4/15/2004	medium	1	No	0.0	**Yes**	**1.0**		
4/19/2004	medium	1	No	0.0	No	0.0		
4/22/2004	medium	1	No	0.0	No	0.0		
5/24/2004	medium	1	No	0.0	No	0.0		
5/25/2004	medium	1	No	0.0	No	0.0		
6/14/2004	medium	1	No	0.0	No	0.0		
6/15/2004	low	0	No	0.0	No	0.0		
6/23/2004	high	2	No	0.0	No	0.0		
6/28/2004	low	0	No	0.0	No	0.0		
6/29/2004	medium	1	No	0.0	No	0.0		
6/30/2004	medium	1	No	0.0	No	0.0		
7/12/2004	low	0	No	0.0	No	0.0		
7/13/2004	low	0	No	0.0	No	0.0		
8/11/2004	high	2	No	0.0	No	0.0		
8/12/2004	low	0	No	0.0	No	0.0		
8/24/2004	medium	1	No	0.0	No	0.0		
9/2/2004	high	2	No	0.0	No	0.0		
9/3/2004	high	2	No	0.0	No	0.0		
9/7/2004	medium	1	No	0.0	No	0.0		
9/10/2004	low	0	No	0.0	No	0.0		
9/16/2004	high	2	No	0.0	No	0.0		
9/21/2004	medium	1	No	0.0	No	0.0		
9/22/2004	medium	1	No	0.0	No	0.0		
9/23/2004	medium	1	No	0.0	No	0.0		
10/5/2004	medium	1	No	0.0	No	0.0		
10/13/2004	medium	1	No	0.0	**Yes**	**1.0**		
10/15/2004	high	2	No	0.0	No	0.0		
10/18/2004	high	2	No	0.0	No	0.0		
10/25/2004	low	0	No	0.0	No	0.0		
11/4/2004	medium	1	No	0.0	No	0.0		
11/18/2004	high	2	No	0.0	No	0.0		
11/23/2004	medium	1	No	0.0	No	0.0		
12/3/2004	low	0	No	0.0	No	0.0		
12/15/2004	high	2	No	0.0	No	0.0		
12/23/2004	medium	1	No	0.0	No	0.0		
1/4/2005	high	2	No	0.0	No	0.0		
1/13/2005	high	2	No	0.0	No	0.0		
1/21/2005	low	0	No	0.0	No	0.0		
2/1/2005	high	**2**	**Yes**	**1.0**	**No**	**0.0**		
2/2/2005	high	**2**	**Yes**	**2.0**	**No**	**0.0**		
2/3/2005	medium	**1**	**Yes**	**1.0**	**No**	**0.0**		
2/4/2005	medium	**1**	**Yes**	**1.0**	**No**	**0.0**		
2/7/2005	low	**0**	**Yes**	**1.0**	**No**	**0.0**		
2/8/2005	low	0	No	0.0	No	0.0		
2/15/2005	high	2	No	0.0	No	0.0		
2/25/2005	high	2	No	0.0	No	0.0		
3/2/2005	high	2	No	0.0	No	0.0		
3/8/2005	low	0	No	0.0	No	0.0		

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Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
3/15/2005	high	2	No	0.0	No	0.0		
4/4/2005	low	0	No	0.0	No	0.0		
4/11/2015	high	**2**	**Yes**	**1.0**	**No**	**0.0**		
4/13/2005	medium	**1**	**Yes**	**2.0**	**No**	**0.0**		
4/14/2005	high	**2**	**Yes**	**1.0**	**No**	**0.0**		
4/15/2005	medium	**1**	**Yes**	**2.0**	**No**	**0.0**		
4/18/2005	low	0	No	0.0	No	0.0		
4/25/2005	medium	1	No	0.0	No	0.0		
5/2/2005	low	0	No	0.0	No	0.0		
5/9/2005	medium	1	No	0.0	No	0.0		
5/16/2005	low	0	No	0.0	No	0.0		
5/20/2005	low	0	No	0.0	No	0.0		
5/23/2005	medium	1	No	0.0	No	0.0		
5/30/2005	medium	1	No	0.0	No	0.0		
6/6/2005	medium	1	No	0.0	No	0.0		
6/10/2005	medium	1	No	0.0	No	0.0		
6/13/2005	high	2	No	0.0	No	0.0		
6/20/2005	low	0	No	0.0	No	0.0		
6/27/2005	high	2	No	0.0	No	0.0		
7/4/2005	medium	1	No	0.0	No	0.0		
7/11/2005	high	**2**	**Yes**	**1.0**	No	0.0		
7/15/2005	medium	1	No	0.0	No	0.0		
7/18/2005	low	0	No	0.0	No	0.0		
7/25/2005	high	2	No	0.0	No	0.0		
8/1/2005	low	0	No	0.0	No	0.0		
8/8/2005	high	2	No	0.0	No	0.0		
8/12/2005	medium	1	No	0.0	No	0.0		
8/15/2005	low	0	No	0.0	No	0.0		
8/22/2005	medium	1	No	0.0	No	0.0		
8/29/2005	low	0	No	0.0	No	0.0		
9/5/2005	medium	1	No	0.0	No	0.0		
9/12/2005	medium	1	No	0.0	No	0.0		
9/14/2005	low	0	No	0.0	No	0.0		
9/19/2005	medium	1	No	0.0	No	0.0		
9/26/2005	low	0	No	0.0	No	0.0		
10/3/2005	medium	1	No	0.0	No	0.0		
10/10/2005	medium	1	No	0.0	No	0.0		
10/14/2005	low	0	No	0.0	No	0.0		
10/17/2005	medium	1	No	0.0	No	0.0		
10/24/2005	medium	1	No	0.0	No	0.0		
10/31/2005	low	0	No	0.0	No	0.0		
11/7/2005	high	2	No	0.0	No	0.0		
11/14/2005	low	0	No	0.0	No	0.0		
11/21/2005	high	2	No	0.0	No	0.0		
11/23/2005	medium	1	No	0.0	No	0.0		
11/28/2005	low	0	No	0.0	No	0.0		
11/29/2005	medium	1	No	0.0	No	0.0		
11/30/2005	medium	1	No	0.0	No	0.0		
12/1/2005	high	2	No	0.0	No	0.0		
12/2/2005	high	2	No	0.0	No	0.0		

Table 4. Containment Boom Sheen Monitoring
Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
12/5/2005	high	2	No	0.0	No	0.0		
12/6/2005	medium	1	No	0.0	No	0.0		
12/7/2005	high	2	No	0.0	No	0.0		
12/9/2005	high	2	No	0.0	No	0.0		
12/15/2005	high	**2**	**Yes**	**1.0**	No	0.0		
12/19/2005	high	**2**	**Yes**	**1.0**	No	0.0		
1/25/2006	low	0	**Yes**	**2.0**	**Yes**	**2.0**		
2/8/2006			**Yes**	**1.0**	No	0.0		
2/9/2006			**Yes**	**1.0**	No	0.0		
2/10/2006			**Yes**	**1.0**	No	0.0		
2/13/2006	medium	1	**Yes**	**1.0**	No	0.0		
2/14/2006	medium	1	**Yes**	**1.0**	No	0.0		
3/15/2006	low	0	No	0.0	No	0.0		
3/17/2006	low	0	No	0.0	No	0.0		
3/21/2006	high	2	No	0.0	No	0.0		
3/27/2006	low	0	No	0.0	No	0.0		
4/3/2006	high	2	No	0.0	No	0.0		
4/11/2006	medium	1	No	0.0	No	0.0		
4/14/2006	medium	1	No	0.0	No	0.0		
4/17/2006	high	2	No	0.0	No	0.0		
4/24/2006	low	0	No	0.0	No	0.0		
4/25/2006	medium	1	No	0.0	No	0.0		
4/26/2006	medium	1	No	0.0	No	0.0		
4/27/2006	medium	1	No	0.0	No	0.0		
4/28/2006	medium	1	No	0.0	No	0.0		
5/1/2006	medium	1	No	0.0	No	0.0		
5/9/2006	low	0	No	0.0	No	0.0		
5/17/2006	high	2	No	0.0	No	0.0		
5/18/2006	high	2	No	0.0	No	0.0		
5/22/2006	low	0	No	0.0	No	0.0		
5/30/2006	medium	1	No	0.0	No	0.0		
5/31/2006	high	2	No	0.0	No	0.0		
6/1/2006	high	2	No	0.0	No	0.0		
6/5/2006	medium	1	No	0.0	**Yes**	**0.5**		
6/12/2006	low	0	No	0.0	No	0.0		
6/14/2006	medium	1	No	0.0	No	0.0		
7/12/2006	low	0	No	0.0	No	0.0		
7/19/2006	medium	1	No	0.0	**Yes**	**1.0**		
7/24/2006	high	2	No	0.0	No	0.0		
7/25/2006	low	0	No	0.0	**Yes**	**1.0**		
7/31/2006	high	2	**Yes**	**1.0**	No	0.0		
8/2/2006	high	2	No	0.0	No	0.0		
8/8/2006	high	2	No	0.0	No	0.0		
8/14/2006	high	2	**Yes**	**1.0**	**Yes**	**1.0**		
8/16/2006	medium	1	**Yes**	**1.0**	**Yes**	**2.0**		
8/21/2006	low	0	No	0.0	No	0.0		
8/25/2006	high	2	**Yes**	**0.5**	**Yes**	**0.5**		
8/28/2006	high	2	No	0.0	**Yes**	**0.5**		
8/29/2006	high	2	No	0.0	No	0.0		

Table 4. Containment Boom Sheen Monitoring
Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
9/1/2006	medium	1	No	0.0	No	0.0		
9/5/2006	low	0	No	0.0	No	0.0		
9/6/2006	low	0	No	0.0	No	0.0		
9/11/2006	high	2	No	0.0	No	0.0		
9/13/2006	high	2	**Yes**	**1.0**	**Yes**	**1.0**		
9/18/2006	low	0	**Yes**	**1.0**	No	0.0		
9/19/2006	low	0	No	0.0	**Yes**	**2.0**		
9/22/2006	high	2	No	0.0	No	0.0		
9/25/2006	high	2	**Yes**	**1.0**	No	0.0		
9/27/2006	high	2	No	0.0	No	0.0		
10/2/2006	medium	1	No	0.0	No	0.0		
10/5/2006	low	0	No	0.0	No	0.0		
10/6/2006	high	2	No	0.0	No	0.0		
10/9/2006	high	2	No	0.0	No	0.0		
10/12/2006	high	2	No	0.0	No	0.0		
10/16/2006	medium	1	No	0.0	No	0.0		
10/17/2006	high	2	No	0.0	**Yes**	**1.0**		
10/23/2006	high	2	No	0.0	No	0.0		
10/25/2006	high	2	No	0.0	No	0.0		
10/30/2006	high	2	No	0.0	No	0.0		
10/31/2006	high	2	No	0.0	**Yes**	**1.0**		
11/1/2006	medium	1	No	0.0	No	0.0		
11/6/2006	high	2	No	0.0	No	0.0		
11/7/2006	high	2	No	0.0	No	0.0		
11/8/2006	high	2	No	0.0	No	0.0		
11/9/2006	high	2	No	0.0	No	0.0		
11/13/2006	high	2	**Yes**	**1.0**	No	0.0		
11/17/2006	medium	1	No	0.0	No	0.0		
11/20/2006	high	2	No	0.0	No	0.0		
11/27/2006	high	2	No	0.0	No	0.0		
11/30/2006	high	2	No	0.0	No	0.0		
12/4/2006	medium	1	**Yes**	**1.0**	No	0.0		
12/5/2006	high	2	No	0.0	**Yes**	**1.0**		
12/11/2006	high	2	No	0.0	No	0.0		
12/12/2006	medium	1	No	0.0	No	0.0		
12/13/2006	high	2	No	0.0	No	0.0		
12/14/2006	high	2	No	0.0	No	0.0		
12/15/2006	medium	1	No	0.0	**Yes**	**1.0**		
12/16/2006	medium	1	No	0.0	No	0.0		
12/18/2006	medium	1	No	0.0	No	0.0		
12/19/2006	high	2	**Yes**	**1.0**	No	0.0		
12/21/2006	high	2	No	0.0	No	0.0		
12/22/2006	high	2	No	0.0	No	0.0		
1/2/2007	high	2	No	0.0	No	0.0		
1/5/2007	high	2	No	0.0	No	0.0		
1/8/2007	high	2	No	0.0	No	0.0		
1/9/2007	high	2	No	0.0	No	0.0		
1/10/2007	high	2	No	0.0	No	0.0		
1/15/2007	high	2	No	0.0	No	0.0		

Table 4. Containment Boom Sheen Monitoring
Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
1/19/2007	high	2	**Yes**	**1.0**	No	0.0		
1/22/2007	high	2	**Yes**	**0.5**	No	0.0		
1/29/2007	high	2	**Yes**	**1.0**	No	0.0		
1/31/2007	high	2	No	0.0	**Yes**	**1.0**		
2/2/2007	high	2	No	0.0	No	0.0		
2/5/2007	high	2	No	0.0	No	0.0		
2/6/2007	high	2	No	0.0	No	0.0		
2/7/2007	high	2	No	0.0	No	0.0		
2/12/2007	high	2	No	0.0	No	0.0		
2/14/2007	high	2	No	0.0	No	0.0		
2/16/2007	high	2	No	0.0	No	0.0		
2/20/2007	high	2	No	0.0	No	0.0		
2/26/2007	high	2	No	0.0	No	0.0		
3/5/2007	medium	1	No	0.0	No	0.0		
3/7/2007	medium	1	No	0.0	No	0.0		
3/13/2007	high	2	No	0.0	No	0.0		
3/16/2007	medium	1	No	0.0	No	0.0		
3/19/2007	low	0	No	0.0	No	0.0		
3/20/2007	medium	1	No	0.0	No	0.0		
3/21/2007	high	2	No	0.0	No	0.0		
3/22/2007	high	2	No	0.0	No	0.0		
3/26/2007	high	2	No	0.0	No	0.0		
3/30/2007	medium	1	No	0.0	No	0.0		
4/2/2007	high	2	No	0.0	No	0.0		
4/6/2007	high	2	No	0.0	**Yes**	**1.0**		
4/9/2007	high	2	No	0.0	No	0.0		
4/12/2007	high	2	No	0.0	No	0.0		
4/13/2007	medium	1	No	0.0	No	0.0		
4/16/2007	low	0	No	0.0	No	0.0		
4/19/2007	medium	1	No	0.0	No	0.0		
4/23/2007	high	2	No	0.0	No	0.0		
4/24/2007	high	2	No	0.0	**Yes**	**1.0**		
4/26/2007	medium	1	No	0.0	No	0.0		
4/27/2007	high	2	No	0.0	No	0.0		
4/30/2007	low	0	No	0.0	No	0.0		
5/3/2007	medium	1	No	0.0	No	0.0		
5/8/2007	high	2	No	0.0	No	0.0		
5/9/2007	high	2	No	0.0	No	0.0		
5/14/2007	low	0	No	0.0	No	0.0		
5/17/2007	medium	1	No	0.0	No	0.0		
5/21/2007	high	2	No	0.0	No	0.0		
5/23/2007	medium	1	No	0.0	No	0.0		
6/1/2007	medium	1	No	0.0	No	0.0		
6/4/2007	high	2	**Yes**	**1.0**	**Yes**	**1.0**		
6/6/2007	high	2	No	0.0	No	0.0		
6/7/2007	medium	1	No	0.0	**Yes**	**1.0**		
6/11/2007	low	0	No	0.0	No	0.0		
6/13/2007	low	0	No	0.0	No	0.0		
6/14/2007	low	0	No	0.0	No	0.0		
6/18/2007	medium	1	No	0.0	No	0.0		

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Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
6/19/2007	high	2	No	0.0	No	0.0		
6/25/2007	low	0	No	0.0	No	0.0		
7/2/2007	high	2	No	0.0	**Yes**	**2.0**		
7/9/2007	low	0	No	0.0	No	0.0		
7/13/2007	low	0	No	0.0	No	0.0		
7/16/2007	low	0	No	0.0	No	0.0		
7/23/2007	low	0	No	0.0	No	0.0		
7/30/2007	medium	1	No	0.0	No	0.0		
7/31/2007	high	2	No	0.0	**Yes**	**1.0**		
8/6/2007	medium	1	No	0.0	No	0.0		
8/8/2007	low	0	No	0.0	No	0.0		
8/13/2007	medium	1	No	0.0	No	0.0		
8/16/2007	high	2	No	0.0	No	0.0		
8/20/2007	high	2	No	0.0	No	0.0		
8/22/2007	medium	1	No	0.0	No	0.0		
8/23/2007	medium	1	No	0.0	No	0.0		
8/24/2007	low	0	No	0.0	No	0.0		
8/27/2007	low	0	No	0.0	No	0.0		
8/30/2007	low	0	No	0.0	No	0.0		
9/4/2007	medium	1	No	0.0	No	0.0		
9/10/2007	medium	1	No	0.0	No	0.0		
9/13/2007	medium	1	No	0.0	No	0.0		
9/14/2007	high	2	No	0.0	No	0.0		
9/17/2007	high	2	No	0.0	No	0.0		
9/18/2007	high	2	No	0.0	No	0.0		
9/19/2007	high	2	No	0.0	No	0.0		
9/20/2007	medium	1	No	0.0	No	0.0		
9/24/2007	low	0	No	0.0	No	0.0		
10/1/2007	high	2	No	0.0	No	0.0		
10/2/2007	high	2	No	0.0	No	0.0		
10/3/2007	medium	1	No	0.0	No	0.0		
10/5/2007	low	0	No	0.0	No	0.0		
10/8/2007	medium	1	No	0.0	No	0.0		
10/9/2007	high	2	No	0.0	No	0.0		
10/11/2007	high	2	No	0.0	No	0.0		
10/15/2007	high	2	No	0.0	No	0.0		
10/17/2007	medium	1	No	0.0	No	0.0		
10/22/2007	low	0	No	0.0	No	0.0		
10/24/2007	medium	1	No	0.0	No	0.0		
10/25/2007	high	2	No	0.0	No	0.0		
10/29/2007	high	2	No	0.0	No	0.0		
10/31/2007	low	0	No	0.0	No	0.0		
11/1/2007	low	0	No	0.0	No	0.0		
11/2/2007	low	0	No	0.0	No	0.0		
11/5/2007	low	0	No	0.0	No	0.0		
11/6/2007	low	0	No	0.0	No	0.0		
11/12/2007	high	2	No	0.0	No	0.0		
11/13/2007	high	2	No	0.0	No	0.0		
11/15/2007	high	2	No	0.0	No	0.0		
11/16/2007	high	2	No	0.0	No	0.0		

Table 4. Containment Boom Sheen Monitoring
Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
11/19/2007	medium	1	No	0.0	No	0.0		
11/26/2007	high	2	No	0.0	No	0.0		
11/27/2007	high	2	No	0.0	**Yes**	**0.5**		
12/3/2007	high	2	No	0.0	No	0.0		
12/10/2007	high	2	No	0.0	No	0.0		
12/11/2007	high	2	No	0.0	No	0.0		
12/14/2007	high	2	No	0.0	No	0.0		
12/17/2007	high	2	No	0.0	No	0.0		
12/19/2007	high	2	No	0.0	No	0.0		
12/20/2007	high	2	No	0.0	No	0.0		
12/24/2007	medium	1	No	0.0	No	0.0		
1/2/2008	high	2	Yes	1.0	No	0.0		
1/7/2008	high	2	No	0.0	No	0.0		
1/11/2008	high	2	No	0.0	No	0.0		
1/14/2008	high	2	No	0.0	No	0.0		
1/21/2008	high	2	No	0.0	No	0.0		
1/22/2008	high	2	No	0.0	No	0.0		
1/28/2008	high	2	No	0.0	No	0.0		
1/29/2008	high	2	No	0.0	No	0.0		
2/4/2008	high	2	No	0.0	**Yes**	**0.5**		
2/11/2008	medium	1	No	0.0	No	0.0		
2/12/2008	high	2	No	0.0	No	0.0		
2/14/2008	high	2	No	0.0	No	0.0		
2/19/2008	high	2	No	0.0	No	0.0		
2/20/2008	high	2	No	0.0	No	0.0		
2/25/2008	high	2	No	0.0	No	0.0		
2/28/2008	high	2	No	0.0	No	0.0		
3/3/2008	medium	1	No	0.0	No	0.0		
3/4/2008	medium	1	No	0.0	No	0.0		
3/10/2008	high	2	No	0.0	No	0.0		
3/11/2008	high	2	No	0.0	No	0.0		
3/12/2008	high	2	No	0.0	No	0.0		
3/14/2008	high	2	No	0.0	No	0.0		
3/17/2008	medium	1	No	0.0	No	0.0		
3/24/2008	high	2	No	0.0	No	0.0		
3/26/2008	high	2	No	0.0	No	0.0		
3/31/2008	medium	1	No	0.0	No	0.0		
4/1/2008	medium	1	No	0.0	No	0.0		
4/7/2008	high	2	No	0.0	No	0.0		
4/10/2008	medium	1	No	0.0	**Yes**	**0.5**		
4/11/2008	medium	1	No	0.0	No	0.0		
4/15/2008	medium	1	No	0.0	No	0.0		
4/16/2008	low	0	No	0.0	No	0.0		
4/18/2008	low	0	No	0.0	No	0.0		
4/21/2008	medium	1	No	0.0	No	0.0		
4/22/2008	medium	1	No	0.0	No	0.0		
4/28/2008	medium	1	No	0.0	No	0.0		
5/2/2008	low	0	No	0.0	No	0.0		
5/5/2008	medium	1	No	0.0	No	0.0		

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Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
5/12/2008	medium	1	No	0.0	No	0.0		
5/16/2008	medium	1	No	0.0	No	0.0		
5/19/2008	low	0	No	0.0	No	0.0		
5/21/2008	low	0	No	0.0	No	0.0		
5/23/2008	high	2	No	0.0	No	0.0		
5/27/2008	medium	1	No	0.0	**Yes**	**0.5**		
5/29/2008	medium	1	No	0.0	No	0.0		
6/2/2008	low	0	No	0.0	No	0.0		
6/9/2008	medium	1	No	0.0	No	0.0		
6/12/2008	medium	1	No	0.0	No	0.0		
6/17/2008	low	0	No	0.0	No	0.0		
6/18/2008	low	0	No	0.0	No	0.0		
6/19/2008	medium	1	No	0.0	No	0.0		
6/23/2008	high	2	No	0.0	Yes	1.0		
6/25/2008	medium	1	No	0.0	No	0.0		
6/26/2008	medium	1	No	0.0	No	0.0		
6/27/2008	low	0	No	0.0	No	0.0		
6/30/2008	low	0	No	0.0	No	0.0		
7/7/2008	high	2	No	0.0	No	0.0		
7/8/2008	high	2	No	0.0	No	0.0		
7/14/2008	low	0	No	0.0	No	0.0		
7/16/2008	medium	1	**Yes**	**1.0**	**Yes**	**1.0**		
7/21/2008	high	2	No	0.0	No	0.0		
7/22/2008	high	2	No	0.0	No	0.0		
7/23/2008	high	2	No	0.0	No	0.0		
7/28/2008	low	0	No	0.0	No	0.0		
7/30/2008	low	0	No	0.0	No	0.0		
7/31/2008	low	0	No	0.0	No	0.0		
8/4/2008	high	2	No	0.0	No	0.0		
8/5/2008	high	2	No	0.0	No	0.0		
8/6/2008	high	2	No	0.0	No	0.0		
8/7/2008	high	2	No	0.0	No	0.0		
8/8/2008	medium	1	No	0.0	No	0.0		
8/11/2008	low	0	No	0.0	No	0.0		
8/12/2008	low	0	No	0.0	No	0.0		
8/13/2008	low	0	No	0.0	No	0.0		
8/18/2008	medium	1	No	0.0	No	0.0		
8/19/2008	high	2	No	0.0	Yes	1.0		
8/20/2008	high	2	No	0.0	No	0.0		
8/21/2008	high	2	No	0.0	No	0.0		
8/25/2008	medium	1	No	0.0	No	0.0		
8/27/2008	low	0	No	0.0	No	0.0		
9/2/2008	medium	1	No	0.0	No	0.0		
9/8/2008	medium	1	No	0.0	No	0.0		
9/16/2008	medium	1	No	0.0	No	0.0		
9/17/2008	high	2	No	0.0	No	0.0		
9/18/2008	high	2	No	0.0	No	0.0		
9/19/2008	high	2	No	0.0	No	0.0		
9/22/2008	high	2	No	0.0	No	0.0		
9/23/2008	medium	1	No	0.0	No	0.0		

Table 4. Containment Boom Sheen Monitoring
Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
9/24/2008	low	0	No	0.0	No	0.0		
9/29/2008	high	2	No	0.0	No	0.0		
9/30/2008	high	2	No	0.0	No	0.0		
10/1/2008	high	2	No	0.0	No	0.0		
10/2/2008	high	2	No	0.0	No	0.0		
10/6/2008	high	2	No	0.0	No	0.0		
10/13/2008	medium	1	No	0.0	No	0.0		
10/15/2008	medium	1	No	0.0	No	0.0		
10/17/2008	high	2	No	0.0	No	0.0		
10/20/2008	high	2	No	0.0	No	0.0		
10/21/2008	high	2	No	0.0	No	0.0		
10/24/2008	low	0	No	0.0	No	0.0		
10/25/2008	medium	1	No	0.0	No	0.0		
10/27/2008	high	2	No	0.0	No	0.0		
11/3/2008	high	2	No	0.0	No	0.0		
11/6/2008	high	2	No	0.0	No	0.0		
11/10/2008	medium	1	No	0.0	No	0.0		
11/14/2008	high	2	No	0.0	No	0.0		
11/17/2008	high	2	No	0.0	No	0.0		
11/18/2008	high	2	No	0.0	No	0.0		
11/21/2008	medium	1	No	0.0	No	0.0		
11/24/2008	medium	1	No	0.0	No	0.0		
11/25/2008	high	2	No	0.0	No	0.0		
12/1/2008	high	2	No	0.0	No	0.0		
12/2/2008	high	2	No	0.0	No	0.0		
12/3/2008	high	2	No	0.0	No	0.0		
12/8/2008	high	2	No	0.0	No	0.0		
12/11/2008	high	2	No	0.0	No	0.0		
12/12/2008	high	2	No	0.0	No	0.0		
12/15/2008	high	2	No	0.0	No	0.0		
12/16/2008	high	2	No	0.0	No	0.0		
12/17/2008	high	2	No	0.0	No	0.0		
12/23/2008	high	2	No	0.0	No	0.0		
12/29/2008	high	2	No	0.0	No	0.0		
1/5/2009	high	2	No	0.0	No	0.0		
1/12/2009	high	2	No	0.0	No	0.0		
1/14/2009	high	2	No	0.0	No	0.0		
1/15/2009	high	2	No	0.0	No	0.0		
1/16/2009	high	2	No	0.0	No	0.0		
1/20/2009	high	2	No	0.0	No	0.0		
1/22/2009	high	2	No	0.0	No	0.0		
1/26/2009	medium	1	No	0.0	No	0.0		
1/27/2009	high	2	No	0.0	No	0.0		
1/28/2009	medium	1	No	0.0	No	0.0		
1/29/2009	medium	1	No	0.0	No	0.0		
1/30/2009	medium	1	No	0.0	No	0.0		
2/2/2009	high	2	No	0.0	No	0.0		
2/5/2009	high	2	**Yes**	**0.5**	No	0.0		
2/9/2009	high	2	No	0.0	No	0.0		

Table 4. Containment Boom Sheen Monitoring
Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
2/11/2009	medium	1	No	0.0	No	0.0		
2/17/2009	high	2	No	0.0	**Yes**	**0.5**		
2/18/2009	high	2	No	0.0	No	0.0		
2/23/2009	high	2	No	0.0	No	0.0		
2/26/2009	medium	1	No	0.0	No	0.0		
3/3/2009	high	2	No	0.0	No	0.0		
3/9/2009	medium	1	No	0.0	No	0.0		
3/11/2009	medium	1	No	0.0	No	0.0		
3/16/2009	medium	1	No	0.0	No	0.0		
3/17/2009	high	2	No	0.0	No	0.0		
3/18/2009	high	2	No	0.0	No	0.0		
3/23/2009	medium	1	No	0.0	No	0.0		
3/30/2009	high	2	No	0.0	No	0.0		
3/31/2009	high	2	No	0.0	No	0.0		
4/6/2009	medium	1	No	0.0	No	0.0		
4/7/2009	medium	1	No	0.0	No	0.0		
4/13/2009	high	2	No	0.0	No	0.0		
4/15/2009	high	2	No	0.0	No	0.0		
4/16/2009	low	0	No	0.0	No	0.0		
4/21/2009	low	0	No	0.0	No	0.0		
4/27/2009	medium	1	No	0.0	No	0.0		
4/28/2009	high	2	No	0.0	No	0.0		
4/29/2009	high	2	No	0.0	No	0.0		
5/4/2009	low	0	No	0.0	No	0.0		
5/11/2009	medium	1	No	0.0	No	0.0		
5/14/0009	high	2	No	0.0	No	0.0		
5/15/2009	high	2	No	0.0	No	0.0		
5/18/2009	medium	1	No	0.0	No	0.0		
5/26/2009	medium	1	No	0.0	No	0.0		
5/27/2009	medium	1	No	0.0	No	0.0		
6/1/2009	medium	1	No	0.0	No	0.0		
6/2/2009	medium	1	No	0.0	No	0.0		
6/4/2009	low	0	No	0.0	No	0.0		
6/8/2009	medium	1	No	0.0	No	0.0		
6/10/2009	high	2	No	0.0	No	0.0		
6/11/2009	medium	1	No	0.0	No	0.0		
6/15/2009	high	2	No	0.0	No	0.0		
6/16/2009	medium	1	No	0.0	No	0.0		
6/19/2009	high	2	No	0.0	No	0.0		
6/22/2009	low	0	No	0.0	No	0.0		
6/25/2009	high	2	No	0.0	No	0.0		
6/29/2009	high	2	No	0.0	No	0.0		
7/6/2009	low	0	No	0.0	No	0.0		
7/13/2009	high	2	No	0.0	No	0.0		
7/15/2009	high	2	No	0.0	No	0.0		
7/16/2009	low	0	No	0.0	No	0.0		
7/20/2009	low	0	No	0.0	No	0.0		
7/22/2009	low	0	No	0.0	No	0.0		
7/27/2009	high	2	No	0.0	No	0.0		
8/3/2009	low	0	No	0.0	No	0.0		

Table 4. Containment Boom Sheen Monitoring
Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
8/10/2009	high	2	No	0.0	**Yes**	**0.5**		
8/14/2009	low	0	No	0.0	No	0.0		
8/17/2009	low	0	No	0.0	No	0.0		
8/18/2009	low	0	No	0.0	No	0.0		
8/24/2009	high	2	No	0.0	No	0.0		
8/31/2009	low	0	No	0.0	No	0.0		
9/1/2009	medium	1	No	0.0	No	0.0		
9/8/2009	high	2	No	0.0	No	0.0		
9/11/2009	high	2	No	0.0	No	0.0		
9/14/2009	medium	1	No	0.0	No	0.0		
9/16/2009	medium	1	No	0.0	No	0.0		
9/17/2009	medium	1	No	0.0	No	0.0		
9/18/2009	high	2	No	0.0	No	0.0		
9/21/2009	high	2	No	0.0	No	0.0		
9/28/2009	low	0	No	0.0	No	0.0		
10/1/2009	medium	1	No	0.0	No	0.0		
10/7/2009	high	2	No	0.0	No	0.0		
10/12/2009	medium	1	No	0.0	No	0.0		
10/20/2009	high	2	No	0.0	**Yes**	**0.5**		
10/21/2009	high	2	No	0.0	No	0.0		
10/26/2009	medium	1	No	0.0	No	0.0		
10/27/2009	medium	1	No	0.0	No	0.0		
11/2/2009	medium	1	No	0.0	No	0.0		
11/3/2009	high	2	No	0.0	No	0.0		
11/10/2009	medium	1	No	0.0	No	0.0		
11/16/2009	high	2	No	0.0	No	0.0		
11/17/2009	high	2	No	0.0	No	0.0		
11/18/2009	high	2	No	0.0	No	0.0		
11/23/2009	high	2	No	0.0	No	0.0		
11/24/2009	high	2	No	0.0	No	0.0		
11/30/2009	high	2	No	0.0	No	0.0		
12/3/2009	high	2	No	0.0	No	0.0		
12/4/2009	high	2	No	0.0	No	0.0		
12/7/2009	high	2	No	0.0	No	0.0		
12/8/2009	high	2	No	0.0	No	0.0		
12/9/2009	high	2	No	0.0	No	0.0		
12/10/2009	medium	1	No	0.0	No	0.0		
12/11/2009	high	2	No	0.0	No	0.0		
12/14/2009	high	2	No	0.0	**Yes**	**1.0**		
12/15/2009	high	2	No	0.0	No	0.0		
12/16/2009	high	2	No	0.0	No	0.0		
12/17/2009	high	2	No	0.0	No	0.0		
12/21/2009	high	2	No	0.0	No	0.0		
12/28/2009	high	2	No	0.0	No	0.0		
1/4/2010	high	2	No	0.0	No	0.0		
1/5/2010	high	2	No	0.0	No	0.0		
1/6/2010	high	2	No	0.0	No	0.0		
1/7/2010	high	2	No	0.0	No	0.0		
1/11/2010	high	2	No	0.0	No	0.0		

Table 4. Containment Boom Sheen Monitoring
Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
1/14/2010	high	2	No	0.0	No	0.0		
1/19/2010	high	2	No	0.0	No	0.0		
1/20/2010	high	2	No	0.0	No	0.0		
1/21/2010	high	2	No	0.0	No	0.0		
1/25/2010	high	2	No	0.0	No	0.0		
1/27/2010	high	2	No	0.0	No	0.0		
2/1/2010	high	2	No	0.0	No	0.0		
2/2/2010	high	2	No	0.0	No	0.0		
2/8/2010	high	2	No	0.0	No	0.0		
2/9/2010	high	2	No	0.0	No	0.0		
2/16/2010	high	2	No	0.0	No	0.0		
2/17/2010	high	2	No	0.0	No	0.0		
2/18/2010	high	2	No	0.0	No	0.0		
2/19/2010	high	2	No	0.0	No	0.0		
2/22/2010	high	2	No	0.0	No	0.0		
3/1/2010	high	2	No	0.0	**Yes**	**1.0**		
3/8/2010	high	2	No	0.0	No	0.0		
3/12/2010	high	2	No	0.0	No	0.0		
3/16/2010	high	2	No	0.0	No	0.0		
3/17/2010	medium	1	No	0.0	No	0.0		
3/19/2010	high	2	No	0.0	No	0.0		
3/22/2010	high	2	No	0.0	No	0.0		
3/25/2010	high	2	No	0.0	No	0.0		
3/30/2010	high	2	No	0.0	No	0.0		
3/31/2010	high	2	No	0.0	No	0.0		
4/1/2010	high	2	No	0.0	No	0.0		
4/2/2010	high	2	No	0.0	No	0.0		
4/5/2010	high	2	No	0.0	No	0.0		
4/6/2010	high	2	No	0.0	No	0.0		
4/9/2010	medium	1	No	0.0	No	0.0		
4/12/2010	medium	1	No	0.0	No	0.0		
4/14/2010	medium	1	No	0.0	No	0.0		
4/15/2010	medium	1	No	0.0	No	0.0		
4/16/2010	medium	1	No	0.0	No	0.0		
4/19/2010	high	2	No	0.0	No	0.0		
4/20/2010	high	2	No	0.0	No	0.0		
4/27/2010	high	2	No	0.0	No	0.0		
4/28/2010	high	2	No	0.0	No	0.0		
4/29/2010	high	2	No	0.0	No	0.0		
5/3/2010	high	2	No	0.0	No	0.0		
5/5/2010	medium	1	No	0.0	No	0.0		
5/6/2010	medium	1	No	0.0	No	0.0		
5/7/2010	medium	1	No	0.0	No	0.0		
5/10/2010	medium	1	No	0.0	No	0.0		
5/17/2010	high	2	No	0.0	No	0.0		
5/18/2010	high	2	No	0.0	No	0.0		
5/24/2010	low	0	No	0.0	No	0.0		
6/1/2010	medium	1	No	0.0	No	0.0		
6/7/2010	low	0	No	0.0	No	0.0		
6/9/2010	low	0	No	0.0	No	0.0		

Table 4. Containment Boom Sheen Monitoring
Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
6/10/2010	low	0	No	0.0	No	0.0		
6/14/2010	high	2	No	0.0	No	0.0		
6/16/2010	high	2	No	0.0	No	0.0		
6/17/2010	medium	1	No	0.0	No	0.0		
6/21/2010	low	0	No	0.0	No	0.0		
6/24/2010	low	0	No	0.0	No	0.0		
6/28/2010	high	2	No	0.0	No	0.0		
7/6/2010	low	0	No	0.0	No	0.0		
7/8/2010	low	0	No	0.0	No	0.0		
7/12/2010	medium	1	No	0.0	No	0.0		
7/13/2010	medium	1	No	0.0	No	0.0		
7/14/2010	medium	1	No	0.0	No	0.0		
7/15/2010	high	2	No	0.0	No	0.0		
7/16/2010	high	2	No	0.0	No	0.0		
7/19/2010	low	0	No	0.0	**Yes**	**1.0**		
7/20/2010	medium	1	No	0.0	**Yes**	**1.0**		
7/21/2010	low	0	No	0.0	No	0.0		
7/22/2010	low	0	No	0.0	No	0.0		
7/26/2010	high	1	No	0.0	No	0.0		
7/28/2010	medium	1	No	0.0	No	0.0		
7/29/2010	medium	1	No	0.0	No	0.0		
8/2/2010	medium	1	No	0.0	No	0.0		
8/3/2010	low	0	No	0.0	No	0.0		
8/9/2010	medium	1	No	0.0	No	0.0		
8/11/2010	high	2	No	0.0	No	0.0		
8/16/2010	medium	1	No	0.0	No	0.0		
8/18/2010	low	0	No	0.0	No	0.0		
8/19/2010	low	0	No	0.0	No	0.0		
8/23/2010	medium	1	No	0.0	No	0.0		
8/24/2010	high	2	No	0.0	No	0.0		
8/30/2010	high	2	No	0.0	No	0.0		
8/31/2010	high	2	No	0.0	No	0.0		
9/1/2010	high	2	No	0.0	No	0.0		
9/2/2010	low	0	No	0.0	No	0.0		
9/3/2010	low	0	No	0.0	No	0.0		
9/7/2010	low	0	No	0.0	No	0.0		
9/14/2010	medium	1	No	0.0	No	0.0		
9/15/2010	low	0	No	0.0	No	0.0		
9/16/2010	low	0	No	0.0	No	0.0		
9/20/2010	medium	1	No	0.0	No	0.0		
9/21/2010	medium	1	No	0.0	No	0.0		
9/22/2010	medium	1	No	0.0	No	0.0		
9/27/2010	high	2	No	0.0	No	0.0		
9/30/2010	high	2	No	0.0	No	0.0		
10/4/2010	low	0	No	0.0	No	0.0		
10/7/2010	medium	1	No	0.0	No	0.0		
10/11/2010	high	2	No	0.0	No	0.0		
10/14/2010	medium	1	No	0.0	No	0.0		
10/18/2010	medium	1	No	0.0	No	0.0		
10/19/2010	medium	1	No	0.0	No	0.0		

Table 4. Containment Boom Sheen Monitoring
Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
10/20/2010	medium	1	No	0.0	No	0.0		
10/21/2010	medium	1	No	0.0	No	0.0		
10/25/2010	high	2	No	0.0	No	0.0		
10/29/2010	high	2	No	0.0	No	0.0		
11/1/2010	low	0	No	0.0	No	0.0		
11/2/2010	medium	1	No	0.0	No	0.0		
11/8/2010	high	2	No	0.0	No	0.0		
11/11/2010	high	2	No	0.0	No	0.0		
11/15/2010	medium	1	No	0.0	No	0.0		
11/16/2010	medium	1	No	0.0	No	0.0		
11/17/2010	medium	1	No	0.0	No	0.0		
11/18/2010	medium	1	No	0.0	No	0.0		
11/22/2010	high	2	No	0.0	No	0.0		
11/29/2010	high	2	No	0.0	No	0.0		
11/30/2010	medium	1	No	0.0	No	0.0		
12/1/2010	medium	1	No	0.0	No	0.0		
12/2/2010	medium	1	No	0.0	No	0.0		
12/3/2010	medium	1	No	0.0	No	0.0		
12/6/2010	high	2	No	0.0	No	0.0		
12/7/2010	high	2	No	0.0	No	0.0		
12/8/2010	high	2	No	0.0	No	0.0		
12/13/2010	high	2	No	0.0	No	0.0		
12/14/2010	high	2	No	0.0	No	0.0		
12/15/2010	high	2	No	0.0	No	0.0		
12/16/2010	high	2	No	0.0	No	0.0		
12/20/2010	high	2	No	0.0	No	0.0		
12/22/2010	high	2	No	0.0	No	0.0		
12/23/2010	high	2	No	0.0	No	0.0		
12/24/2010	high	2	No	0.0	No	0.0		
12/27/2010	high	2	No	0.0	No	0.0		
1/3/2011	high	2	No	0.0	No	0.0		
1/10/2011	high	2	No	0.0	No	0.0		
1/17/2011	high	2	No	0.0	No	0.0		
1/18/2011	high	2	No	0.0	No	0.0		
1/19/2011	high	2	No	0.0	No	0.0		
1/24/2011	high	2	No	0.0	No	0.0		
1/27/2011	high	2	No	0.0	No	0.0		
1/31/2011	high	2	No	0.0	No	0.0		
2/4/2011	high	2	No	0.0	No	0.0		
2/7/2011	high	2	No	0.0	No	0.0		
2/8/2011	high	2	No	0.0	No	0.0		
2/14/2011	high	2	No	0.0	No	0.0		
2/15/2011	high	2	No	0.0	No	0.0		
2/16/2011	high	2	No	0.0	No	0.0		
2/22/2011	high	2	No	0.0	No	0.0		
2/25/2011	high	2	No	0.0	No	0.0		
2/28/2011	high	2	No	0.0	No	0.0		
3/2/2011	high	2	No	0.0	No	0.0		
3/9/2011	high	2	No	0.0	No	0.0		

Table 4. Containment Boom Sheen Monitoring
Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
3/10/2011	high	2	No	0.0	No	0.0		
3/11/2011	high	2	No	0.0	No	0.0		
3/14/2011	high	2	No	0.0	No	0.0		
3/21/2011	high	2	No	0.0	No	0.0		
3/22/2011	high	2	No	0.0	No	0.0		
3/23/2011	high	2	No	0.0	No	0.0		
3/24/2011	high	2	No	0.0	No	0.0		
3/28/2011	high	2	No	0.0	No	0.0		
3/29/2011	high	2	No	0.0	No	0.0		
4/4/2011	high	2	No	0.0	No	0.0		
4/5/2011	high	2	No	0.0	No	0.0		
4/11/2011	high	2	No	0.0	No	0.0		
4/12/2011	high	2	No	0.0	No	0.0		
4/13/2011	high	2	No	0.0	No	0.0		
4/19/2011	high	2	No	0.0	No	0.0		
4/20/2011	high	2	No	0.0	No	0.0		
4/21/2011	high	2	No	0.0	No	0.0		
4/22/2011	high	2	No	0.0	No	0.0		
4/25/2011	medium	1	No	0.0	No	0.0		
4/27/2011	medium	1	No	0.0	**Yes**	**1.0**		
5/2/2011	high	2	No	0.0	No	0.0		
5/9/2011	high	2	No	0.0	No	0.0		
5/16/2011	medium	1	No	0.0	No	0.0		
5/18/2011	high	2	No	0.0	No	0.0		
5/19/2011	high	2	No	0.0	No	0.0		
5/23/2011	high	2	No	0.0	No	0.0		
6/1/2011	medium	1	No	0.0	No	0.0		
6/6/2011	high	2	No	0.0	No	0.0		
6/10/2011	medium	1	No	0.0	**Yes**	**1.0**		
6/13/2011	low	0	No	0.0	No	0.0		
6/14/2011	low	0	No	0.0	No	0.0		
6/15/2011	low	0	No	0.0	No	0.0		
6/20/2011	high	2	No	0.0	No	0.0		
6/22/2011	medium	1	No	0.0	**Yes**	**0.5**		
6/23/2011	medium	1	No	0.0	No	0.0		
6/27/2011	low	0	No	0.0	No	0.0		
6/30/2011	medium	1	No	0.0	No	0.0		
7/6/2011	high	2	No	0.0	No	0.0		
7/11/2011	low	0	No	0.0	No	0.0		
7/18/2011	high	2	No	0.0	No	0.0		
7/19/2011	high	2	No	0.0	No	0.0		
7/20/2011	high	2	No	0.0	No	0.0		
7/25/2011	low	0	No	0.0	No	0.0		
7/29/2011	medium	1	No	0.0	No	0.0		
8/1/2011	high	2	No	0.0	No	0.0		
8/8/2011	low	0	No	0.0	No	0.0		
8/15/2011	high	2	No	0.0	No	0.0		
8/16/2011	high	2	No	0.0	No	0.0		
8/17/2011	high	2	No	0.0	No	0.0		
8/22/2011	low	0	No	0.0	No	0.0		

Table 4. Containment Boom Sheen Monitoring
Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
8/24/2011	high	2	No	0.0	No	0.0		
8/29/2011	medium	1	No	0.0	No	0.0		
8/31/2011	medium	1	No	0.0	No	0.0		
9/6/2011	medium	1	No	0.0	No	0.0		
9/12/2011	high	2	No	0.0	No	0.0		
9/13/2011	high	2	No	0.0	No	0.0		
9/14/2011	high	2	No	0.0	No	0.0		
9/20/2011	medium	1	No	0.0	No	0.0		
9/26/2011	medium	1	No	0.0	No	0.0		
9/27/2011	high	2	No	0.0	No	0.0		
9/28/2011	high	2	No	0.0	No	0.0		
9/29/2011	high	2	No	0.0	No	0.0		
10/3/2011	high	2	No	0.0	No	0.0		
10/10/2011	high	2	No	0.0	No	0.0		
10/11/2011	high	2	No	0.0	No	0.0		
10/12/2011	high	2	No	0.0	No	0.0		
10/17/2011	high	2	No	0.0	No	0.0		
10/18/2011	high	2	No	0.0	No	0.0		
10/19/2011	high	2	No	0.0	No	0.0		
10/20/2011	high	2	No	0.0	No	0.0		
10/24/2011	medium	1	No	0.0	No	0.0		
10/31/2011	high	2	No	0.0	No	0.0		
11/8/2011	medium	1	No	0.0	No	0.0		
11/14/2011	high	2	No	0.0	No	0.0		
11/21/2011	medium	1	No	0.0	No	0.0		
11/22/2011	high	2	No	0.0	No	0.0		
11/23/2011	high	2	No	0.0	No	0.0		
11/28/2011	high	2	No	0.0	No	0.0		
11/29/2011	high	2	No	0.0	No	0.0		
12/5/2011	medium	1	No	0.0	No	0.0		
12/12/2011	high	2	No	0.0	No	0.0		
12/13/2011	high	2	No	0.0	No	0.0		
12/14/2011	high	2	No	0.0	No	0.0		
12/19/2011	high	2	No	0.0	No	0.0		
12/20/2011	high	2	No	0.0	No	0.0		
12/21/2011	high	2	No	0.0	No	0.0		
12/27/2011	high	2	No	0.0	No	0.0		
1/3/2012	high	2	No	0.0	No	0.0		
1/9/2012	high	2	No	0.0	No	0.0		
1/17/2012	high	2	No	0.0	No	0.0		
1/23/2012	high	2	No	0.0	No	0.0		
1/24/2012	high	2	No	0.0	No	0.0		
1/25/2012	high	2	No	0.0	No	0.0		
1/27/2012	high	2	No	0.0	No	0.0		
1/30/2012	high	2	No	0.0	No	0.0		
2/6/2012	high	2	No	0.0	No	0.0		
2/13/2012	high	2	No	0.0	No	0.0		
2/21/2012	medium	1	No	0.0	No	0.0		
2/27/2012	high	2	No	0.0	No	0.0		

Table 4. Containment Boom Sheen Monitoring
Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
2/24/2012	high	2	No	0.0	No	0.0		
3/1/2012	medium	1	No	0.0	No	0.0		
3/2/2012	high	2	No	0.0	No	0.0		
3/5/2012	high	2	No	0.0	No	0.0		
3/12/2012	high	2	No	0.0	No	0.0		
3/13/2012	high	2	No	0.0	No	0.0		
3/14/2012	medium	1	No	0.0	No	0.0		
3/15/2012	high	2	No	0.0	No	0.0		
3/19/2012	high	2	No	0.0	No	0.0		
3/20/2012	high	2	No	0.0	No	0.0		
.3/21/2012	high	2	No	0.0	No	0.0		
3/22/2012	high	2	No	0.0	No	0.0		
3/26/2012	high	2	No	0.0	No	0.0		
3/28/2012	high	2	No	0.0	No	0.0		
4/2/2012	medium	1	No	0.0	No	0.0		
4/5/2012	medium	1	No	0.0	No	0.0		
4/9/2012	high	2	No	0.0	No	0.0		
4/16/2012	medium	1	No	0.0	No	0.0		
4/17/2012	medium	1	No	0.0	No	0.0		
4/18/2012	high	2	No	0.0	No	0.0		
4/19/2012	medium	1	No	0.0	No	0.0		
4/23/2012	medium	1	No	0.0	No	0.0		
4/30/2012	medium	1	No	0.0	No	0.0		
5/2/2012	medium	1	No	0.0	No	0.0		
5/7/2012	high	2	No	0.0	No	0.0		
5/8/2012	high	2	No	0.0	No	0.0		
5/14/2012	medium	1	No	0.0	No	0.0		
5/15/2012	low	0	No	0.0	No	0.0		
5/16/2012	medium	1	No	0.0	No	0.0		
5/21/2012	high	2	No	0.0	No	0.0		
5/22/2012	high	2	No	0.0	No	0.0		
5/23/2012	high	2	No	0.0	No	0.0		
5/24/2012	high	2	No	0.0	No	0.0		
5/29/2012	high	2	No	0.0	No	0.0		
5/31/2012	low	0	No	0.0	No	0.0		
6/4/2012	medium	1	No	0.0	No	0.0		
6/11/2012	medium	1	No	0.0	No	0.0		
6/12/2012	medium	1	No	0.0	No	0.0		
6/13/2012	medium	1	No	0.0	No	0.0		
6/20/2012	high	2	No	0.0	No	0.0		
6/25/2012	medium	1	No	0.0	No	0.0		
7/2/2012	low	0	No	0.0	No	0.0		
7/9/2012	medium	1	No	0.0	**Yes**	**0.5**		
7/10/2012	high	2	No	0.0	No	0.0		
7/11/2012	high	2	No	0.0	No	0.0		
7/12/2012	high	2	No	0.0	**Yes**	**0.5**		
7/16/2012	low	0	No	0.0	No	0.0		
7/17/2012	low	0	No	0.0	No	0.0		
7/19/2012	low	0	No	0.0	No	0.0		
7/20/2012	low	0	No	0.0	No	0.0		

Table 4. Containment Boom Sheen Monitoring
Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
7/23/2012	high	2	No	0.0	No	0.0		
7/30/2012	low	0	No	0.0	No	0.0		
8/6/2012	high	2	No	0.0	No	0.0		
8/7/2012	medium	1	No	0.0	No	0.0		
8/10/2012	medium	1	No	0.0	No	0.0		
8/13/2012	low	0	No	0.0	No	0.0		
8/14/2012	low	0	No	0.0	No	0.0		
8/15/2012	low	0	No	0.0	No	0.0		
8/20/2012	high	2	No	0.0	No	0.0		
8/23/2012	high	2	No	0.0	No	0.0		
8/28/2012	low	0	No	0.0	No	0.0		
8/29/2012	low	0	No	0.0	No	0.0		
9/4/2012	high	2	No	0.0	No	0.0		
9/5/2012	high	2	No	0.0	No	0.0		
9/7/2012	high	2	No	0.0	No	0.0		
9/10/2012	low	0	No	0.0	No	0.0		
9/11/2012	low	0	No	0.0	No	0.0		
9/17/2012	high	2	No	0.0	No	0.0		
9/18/2012	high	2	No	0.0	No	0.0		
9/19/2012	high	2	No	0.0	No	0.0		
9/20/2012	high	2	No	0.0	No	0.0		
9/21/2012	high	2	No	0.0	No	0.0		
9/25/2102	low	0	No	0.0	No	0.0		
9/26/2012	low	0	No	0.0	No	0.0		
9/27/2012	low	0	No	0.0	No	0.0		
10/1/2012	high	2	No	0.0	No	0.0		
10/9/2012	low	0	No	0.0	No	0.0		
10/15/2012	high	2	No	0.0	No	0.0		
10/16/2012	high	2	No	0.0	No	0.0		
10/22/2012	high	2	No	0.0	No	0.0		
10/23/2012	high	2	No	0.0	No	0.0		
10/24/2012	high	2	No	0.0	No	0.0		
10/25/2012	high	2	No	0.0	No	0.0		
10/26/2012	high	2	No	0.0	No	0.0		
10/29/2012	high	2	No	0.0	No	0.0		
11/7/2012	high	2	No	0.0	**Yes**	**0.5**		
11/12/2012	high	2	No	0.0	No	0.0		
11/13/2012	medium	1	No	0.0	No	0.0		
11/19/2012	high	2	No	0.0	No	0.0		
11/27/2012	high	2	No	0.0	**Yes**	**0.5**		
11/28/2012	high	2	No	0.0	No	0.0		
12/5/2012	high	2	No	0.0	No	0.0		
12/6/2012	high	2	No	0.0	**Yes**	**0.5**		
12/7/2012	high	2	No	0.0	No	0.0		
12/12/2012	medium	1	No	0.0	**Yes**	**0.5**		
12/13/2012	medium	1	No	0.0	No	0.0		
12/14/2012	medium	1	No	0.0	No	0.0		
12/17/2012	high	2	No	0.0	No	0.0		
12/18/2012	high	2	No	0.0	No	0.0		
12/19/2012	high	2	No	0.0	No	0.0		

Table 4. Containment Boom Sheen Monitoring
Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
12/20/2012	high	2	No	0.0	No	0.0		
12/24/2012	high	2	No	0.0	No	0.0		
1/2/2013	high	2	No	0.0	No	0.0		
1/3/2013	high	2	No	0.0	No	0.0		
1/7/2013	high	2	No	0.0	No	0.0		
1/14/2013	high	2	No	0.0	No	0.0		
1/22/2013	high	2	No	0.0	No	0.0		
1/23/2013	high	2	No	0.0	No	0.0		
1/28/2013	high	2	No	0.0	No	0.0		
1/30/2013	high	2	No	0.0	No	0.0		
1/31/2013	high	2	No	0.0	No	0.0		
2/1/2013	high	2	No	0.0	No	0.0		
2/4/2013	high	2	No	0.0	No	0.0		
2/11/2013	high	2	No	0.0	No	0.0		
2/19/2013	high	2	No	0.0	No	0.0		
2/20/2013	high	2	No	0.0	No	0.0		
2/21/2013	high	2	No	0.0	No	0.0		
2/25/2013	high	2	No	0.0	No	0.0		
3/5/2013	high	2	No	0.0	No	0.0		
3/6/2013	medium	1	No	0.0	No	0.0		
3/11/2013	medium	1	No	0.0	No	0.0		
3/12/2013	high	2	No	0.0	No	0.0		
3/13/2013	high	2	No	0.0	No	0.0		
3/18/2013	high	2	No	0.0	No	0.0		
3/25/2013	high	2	No	0.0	No	0.0		
4/1/2013	high	2	No	0.0	No	0.0		
4/2/2013	high	2	No	0.0	No	0.0		
4/8/2013	medium	1	No	0.0	No	0.0		
4/9/2013	medium	1	No	0.0	No	0.0		
4/10/2013	high	2	No	0.0	No	0.0		
4/15/2013	high	2	No	0.0	No	0.0		
4/16/2013	high	2	No	0.0	No	0.0		
4/18/2013	high	2	No	0.0	No	0.0		
4/22/2013	medium	1	No	0.0	No	0.0		
4/23/2013	medium	1	No	0.0	No	0.0		
4/24/2013	low	0	No	0.0	No	0.0		
4/25/2013	medium	1	No	0.0	No	0.0		
4/29/2013	high	2	No	0.0	No	0.0		
4/30/2013	high	2	No	0.0	No	0.0		
5/6/2013	low	0	No	0.0	No	0.0		
5/7/2013	medium	1	No	0.0	No	0.0		
5/13/2013	high	2	No	0.0	No	0.0		
5/17/2013	medium	1	No	0.0	No	0.0		
5/20/2013	medium	1	No	0.0	No	0.0		
5/21/2013	medium	1	No	0.0	No	0.0		
5/22/2013	medium	1	No	0.0	No	0.0		
5/23/2013	medium	1	No	0.0	No	0.0		
5/28/2013	high	2	No	0.0	No	0.0		
6/3/2013	medium	1	No	0.0	No	0.0		

Table 4. Containment Boom Sheen Monitoring
Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
6/5/2013	low	0	No	0.0	No	0.0		
6/10/2013	high	2	No	0.0	No	0.0		
6/11/2013	high	2	No	0.0	No	0.0		
6/12/2013	high	2	No	0.0	No	0.0		
6/17/2013	medium	1	No	0.0	No	0.0		
6/18/2013	medium	1	No	0.0	No	0.0		
6/19/2013	medium	1	No	0.0	No	0.0		
6/24/2013	high	2	No	0.0	No	0.0		
6/25/2013	high	2	No	0.0	No	0.0		
6/26/2013	high	2	No	0.0	No	0.0		
7/1/2013	medium	1	No	0.0	No	0.0		
7/8/2013	medium	1	No	0.0	No	0.0		
7/15/2013	medium	1	No	0.0	No	0.0		
7/18/2013	high	2	No	0.0	No	0.0		
7/22/2013	medium	1	No	0.0	No	0.0		
7/23/2013	medium	1	No	0.0	No	0.0		
7/24/2013	high	2	No	0.0	No	0.0		
7/29/2013	medium	1	No	0.0	No	0.0		
8/5/2013	medium	1	No	0.0	No	0.0		
8/12/2013	high	2	No	0.0	No	0.0		
8/19/2013	low	0	No	0.0	No	0.0		
8/20/2013	medium	1	No	0.0	No	0.0		
8/21/2013	high	2	No	0.0	No	0.0		
8/26/2013	high	2	No	0.0	No	0.0		
8/27/2013	medium	1	No	0.0	No	0.0		
9/3/2013	medium	1	No	0.0	No	0.0		
9/9/2013	high	2	No	0.0	No	0.0		
9/10/2013	high	2	No	0.0	No	0.0		
9/11/2013	medium	1	No	0.0	No	0.0		
9/12/2013	medium	1	No	0.0	No	0.0		
9/16/2013	low	0	No	0.0	No	0.0		
9/17/2013	medium	1	No	0.0	No	0.0		
9/23/2013	high	2	No	0.0	No	0.0		
9/24/2013	high	2	No	0.0	**Yes**	**0.5**		
9/25/2013	high	2	No	0.0	No	0.0		
9/27/2013	high	2	No	0.0	No	0.0		
9/30/2013	medium	1	No	0.0	No	0.0		
10/2/2013	medium	1	No	0.0	No	0.0		
10/7/2013	high	2	No	0.0	No	0.0		
10/9/2013	high	2	No	0.0	No	0.0		
10/14/2013	low	0	No	0.0	No	0.0		
10/15/2013	low	0	No	0.0	No	0.0		
10/21/2013	high	2	No	0.0	No	0.0		
10/28/2013	high	2	No	0.0	No	0.0		
10/29/2013	medium	1	No	0.0	No	0.0		
10/30/2013	medium	1	No	0.0	**Yes**	**0.5**		
10/31/2013	medium	1	No	0.0	No	0.0		
11/4/2013	high	2	No	0.0	No	0.0		
11/11/2013	high	2	No	0.0	No	0.0		
11/13/2013	medium	1	No	0.0	**Yes**	**0.5**		

Table 4. Containment Boom Sheen Monitoring
Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
11/18/2013	medium	1	No	0.0	No	0.0		
11/19/2013	high	2	No	0.0	No	0.0		
11/20/2013	high	2	No	0.0	No	0.0		
11/25/2013	high	2	No	0.0	No	0.0		
12/2/2013	high	2	No	0.0	No	0.0		
12/3/2013	high	2	No	0.0	No	0.0		
12/9/2013	high	2	No	0.0	No	0.0		
12/16/2013	high	2	No	0.0	No	0.0		
12/17/2013	high	2	No	0.0	No	0.0		
12/18/2013	high	2	No	0.0	No	0.0		
12/23/2013	high	2	No	0.0	No	0.0		
12/30/2013	medium	1	No	0.0	No	0.0		
1/3/2014	high	2	No	0.0	No	0.0		
1/6/2014	high	2	No	0.0	No	0.0		
1/13/2014	high	2	No	0.0	No	0.0		
1/14/2014	high	2	No	0.0	No	0.0		
1/15/2014	high	2	No	0.0	No	0.0		
1/21/2014	high	2	No	0.0	No	0.0		
1/27/2014	high	2	No	0.0	No	0.0		
1/28/2014	high	2	No	0.0	No	0.0		
2/4/2014	high	2	No	0.0	No	0.0		
2/10/2014	high	2	No	0.0	No	0.0		
2/11/2014	high	2	No	0.0	No	0.0		
2/12/2014	high	2	No	0.0	No	0.0		
2/18/2014	high	2	No	0.0	No	0.0		
2/21/2014	high	2	No	0.0	No	0.0		
2/24/2014	high	2	No	0.0	No	0.0		
3/3/2014	high	2	No	0.0	No	0.0		
3/10/2014	high	2	No	0.0	No	0.0		
3/11/2014	high	2	No	0.0	No	0.0		
3/12/2014	high	2	No	0.0	No	0.0		
3/17/2014	high	2	No	0.0	No	0.0		
3/19/2014	high	2	No	0.0	No	0.0		
3/20/2014	high	2	No	0.0	No	0.0		
3/24/2014	high	2	No	0.0	No	0.0		
3/26/2014	high	2	No	0.0	No	0.0		
3/27/2014	high	2	No	0.0	No	0.0		
3/31/2014	high	2	No	0.0	No	0.0		
4/2/2014	high	2	No	0.0	No	0.0		
4/7/2014	high	2	No	0.0	No	0.0		
4/14/2014	medium	1	No	0.0	No	0.0		
4/15/2014	medium	1	No	0.0	No	0.0		
4/16/2014	high	2	No	0.0	No	0.0		
4/17/2014	high	2	No	0.0	No	0.0		
4/21/2014	high	2	No	0.0	No	0.0		
4/22/2014	medium	1	No	0.0	No	0.0		
4/23/2014	medium	1	No	0.0	No	0.0		
4/28/2014	medium	1	No	0.0	No	0.0		
4/29/2014	high	2	No	0.0	No	0.0		

Table 4. Containment Boom Sheen Monitoring
Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
5/5/2014	high	2	No	0.0	**Yes**	**0.5**		
5/12/2014	medium	1	No	0.0	No	0.0		
5/13/2014	medium	1	No	0.0	No	0.0		
5/14/2014	medium	1	No	0.0	No	0.0		
5/19/2014	high	2	No	0.0	No	0.0		
5/20/2014	high	2	No	0.0	No	0.0		
5/21/2014	medium	1	No	0.0	No	0.0		
5/27/2014	low	0	No	0.0	No	0.0		
6/2/2014	high	2	No	0.0	No	0.0		
6/9/2014	low	0	No	0.0	No	0.0		
6/10/2014	medium	1	No	0.0	No	0.0		
6/16/2014	high	2	No	0.0	No	0.0		
6/17/2014	high	2	No	0.0	No	0.0		
6/18/2014	high	2	No	0.0	No	0.0		
6/23/2014	low	0	No	0.0	No	0.0		
6/24/2014	low	0	No	0.0	**Yes**	**1.0**		
6/30/2014	high	2	No	0.0	No	0.0		
7/72014	medium	1	No	0.0	No	0.0		
7/8/2014	medium	1	No	0.0	No	0.0		
7/14/2014	high	2	No	0.0	No	0.0		
7/15/2014	high	2	No	0.0	No	0.0		
7/21/2014	low	0	No	0.0	No	0.0		
7/25/2014	medium	1	No	0.0	No	0.0		
7/28/2014	high	2	No	0.0	No	0.0		
7/30/2014	low	0	No	0.0	No	0.0		
8/4/2014	medium	1	No	0.0	No	0.0		
8/11/2014	medium	1	No	0.0	No	0.0		
8/12/2014	high	2	No	0.0	No	0.0		
8/13/2014	high	2	No	0.0	No	0.0		
8/18/2014	low	0	No	0.0	No	0.0		
8/20/2014	medium	1	No	0.0	No	0.0		
8/25/2014	high	2	No	0.0	No	0.0		
9/2/2014	low	0	No	0.0	No	0.0		
9/8/2014	medium	1	No	0.0	No	0.0		
9/9/2014	high	2	No	0.0	No	0.0		
9/10/2014	high	2	No	0.0	No	0.0		
9/16/2014	medium	1	No	0.0	No	0.0		
9/17/2014	medium	1	No	0.0	No	0.0		
9/22/2014	medium	1	No	0.0	No	0.0		
9/29/2014	high	2	No	0.0	No	0.0		
10/6/2014	medium	1	No	0.0	No	0.0		
10/9/2014	high	2	No	0.0	No	0.0		
10/14/2014	high	2	No	0.0	No	0.0		
10/15/2014	high	2	No	0.0	No	0.0		
10/20/2014	medium	1	No	0.0	No	0.0		
10/21/2014	medium	1	No	0.0	No	0.0		
10/27/2014	high	2	No	0.0	No	0.0		
10/28/2014	high	2	No	0.0	No	0.0		
11/3/2014	medium	1	No	0.0	No	0.0		
11/10/2014	high	2	No	0.0	No	0.0		

Table 4. Containment Boom Sheen Monitoring
Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
11/17/2014	medium	1	No	0.0	No	0.0		
11/18/2014	medium	1	No	0.0	No	0.0		
11/19/2014	medium	1	No	0.0	No	0.0		
11/24/2014	high	2	No	0.0	No	0.0		
12/1/2014	high	2	No	0.0	No	0.0		
12/2/2014	high	2	No	0.0	No	0.0		
12/3/2014	medium	1	No	0.0	No	0.0		
12/4/2014	high	2	No	0.0	No	0.0		
12/8/2014	high	2	No	0.0	No	0.0		
12/9/2014	high	2	No	0.0	No	0.0		
12/10/2014	high	2	No	0.0	No	0.0		
12/15/2014	high	2	No	0.0	No	0.0		
12/16/2014	high	2	No	0.0	No	0.0		
12/17/2014	high	2	No	0.0	No	0.0		
12/22/2014	high	2	No	0.0	No	0.0		
12/29/2014	high	2	No	0.0	No	0.0		
1/5/2015	high	2	No	0.0	No	0.0		
1/12/2015	high	2	No	0.0	No	0.0		
1/13/2015	high	2	No	0.0	No	0.0		
1/14/2015	high	2	No	0.0	No	0.0		
1/20/2015	high	2	No	0.0	No	0.0		
1/26/2015	high	2	No	0.0	No	0.0		
1/27/2015	high	2	No	0.0	No	0.0		
2/3/2015	high	2	No	0.0	No	0.0		
2/4/2015	medium	1	No	0.0	No	0.0		
2/9/2015	high	2	No	0.0	No	0.0		
2/10/2015	high	2	No	0.0	No	0.0		
2/11/2015	high	2	No	0.0	No	0.0		
2/17/2015	medium	1	No	0.0	No	0.0		
2/18/2015	medium	1	No	0.0	No	0.0		
2/23/2015	high	2	No	0.0	No	0.0		
2/27/2015	high	2	No	0.0	No	0.0		
3/2/2015	medium	1	No	0.0	No	0.0		
3/9/2015	high	2	No	0.0	No	0.0		
3/16/2015	medium	1	No	0.0	No	0.0		
3/17/2015	medium	1	No	0.0	No	0.0		
3/18/2015	high	2	No	0.0	No	0.0		
3/19/2015	high	2	No	0.0	No	0.0		
3/23/2015	high	2	No	0.0	**Yes**	**0.5**		
3/24/2015	high	2	No	0.0	No	0.0		
3/25/2015	high	2	No	0.0	No	0.0		
3/30/2015	medium	1	No	0.0	No	0.0		
4/1/2015	medium	1	No	0.0	No	0.0		
4/6/2015	high	2	No	0.0	No	0.0		
4/7/2015	high	2	No	0.0	No	0.0		
4/13/2015	medium	1	No	0.0	**Yes**	**0.5**		
4/14/2015	low	0	No	0.0	No	0.0		
4/15/2015	low	0	No	0.0	No	0.0		
4/20/2015	high	2	No	0.0	No	0.0		

Table 4. Containment Boom Sheen Monitoring
Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
4/21/2015	high	2	No	0.0	No	0.0		
4/27/2015	medium	1	No	0.0	No	0.0		
4/28/2015	medium	1	No	0.0	No	0.0		
5/4/2015	medium	1	No	0.0	No	0.0		
5/5/2015	high	2	No	0.0	No	0.0		
5/12/2015	high	2	No	0.0	No	0.0		
5/13/2015	medium	1	No	0.0	No	0.0		
5/14/2015	medium	1	No	0.0	No	0.0		
5/18/2015	high	2	No	0.0	No	0.0		
5/26/2015	low	0	No	0.0	No	0.0		
6/1/2015	low	0	No	0.0	No	0.0		
6/8/2015	high	2	No	0.0	No	0.0		
6/9/2015	high	2	No	0.0	No	0.0		
6/10/2015	high	2	No	0.0	No	0.0		
6/15/2015	medium	1	No	0.0	No	0.0		
6/16/2015	low	0	No	0.0	No	0.0		
6/17/2015	medium	1	No	0.0	No	0.0		
6/22/2015	medium	1	No	0.0	No	0.0		
6/29/2015	low	0	No	0.0	No	0.0		
7/6/2015	high	2	No	0.0	No	0.0		
7/13/2015	low	0	No	0.0	No	0.0		
7/14/2015	low	0	No	0.0	No	0.0		
7/15/2015	low	0	No	0.0	No	0.0		
7/20/2015	high	2	No	0.0	No	0.0		
7/21/2015	high	2	No	0.0	No	0.0		
7/22/2015	medium	1	No	0.0	No	0.0		
7/27/2015	low	0	No	0.0	No	0.0		
7/28/2015	low	0	No	0.0	No	0.0		
7/29/2015	low	0	No	0.0	No	0.0		
8/3/2015	high	2	No	0.0	No	0.0		
8/10/2015	low	0	No	0.0	No	0.0		
8/11/2015	low	0	No	0.0	No	0.0		
8/17/2015	high	2	No	0.0	No	0.0		
8/24/2015	low	0	No	0.0	No	0.0		
8/31/2015	high	2	No	0.0	No	0.0		
9/1/2015	high	2	No	0.0	No	0.0		
9/8/2015	low	0	No	0.0	No	0.0		
9/14/2015	high	2	No	0.0	No	0.0		
9/15/2015	high	2	No	0.0	No	0.0		
9/16/2015	high	2	No	0.0	No	0.0		
9/17/2015	high	2	No	0.0	No	0.0		
9/21/2015	medium	1	No	0.0	**Yes**	**0.5**		
9/28/2015	high	2	No	0.0	No	0.0		
9/29/2015	high	2	No	0.0	No	0.0		
10/5/2015	medium	1	No	0.0	No	0.0		
10/8/2015	low	0	No	0.0	No	0.0		
10/12/2015	high	2	No	0.0	No	0.0		
10/13/2015	high	2	No	0.0	No	0.0		
10/14/2015	high	2	No	0.0	No	0.0		
10/19/2015	high	2	No	0.0	No	0.0		

Table 4. Containment Boom Sheen Monitoring
Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
10/20/2015	high	2	No	0.0	No	0.0		
10/26/2015	high	2	No	0.0	No	0.0		
11/2/2015	high	2	No	0.0	No	0.0		
11/10/2015	medium	1	No	0.0	No	0.0		
11/11/2015	medium	1	No	0.0	No	0.0		
11/13/2015	high	2	No	0.0	No	0.0		
11/16/2015	high	2	No	0.0	No	0.0		
11/17/2015	high	2	No	0.0	No	0.0		
11/18/2015	high	2	No	0.0	No	0.0		
11/23/2015	medium	1	No	0.0	No	0.0		
11/30/2015	high	2	No	0.0	No	0.0		
12/2/2015	medium	1	No	0.0	No	0.0		
12/3/2015	medium	1	No	0.0	No	0.0		
12/7/2015	high	2	No	0.0	No	0.0		
12/9/2015	high	2	No	0.0	No	0.0		
12/10/2015	high	2	No	0.0	No	0.0		
12/14/2015	high	2	No	0.0	No	0.0		
12/15/2015	high	2	No	0.0	No	0.0		
12/16/2015	high	2	No	0.0	No	0.0		
12/21/2015	high	2	No	0.0	No	0.0		
12/28/2015	high	2	No	0.0	No	0.0		
1/4/2016	high	2	No	0.0	No	0.0		
1/11/2016	high	2	No	0.0	No	0.0		
1/12/2016	high	2	No	0.0	No	0.0		
1/13/2016	high	2	No	0.0	No	0.0		
1/19/2016	high	2	No	0.0	No	0.0		
1/20/2016	medium	2	No	0.0	No	0.0		
1/25/2016	high	2	No	0.0	No	0.0		
2/1/2016	high	2	No	0.0	No	0.0		
2/8/2016	high	2	No	0.0	No	0.0		
2/9/2016	high	2	No	0.0	No	0.0		
2/10/2016	high	2	No	0.0	No	0.0		
2/16/2016	high	2	No	0.0	No	0.0		
2/22/2016	medium	1	No	0.0	No	0.0		
2/23/2016	high	2	No	0.0	No	0.0		
2/29/2016	high	2	No	0.0	**Yes**	**0.5**		
3/7/2016	high	2	No	0.0	No	0.0		
3/8/2016	high	2	No	0.0	No	0.0		
3/9/2016	high	2	No	0.0	No	0.0		
3/10/2016	high	2	No	0.0	No	0.0		
3/14/2016	high	2	No	0.0	No	0.0		
3/15/2016	high	2	No	0.0	No	0.0		
3/16/2016	high	2	No	0.0	No	0.0		
3/21/2016	high	2	No	0.0	No	0.0		
3/22/2016	high	2	No	0.0	No	0.0		
3/29/2016	high	2	No	0.0	No	0.0		
3/30/2016	high	2	No	0.0	No	0.0		
3/31/2016	high	2	No	0.0	No	0.0		
4/4/2016	medium	1	No	0.0	No	0.0		

Table 4. Containment Boom Sheen Monitoring
Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
4/5/2016	medium	1	No	0.0	No	0.0		
4/11/2016	high	2	No	0.0	No	0.0		
4/12/2016	high	2	No	0.0	No	0.0		
4/13/2016	medium	1	No	0.0	No	0.0		
4/18/2016	medium	1	No	0.0	No	0.0		
4/19/2016	medium	1	No	0.0	No	0.0		
4/20/2016	medium	1	No	0.0	No	0.0		
4/25/2016	high	2	No	0.0	**Yes**	**0.5**		
4/26/2016	high	2	No	0.0	No	0.0		
5/2/2016	medium	1	No	0.0	No	0.0		
5/3/2016	medium	1	No	0.0	No	0.0		
5/4/2016	medium	1	No	0.0	No	0.0		
5/9/2016	high	2	No	0.0	No	0.0		
5/10/2016	high	2	No	0.0	No	0.0		
5/11/2016	high	2	No	0.0	No	0.0		
5/16/2016	medium	1	No	0.0	No	0.0		
5/17/2016	medium	1	No	0.0	No	0.0		
5/18/2016	medium	1	No	0.0	No	0.0		
5/23/2016	high	2	No	0.0	No	0.0		
5/24/2016	high	2	No	0.0	No	0.0		
5/31/2016	low	0	No	0.0	No	0.0		
6/7/2016	high	2	No	0.0	No	0.0		
6/8/2016	high	2	No	0.0	No	0.0		
6/9/2016	high	2	No	0.0	No	0.0		
6/13/2016	low	0	No	0.0	No	0.0		
6/14/2016	low	0	No	0.0	No	0.0		
6/15/2016	medium	1	No	0.0	No	0.0		
6/20/2016	medium	1	No	0.0	No	0.0		
6/26/2016	medium	1	No	0.0	**Yes**	**0.5**		
7/6/2016	medium	1	No	0.0	No	0.0		
7/11/2016	medium	1	No	0.0	No	0.0		
7/12/2016	medium	1	No	0.0	No	0.0		
7/21/2016	high	2	No	0.0	No	0.0		
7/25/2016	high	2	No	0.0	No	0.0		
8/2/2016	low	0	No	0.0	No	0.0		
8/8/2016	high	2	No	0.0	No	0.0		
8/15/2016	low	0	No	0.0	No	0.0		
8/17/2016	medium	1	No	0.0	No	0.0		
8/18/2016	medium	1	No	0.0	No	0.0		
8/22/2016	high	2	No	0.0	No	0.0		
8/23/2016	high	2	No	0.0	No	0.0		
8/24/2016	high	2	No	0.0	No	0.0		
8/25/2016	high	2	No	0.0	No	0.0		
8/29/2016	low	0	No	0.0	No	0.0		
9/6/2016	high	2	No	0.0	No	0.0		
9/8/2016	high	2	No	0.0	No	0.0		
9/9/2016	high	2	No	0.0	No	0.0		
9/12/2016	low	0	No	0.0	No	0.0		
9/19/2016	high	2	No	0.0	No	0.0		
9/20/2016	high	2	No	0.0	No	0.0		

Table 4. Containment Boom Sheen Monitoring
Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
9/21/2016	high	2	No	0.0	No	0.0		
9/26/2016	low	0	No	0.0	No	0.0		
9/28/2016	medium	1	No	0.0	No	0.0		
9/29/2016	medium	1	No	0.0	No	0.0		
10/3/2016	high	2	No	0.0	**Yes**	**0.5**		
10/6/2016	high	2	No	0.0	No	0.0		
10/10/2016	high	2	No	0.0	No	0.0		
10/17/2016	high	2	No	0.0	No	0.0		
10/18/2016	high	2	No	0.0	No	0.0		
10/19/2016	high	2	No	0.0	**Yes**	**0.5**		
10/24/2016	medium	1	No	0.0	No	0.0		
10/26/2016	medium	1	No	0.0	No	0.0	**Yes**	**1.0**
10/27/2016	medium	1	No	0.0	No	0.0	**Yes**	**1.0**
10/31/2016	high	2	No	0.0	No	0.0	No	0.0
11/1/2016	high	2	No	0.0	No	0.0	No	0.0
11/2/2016	high	2	No	0.0	No	0.0	**Yes**	**1.0**
11/7/2016	high	2	No	0.0	No	0.0	**Yes**	**1.0**
11/9/2016	high	2	No	0.0	No	0.0	**Yes**	**1.0**
11/14/2016	high	2	No	0.0	No	0.0	**Yes**	**1.0**
11/15/2016	high	2	No	0.0	No	0.0	**Yes**	**1.0**
11/16/2016	high	2	No	0.0	No	0.0	**Yes**	**1.0**
11/21/2016	high	2	No	0.0	No	0.0	**Yes**	**1.0**
11/22/2016	high	2	No	0.0	No	0.0	**Yes**	**1.0**
11/28/2016	high	2	No	0.0	No	0.0	No	0.0
12/5/2016	high	2	No	0.0	No	0.0	No	0.0
12/6/2016	high	2	No	0.0	No	0.0	No	0.0
12/7/2016	medium	1	No	0.0	No	0.0	No	0.0
12/12/2016	medium	1	No	0.0	No	0.0	No	0.0
12/13/2016	high	2	No	0.0	No	0.0	No	0.0
12/14/2016	medium	1	No	0.0	No	0.0	No	0.0
12/19/2016	high	2	No	0.0	No	0.0	No	0.0
12/27/2016	high	2	No	0.0	No	0.0	No	0.0
1/2/2017	high	2	No	0.0	No	0.0	No	0.0
1/9/2017	medium	1	No	0.0	No	0.0	No	0.0
1/17/2017	high	2	No	0.0	No	0.0	No	0.0
1/18/2017	high	2	No	0.0	No	0.0	No	0.0
1/23/2017	high	2	No	0.0	No	0.0	No	0.0
1/24/2017	medium	1	No	0.0	**Yes**	**0.5**	**Yes**	**0.5**
1/27/2017	medium	1	No	0.0	No	0.0	No	0.0
1/30/2017	high	2	No	0.0	No	0.0	No	0.0
2/7/2017	medium	1	No	0.0	No	0.0	No	0.0
2/8/2017	medium	1	No	0.0	No	0.0	No	0.0
2/13/2017	high	2	No	0.0	No	0.0	No	0.0
2/14/2017	high	2	No	0.0	No	0.0	No	0.0
2/15/2017	high	2	No	0.0	No	0.0	No	0.0
2/21/2017	medium	1	No	0.0	No	0.0	No	0.0
2/27/2017	high	2	No	0.0	No	0.0	No	0.0
3/6/2017	high	2	No	0.0	No	0.0	No	0.0
3/7/2017	high	2	No	0.0	No	0.0	No	0.0

Table 4. Containment Boom Sheen Monitoring
Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
3/8/2017	high	2	No	0.0	No	0.0	No	0.0
3/13/2017	high	2	No	0.0	**Yes**	**0.5**	**Yes**	**0.5**
3/14/2017	high	2	No	0.0	No	0.0	No	0.0
3/15/2017	high	2	No	0.0	No	0.0	No	0.0
3/20/2017	medium	1	No	0.0	No	0.0	No	0.0
3/22/2017	medium	1	No	0.0	No	0.0	No	0.0
3/27/2017	high	2	No	0.0	No	0.0	No	0.0
4/3/2017	medium	1	No	0.0	No	0.0	No	0.0
4/5/2017	medium	1	No	0.0	No	0.0	No	0.0
4/10/2017	high	2	No	0.0	No	0.0	No	0.0
4/11/2017	high	2	No	0.0	No	0.0	No	0.0
4/12/2017	low	0	No	0.0	No	0.0	No	0.0
4/17/2017	medium	1	No	0.0	No	0.0	No	0.0
4/24/2017	medium	1	No	0.0	No	0.0	No	0.0
5/1/2017	high	2	No	0.0	No	0.0	No	0.0
5/8/2017	low	0	No	0.0	No	0.0	No	0.0
5/15/2017	high	2	No	0.0	No	0.0	No	0.0
5/16/2017	high	2	No	0.0	No	0.0	No	0.0
5/17/2017	high	2	No	0.0	No	0.0	No	0.0
5/22/2017	low	0	No	0.0	No	0.0	No	0.0
5/23/2017	low	0	No	0.0	No	0.0	No	0.0
5/30/2017	high	2	No	0.0	No	0.0	No	0.0
6/5/2017	medium	1	No	0.0	No	0.0	No	0.0
6/6/2017	medium	1	No	0.0	No	0.0	No	0.0
6/7/2017	medium	1	No	0.0	No	0.0	No	0.0
6/12/2017	high	2	No	0.0	**Yes**	**0.5**	**Yes**	**0.5**
6/13/2017	high	2	No	0.0	**Yes**	**0.5**	No	0.0
6/14/2017	high	2	No	0.0	No	0.0	No	0.0
6/19/2017	low	0	No	0.0	No	0.0	No	0.0
6/26/2017	high	2	No	0.0	**Yes**	**0.5**	No	0.0
6/27/2017	high	2	No	0.0	No	0.0	No	0.0
7/6/2017	low	0	No	0.0	No	0.0	No	0.0
7/10/2017	medium	1	No	0.0	No	0.0	No	0.0
7/11/2017	medium	1	No	0.0	No	0.0	No	0.0
7/17/2017	low	0	No	0.0	No	0.0	No	0.0
7/18/2017	low	0	No	0.0	No	0.0	No	0.0
7/19/2017	low	0	No	0.0	No	0.0	No	0.0
7/20/2017	low	0	No	0.0	No	0.0	No	0.0
7/24/2017	high	2	No	0.0	No	0.0	No	0.0
7/31/2017	low	0	No	0.0	No	0.0	No	0.0
8/2/2017	medium	1	No	0.0	No	0.0	No	0.0
8/3/2017	low	0	No	0.0	No	0.0	No	0.0
8/4/2017	low	0	No	0.0	No	0.0	No	0.0
8/5/2017	low	0	No	0.0	No	0.0	No	0.0
8/7/2017	medium	1	No	0.0	No	0.0	No	0.0
8/8/2017	high	2	No	0.0	No	0.0	No	0.0
8//9/2017	high	2	No	0.0	No	0.0	No	0.0
8/10/2017	high	2	No	0.0	No	0.0	No	0.0
8/14/2017	medium	1	No	0.0	No	0.0	No	0.0
8/18/2017	medium	1	No	0.0	No	0.0	No	0.0

Table 4. Containment Boom Sheen Monitoring
Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
8/23/2017	high	2	No	0.0	No	0.0	No	0.0
8/24/2017	high	2	No	0.0	No	0.0	No	0.0
8/28/2017	high	2	No	0.0	No	0.0	No	0.0
8/29/2017	high	2	No	0.0	No	0.0	No	0.0
9/5/2017	medium	1	No	0.0	No	0.0	No	0.0
9/11/2017	medium	1	No	0.0	No	0.0	No	0.0
9/12/2017	medium	1	No	0.0	No	0.0	No	0.0
9/13/2017	medium	1	No	0.0	No	0.0	No	0.0
9/18/2017	low	0	No	0.0	No	0.0	No	0.0
9/19/2017	medium	1	No	0.0	No	0.0	No	0.0
9/20/2017	high	2	No	0.0	No	0.0	No	0.0
9/25/2017	high	2	No	0.0	No	0.0	No	0.0
9/27/2017	high	2	No	0.0	No	0.0	No	0.0
10/2/2017	low	0	No	0.0	No	0.0	No	0.0
10/3/2017	low	0	No	0.0	No	0.0	No	0.0
10/5/2017	low	0	No	0.0	No	0.0	No	0.0
10/9/2017	high	2	No	0.0	No	0.0	No	0.0
10/10/2017	high	2	No	0.0	No	0.0	No	0.0
10/11/2017	high	2	No	0.0	No	0.0	No	0.0
10/12/2017	high	2	No	0.0	No	0.0	No	0.0
10/16/2017	low	0	No	0.0	No	0.0	No	0.0
10/17/2017	low	0	No	0.0	No	0.0	No	0.0
10/18/2017	low	0	No	0.0	No	0.0	No	0.0
10/19/2017	high	2	No	0.0	No	0.0	No	0.0
10/24/2017	high	2	No	0.0	No	0.0	No	0.0
10/25/2017	high	2	No	0.0	No	0.0	No	0.0
10/26/2017	high	2	No	0.0	No	0.0	No	0.0
10/30/2017	medium	1	No	0.0	No	0.0	No	0.0
11/2/2017	medium	1	No	0.0	No	0.0	No	0.0
11/6/2017	high	2	No	0.0	No	0.0	No	0.0
11/13/2017	medium	1	No	0.0	No	0.0	No	0.0
11/14/2017	low	0	No	0.0	No	0.0	No	0.0
11/15/2017	medium	1	No	0.0	No	0.0	**Yes**	**1.0**
11/20/2017	high	2	No	0.0	**Yes**	**0.5**	No	0.0
11/21/2017	high	2	No	0.0	No	0.0	No	0.0
11/22/2017	medium	1	No	0.0	No	0.0	No	0.0
11/27/2017	medium	1	No	0.0	No	0.0	**Yes**	**0.5**
11/30/2017	medium	1	No	0.0	No	0.0	**Yes**	**0.5**
12/4/2017	high	2	No	0.0	No	0.0	No	0.0
12/5/2017	high	2	No	0.0	No	0.0	No	0.0
12/11/2017	medium	1	No	0.0	No	0.0	No	0.0
12/12/2017	medium	1	No	0.0	No	0.0	No	0.0
12/13/2017	medium	1	No	0.0	No	0.0	No	0.0
12/15/2017	medium	1	No	0.0	No	0.0	No	0.0
12/18/2017	high	2	No	0.0	No	0.0	No	0.0
12/19/2017	high	2	No	0.0	No	0.0	No	0.0
12/20/2017	high	2	No	0.0	No	0.0	No	0.0
12/26/2017	high	2	No	0.0	No	0.0	No	0.0
1/2/2018	high	2	No	0.0	No	0.0	No	0.0

Table 4. Containment Boom Sheen Monitoring
Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
1/8/2018	high	2	No	0.0	No	0.0	No	0.0
1/9/2018	high	2	No	0.0	No	0.0	No	0.0
1/11/2018	high	2	No	0.0	No	0.0	No	0.0
1/16/2018	high	2	No	0.0	No	0.0	No	0.0
1/17/2018	medium	1	No	0.0	No	0.0	No	0.0
1/18/2018	high	2	No	0.0	No	0.0	No	0.0
1/22/2018	high	2	No	0.0	No	0.0	No	0.0
1/29/2018	high	2	No	0.0	No	0.0	No	0.0
2/5/2018	high	2	No	0.0	No	0.0	No	0.0
2/12/2018	medium	1	No	0.0	No	0.0	No	0.0
2/13/2018	medium	1	No	0.0	No	0.0	No	0.0
2/14/2018	medium	1	No	0.0	No	0.0	No	0.0
2/20/2018	high	2	No	0.0	No	0.0	No	0.0
2/21/2018	medium	1	No	0.0	No	0.0	No	0.0
2/22/2018	medium	1	No	0.0	No	0.0	No	0.0
2/26/2018	medium	1	No	0.0	No	0.0	No	0.0
3/1/2018	medium	1	No	0.0	No	0.0	No	0.0
3/5/2018	high	2	No	0.0	No	0.0	No	0.0
3/12/2018	high	2	No	0.0	**Yes**	**0.5**	No	0.0
3/13/2018	high	2	No	0.0	No	0.0	No	0.0
3/14/2018	high	2	No	0.0	No	0.0	No	0.0
3/19/2018	high	2	No	0.0	No	0.0	No	0.0
3/22/2018	high	2	No	0.0	No	0.0	No	0.0
3/23/2018	high	2	No	0.0	No	0.0	No	0.0
3/26/2018	medium	1	No	0.0	No	0.0	No	0.0
3/28/2018	medium	1	No	0.0	No	0.0	No	0.0
4/2/2018	high	2	No	0.0	No	0.0	No	0.0
4/9/2018	high	2	No	0.0	No	0.0	No	0.0
4/10/2018	medium	1	No	0.0	No	0.0	No	0.0
4/16/2018	high	2	No	0.0	No	0.0	No	0.0
4/17/2018	high	2	No	0.0	No	0.0	No	0.0
4/18/2018	high	2	No	0.0	No	0.0	No	0.0
4/23/2018	medium	1	No	0.0	No	0.0	No	0.0
4/25/2018	medium	1	No	0.0	No	0.0	No	0.0
4/26/2018	medium	1	No	0.0	No	0.0	No	0.0
4/27/2018	medium	1	No	0.0	No	0.0	No	0.0
4/30/2018	medium	1	No	0.0	No	0.0	No	0.0
5/2/2018	medium	1	No	0.0	**Yes**	**0.5**	No	0.0
5/7/2018	high	2	No	0.0	No	0.0	No	0.0
5/10/2018	high	2	No	0.0	No	0.0	No	0.0
5/14/2018	medium	1	No	0.0	No	0.0	No	0.0
5/15/2018	high	2	No	0.0	No	0.0	No	0.0
5/16/2018	high	2	No	0.0	No	0.0	No	0.0
5/17/2018	high	2	No	0.0	No	0.0	No	0.0
5/21/2018	medium	1	No	0.0	**Yes**	**0.5**	No	0.0
5/31/2018	high	2	No	0.0	No	0.0	No	0.0
6/4/2018	medium	1	No	0.0	No	0.0	No	0.0
6/5/2018	medium	1	No	0.0	No	0.0	No	0.0
6/11/2018	low	0	No	0.0	No	0.0	No	0.0
6/12/2018	low	0	No	0.0	No	0.0	No	0.0

Table 4. Containment Boom Sheen Monitoring
Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
6/13/2018	low	0	No	0.0	No	0.0	No	0.0
6/18/2018	high	2	No	0.0	No	0.0	No	0.0
6/19/2018	high	2	No	0.0	No	0.0	No	0.0
6/20/2018	medium	1	No	0.0	No	0.0	No	0.0
6/25/2018	low	0	No	0.0	No	0.0	No	0.0
7/6/2018	medium	1	No	0.0	No	0.0	No	0.0
7/11/2018	low	0	No	0.0	No	0.0	No	0.0
7/12/2018	medium	1	No	0.0	No	0.0	No	0.0
7/16/2018	high	2	No	0.0	No	0.0	No	0.0
7/17/2018	high	2	No	0.0	No	0.0	No	0.0
7/18/2018	high	2	No	0.0	No	0.0	No	0.0
7/23/2018	low	0	No	0.0	No	0.0	No	0.0
7/26/2018	low	0	No	0.0	No	0.0	No	0.0
7/31/2018	high	2	No	0.0	**Yes**	**0.5**	No	0.0
8/6/2018	low	0	No	0.0	No	0.0	No	0.0
8/14/2018	high	2	No	0.0	No	0.0	No	0.0
8/15/2018	high	2	No	0.0	**Yes**	**0.5**	No	0.0
8/21/2018	low	0	No	0.0	No	0.0	No	0.0
8/27/2018	high	2	No	0.0	No	0.0	No	0.0
8/28/2018	high	2	No	0.0	No	0.0	No	0.0
8/31/2018	medium	1	No	0.0	No	0.0	No	0.0
9/4/2018	low	0	No	0.0	No	0.0	No	0.0
9/10/2018	high	2	No	0.0	**Yes**	**0.5**	**Yes**	**0.5**
9/11/2018	high	2	No	0.0	No	0.0	No	0.0
9/12/2018	high	2	No	0.0	No	0.0	No	0.0
9/17/2018	low	0	No	0.0	No	0.0	No	0.0
9/18/2018	low	0	No	0.0	No	0.0	No	0.0
9/19/2018	low	0	No	0.0	No	0.0	No	0.0
9/24/2018	medium	1	No	0.0	No	0.0	No	0.0
9/26/2018	high	2	No	0.0	No	0.0	No	0.0
9/27/2018	high	2	No	0.0	No	0.0	No	0.0
10/1/2018	medium	1	No	0.0	No	0.0	No	0.0
10/8/2018	medium	1	No	0.0	No	0.0	No	0.0
10/15/2018	high	2	No	0.0	No	0.0	No	0.0
10/16/2018	high	2	No	0.0	No	0.0	No	0.0
10/17/2018	medium	1	No	0.0	No	0.0	No	0.0
10/23/2018	medium	1	No	0.0	No	0.0	No	0.0
10/24/2018	high	2	No	0.0	No	0.0	No	0.0
10/30/2018	high	2	No	0.0	No	0.0	No	0.0
11/5/2018	medium	1	No	0.0	No	0.0	No	0.0
11/8/2018	high	2	No	0.0	No	0.0	No	0.0
11/12/2018	high	2	No	0.0	No	0.0	No	0.0
11/13/2018	high	2	No	0.0	No	0.0	No	0.0
11/14/2018	high	2	No	0.0	No	0.0	No	0.0
11/19/2018	medium	1	No	0.0	No	0.0	No	0.0
11/26/2018	high	2	No	0.0	No	0.0	No	0.0
11/27/2018	high	2	No	0.0	No	0.0	No	0.0
12/5/2018	high	2	No	0.0	No	0.0	No	0.0
12/6/2018	high	2	No	0.0	No	0.0	No	0.0

Table 4. Containment Boom Sheen Monitoring
Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
12/10/2018	high	2	No	0.0	No	0.0	No	0.0
12/11/2018	high	2	No	0.0	**Yes**	**0.5**	**Yes**	**0.5**
12/12/2018	high	2	No	0.0	No	0.0	No	0.0
12/17/2018	medium	1	No	0.0	No	0.0	**Yes**	**1.0**
12/18/2018	medium	1	No	0.0	No	0.0	**Yes**	**0.5**
12/19/2018	medium	1	No	0.0	No	0.0	**Yes**	**1.0**
12/21/2018	high	2	No	0.0	No	0.0	No	0.0
12/26/2018	high	2	No	0.0	No	0.0	No	0.0
1/2/2019	medium	1	No	0.0	No	0.0	No	0.0
1/7/2019	high	2	No	0.0	No	0.0	No	0.0
1/14/2019	high	2	No	0.0	No	0.0	No	0.0
1/15/2019	high	2	No	0.0	No	0.0	No	0.0
1/16/2019	high	2	No	0.0	**Yes**	**0.5**	**Yes**	**0.5**
1/22/2019	high	2	No	0.0	No	0.0	No	0.0
1/28/2019	high	2	No	0.0	No	0.0	No	0.0
2/6/2019	high	2	No	0.0	No	0.0	No	0.0
2/13/2019	high	2	No	0.0	No	0.0	No	0.0
2/14/2019	high	2	No	0.0	No	0.0	No	0.0
2/15/2019	high	2	No	0.0	No	0.0	No	0.0
2/18/2019	medium	1	No	0.0	No	0.0	**Yes**	**0.5**
2/19/2019	low	0	No	0.0	No	0.0	No	0.0
2/26/2019	high	2	No	0.0	**Yes**	**0.5**	**Yes**	**0.5**
2/27/2019	high	2	No	0.0	No	0.0	No	0.0
3/4/2019	high	2	No	0.0	No	0.0	No	0.0
3/11/2019	high	2	No	0.0	No	0.0	No	0.0
3/12/2019	high	2	No	0.0	No	0.0	No	0.0
3/13/2019	high	2	No	0.0	No	0.0	No	0.0
3/18/20119	medium	1	No	0.0	No	0.0	No	0.0
3/19/2019	medium	1	No	0.0	**Yes**	**1.0**	No	0.0
3/20/2019	medium	1	No	0.0	No	0.0	No	0.0
3/25/2019	high	2	No	0.0	No	0.0	No	0.0
4/1/2019	medium	1	No	0.0	No	0.0	No	0.0
4/8/2019	high	2	No	0.0	**Yes**	**0.5**	**Yes**	**1.0**
4/10/2019	high	2	No	0.0	No	0.0	No	0.0
4/17/2019	medium	1	No	0.0	No	0.0	No	0.0
4/22/2019	high	2	No	0.0	**Yes**	**0.5**	No	0.0
4/23/2019	high	2	No	0.0	No	0.0	No	0.0
4/24/2019	medium	1	No	0.0	No	0.0	No	0.0
4/29/2019	medium	1	No	0.0	No	0.0	No	0.0
5/3/2019	low	0	No	0.0	No	0.0	No	0.0
5/6/2019	high	2	No	0.0	**Yes**	**0.5**	No	0.0
5/8/2019	high	2	No	0.0	No	0.0	No	0.0
5/13/2019	low	0	No	0.0	No	0.0	No	0.0
5/14/2019	low	0	No	0.0	No	0.0	No	0.0
5/15/2019	low	0	No	0.0	No	0.0	No	0.0
5/20/2019	high	2	No	0.0	**Yes**	**1.0**	**Yes**	**0.5**
5/28/2019	low	0	No	0.0	No	0.0	No	0.0
5/29/2019	low	0	No	0.0	No	0.0	No	0.0
5/30/2019	low	0	No	0.0	No	0.0	No	0.0

Table 4. Containment Boom Sheen Monitoring
Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
6/3/2019	medium	1	No	0.0	No	0.0	No	0.0
6/10/2019	medium	1	No	0.0	No	0.0	No	0.0
6/11/2019	low	0	No	0.0	No	0.0	No	0.0
6/17/2019	medium	1	No	0.0	**Yes**	**0.5**	No	0.0
6/18/2019	medium	1	No	0.0	No	0.0	No	0.0
6/19/2019	high	2	No	0.0	No	0.0	No	0.0
6/24/2019	medium	1	No	0.0	No	0.0	No	0.0
7/1/2019	low	0	No	0.0	No	0.0	No	0.0
7/8/2019	high	2	No	0.0	No	0.0	No	0.0
7/9/2019	medium	1	No	0.0	**Yes**	**0.5**	No	0.0
7/10/2019	low	0	No	0.0	No	0.0	No	0.0
7/11/2019	low	0	No	0.0	No	0.0	No	0.0
7/22/2019	high	2	No	0.0	No	0.0	No	0.0
7/23/2019	high	2	No	0.0	No	0.0	No	0.0
7/24/2019	high	2	No	0.0	No	0.0	No	0.0
7/25/2019	high	2	No	0.0	No	0.0	No	0.0
7/26/2019	low	0	No	0.0	No	0.0	No	0.0
7/29/2019	low	0	No	0.0	No	0.0	No	0.0
7/30/2019	low	0	No	0.0	No	0.0	No	0.0
7/31/2019	low	0	No	0.0	No	0.0	No	0.0
8/5/2019	high	2	No	0.0	No	0.0	No	0.0
8/12/2019	low	0	No	0.0	No	0.0	No	0.0
8/13/2019	low	0	No	0.0	No	0.0	No	0.0
8/14/2019	medium	1	No	0.0	**Yes**	**0.5**	No	0.0
8/19/2019	high	2	No	0.0	No	0.0	**Yes**	**0.5**
8/26/2019	low	0	No	0.0	No	0.0	No	0.0
9/3/2019	medium	1	No	0.0	No	0.0	No	0.0
9/9/2019	low	0	No	0.0	No	0.0	No	0.0
9/10/2019	low	0	No	0.0	No	0.0	No	0.0
9/26/2019	medium	1	No	0.0	No	0.0	No	0.0
10/1/2019	high	2	No	0.0	No	0.0	No	0.0
10/8/2019	low	0	No	0.0	No	0.0	No	0.0
10/15/2019	high	2	No	0.0	No	0.0	No	0.0
10/16/2019	high	2	No	0.0	No	0.0	No	0.0
10/17/2019	high	2	No	0.0	No	0.0	No	0.0
10/22/2019	low	0	No	0.0	No	0.0	No	0.0
10/29/2019	high	2	No	0.0	No	0.0	No	0.0
11/5/2019	medium	1	No	0.0	No	0.0	No	0.0
11/12/2019	medium	1	No	0.0	No	0.0	No	0.0
11/20/2019	medium	1	No	0.0	No	0.0	No	0.0
11/25/2019	high	2	No	0.0	No	0.0	No	0.0
11/26/2019	medium	1	No	0.0	No	0.0	No	0.0
12/3/2019	medium	1	No	0.0	No	0.0	No	0.0
12/9/2019	high	2	No	0.0	No	0.0	No	0.0
12/10/2019	medium	1	No	0.0	No	0.0	No	0.0
12/11/2019	high	2	No	0.0	No	0.0	No	0.0
12/19/2019	medium	1	No	0.0	No	0.0	No	0.0
12/23/2019	low	0	No	0.0	No	0.0	No	0.0
12/27/2019	high	2	No	0.0	No	0.0	No	0.0

Table 4. Containment Boom Sheen Monitoring
Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
1/3/2020	medium	1	No	0.0	No	0.0	No	0.0
1/8/2020	medium	1	No	0.0	No	0.0	No	0.0
1/14/2020	high	2	No	0.0	No	0.0	No	0.0
1/17/2020	high	2	No	0.0	No	0.0	No	0.0
1/21/2020	low	0	No	0.0	No	0.0	No	0.0
1/23/2020	medium	1	No	0.0	No	0.0	No	0.0
1/28/2020	high	2	No	0.0	No	0.0	No	0.0
2/4/2020	medium	1	No	0.0	No	0.0	No	0.0
2/11/2020	high	2	No	0.0	No	0.0	No	0.0
2/14/2020	low	0	No	0.0	No	0.0	No	0.0
2/18/2020	low	0	No	0.0	No	0.0	No	0.0
2/20/2020	low	0	No	0.0	No	0.0	No	0.0
2/25/2020	high	2	No	0.0	No	0.0	No	0.0
3/3/2020	medium	1	No	0.0	No	0.0	No	0.0
3/10/2020	high	2	No	0.0	No	0.0	No	0.0
3/17/2020	medium	1	No	0.0	No	0.0	No	0.0
3/24/2020	high	2	No	0.0	No	0.0	No	0.0
3/25/2020	high	2	No	0.0	No	0.0	No	0.0
3/31/2020	medium	1	No	0.0	No	0.0	No	0.0
4/7/2020	high	2	No	0.0	No	0.0	No	0.0
4/14/2020	high	2	No	0.0	No	0.0	No	0.0
4/22/2020	medium	1	No	0.0	No	0.0	No	0.0
4/23/2020	high	2	No	0.0	No	0.0	No	0.0
4/28/2020	high	2	No	0.0	No	0.0	No	0.0
5/5/2020	medium	1	No	0.0	No	0.0	No	0.0
5/12/2020	high	2	No	0.0	No	0.0	No	0.0
5/19/2020	medium	1	No	0.0	No	0.0	No	0.0
5/26/2020	high	2	No	0.0	No	0.0	No	0.0
5/27/2020	high	2	No	0.0	No	0.0	No	0.0
5/28/2020	high	2	No	0.0	No	0.0	No	0.0
6/2/2020	low	0	No	0.0	No	0.0	No	0.0
6/9/2020	high	2	No	0.0	No	0.0	No	0.0
6/16/2020	medium	1	No	0.0	No	0.0	No	0.0
6/17/2020	low	0	No	0.0	No	0.0	No	0.0
6/23/2020	low	0	No	0.0	No	0.0	No	0.0
6/30/2020	low	0	No	0.0	No	0.0	No	0.0
7/7/2020	high	2	No	0.0	No	0.0	No	0.0
7/8/2020	medium	1	No	0.0	No	0.0	No	0.0
7/14/2020	low	0	No	0.0	No	0.0	No	0.0
7/21/2020	medium	1	No	0.0	No	0.0	No	0.0
7/22/2020	high	2	No	0.0	No	0.0	No	0.0
7/23/2020	high	2	No	0.0	No	0.0	No	0.0
7/28/2020	low	0	No	0.0	No	0.0	No	0.0
7/31/2020	low	0	No	0.0	No	0.0	No	0.0
8/4/2020	high	2	No	0.0	No	0.0	No	0.0
8/11/2020	medium	1	No	0.0	No	0.0	No	0.0
8/18/2020	low	0	No	0.0	No	0.0	No	0.0
8/20/2020	high	2	No	0.0	No	0.0	No	0.0
8/25/2020	medium	1	No	0.0	No	0.0	No	0.0
9/1/2020	medium	1	No	0.0	No	0.0	No	0.0

Table 4. Containment Boom Sheen Monitoring
Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
9/8/2020	medium	1	No	0.0	No	0.0	No	0.0
9/15/2020	low	0	No	0.0	No	0.0	No	0.0
9/22/2020	high	2	No	0.0	No	0.0	No	0.0
9/24/2020	medium	1	No	0.0	No	0.0	No	0.0
9/29/2020	medium	1	No	0.0	No	0.0	No	0.0
10/6/2020	high	2	No	0.0	No	0.0	No	0.0
10/13/2020	low	0	No	0.0	No	0.0	No	0.0
10/20/2020	high	2	No	0.0	No	0.0	No	0.0
10/21/2020	high	2	No	0.0	No	0.0	No	0.0
10/27/2020	low	0	No	0.0	**Yes**	**1.0**	No	0.0
11/3/2020	high	2	No	0.0	No	0.0	No	0.0
11/10/2020	medium	1	No	0.0	No	0.0	No	0.0
11/17/2020	high	2	No	0.0	No	0.0	No	0.0
11/18/2020	high	2	No	0.0	No	0.0	No	0.0
11/19/2020	high	2	No	0.0	No	0.0	No	0.0
11/24/2020	low	0	No	0.0	No	0.0	No	0.0
12/1/2020	high	2	No	0.0	No	0.0	No	0.0
12/8/2020	medium	1	No	0.0	No	0.0	No	0.0
12/15/2020	high	2	No	0.0	No	0.0	No	0.0
12/21/2020	high	2	No	0.0	No	0.0	No	0.0
12/22/2020	high	2	No	0.0	No	0.0	No	0.0
12/29/2020	medium	1	No	0.0	No	0.0	No	0.0
1/5/2021	high	2	No	0.0	No	0.0	No	0.0
1/12/2021	high	2	No	0.0	No	0.0	No	0.0
1/19/2021	high	2	No	0.0	No	0.0	No	0.0
1/20/2021	medium	1	No	0.0	No	0.0	No	0.0
1/26/2021	medium	1	No	0.0	No	0.0	No	0.0
2/2/2021	high	2	No	0.0	No	0.0	No	0.0
2/9/2021	medium	1	No	0.0	No	0.0	No	0.0
2/16/2021	high	2	No	0.0	No	0.0	No	0.0
2/18/2021	high	2	No	0.0	No	0.0	No	0.0
2/23/2021	medium	1	No	0.0	No	0.0	No	0.0
3/2/2021	medium	1	No	0.0	No	0.0	No	0.0
3/9/2021	medium	1	No	0.0	No	0.0	No	0.0
3/16/2021	high	2	No	0.0	No	0.0	No	0.0
3/23/2021	medium	1	No	0.0	No	0.0	No	0.0
3/30/2021	high	2	No	0.0	No	0.0	No	0.0
4/6/2021	medium	1	No	0.0	No	0.0	No	0.0
4/13/2021	high	2	No	0.0	No	0.0	No	0.0
4/20/2021	high	2	No	0.0	No	0.0	No	0.0
4/26/2021	medium	1	No	0.0	No	0.0	No	0.0
5/4/2021	medium	1	No	0.0	No	0.0	No	0.0
5/7/2021	medium	1	No	0.0	No	0.0	No	0.0
5/11/2021	low	0	No	0.0	No	0.0	No	0.0
5/18/2021	high	2	No	0.0	No	0.0	No	0.0
5/25/2021	low	0	No	0.0	No	0.0	No	0.0
6/1/2021	medium	1	No	0.0	No	0.0	No	0.0
6/8/2021	low	0	No	0.0	No	0.0	No	0.0
6/15/2021	high	2	No	0.0	No	0.0	No	0.0

Table 4. Containment Boom Sheen Monitoring
Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)
6/22/2021	low	0	No	0.0	No	0.0	No	0.0
6/29/2021	high	2	No	0.0	No	0.0	No	0.0
7/6/2021	low	0	No	0.0	No	0.0	No	0.0
7/13/2021	high	2	No	0.0	No	0.0	No	0.0
7/20/2021	low	0	No	0.0	No	0.0	No	0.0
7/27/2021	high	2	No	0.0	No	0.0	No	0.0
8/3/2021	low	0	No	0.0	No	0.0	No	0.0
8/10/2021	high	2	No	0.0	**Yes**	**0.5**	No	0.0
8/17/2021	low	0	No	0.0	No	0.0	No	0.0
8/24/2021	high	2	No	0.0	No	0.0	No	0.0
8/25/2021	high	2	No	0.0	No	0.0	No	0.0
8/26/2021	high	2	No	0.0	No	0.0	No	0.0
9/7/2021	high	2	No	0.0	No	0.0	No	0.0
9/14/2021	low	0	No	0.0	No	0.0	No	0.0
9/15/2021	high	2	No	0.0	No	0.0	No	0.0
9/21/2021	high	2	No	0.0	No	0.0	No	0.0
9/28/2021	medium	1	No	0.0	No	0.0	No	0.0
10/5/2021	medium	1	No	0.0	No	0.0	No	0.0
10/12/2021	high	2	No	0.0	No	0.0	No	0.0
10/19/2021	low	0	No	0.0	No	0.0	No	0.0
10/21/2021	high	2	No	0.0	No	0.0	No	0.0
10/26/2021	high	2	No	0.0	No	0.0	No	0.0
11/2/2021	medium	1	No	0.0	No	0.0	No	0.0
11/5/2021	high	2	No	0.0	No	0.0	No	0.0
11/9/2021	high	2	No	0.0	No	0.0	No	0.0
11/16/2021	medium	1	No	0.0	No	0.0	No	0.0
11/18/2021	medium	1	No	0.0	No	0.0	No	0.0
11/23/2021	high	2	No	0.0	No	0.0	No	0.0
11/30/2021	low	0	No	0.0	No	0.0	No	0.0
12/7/2021	high	2	No	0.0	No	0.0	No	0.0
12/14/2021	medium	1	No	0.0	No	0.0	No	0.0
12/15/2021	medium	1	No	0.0	No	0.0	No	0.0
12/16/2021	medium	1	No	0.0	No	0.0	No	0.0
12/21/2021	high	2	No	0.0	No	0.0	No	0.0
12/28/2021	high	2	No	0.0	No	0.0	No	0.0
1/4/2022	high	2	No	0.0	No	0.0	No	0.0
1/11/2022	high	2	No	0.0	No	0.0	No	0.0
1/18/2022	high	2	No	0.0	No	0.0	No	0.0
1/20/2022	high	2	No	0.0	No	0.0	No	0.0
1/25/2022	high	2	No	0.0	No	0.0	No	0.0
2/8/2022	medium	1	No	0.0	No	0.0	No	0.0
2/15/2000	high	2	No	0.0	No	0.0	No	0.0
2/22/2022	medium	1	No	0.0	No	0.0	No	0.0
3/1/2022	low	0	No	0.0	No	0.0	No	0.0
3/8/2022	high	2	No	0.0	No	0.0	No	0.0
3/15/2022	high	2	No	0.0	No	0.0	No	0.0

Table 4. Containment Boom Sheen Monitoring
Site: Former BP Harbor Island Terminal

Date	Tidal Stage		Loading Rack Area Boom Sheen Observations		Warehouse Area North Boom Sheen Observations		Warehouse Area South Boom Sheen Observations	
	Low, Medium (ebb & flood), High	Tide Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)	Sheen (**Yes**/No)	Sheen Rating (See Notes)

Notes:
Bold entries represent sheen detections.
Loading Rack Area Boom removed in August 2017 with concurrance from Ecology due to persistent lack of sheens.

* Sheen Appearance is rated from 0.0 to 3.0 using criteria below;
0.0 No sheen present
0.5 Very light , sheen that rapidly dissapates
1.0 Light sheen visible in one location
2.0 Sheen visible in several locations and is brightly colored
3.0 Sheen covers large areas of boom, outside boom, and/or LNAPL floating on surface

Notes Continued:
** Tide Level is rated from 0.0 to 2.0 using the criteria below;
0.0 Low Tide
1.0 Medium Tide (Ebb Tide & Flood Tide)
2.0 High Tide

Table 5. Inland SVE System Petroleum Hydrocarbon Recovery Rates
BP West Coast Products Terminal 21T, Seattle, Washington

Date	Hours of Operation	Hours operated over period	Total HSVE Flow Rate from wells (SCFM)	Influent Gasoline Range Organics (GRO) (mg/m^3)	GRO recovered over period (lbs)	Cumulative GRO recovery (lbs)	GRO avg lbs/day over period	Influent Benzene (mg/m^3)	Benzene recovered over period (lbs)	Cumulative benzene recovery (lbs)	Avg CO2 %- Atmospheric concentration (0.04%)	Pounds GRO Destruction due to Enhanced Biodegredation over period (lbs)	Cumulative GRO Destruction due to Enhanced Biodegredation (gal)
8/22/2008	31	18	45	24,500	68.9	924	93.4	79.4	0.22	1.07	0.66	12	2
8/27/2008	152	50	43	19,500	164.7	1,349	79.7	62.9	0.53	2.45	0.635	78	15
9/2/2008	296	92	39	19,600	290.3	1,807	75.6	57.7	0.90	3.86	0.585	80	28
9/8/2008	440	68	94	13,200	376.6	2,399	133.7	24.2	0.94	5.34	0.41	92	43
9/15/2008	611	71	207	11,700	590.0	3,557	199.5	7.59	0.75	6.82	0.285	171	70
9/22/2008	777	117	239	5,240	905.1	4,825	186.4	0.37	0.43	7.41	0.285	246	110
9/30/2008	965	188	252	3,260	732.7	5,558	93.8	0.154	0.05	7.46	0.285	305	160
10/13/2008	1,277	169	273	1,050	372.6	6,236	53.0	0.154	0.03	7.51	0.26	495	240
10/20/2008	1,445	168	277	746	155.0	6,391	22.2	0.149	0.03	7.53	0.26	278	285
11/17/2008	2,118	169	277	295	96.0	6,773	13.6	*0.129*	0.03	7.63	0.26	283	331
12/11/2008	2,690	572	273	230	154.8	6,928	6.5	*0.5*	0.19	7.82	0.26	951	486
1/16/2009	3,556	866	224	40	108.6	7,036	3.0	*0.1*	0.24	8.06	0.26	1,298	697
2/18/2009	4,347	792	257	59	35.1	7,072	1.1	*0.1*	0.07	8.13	0.26	1,149	884
3/17/2009	4,993	646	270	42	32.2	7,104	1.2	*0.1*	0.06	8.20	0.335	1,324	1,099
4/16/2009	5,709	716	271	59	36.5	7,140	1.2	*0.1*	0.07	8.27	0.055	247	1,139
5/14/2009	6,384	674	263	11	23.4	7,164	0.8	*0.1*	0.07	8.34	0.135	563	1,231
6/16/2009	7,027	643	231	133	42.8	7,207	1.6	*0.1*	0.06	8.40	0.26	959	1,387
7/27/2009	7,864	837	249	190	121.7	7,328	3.5	*0.061*	0.06	8.46	0.36	1,681	1,660
8/18/2009	8,391	527	264	63	64.0	7,392	2.9	*0.14*	0.05	8.51	0.285	894	1,806
9/14/2009	9,065	674	264	30	31.0	7,423	1.1	*0.14*	0.09	8.60	0.235	970	1,963
10/20/2009	9,901	836	262	38	28.0	7,451	0.8	*0.13*	0.11	8.71	0.235	1,198	2,158
11/17/2009	10,577	676	286	17.0	19.1	7,470	0.7	*0.14*	0.09	8.81	0.185	796	2,288
12/15/2009	11,245	668	253	*9.0*	8.8	7,479	0.3	*0.14*	0.09	8.90	0.16	668	2,396
1/22/2010	12,152	907	221	*7.9*	6.8	7,486	0.2	*0.12*	0.10	9.00	0.21	1,048	2,567
2/18/2010	12,757	605	284	*7.2*	4.3	7,490	0.2	*0.11*	0.07	9.07	0.21	746	2,688
3/17/2010	13,404	647	264	2.7	3.3	7,493	0.1	*0.112*	0.07	9.14	0.21	864	2,828
4/14/2010	14,098	694	253	9.0	3.9	7,497	0.1	*0.14*	0.08	9.23	0.21	873	2,970
5/19/2010	14,887	789	234	*8.7*	*6.4*	7,504	0.2	*0.14*	0.10	9.33	0.21	936	3,123
6/17/2010	15,582	695	245	*8.5*	*5.4*	7,509	0.2	*0.13*	0.08	9.41	0.21	812	3,255
7/28/2010	16,590	1,009	269	9.1	*8.6*	7,518	0.2	*0.064*	0.09	9.51	0.21	1,266	3,460
8/19/2010	17,332	742	265	10.9	7.4	7,525	0.2	*0.52*	0.22	9.72	0.18	832	3,596
9/27/2010	18,028	695	232	*7.4*	5.9	7,531	0.2	*0.55*	0.35	10.07	0.205	827	3,730
10/20/2010	18,578	551	251	*6.5*	3.5	7,534	0.2	*0.49*	0.26	10.33	0.16	494	3,811
11/30/2010	19,562	984	280	15.6	10.8	7,545	0.3	*0.49*	0.48	10.81	0.075	455	3,884
12/13/2010	19,872	310	280	15.6	4.9	7,550	0.4	*1.49*	0.31	11.12	0.04	81	3,898
System shutdown due to high groundwater elevation on 12/13/2010. As measurements could not be collected, recovery calculations were based off data collected from the 11/30/2010 O&M event.													
6/6/2011	19,920	0	238	250	0.0	7,550	0.0	*0.52*	0.00	11.12	0.12	0	3,898
6/15/2011	20,136	216	266	250	50.9	7,601	5.7	*0.52*	0.11	11.22	0.12	151	3,922
7/20/2011	20,425	289	248	*8.2*	35.9	7,637	3.0	*0.62*	0.16	11.38	0.39	671	4,031
8/8/2011	20,434	9	256	*8.2*	0.1	7,637	0.2	*0.62*	0.01	11.39	0.39	20	4,035
8/16/2011	20,651	217	230	*7.4*	1.5	7,638	0.2	*0.55*	0.12	11.50	0.25	303	4,084
9/14/2011	21,320	670	268	11.3	5.8	7,644	0.2	*0.55*	0.34	11.85	0.11	426	4,153
10/12/2011	21,997	677	240	*9.1*	6.6	7,651	0.2	*0.68*	0.40	12.24	0.11	438	4,225
11/23/2011	23,000	1,003	226	14.3	10.2	7,661	0.2	*0.52*	0.53	12.77	0.11	597	4,322
12/14/2011	23,503	503	252	10.4	5.6	7,667	0.3	*0.45*	0.22	12.99	0.05	140	4,344
1/24/2012	24,344	841	222	47.3	21.5	7,688	0.6	*0.52*	0.36	13.35	0	0	4,344
2/15/2012	24,869	525	229	9.6	12.6	7,701	0.6	*0.55*	0.24	13.59	0	0	4,344

Table 5. Inland SVE System Petroleum Hydrocarbon Recovery Rates
BP West Coast Products Terminal 21T, Seattle, Washington

Date	Hours of Operation	Hours operated over period	Total HSVE Flow Rate from wells (SCFM)	Influent Gasoline Range Organics (GRO) (mg/m^3)	GRO recovered over period (lbs)	Cumulative GRO recovery (lbs)	GRO avg lbs/day over period	Influent Benzene (mg/m^3)	Benzene recovered over period (lbs)	Cumulative benzene recovery (lbs)	Avg CO2 %-Atmospheric concentration (0.04%)	Pounds GRO Destruction due to Enhanced Biodegredation over period (lbs)	Cumulative GRO Destruction due to Enhanced Biodegredation (gal)
3/14/2012	25,537	668	260	*6.5*	4.9	7,706	0.2	*0.49*	0.32	13.90	0	0	4,344
4/18/2012	26,376	840	248	*6.9*	5.4	7,711	0.2	*0.52*	0.40	14.31	0	0	4,344
5/16/2012	27,046	670	251	*6.9*	4.3	7,715	0.2	*0.52*	0.33	14.63	0	0	4,344
6/13/2012	27,718	672	259	*6.1*	4.2	7,720	0.1	*0.45*	0.31	14.94	0	0	4,344
7/20/2012	28,608	891	237	10.0	6.6	7,726	0.2	*0.58*	0.43	15.37	0	0	4,344
8/15/2012	29,229	621	250.6	*7.8*	5.2	7,731	0.2	*0.58*	0.34	15.71	0.01	35	4,350
9/6/2012	29,753	524	249.0	*10.0*	4.3	7,736	0.2	*0.78*	0.33	16.04	0.01	30	4,355
10/24/2012	30,906	1,153	261.6	*6.1*	8.9	7,745	0.2	*0.45*	0.68	16.72	0	0	4,355
11/28/2012	31,631	725	244.1	21.3	9.4	7,754	0.3	*0.52*	0.33	17.05	0	0	4,355
System shutdown due to high groundwater elevation on 11/28/2012. System will be restarted once groundwater elevations fall to a level that will not interfere with system operation.													
4/17/2013	31,764	133	267.7	*22*	2.8	7,757	0.5	*NA*	0.03	17.08	0	0	4,355
5/17/2013	32,484	721	270.8	*37*	21.4	7,778	0.7	*0.00076*	0.19	17.27	0	0	4,355
6/12/2013	33,106	621	258.3	*28*	20.0	7,798	0.8	*0.00079*	0.0005	17.27	0	0	4,355
7/24/2013	34,114	1,009	236.8	*24*	24.3	7,823	0.6	*0.00013*	0.0004	17.27	0	0	4,355
8/21/2013	34,786	672	265.9	*35*	18.7	7,841	0.7	*0.00097*	0.0003	17.27	0	0	4,355
9/25/2013	35,625	839	260.7	*27*	21.1	7,862	0.6	*0.00075*	0.0007	17.28	0	0	4,355
10/15/2013	36,104	479	258.7	*35*	14.4	7,877	0.7	*0.00097*	0.0004	17.28	0	0	4,355
11/20/2013	36,967	863	259.2	*27*	26.0	7,903	0.7	*0.00074*	0.0007	17.28	0	0	4,355
12/18/2013	37,638	670.7	234	4.4	9.7	7,912	0.3	0.04	0.0126	17.29	0	0	4,355
1/15/2014	38,308	670.6	235.4	12.0	4.8	7,917	0.2	0.99	0.3037	17.59	0	0	4,355
2/12/2014	38,979	671.0	266.7	2.3	4.5	7,922	0.2	*0.017*	0.3177	17.91	0	0	4,355
3/20/2014	39,620	641	260.4	*1.8*	1.3	7,923	0.05	*0.017*	0.0108	17.92	0	0	4,355
4/16/2014	40,263	643	262.8	*1.5*	1.0	7,924	0.04	0.017	0.0107	17.93	0	0	4,355
5/21/2014	41,101	838	249.2	5.9	3.0	7,927	0.09	*0.017*	0.0137	17.95	0	0	4,355
6/18/2014	41,771	670	251.0	*1.9*	2.4	7,929	0.09	*0.017*	0.0107	17.96	0	0	4,355
7/25/2014	42,657	886	267.6	*0.82*	1.2	7,931	0.0	*0.0013*	0.0079	17.96	0	0	4,355
8/13/2014	43,113	456	252.8	NR	1.9	7,933	0.10	*0.029*	0.0067	17.97	0	0	4,355
9/17/2014	43,953	840	241.8	7.9	3.4	7,936	0.10	*0.087*	0.0451	18.02	0	0	4,355
10/14/2014	44,625	672	260.3	1.4	2.9	7,939	0.10	*0.0013*	0.0279	18.04	0	0	4,355
11/18/2014	45,464	839	257.6	*0.82*	0.9	7,940	0.03	*0.0013*	0.0011	18.05	0	0	4,355
12/17/2014	46,135	670	250.6	*0.82*	0.5	7,940	0.02	*0.0013*	0.0008	18.05	0	0	4,355
Total Combined Recovery lbs (Bio+GRO): 34,723				**Total lbs of Gasoline (GRO): 7,940**				**Total lbs Benzene: 18.05**			**Total lbs due to Biodegredation: 26,783**		
Total Combined Recovery gal (Bio+GRO): 5,646				**Total gal of Gasoline (GRO): 1,291**				**Total gal of Benzene: 2.46**			**Total gal due to Biodegredation: 4,355**		

Table 5. Inland SVE System Petroleum Hydrocarbon Recovery Rates
BP West Coast Products Terminal 21T, Seattle, Washington

Date	Hours of Operation	Hours operated over period	Total HSVE Flow Rate from wells (SCFM)	Influent Gasoline Range Organics (GRO) (mg/m^3)	GRO recovered over period (lbs)	Cumulative GRO recovery (lbs)	GRO avg lbs/day over period	Influent Benzene (mg/m^3)	Benzene recovered over period (lbs)	Cumulative benzene recovery (lbs)	Avg CO2 %- Atmospheric concentration (0.04%)	Pounds GRO Destruction due to Enhanced Biodegredation over period (lbs)	Cumulative GRO Destruction due to Enhanced Biodegredation (gal)

Notes:

System operation was discontinued in December 2014, as monitoring data showed that the system was no longer recovering hydrocarbons and or enhancing biodegredation.

Samples were collected from the SVE influent vapor stream (air) for all analyses.

Samples were analyzed for concentrations of gasoline range organics (GRO) and benzene, toluene, ethylbenzene, & xylenes (BTEX) at an accredited lab.

Samples analysis methodologies utilized included TO-3 or NWTPH-Gx for GRO and TO-15, TO-3, or 8021b for BTEX.

Pounds of gasoline were converted to gallons by assuming that 6.15 lbs. equals 1.0 gallons.

Pounds of benzene were converted to gallons by assuming that 7.33 lbs. equals 1.0 gallons.

Total pounds of recovered gasoline started at 839 pounds, as this was the amount recovered during pilot testing.

Total pounds of recovered benzene started at 0.80 pounds, as this was the amount recovered during pilot testing.

Benzene and Gasoline recovery were biased high, as recoveries were calculated assuming analytes were present at associated detection limits. This provides a protective estimate of analyte concentrations below detection limits.

Analytes were not detected from analyses for all values listed in *italic*. The associated detection limits for the analyses are the value listed in *italic*.

The SVE system was shutdown from December 2010 through June 2011 and November 2012 through April 2013 due to high groundwater elevations that submerged horizontal SVE screens. The SVE system was restarted once the groundwater elevation had fallen to a save level for system operation.

Due to a laboratory oversight, benzene concentrations could not be quantified for the April 17, 2013 air sample. The May 17, 2013 air sample was analyzed for benzene using EPA Method TO-15, which generated data to a much lower detection limit than historically reported. No benzene was detected in this sample.

August 2014 GRO concentrations were not utilized to calculate GRO recovery. Laboratory analyses for GRO were biased high by the presence of non-target analytes, identified as siloxane compounds not typically found in gasoline and is not present at the site. This data was excluded to avoid artificially elevating gasoline capture.

Definitions:

Avg - average
Bio - biodegradation of petroleum hydrocarbons
CO_2 - carbon dioxide
gal - gallons
GRO - gasoline range organics (gasoline range petroleum hydrocarbons)
hr. - hour
HSVE - horizontal soil vapor extraction
lbs. - pounds
mg/m^3 - milligrams per cubic meter
NA - not available (see reasons above)
NR - not reported
SCFM - standard cubic feet per minute
SVE - soil vapor extraction
TPH - total petroleum hydrocarbons

Enhanced Biodegradation Calculations:

C = Average Influent CO_2 concentration (%)
Q = Influent Flow Rate (SCFM)
Mc = Molecular wt. of Carbon Dioxide = 44
CO_2 recovery (lbs./hr.) = C x Q x Mc x 5.277 x 10-4
5.277 x 10-4 is a constant and is derived as follows:
1/100% x 60min/1hr x 1 lb. Mole/379 cu.ft. x 1/3
Note: SVE TPH as CO_2 recovery rates were calculated by assuming that for every 3 lbs. of CO_2 detected, 1 lb. of TPH is metabolized, and that all CO_2 present in vapor stream above background atmospheric concentrations (0.04%) is attributable to microbial degradation of hydrocarbons in soil.

Table 6. Groundwater Monitoring Analytical Results for TPH and Benzene
Site: Former BP Harbor Island Terminal

Well	Date	TPH-G WTPH-G (µg/L)	TPH-D WTPH-DX (µg/L)	TPH-O WTPH-DX (µg/L)	Benzene EPA 8021 & 8260 (µg/L)
Plant 1					
AMW-01	12/21/2000	ND	1,310	ND	14.0
AMW-01	3/28/2001	59.3	2,600	ND	69.6
AMW-01	6/13/2001	105 U	944	ND	**470**
AMW-01	10/4/2001	ND	851	ND	**152**
AMW-01	12/12/2001	ND	1700 J	ND UJ	**1,260**
AMW-01	3/7/2002	153	1,410	ND	**1,410**
AMW-01	6/12/2002	143 J	2,100	ND	**1,680**
AMW-01	9/19/2002	139 J	571 J	ND UJ	**1,180**
AMW-01	12/17/2002	196	2,190	ND	**74.6**
AMW-01	3/26/2003	101	2,100	ND	**933**
AMW-01	6/27/2003	ND	2,090	ND	**1,260**
AMW-01	9/18/2003	55	2,140	ND	48.5
AMW-01	12/22/2003	136	1750 J	ND	**571**
AMW-01	3/8/2004	ND UJ	ND	ND	**961**
AMW-01	6/16/2004	138	386	ND	**1,540**
AMW-01	9/28/2004	83	ND	ND	**292**
AMW-01	12/6/2004	103	ND	ND	**411**
AMW-01	3/10/2005	113	ND	ND	**812**
AMW-01	6/21/2005	129	ND	ND	**1,130**
AMW-01	9/27/2005	77	ND UJ	ND	**181 J**
AMW-01	12/13/2005	ND UJ	342	ND	**132**
AMW-01	3/21/2006	88	ND	ND	**363**
AMW-01	7/6/2006	ND UJ	ND	ND	**912**
AMW-01	9/18/2006	91.7	ND	ND	7.38
AMW-01	12/12/2006	**1,650 J**	ND UJ	ND UJ	**539 J**
AMW-01	3/21/2007	89.9	ND	ND	**457**
AMW-01	6/6/2007	61	ND	ND	**486**
AMW-01	9/12/2007	65	ND	ND	**157**
AMW-01	12/18/2007	ND	ND	ND	10.6 J
AMW-01	3/25/2008	ND	ND	ND	**76**
AMW-01	6/25/2008	64.9	ND	ND	**370**
AMW-01	9/17/2008	55.0	ND	ND	**162**
AMW-01	12/16/2008	ND	ND	ND	**330**
AMW-01	3/11/2009	ND	ND	ND	**374**
AMW-01	6/10/2009	ND	R	R	**240 J**
AMW-01	9/16/2009	ND	ND	ND	7.4
AMW-01	12/16/2009	ND	ND	ND	**280**
AMW-01	3/30/2010	ND	ND	ND	**310**
AMW-01	6/9/2010	ND	720	ND	**280**
AMW-01	9/14/2010	ND	ND	ND	69.7
AMW-01	12/14/2010	ND	ND	ND	**282**
AMW-01	3/22/2011	ND	ND	ND	**247**
AMW-01	6/22/2011	ND	300 J	ND	39.6
AMW-01	9/27/2011	ND	ND	ND	22.2
AMW-01	12/20/2011	ND	ND	ND UJ	**151**
AMW-01	3/20/2012	ND	ND	ND	**178**
Cleanup Level		1,000	10,000	10,000	71
Method Reporting Limit		50	250	750	0.5

Table 6. Groundwater Monitoring Analytical Results for TPH and Benzene
Site: Former BP Harbor Island Terminal

Well	Date	TPH-G WTPH-G (µg/L)	TPH-D WTPH-DX (µg/L)	TPH-O WTPH-DX (µg/L)	Benzene EPA 8021 & 8260 (µg/L)
Plant 1, continued					
AMW-01	6/21/2012	ND	ND	ND	**77**
AMW-01	9/10/2012	ND	ND	ND	38.7 J
AMW-01	12/19/2012	ND	ND	ND	61.2
AMW-01	3/19/2013	ND	ND	ND	**110**
AMW-01	6/25/2013	ND	ND	ND	12
AMW-01	9/10/2013	ND	ND	ND	17
AMW-01	12/10/2013	ND	ND	ND	17
AMW-01	3/11/2014	ND	990 J	ND	**77**
AMW-01	6/10/2014	ND UJ	1,100	ND	7.3
AMW-01	9/9/2014	ND	440 J	ND UJ	8.4
AMW-01	12/9/2014	ND	1,500	ND	20
AMW-01	3/10/2015	ND U	1,200 J	ND	68
AMW-01	6/9/2015	ND	450	ND	50
AMW-01	9/22/2015	ND	250	ND	12
AMW-01	12/15/2015	ND	430 J	ND UJ	38 J
AMW-01	3/8/2016	ND	320 J	ND UJ	24
AMW-01	6/8/2016	ND	1,200 J	ND UJ	4.1
AMW-01	9/8/2016	ND	1,300	ND	5.1
AMW-01	12/6/2016	ND U	800 J	ND	7.3
AMW-01	3/7/2017	230 J	1,300 J	1,100 J	1.0
AMW-01	6/7/2017	ND	ND UJ	ND	1.9
AMW-01	9/12/2017	ND	ND	ND	2.4
AMW-01	12/5/2017	ND	ND	ND	1.0
AMW-01	3/20/2018	240	ND	ND	ND
AMW-01	6/19/2018	ND UJ	480	710	ND
AMW-01	9/11/2018	ND	ND UJ	ND UJ	ND
AMW-01	12/11/2018	ND	610	ND	ND
AMW-01	3/12/2019	ND	ND	ND	ND
AMW-01	6/18/2019	ND	270	ND	ND
AMW-01	9/24/2019	ND	350 J	ND UJ	ND
AMW-01	12/17/2019	ND	ND	ND	ND
AMW-01	3/18/2020	ND	ND	ND	ND
AMW-01	6/10/2020	ND	420	ND	ND
AMW-01	9/16/2020	ND	300	ND	ND
AMW-01	12/16/2020	ND	ND	ND	ND
AMW-01	3/10/2021	ND	ND	ND	ND
AMW-01	6/17/2021	ND	ND	ND	ND
AMW-01	9/22/2021	ND	ND	ND	ND
AMW-01	12/8/2021	ND	ND	ND	ND
AMW-02	12/21/2000	ND	803	ND	3.14
AMW-02	3/28/2001	Not accessible due to earthquake damage to warehouse.			
AMW-02	6/13/2001	ND	999	ND	3.88 U
AMW-02	10/4/2001	ND	1,200	ND	10.90
AMW-02	12/12/2001	ND	1,500 J	ND UJ	5.47
AMW-02	3/7/2002	Not accessible due to repair of earthquake damage to warehouse.			
Cleanup Level		1,000	10,000	10,000	71
Method Reporting Limit		50	250	750	0.5

Table 6. Groundwater Monitoring Analytical Results for TPH and Benzene
Site: Former BP Harbor Island Terminal

Well	Date	TPH-G WTPH-G (µg/L)	TPH-D WTPH-DX (µg/L)	TPH-O WTPH-DX (µg/L)	Benzene EPA 8021 & 8260 (µg/L)
Plant 1, continued					
AMW-02	6/12/2002	ND	2,420	ND	1.49
AMW-02	9/19/2002	ND UJ	495 J	ND UJ	1.61
AMW-02	12/17/2002	ND	1,890	ND	4.08
AMW-02	3/26/2003	ND	2,200	ND	5.23
AMW-02	6/27/2003	ND	1,680	ND	1.11
AMW-02	9/18/2003	ND	2,430	790	2.01
AMW-02	12/22/2003	ND	1,880 J	ND	ND
AMW-02	3/8/2004	ND	ND	ND	ND
AMW-02	6/16/2004	ND	ND	ND	2.40
AMW-02	9/28/2004	ND	ND	ND	0.85
AMW-02	12/8/2004	ND	ND	ND	23.2
AMW-02	3/10/2005	ND	ND	ND	38.4
AMW-02	6/21/2005	ND	ND	ND	16.1
AMW-02	9/27/2005	ND	ND	ND	9.04
AMW-02	12/13/2005	ND	366	ND	7.26
AMW-02	3/21/2006	ND	ND	ND	2.16
AMW-02	7/6/2006	ND	ND	ND	41.1
AMW-02	9/18/2006	ND	ND	ND	3.18
AMW-02	12/12/2006	84.5 UJ	ND UJ	ND UJ	25.8 J
AMW-02	3/21/2007	ND	ND	ND	**92.2**
AMW-02	6/6/2007	ND	ND	ND	**442**
AMW-02	9/12/2007	ND	ND	ND	4.03 J
AMW-02	12/18/2007	ND	ND	ND	66.2
AMW-02	3/25/2008	75.9	ND	ND	**343**
AMW-02	6/25/2008	ND	ND	ND	**125**
AMW-02	9/17/2008	ND	ND	ND	30.7
AMW-02	12/16/2008	ND	ND	ND	**189**
AMW-02	3/11/2009	ND	ND	ND	**421**
AMW-02	6/10/2009	ND	R	R	**100**
AMW-02	9/16/2009	ND	ND	ND	12
AMW-02	12/16/2009	ND	ND	ND	**110**
AMW-02	3/30/2010	ND	1,000	ND	**210**
AMW-02	6/9/2010	ND	1,000	260	**130**
AMW-02	9/14/2010	ND	ND	ND	22.6
AMW-02	12/14/2010	ND	ND	ND	**96.2 J**
AMW-02	3/22/2011	ND	ND	ND	**149**
AMW-02	6/22/2011	ND	ND	ND	20.0
AMW-02	9/27/2011	ND	ND	ND	6.5
AMW-02	12/20/2011	ND	ND	ND	12.2
AMW-02	3/20/2012	ND	ND	ND	31.6
AMW-02	6/21/2012	ND	ND	ND	**82.5**
AMW-02	9/10/2012	ND	ND	ND	12.7 J
AMW-02	12/19/2012	ND	ND	ND	12.4
AMW-02	3/19/2013	ND	ND	ND	9.3
AMW-02	6/25/2013	ND	ND	ND	13.0
AMW-02	9/10/2013	ND	ND	ND	8.1
Cleanup Level		1,000	10,000	10,000	71
Method Reporting Limit		50	250	750	0.5

Table 6. Groundwater Monitoring Analytical Results for TPH and Benzene
Site: Former BP Harbor Island Terminal

Well	Date	TPH-G WTPH-G (µg/L)	TPH-D WTPH-DX (µg/L)	TPH-O WTPH-DX (µg/L)	Benzene EPA 8021 & 8260 (µg/L)
Plant 1, continued					
AMW-02	12/10/2013	ND	ND	ND	5.7
AMW-02	3/11/2014	ND	ND	ND	19.0
AMW-02	6/10/2014	ND UJ	320	ND	12.0
AMW-02	9/9/2014	ND	270	ND	29.0
AMW-02	12/9/2014	ND	530	ND	15.0
AMW-02	3/10/2015	ND U	370	ND	ND
AMW-02	6/9/2015	ND	ND	ND	3.1
AMW-02	9/22/2015	ND	ND	ND	2.0
AMW-02	12/15/2015	ND	ND	ND	4.4
AMW-02	3/8/2016	ND	290	ND	1.9
AMW-02	6/8/2016	ND	840	ND	3.0
AMW-02	9/8/2016	ND	810	ND	15.0
AMW-02	12/6/2016	ND	510	ND	4.4
AMW-02	3/7/2017	ND	850	740	ND
AMW-02	6/6/2017	ND	ND	ND	2.7
AMW-02	9/12/2017	ND	ND	ND	1.1
AMW-02	12/5/2017	ND	ND	ND UJ	0.96
AMW-02	3/20/2018	53.0	ND	ND	2.30
AMW-02	6/19/2018	ND	ND	ND	0.92
AMW-02	9/11/2018	ND	300	ND	1.20
AMW-02	12/11/2018	ND	560	ND	1.50
AMW-02	3/12/2019	ND	ND	ND	ND
AMW-02	6/18/2019	ND	630	ND	2.40
AMW-02	9/24/2019	ND	260	ND	12.0
AMW-02	12/17/2019	ND	ND	ND	(69.75 Average)**
AMW-02	3/18/2020	ND	ND	ND	30 J
AMW-02	6/10/2020	ND	330	ND	28
AMW-02	9/16/2020	ND	380	ND	14
AMW-02	12/16/2020	ND	ND	ND	1.9
AMW-02	3/10/2021	ND	ND	ND	0.92
AMW-02	6/17/2021	ND	ND	ND	0.58
AMW-02	9/22/2021	ND	ND	ND	ND
AMW-02	12/8/2021	ND	ND	ND	ND
AMW-03	12/21/2000	127	1,420	ND	ND
AMW-03	3/28/2001	Not accessible due to earthquake damage to warehouse.			
AMW-03	6/13/2001	ND	745	ND	ND
AMW-03	10/4/2001	ND	1,210	ND	ND
AMW-03	12/12/2001	ND	1,080 J	ND UJ	ND
AMW-03	3/7/2002	Not accessible due to earthquake damage to warehouse.			
AMW-03	6/12/2002	ND	1,070	ND	ND
AMW-03	9/19/2002	ND UJ	643 J	ND UJ	ND UJ
AMW-03	12/17/2002	ND	1,160	ND	ND
AMW-03	3/26/2003	ND	1,240	ND	ND
AMW-03	6/27/2003	ND	713	ND	ND
AMW-03	9/18/2003	ND	1,050	ND	ND
Cleanup Level		1,000	10,000	10,000	71
Method Reporting Limit		50	250	750	0.5

Table 6. Groundwater Monitoring Analytical Results for TPH and Benzene
Site: Former BP Harbor Island Terminal

Well	Date	TPH-G WTPH-G (µg/L)	TPH-D WTPH-DX (µg/L)	TPH-O WTPH-DX (µg/L)	Benzene EPA 8021 & 8260 (µg/L)
Plant 1, continued					
AMW-03	12/22/2003	ND	374 J	ND	ND
AMW-03	3/8/2004	ND	ND	ND	ND
AMW-03	6/16/2004	ND	ND	ND	1.02
AMW-03	9/28/2004	ND	ND	ND	ND
AMW-03	12/8/2004	ND	ND UJ	ND UJ	ND
AMW-03	3/10/2005	ND	ND	ND	1.56
AMW-03	6/21/2005	ND	ND	ND	0.99
AMW-03	9/27/2005	ND	ND UJ	ND	0.997
AMW-03	12/13/2005	ND	ND	ND	0.828
AMW-03	3/21/2006	ND	ND	ND	2.770
AMW-03	7/6/2006	ND	ND	ND	2.28
AMW-03	9/18/2006	ND	ND	ND	ND
AMW-03	12/12/2006	ND UJ	ND UJ	ND UJ	0.974 J
AMW-03	3/21/2007	ND	ND	ND	ND
AMW-03	6/6/2007	ND	ND	ND	ND
AMW-03	9/12/2007	ND	ND	ND	ND UJ
AMW-03	12/18/2007	ND	ND	ND	ND
AMW-03	3/25/2008	ND	ND	ND	ND
AMW-03	6/25/2008	ND	ND	ND	ND
AMW-03	9/17/2008	ND	ND	ND	ND
AMW-03	12/16/2008	ND	ND	ND	ND
AMW-03	3/11/2009	ND	ND	ND	ND
AMW-03	6/10/2009	ND	R	R	ND
AMW-03	9/16/2009	ND	ND	ND	ND
AMW-03	12/16/2009	ND	ND	ND	ND
AMW-03	3/30/2010	ND	400	ND	ND
AMW-03	6/9/2010	ND	230	ND	ND
AMW-03	9/14/2010	ND	ND	ND	ND
AMW-03	12/14/2010	ND	ND	ND	ND
AMW-03	3/22/2011	ND	ND	ND	0.54
AMW-03	6/22/2011	ND	ND	ND	ND
AMW-03	9/27/2011	ND	ND	ND	ND
AMW-03	12/20/2011	ND	ND	ND	ND
AMW-03	3/20/2012	ND	ND	ND	0.52
AMW-03	6/21/2012	ND	ND	ND	ND
AMW-03	9/10/2012	ND	ND	ND	ND
AMW-03	12/19/2012	ND	ND	ND	ND
AMW-03	3/19/2013	ND	ND	ND	ND
AMW-03	6/25/2013	ND	ND	ND	ND
AMW-03	9/10/2013	ND	ND	ND	ND
AMW-03	12/10/2013	ND	ND	ND	ND
AMW-03	3/11/2014	ND	320 J	ND	ND
AMW-03	6/10/2014	ND UJ	430	ND	ND
AMW-03	9/9/2014	ND	360	ND	ND
AMW-03	12/9/2014	ND	570	ND	ND
AMW-03	3/10/2015	ND U	650	ND	ND
Cleanup Level		1,000	10,000	10,000	71
Method Reporting Limit		50	250	750	0.5

Table 6. Groundwater Monitoring Analytical Results for TPH and Benzene
Site: Former BP Harbor Island Terminal

Well	Date	TPH-G WTPH-G (µg/L)	TPH-D WTPH-DX (µg/L)	TPH-O WTPH-DX (µg/L)	Benzene EPA 8021 & 8260 (µg/L)
Plant 1, continued					
AMW-03	6/9/2015	ND	410	ND	ND
AMW-03	9/22/2015	ND	ND	ND	ND
AMW-03	12/15/2015	ND	ND	ND	ND
AMW-03	3/8/2016	ND	250	ND U	ND
AMW-03	6/8/2016	ND	840	ND	ND
AMW-03	9/7/2016	ND	330	ND	ND
AMW-03	12/6/2016	ND	820	ND	ND U
AMW-03	3/7/2017	ND	890	510	ND
AMW-03	6/6/2017	ND	ND	ND	ND
AMW-03	9/12/2017	ND	ND	ND	ND
AMW-03	12/5/2017	ND	ND	ND	ND
AMW-03	3/20/2018	ND	ND	390	ND
AMW-03	6/19/2018	ND	ND	ND	ND
AMW-03	9/11/2018	ND	ND	ND	ND
AMW-03	12/11/2018	ND	370	ND	ND
AMW-03	3/12/2019	ND	ND	ND	ND
AMW-03	6/18/2019	ND	ND	ND	ND
AMW-03	9/24/2019	ND	ND	ND	ND
AMW-03	12/17/2019	ND	ND	ND	ND
AMW-03	3/18/2020	ND	ND	ND	ND
AMW-03	6/10/2020	ND	ND	ND	ND
AMW-03	9/16/2020	ND	ND	ND	ND
AMW-03	12/16/2020	ND	ND	ND	ND
AMW-03	3/10/2021	ND	ND	ND	ND
AMW-03	6/17/2021	ND	ND	ND	ND
AMW-03	9/22/2021	ND	ND	ND	ND
AMW-03	12/8/2021	ND	ND	ND	ND
AMW-04	12/21/2000	ND	1,570	ND	0.66
AMW-04	3/28/2001	ND	1,660	ND	0.766
AMW-04	6/13/2001	ND	987	ND	ND
AMW-04	10/4/2001	ND	379	ND	ND
AMW-04	12/12/2001	ND	930 J	ND UJ	ND
AMW-04	3/7/2002	ND	519	ND	2.94
AMW-04	6/12/2002	ND	1,200	ND	0.63
AMW-04	9/19/2002	ND UJ	760 J	ND UJ	1.45 J
AMW-04	12/17/2002	ND	1,070	ND	ND
AMW-04	3/26/2003	ND	1,240	ND	0.84
AMW-04	6/27/2003	ND	875	ND	ND
AMW-04	9/18/2003	ND	1,660	ND	ND
AMW-04	12/22/2003	ND	686 J	ND	1.73
AMW-04	3/8/2004	ND	ND	ND	ND
AMW-04	6/16/2004	ND	ND	ND	ND
AMW-04	9/27/2004	ND	ND	ND	ND
AMW-04	12/6/2004	ND	ND	ND	ND
AMW-04	3/10/2005	ND	ND	ND	ND
Cleanup Level		1,000	10,000	10,000	71
Method Reporting Limit		50	250	750	0.5

Table 6. Groundwater Monitoring Analytical Results for TPH and Benzene
Site: Former BP Harbor Island Terminal

Well	Date	TPH-G WTPH-G (µg/L)	TPH-D WTPH-DX (µg/L)	TPH-O WTPH-DX (µg/L)	Benzene EPA 8021 & 8260 (µg/L)
Plant 1, continued					
AMW-04	6/21/2005	ND	ND	ND	ND
AMW-04	9/27/2005	ND	ND UJ	ND	ND
AMW-04	12/13/2005	ND UJ	ND	ND	ND UJ
AMW-04	3/21/2006	ND	ND	ND	0.65
AMW-04	7/6/2006	ND UJ	ND	ND	ND UJ
AMW-04	9/18/2006	ND	ND	ND	ND
AMW-04	12/12/2006	ND UJ	ND UJ	ND UJ	ND UJ
AMW-04	3/21/2007	ND	ND	ND	0.64
AMW-04	6/6/2007	ND	ND	ND	ND
AMW-04	9/12/2007	ND	ND	ND	ND UJ
AMW-04	12/18/2007	ND	ND	ND	ND
AMW-04	3/26/2008	ND	ND	ND	ND
AMW-04	6/25/2008	ND	ND	ND	ND
AMW-04	9/17/2008	ND	ND	ND	ND
AMW-04	12/16/2008	ND	ND	ND	0.63
AMW-04	3/11/2009	ND	ND	ND	ND
AMW-04	6/10/2009	ND	R	R	ND
AMW-04	9/16/2009	ND	ND	ND	ND
AMW-04	12/16/2009	ND UJ	ND	ND	ND
AMW-04	3/30/2010	ND	610	ND	0.57
AMW-04	6/9/2010	ND	430	ND	ND
AMW-04	9/14/2010	ND	ND	ND	ND
AMW-04	12/14/2010	ND	ND	ND	ND
AMW-04	3/22/2011	ND	ND	ND	ND
AMW-04	6/22/2011	ND	ND	ND	ND
AMW-04	9/27/2011	ND	ND	ND	ND
AMW-04	12/27/2011	ND	ND	ND	ND
AMW-04	3/20/2012	ND	ND	ND	ND
AMW-04	6/21/2012	ND	ND	ND	ND
AMW-04	9/10/2012	ND	ND	ND	ND
AMW-04	12/19/2012	ND	ND	ND	ND
AMW-04	3/19/2013	ND	ND	ND	ND
AMW-04	6/25/2013	ND	ND	ND	ND
AMW-04	9/10/2013	ND	ND	ND	ND
AMW-04	12/10/2013	ND	ND	ND	ND
AMW-04	3/11/2014	ND	780 J	ND	ND
AMW-04	6/10/2014	ND UJ	400	ND	ND
AMW-04	9/9/2014	ND	480	ND	ND
AMW-04	12/9/2014	ND	630	ND	ND
AMW-04	3/10/2015	ND U	590	ND	ND
AMW-04	6/9/2015	ND	420	ND	ND
AMW-04	9/22/2015	ND	ND	ND	ND
AMW-04	12/15/2015	ND	ND	ND	ND
AMW-04	3/8/2016	ND	390	ND U	ND
AMW-04	6/8/2016	ND	860	ND	ND
AMW-04	9/8/2016	ND	800	ND	ND
Cleanup Level		1,000	10,000	10,000	71
Method Reporting Limit		50	250	750	0.5

Table 6. Groundwater Monitoring Analytical Results for TPH and Benzene
Site: Former BP Harbor Island Terminal

Well	Date	TPH-G WTPH-G (µg/L)	TPH-D WTPH-DX (µg/L)	TPH-O WTPH-DX (µg/L)	Benzene EPA 8021 & 8260 (µg/L)
Plant 1, continued					
AMW-04	12/6/2016	ND	830	ND	ND U
AMW-04	3/7/2017	ND	830	640	ND
AMW-04	6/6/2017	ND	ND	ND	ND
AMW-04	9/12/2017	ND	ND	ND	ND
AMW-04	12/5/2017	ND	ND	ND	ND
AMW-04	3/20/2018	74 J	ND	ND	ND
AMW-04	6/19/2018	ND	300	ND	ND
AMW-04	9/11/2018	ND	ND	ND	ND
AMW-04	12/11/2018	ND	500	ND	ND
AMW-04	3/12/2019	59	ND	ND	ND
AMW-04	6/18/2019	ND	ND	ND	ND
AMW-04	9/24/2019	ND	ND	ND	ND
AMW-04	12/17/2019	ND	ND	ND	ND
AMW-04	3/18/2020	ND	ND	ND	ND
AMW-04	6/10/2020	ND	ND	ND	ND
AMW-04	9/16/2020	ND	ND	ND	ND
AMW-04	12/16/2020	ND	ND	ND	ND
AMW-04	3/10/2021	ND	ND	ND	ND
AMW-04	6/17/2021	ND	ND	ND	ND
AMW-04	9/22/2021	ND	ND	ND	ND
AMW-04	12/8/2021	ND	ND	ND	ND
AMW-05	12/21/2000	ND	1,450	ND	ND
AMW-05	3/28/2001	ND	1,360	ND	ND
AMW-05	6/13/2001	ND	440	ND	ND
AMW-05	10/4/2001	71.4 U	318	ND	ND
AMW-05	12/12/2001	ND	940 J	ND UJ	ND
AMW-05	3/7/2002	ND	1,100	ND	2.12
AMW-05	6/12/2002	78	1,180	ND	0.701
AMW-05	9/19/2002	ND UJ	760 J	ND UJ	1.45 J
AMW-05	12/17/2002	ND	1,820	ND	ND
AMW-05	3/26/2003	ND	1,900	ND	0.577
AMW-05	3/27/2003	ND	381 J	ND UJ	ND
AMW-05	9/19/2003	ND	2,150	ND	ND
AMW-05	12/22/2003	ND	1,420 J	ND	0.833
AMW-05	3/8/2004	ND	ND	ND	ND
AMW-05	6/16/2004	ND	ND	ND	ND
AMW-05	9/27/2004	ND	ND	ND	ND
AMW-05	12/6/2004	ND	ND	ND	ND
AMW-05	3/10/2005	ND	ND	ND	ND
AMW-05	6/21/2005	ND	ND	ND	ND
AMW-05	9/27/2005	ND	ND UJ	ND	ND
AMW-05	12/13/2005	ND	ND	ND	0.727
AMW-05	3/21/2006	ND	ND	ND	0.692
AMW-05	7/6/2006	ND	ND	ND	ND
AMW-05	9/18/2006	ND	ND	ND	ND
Cleanup Level		1,000	10,000	10,000	71
Method Reporting Limit		50	250	750	0.5

Table 6. Groundwater Monitoring Analytical Results for TPH and Benzene
Site: Former BP Harbor Island Terminal

Well	Date	TPH-G WTPH-G (µg/L)	TPH-D WTPH-DX (µg/L)	TPH-O WTPH-DX (µg/L)	Benzene EPA 8021 & 8260 (µg/L)
Plant 1, continued					
AMW-05	12/12/2006	ND UJ	ND UJ	ND UJ	0.565 J
AMW-05	3/21/2007	ND	ND	ND	1.11
AMW-05	6/6/2007	ND	ND	ND	ND
AMW-05	9/12/2007	ND	ND	ND	ND UJ
AMW-05	12/18/2007	ND	ND	ND	ND
AMW-05	3/26/2008	ND	ND	ND	ND
AMW-05	6/25/2008	ND	ND	ND UJ	ND
AMW-05	9/17/2008	ND	ND	ND UJ	ND
AMW-05	12/16/2008	ND	ND	ND	0.768
AMW-05	3/11/2009	ND	ND	ND	0.885
AMW-05	6/10/2009	ND	R	R	ND
AMW-05	9/16/2009	54	ND	ND	ND
AMW-05	12/16/2009	ND UJ	ND	ND	ND
AMW-05	3/30/2010	ND	890	ND	1.3
AMW-05	6/9/2010	ND	640	ND	ND
AMW-05	9/14/2010	ND	ND	ND	ND
AMW-05	12/14/2010	ND	ND	ND	ND
AMW-05	3/22/2011	ND	ND	ND	ND
AMW-05	6/22/2011	ND	ND	ND	ND
AMW-05	9/27/2011	ND	ND	ND	ND
AMW-05	12/20/2011	ND	ND	ND	ND
AMW-05	3/20/2012	ND	ND	ND	ND
AMW-05	6/21/2012	ND	ND	ND	ND
AMW-05	9/10/2012	ND	ND	ND	ND
AMW-05	12/19/2012	ND	ND	ND	ND
AMW-05	3/19/2013	ND	ND	ND	ND
AMW-05	6/25/2013	ND	ND	ND	ND
AMW-05	9/10/2013	ND	ND	ND	ND
AMW-05	12/10/2013	ND	ND	ND	ND
AMW-05	3/11/2014	ND	ND	ND	ND
AMW-05	6/10/2014	ND UJ	560	ND	ND
AMW-05	9/9/2014	ND	300	ND	ND
AMW-05	12/9/2014	ND	460	ND	ND
AMW-05	3/10/2015	ND	480	ND	ND
AMW-05	6/9/2015	ND	300	ND	ND
AMW-05	9/22/2015	ND	ND	ND	ND
AMW-05	12/15/2015	ND	ND	ND	ND
AMW-05	3/8/2016	ND	ND	ND U	ND
AMW-05	6/8/2016	ND	850	ND	ND
AMW-05	9/8/2016	ND	1,300	ND	2.0
AMW-05	12/6/2016	ND	420	ND	ND U
AMW-05	3/7/2017	ND	910	1,000	ND
AMW-05	6/6/2017	ND	ND	ND	ND
AMW-05	9/12/2017	ND	ND	ND	ND
AMW-05	12/5/2017	ND	ND	ND	ND
AMW-05	3/20/2018	ND	ND	340	ND
Cleanup Level		1,000	10,000	10,000	71
Method Reporting Limit		50	250	750	0.5

Table 6. Groundwater Monitoring Analytical Results for TPH and Benzene
Site: Former BP Harbor Island Terminal

Well	Date	TPH-G WTPH-G (µg/L)	TPH-D WTPH-DX (µg/L)	TPH-O WTPH-DX (µg/L)	Benzene EPA 8021 & 8260 (µg/L)
Plant 1, continued					
AMW-05	6/19/2018	ND	ND	ND	ND
AMW-05	9/11/2018	ND	ND	ND	ND
AMW-05	12/11/2018	ND	320	ND	ND
AMW-05	3/12/2019	51	ND	ND	ND
AMW-05	6/18/2019	ND	ND	ND	ND
AMW-05	9/24/2019	ND	ND	ND	ND
AMW-05	12/17/2019	ND	ND	ND	ND
AMW-05	3/18/2020	ND	ND	ND	ND
AMW-05	6/10/2020	ND	ND	ND	ND
AMW-05	9/16/2020	ND	ND	ND	ND
AMW-05	12/16/2020	ND	ND	ND	ND
AMW-05	3/10/2021	ND	ND	ND	ND
AMW-05	6/17/2021	ND	ND	ND	ND
AMW-05	9/22/2021	ND	ND	ND	ND
AMW-05	12/8/2021	ND	ND	ND	ND
GM-11S	4/10/1997	**3,910**	2,210	1,230	**616 J**
GM-11S	7/8/1997	960 J	1,090	ND	46.9 J
GM-11S	10/21/1997	**1,570**	1,260	ND	**126**
GM-11S	1/21/1998	390	788	ND	**250**
GM-11S	3/11/1998	**1,800**	776	ND	**640**
GM-11S	7/6/1998	680	470 J	ND	41
GM-11S	10/20/1998	260	584	ND	27
GM-11S	12/15/1998	**1,300**	1,090	ND	**500**
GM-11S	3/26/1999	**1,100**	779	ND	**220**
GM-11S	6/23/1999	710	520	ND	**92**
GM-11S	CONVERTED TO RECOVERY WELL - SAMPLING DISCONTINUED				
GM-12S	4/10/1997	140	4,500	2,720	42.9
GM-12S	7/8/1997	160	4,590	3,450	ND
GM-12S	10/20/1997	ND	600	1,630	ND
GM-12S	1/21/1998	ND	1,210	2,040	ND
GM-12S	3/10/1998	ND	2,040	ND	ND
GM-12S	7/6/1998	140	2,830	1,980	0.8
GM-12S	10/20/1998	77	1,200	775	ND
GM-12S	3/26/1999	280	2,080 J	1,100 J	0.5
GM-12S	6/23/1999	260	1,530	ND	ND
GM-12S	WELL DELETED FROM MONITORING PROGRAM				
GM-14S	9/13/2007	608	1020	ND	0.97
GM-14S	12/20/2007	389	341	ND	1.02
GM-14S	3/27/2008	172	ND	ND	0.538
GM-14S	6/27/2008	**2,680 J**	577	ND	2.5 J
GM-14S	9/19/2008	**1,440**	719	ND	1.32
GM-14S	12/17/2008	**1,630 J**	963	ND	1.6
GM-14S	3/12/2009	**1,300**	562	ND	7.98
Cleanup Level		1,000	10,000	10,000	71
Method Reporting Limit		50	250	750	0.5

Table 6. Groundwater Monitoring Analytical Results for TPH and Benzene
Site: Former BP Harbor Island Terminal

Well	Date	TPH-G WTPH-G (µg/L)	TPH-D WTPH-DX (µg/L)	TPH-O WTPH-DX (µg/L)	Benzene EPA 8021 & 8260 (µg/L)
Plant 1, continued					
GM-14S	6/11/2009	**2,500**	R	R	ND
GM-14S	9/18/2009	**2,300**	1,600	ND	ND
GM-14S	12/17/2009	750	870	ND	ND
GM-14S	4/1/2010	**2,000**	880	ND	ND
GM-14S	6/10/2010	**1,900 J**	3,200	560	11 J
GM-14S	9/16/2010	**2,070**	690	ND	ND
GM-14S	12/15/2010	245	400	ND	ND
GM-14S	3/23/2011	748	350	ND	ND
GM-14S	6/23/2011	**2,190**	590	ND	ND
GM-14S	9/28/2011	**3,660**	840	ND	ND
GM-14S	12/21/2011	**3,150**	1,200	ND	ND
GM-14S	3/21/2012	903	480	ND	ND
GM-14S	6/22/2012	**3,050**	500	ND	ND
GM-14S	9/11/2012	**3,330**	920	ND	ND
GM-14S	12/20/2012	464	480	ND	ND
GM-14S	3/20/2013	**1,400**	340	ND	ND
GM-14S	6/26/2013	**2,200**	770	ND	1.3
GM-14S	9/11/2013	**1,700**	810	ND	0.77
GM-14S	12/11/2013	**3,300**	570	ND	ND
GM-14S	3/12/2014	760	1,600	940	0.53
GM-14S	6/11/2014	**2,000 J**	1,300	ND	1.2
GM-14S	9/10/2014	**2,900 J**	1,100	ND	0.87
GM-14S	12/10/2014	1,000	1,800	1,200	0.84
GM-14S	3/11/2015	**2,000 J**	1,300	ND	1.0
GM-14S	6/9/2015	**2,500 J**	2,000	ND	1.6
GM-14S	9/23/2015	**2,500**	1,600	ND	1.0
GM-14S	12/16/2015	450	1,200	850	1.0
GM-14S	3/9/2016	150	710	ND	ND
GM-14S	6/9/2016	**2,700 J**	2,200	ND	0.51
GM-14S	9/9/2016	**2,400 J**	1,900	ND	ND
GM-14S	12/7/2016	550	1,300	ND	ND U
GM-14S	3/8/2017	180	1,400	1000	ND
GM-14S	6/7/2017	**1,200 J**	630	ND	ND
GM-14S	9/13/2017	**2,100**	1,000	ND	ND
GM-14S	12/6/2017	870	890	ND	ND
GM-14S	3/21/2018	870 J	590	ND	ND
GM-14S	6/19/2018	950 J	960	ND	ND
GM-14S	9/12/2018	**2,200 J**	1,200	ND	ND
GM-14S	12/12/2018	**1,600**	930	ND	ND
GM-14S	3/13/2019	760	680	ND	ND
GM-14S	6/19/2019	**2,500**	1,400	ND	ND
GM-14S	9/25/2019	**1,800**	1,500	ND	ND
GM-14S	12/18/2019	**2,300**	1,000	ND	ND
GM-14S	3/19/2020	**1,200**	490 J	ND UJ	ND
GM-14S	6/10/2020	**1,200**	1,300	ND	ND
GM-14S	9/17/2020	**3,000**	950	ND	ND
Cleanup Level		1,000	10,000	10,000	71
Method Reporting Limit		50	250	750	0.5

Table 6. Groundwater Monitoring Analytical Results for TPH and Benzene
Site: Former BP Harbor Island Terminal

Well	Date	TPH-G WTPH-G (µg/L)	TPH-D WTPH-DX (µg/L)	TPH-O WTPH-DX (µg/L)	Benzene EPA 8021 & 8260 (µg/L)
Plant 1, continued					
GM-14S	12/16/2020	**1,900**	880	ND	ND
GM-14S	3/11/2021	700	440	ND	ND
GM-14S	6/17/2021	**2,000**	830	ND	6.5
GM-14S	9/23/2021	**1,700**	3,900	930	**220**
GM-14S	12/8/2021	460	380	ND	27
GM-15S	4/9/1997	ND	290	ND	ND
GM-15S	7/8/1997	170	800	ND	1.4
GM-15S	10/21/1997	ND	ND	ND	ND
GM-15S	1/21/1998	ND	293	ND	ND
GM-15S	3/11/1998	ND	ND	ND	ND
GM-15S	7/7/1998	54	253	ND	ND
GM-15S	10/21/1998	310	550	ND	ND
GM-15S	12/15/1998	120	342	ND	ND
GM-15S	3/25/1999	ND	ND	ND	ND
GM-15S	6/23/1999	76	ND	ND	ND
GM-15S	9/27/1999	NS	NS	NS	NS
GM-15S	12/14/1999	160 U	316	ND	ND
GM-15S	3/24/2000	ND	451	ND	ND
GM-15S	6/30/2000	167	1,200	ND	ND
GM-15S	9/27/2000	355 J	1,130 J	ND	ND UJ
GM-15S	12/21/2000	801	1,990	ND	ND
GM-15S	3/27/2001	548	2,810	ND	0.747 J
GM-15S	6/12/2001	909	1,040	ND	2.58 U
GM-15S	10/3/2001	955	1,220	ND	10.9 J
GM-15S	12/11/2001	578	1,100	ND	9.62
GM-15S	3/6/2002	434	1,430	ND	12.1
GM-15S	6/10/2002	786	2,530	ND	14.7
GM-15S	9/18/2002	825 J	1,320 J	ND UJ	9.38 J
GM-15S	12/16/2002	738	1,690 J	ND	4.16
GM-15S	3/25/2003	833 J	2,920	ND	3.57 J
GM-15S	6/26/2003	616	2,940 J	ND	2.49 J
GM-15S	9/19/2003	636	1,530	ND	1.58
GM-15S	12/22/2003	672	647 J	ND	1.47 J
GM-15S	3/8/2004	458 J	ND	ND	2.83 J
GM-15S	6/17/2004	836 J	356	ND	1.26
GM-15S	9/28/2004	655	ND	ND	1.62 J
GM-15S	12/8/2004	847	ND	ND	1.53
GM-15S	3/11/2005	587	ND	ND	1.07 J
GM-15S	6/22/2005	984 J	ND	ND	0.682
GM-15S	9/28/2005	840	ND	ND	1.43 J
GM-15S	12/14/2005	702	ND	ND	1.27
GM-15S	3/22/2006	317	ND	ND	0.614
GM-15S	7/7/2006	647	ND	ND	0.767
GM-15S	9/19/2006	533	ND	ND	0.836
GM-15S	12/13/2006	494 J	ND UJ	ND UJ	ND UJ
Cleanup Level		1,000	10,000	10,000	71
Method Reporting Limit		50	250	750	0.5

Table 6. Groundwater Monitoring Analytical Results for TPH and Benzene
Site: Former BP Harbor Island Terminal

Well	Date	TPH-G WTPH-G (µg/L)	TPH-D WTPH-DX (µg/L)	TPH-O WTPH-DX (µg/L)	Benzene EPA 8021 & 8260 (µg/L)
Plant 1, continued					
GM-15S	3/22/2007	420	ND	ND	ND
GM-15S	6/7/2007	404	ND	ND	0.505
GM-15S	9/13/2007	180	ND	ND	ND UJ
GM-15S	12/19/2007	549	ND	ND	0.943
GM-15S	3/26/2008	404	ND	ND	0.613
GM-15S	6/26/2008	480	ND	ND	0.665
GM-15S	9/18/2008	445	ND	ND	0.599
GM-15S	12/17/2008	Well not sampled, sampling reduced to a semi-annual event			
GM-15S	3/12/2009	695	ND	ND	19.6
GM-15S	9/16/2009	390	ND	ND	ND
GM-15S	3/30/2010	670	520	ND	1.1
GM-15S	9/15/2010	269	ND	ND	6.6
GM-15S	3/23/2011	ND	ND	ND	ND
GM-15S	9/27/2011	427	ND	ND	0.79
GM-15S	3/20/2012	143	ND	ND	ND
GM-15S	9/10/2012	ND	ND	ND	ND
GM-15S	3/19/2013	92	ND	ND	**100**
GM-15S	6/25/2013	**1,300**	ND	ND	**400**
GM-15S	9/10/2013	270	ND	ND	**110**
GM-15S	12/11/2013	320	ND	ND	1.3
GM-15S	3/12/2014	110	430 J	ND	ND
GM-15S	6/11/2014	ND	ND	ND	ND
GM-15S	9/9/2014	180	870	ND	ND
GM-15S	12/9/2014	250	520	ND	ND
GM-15S	3/10/2015	ND	340	ND	ND
GM-15S	6/9/2015	72	400	ND	ND
GM-15S	9/22/2015	430	ND	ND	ND
GM-15S	12/15/2015	370	ND	ND	ND
GM-15S	3/8/2016	100	ND	ND	ND
GM-15S	6/8/2016	ND	600	ND	ND
GM-15S	9/8/2016	240	660	ND	ND
GM-15S	12/6/2016	ND	ND	ND UJ	ND U
GM-15S	3/7/2017	ND	350	210	ND
GM-15S	6/6/2017	ND	ND	ND	ND
GM-15S	9/12/2017	140	ND	ND	ND
GM-15S	12/6/2017	100	ND	ND	ND
GM-15S	9/11/2018	310	460	ND	ND
GM-15S	3/12/2019	150	ND	ND	ND
GM-15S	9/24/2019	250	ND	ND	ND
GM-15S	3/18/2020	ND	ND	ND	ND
GM-15S	9/16/2020	190	320	ND	ND
GM-15S	3/10/2021	ND	ND	ND	ND
GM-15S	9/22/2021	180	ND	ND	ND
GM-16S	4/9/1997	ND	3,980	1,630	
GM-16S	7/8/1997	ND	3,890	1,710	ND
Cleanup Level		1,000	10,000	10,000	71
Method Reporting Limit		50	250	750	0.5

Table 6. Groundwater Monitoring Analytical Results for TPH and Benzene
Site: Former BP Harbor Island Terminal

Well	Date	TPH-G WTPH-G (µg/L)	TPH-D WTPH-DX (µg/L)	TPH-O WTPH-DX (µg/L)	Benzene EPA 8021 & 8260 (µg/L)
Plant 1, continued					
GM-16S	10/21/1997	ND	720	ND	ND
GM-16S	1/21/1998	ND	1,390	ND	ND
GM-16S	3/12/1998	ND	5,780	1,620	ND
GM-16S	7/7/1998	ND	1,310	ND	ND
GM-16S	10/20/1998	ND	ND	ND	ND
GM-16S	12/17/1998	ND	2,170	871	ND
GM-16S	3/26/1999	NS	1,990	960	NS
GM-16S	6/28/1999	NS	480	ND	NS
GM-16S	WELL DELETED FROM MONITORING PROGRAM / REINITIATED 3RD QUARTER 2007				
GM-16S	9/13/2007	ND	ND	ND	ND UJ
GM-16S	12/20/2007	ND	ND	ND	ND
GM-16S	3/27/2008	65.3	ND	ND	ND
GM-16S	6/27/2008	81.1	ND	ND	ND
GM-16S	9/19/2008	72.7	ND	ND	ND
GM-16S	12/17/2008	Well not sampled, sampling has been reduced to a semi-annual event			
GM-16S	3/12/2009	ND	456	ND	ND
GM-16S	9/18/2009	300	750	ND	ND
GM-16S	3/31/2010	390	1,800	ND	ND
GM-16S	9/16/2010	263	490	ND	ND
GM-16S	3/23/2011	193	350	ND	ND
GM-16S	9/28/2011	377	400	ND	ND
GM-16S	3/21/2012	ND	290	ND	ND
GM-16S	9/11/2012	ND	ND	ND	ND
GM-16S	3/20/2013	79	ND	ND	ND
GM-16S	9/11/2013	62	ND	ND	ND
GM-16S	3/12/2014	ND	1,600	ND	ND
GM-16S	9/10/2014	960	1,200	ND	ND
GM-16S	3/11/2015	400	2,200	970	ND
GM-16S	9/23/2015	170	910	ND	ND
GM-16S	3/9/2016	170	660	ND U	ND
GM-16S	9/9/2016	340	1,900	ND	ND
GM-16S	3/8/2017	91	1,500	680	ND
GM-16S	9/13/2017	380	1,300	ND	ND
GM-16S	3/21/2018	160	350	ND	ND
GM-16S	9/12/2018	260	700	ND	ND
GM-16S	3/13/2019	200	700	ND	ND
GM-16S	9/25/2019	130	970	ND	ND
GM-16S	3/19/2020	89	550	ND	ND
GM-16S	9/17/2020	140	670	ND	ND
GM-16S	3/11/2021	59	460	ND	ND
GM-16S	9/23/2021	80	490	ND	ND
GM-17S	4/9/1997	ND	1,720	900	ND
GM-17S	7/9/1997	ND	720	ND	ND
GM-17S	10/21/1997	ND	ND	ND	ND
GM-17S	1/22/1998	ND	320	ND	ND
Cleanup Level		1,000	10,000	10,000	71
Method Reporting Limit		50	250	750	0.5

Table 6. Groundwater Monitoring Analytical Results for TPH and Benzene
Site: Former BP Harbor Island Terminal

Well	Date	TPH-G WTPH-G (µg/L)	TPH-D WTPH-DX (µg/L)	TPH-O WTPH-DX (µg/L)	Benzene EPA 8021 & 8260 (µg/L)
Plant 1, continued					
GM-17S	3/11/1998	ND	926	ND	ND
GM-17S	7/7/1998	52 J	410 J	ND UJ	ND UJ
GM-17S	10/21/1998	ND	ND	ND	ND
GM-17S	12/15/1998	ND	1,060	ND	ND
GM-17S	3/26/1999	NS	851	ND	NS
GM-17S	6/28/1999	NS	393	ND	NS
GM-17S	WELL DELETED FROM MONITORING PROGRAM / REINITIATED 3RD QUARTER 2007				
GM-17S	9/13/2007	ND	ND	ND	ND UJ
GM-17S	12/20/2007	ND	ND	ND	ND
GM-17S	3/27/2008	ND	ND	ND	ND
GM-17S	6/27/2008	ND	ND	ND	ND
GM-17S	9/19/2008	ND	ND	ND	ND
GM-17S	12/17/2008	Well not sampled, sampling has been reduced to a semi-annual event			
GM-17S	3/12/2009	ND	ND	ND	ND
GM-17S	9/18/2009	53	ND	ND	ND
GM-17S	3/31/2010	ND	ND	ND	ND
GM-17S	9/16/2010	ND	ND	ND	ND
GM-17S	3/23/2011	ND	ND	ND	ND
GM-17S	9/28/2011	ND	ND	ND	ND
GM-17S	3/21/2012	ND	ND	ND	ND
GM-17S	9/11/2012	ND	ND	ND	ND
GM-17S	3/20/2013	ND	ND	ND	ND
GM-17S	9/11/2013	ND	ND	ND	ND
GM-17S	3/12/2014	ND	420	ND	ND
GM-17S	9/10/2014	ND	ND	ND	ND
GM-17S	3/11/2015	ND U	ND	ND	ND
GM-17S	9/23/2015	ND	250	ND	ND
GM-17S	3/9/2016	ND	ND	ND U	ND
GM-17S	9/9/2016	ND	710	ND	ND
GM-17S	3/8/2017	ND	450	430	ND
GM-17S	9/13/2017	63	ND	ND	ND
GM-17S	3/21/2018	56	ND	ND	ND
GM-17S	9/12/2018	63	ND	ND	ND
GM-17S	3/13/2019	71	ND	ND	ND
GM-17S	9/25/2019	ND	ND	ND	ND
GM-17S	3/19/2020	ND	ND	ND	ND
GM-17S	9/17/2020	ND	ND	ND	ND
GM-17S	3/11/2021	ND	ND	ND	ND
GM-17S	9/23/2021	ND	ND	ND	ND
GM-24S	4/9/1997	970	2,180	1,070	ND
GM-24S	7/9/1997	**4,040**	1,200	ND	ND
GM-24S	10/22/1997	**2,760**	710	ND	1.1
GM-24S	1/22/1998	**1,300**	841	ND	2.1
GM-24S	3/11/1998	370	765	ND	ND
GM-24S	7/7/1998	**1,500 J**	762 J	ND UJ	ND UJ
Cleanup Level		1,000	10,000	10,000	71
Method Reporting Limit		50	250	750	0.5

Table 6. Groundwater Monitoring Analytical Results for TPH and Benzene
Site: Former BP Harbor Island Terminal

Well	Date	TPH-G WTPH-G (µg/L)	TPH-D WTPH-DX (µg/L)	TPH-O WTPH-DX (µg/L)	Benzene EPA 8021 & 8260 (µg/L)
Plant 1, continued					
GM-24S	10/20/1998	800	929	ND	1.6
GM-24S	12/17/1998	**1,100**	867	ND	ND
GM-24S	3/26/1999	**3,500**	1,470	ND	ND
GM-24S	6/28/1999	**2,600**	1,390	ND	**2,600**
GM-24S	9/29/1999	**2,200**	1,030	ND	0.8
GM-24S	12/14/1999	**1,900**	857	ND	1.3 U
GM-24S	3/24/2000	**2,860**	1,230	ND	ND
GM-24S	6/30/2000	**4,570**	2,110	ND	ND
GM-24S	9/27/2000	**3,080 J**	2,690 J	ND	ND UJ
GM-24S	12/21/2000	**3,420**	4,100	947	ND
GM-24S	3/27/2001	**2,570**	3,120	884	0.704 J
GM-24S	6/12/2001	Tank Farm was inaccessible to sampling activities			
GM-24S	10/3/2001	**2,820**	1,800	ND	3.88 J
GM-24S	12/11/2001	**1,560**	2,250	ND	1.13 J
GM-24S	3/6/2002	**2,180**	2,170	ND	12.1
GM-24S	6/10/2002	**2,230**	1,800	ND	2.2 J
GM-24S	9/18/2002	**1,930 J**	1,130 J	ND UJ	3.79 J
GM-24S	12/16/2002	**1,330**	4,250	949	2.32
GM-24S	3/25/2003	**1,510**	1,930	850	0.667 J
GM-24S	6/25/2003	**3,510 J**	ND UJ	ND UJ	3.38 J
GM-24S	9/19/2003	**2,490**	1,610	ND	3.49
GM-24S	12/23/2003	**2,890**	2,220 J	ND	1.66 J
GM-24S	3/9/2004	**2,850**	345	ND	0.928 J
GM-24S	6/17/2004	**2,800**	567	ND	1.66
GM-24S	9/29/2004	**2,190**	0.365	ND	2.25
GM-24S	12/9/2004	**1,910**	ND	ND	2.34
GM-24S	3/11/2005	**2,670**	0.365	ND	1.61
GM-24S	6/22/2005	**3,990**	261	ND	3.68
GM-24S	9/28/2005	**4,190**	296	ND	3.23 J
GM-24S	12/14/2005	**2,430**	293	ND	2.79
GM-24S	3/22/2006	**2,310**	303	ND	1.95 J
GM-24S	7/7/2006	**2,700**	ND	ND	1.82
GM-24S	9/19/2006	**2,480**	535	ND	2.03
GM-24S	12/14/2006	**1,070 J**	ND UJ	ND UJ	ND UJ
GM-24S	3/22/2007	**2,750 J**	427 J	ND	2.97 J
GM-24S	6/7/2007	**2,600 J**	429	ND	2.25
GM-24S	9/13/2007	**1,390 J**	346 J	ND	1.16 J
GM-24S	12/20/2007	**ND UJ**	ND	ND	ND
GM-24S	3/27/2008	578	ND	ND	0.59
GM-24S	6/26/2008	**1,980**	439	ND	2.13
GM-24S	9/19/2008	**1,210**	252	ND	1.34
GM-24S	12/17/2008	**1,260**	ND	ND	1.32 J
GM-24S	3/12/2009	**1,260**	309	ND	1.35
GM-24S	6/11/2009	**1,200**	R	R	ND
GM-24S	9/17/2009	**1,600 J**	850	ND	ND
GM-24S	12/17/2009	620 J	430	ND	ND
Cleanup Level		1,000	10,000	10,000	71
Method Reporting Limit		50	250	750	0.5

Table 6. Groundwater Monitoring Analytical Results for TPH and Benzene
Site: Former BP Harbor Island Terminal

Well	Date	TPH-G WTPH-G (µg/L)	TPH-D WTPH-DX (µg/L)	TPH-O WTPH-DX (µg/L)	Benzene EPA 8021 & 8260 (µg/L)
Plant 1, continued					
GM-24S	4/1/2010	990 J	370	ND	ND
GM-24S	6/10/2010	**1,200**	760 J	ND	2.9 J
GM-24S	9/16/2010	**1,480 J**	460 J	ND	ND
GM-24S	12/15/2010	448	ND	ND	ND
GM-24S	3/23/2011	**2,260**	350	ND	ND
GM-24S	6/23/2011	**1,140 J**	380	ND	ND
GM-24S	9/28/2011	806 J	710 J	ND	ND
GM-24S	12/21/2011	**2,080**	260	ND	ND
GM-24S	3/21/2012	462 J	260	ND	ND
GM-24S	6/22/2012	**1,220**	270	ND	ND
GM-24S	9/11/2012	**2,460**	550	ND	ND
GM-24S	12/20/2012	244	ND	ND	ND
GM-24S	3/20/2013	**1,100**	270	ND	ND
GM-24S	6/26/2013	850 J	390	ND	ND
GM-24S	9/11/2013	500 J	470	ND	ND UJ
GM-24S	12/11/2013	**1,700**	450 J	ND	ND
GM-24S	3/12/2014	200 J	300 J	ND	ND
GM-24S	6/11/2014	1,000	450	ND	ND
GM-24S	9/10/2014	620 J	720	ND	ND
GM-24S	12/10/2014	840 J	320	ND	ND
GM-24S	3/11/2015	**1,400**	610	ND	ND
GM-24S	6/10/2015	**1,100**	500	ND	ND
GM-24S	9/23/2015	490 J	630 J	ND	ND
GM-24S	12/16/2015	170 J	ND	ND	ND UJ
GM-24S	3/9/2016	440	290 J	ND UJ	ND
GM-24S	6/9/2016	750 J	590	ND UJ	ND
GM-24S	9/9/2016	**1,800**	1,000	ND	ND
GM-24S	12/7/2016	450 J	350	ND UJ	ND
GM-24S	3/8/2017	550 J	430	290	ND
GM-24S	6/7/2017	560 J	280	ND	ND
GM-24S	9/13/2017	**1,500**	670	ND	ND
GM-24S	12/6/2017	440	ND	ND	ND
GM-24S	3/21/2018	790	370	270	ND
GM-24S	6/20/2018	310	170	ND	ND
GM-24S	9/12/2018	530 J	990 J	410 J	ND
GM-24S	12/12/2018	460 J	310	ND	ND
GM-24S	3/13/2019	510	250	ND	ND
GM-24S	6/19/2019	580	470	ND	ND
GM-24S	9/25/2019	920 J	900	ND	ND
GM-24S	12/18/2019	**1,200 J**	580	ND	ND
GM-24S	3/19/2020	750	300	ND	ND
GM-24S	6/10/2020	870 J	470	ND	ND
GM-24S	9/17/2020	**2,100 J**	800	ND	ND
GM-24S	12/16/2020	**1,200 J**	390	ND	ND
GM-24S	3/11/2021	**2,300 J**	680 J	ND	0.59
GM-24S	6/17/2021	530 J	350 J	ND	ND
Cleanup Level		1,000	10,000	10,000	71
Method Reporting Limit		50	250	750	0.5

Table 6. Groundwater Monitoring Analytical Results for TPH and Benzene
Site: Former BP Harbor Island Terminal

Well	Date	TPH-G WTPH-G (µg/L)	TPH-D WTPH-DX (µg/L)	TPH-O WTPH-DX (µg/L)	Benzene EPA 8021 & 8260 (µg/L)
Plant 1, continued					
GM-24S	9/23/2021	640	470 J	ND	ND
GM-24S	12/8/2021	450	280	ND	ND
AR-03	4/9/1997	**4,560**	5,890 J	1,070 J	**2,780 J**
AR-03	7/8/1997	**2,690**	7,600	1,640	**311**
AR-03	10/21/1997	**2,460**	730	ND	**204**
AR-03	1/21/1998	570	1,740	ND	41
AR-03	3/10/1998	**2,800**	2,490	ND	**850**
AR-03	7/6/1998	**2,900**	2,030	ND	35
AR-03	10/20/1998	990	2,230	ND	ND
AR-03	12/15/1998	780	1,200	ND	50
AR-03	3/25/1999	**3,800**	2,480	ND	**1,600**
AR-03	6/23/1999	**3,300**	2,390	ND	**290**
AR-03	9/29/1999	**3,400**	2,570	ND	10
AR-03	12/14/1999	**2,400**	1,390	ND	**340**
AR-03	3/24/2000	**1,380**	3,600	ND	**574**
AR-03	6/30/2000	**3,230**	7,980	1,040	**523**
AR-03	9/27/2000	**2,320 J**	3,700 J	772	ND UJ
AR-03	12/21/2000	**2,480**	5,140	ND	41.9
AR-03	3/27/2001	**2,050**	3,500	812	**583**
AR-03	6/14/2001	**1,330 J**	2,220	ND	1.59 R
AR-03	10/3/2001	533	1,640	ND	ND
AR-03	12/11/2001	**1,870**	1,790	ND	**661**
AR-03	3/6/2002	**2,890**	4,520	ND	**1800**
AR-03	6/10/2002	**2280 J**	5,590	794	**160 J**
AR-03	9/18/2002	484 J	1,890 J	ND UJ	6.01 J
AR-03	12/16/2002	321	2,830	ND	ND
AR-03	3/26/2003	**2,090**	6,190	ND	**1070 J**
AR-03	6/26/2003	610 J	2,790	ND	28.1
AR-03	9/19/2003	297	1,630	ND	ND
AR-03	12/23/2003	918	1640 J	ND	**228**
AR-03	3/9/2004	**2,350**	ND	ND	**659**
AR-03	6/17/2004	769 J	675	ND	34.3
AR-03	9/29/2004	332	ND	ND	ND
AR-03	12/8/2004	344	ND	ND	6.65
AR-03	3/11/2005	454	ND	ND	12.6
AR-03	6/22/2005	288	ND	ND	1.47
AR-03	9/28/2005	389	ND	ND	ND
AR-03	12/14/2005	520	408	ND	32.7
AR-03	3/22/2006	**2,450**	947	ND	**451**
AR-03	7/7/2006	860	ND	ND	67.3
AR-03	9/19/2006	323	ND	ND	ND
AR-03	12/13/2006	**1,210 J**	ND UJ	ND UJ	**134 J**
AR-03	3/22/2007	**1,880 J**	518	ND	**304**
AR-03	6/7/2007	**1,503**	ND	ND	**148**
AR-03	9/13/2007	186	ND	ND	ND
Cleanup Level		1,000	10,000	10,000	71
Method Reporting Limit		50	250	750	0.5

Table 6. Groundwater Monitoring Analytical Results for TPH and Benzene
Site: Former BP Harbor Island Terminal

Well	Date	TPH-G WTPH-G (µg/L)	TPH-D WTPH-DX (µg/L)	TPH-O WTPH-DX (µg/L)	Benzene EPA 8021 & 8260 (µg/L)
Plant 1 Continued					
AR-03	12/19/2007	317	ND	ND	1.59
AR-03	3/26/2008	**2,010**	263	ND	172
AR-03	6/26/2008	**2,580**	ND	ND	**72.0**
AR-03	9/17/2008	758	ND	ND	0.79
AR-03	12/17/2008	**1,030 J**	384	ND	0.94
AR-03	3/13/2009	157	462	ND	ND
AR-03	6/11/2009	940	R	R	3.30
AR-03	9/17/2009	**1,200**	590	ND	ND
AR-03	12/16/2009	160	1,100	ND	ND
AR-03	3/31/2010	230	3,700	ND	ND
AR-03	6/10/2010	810	**14,000**	930	ND
AR-03	9/15/2010	676	180	ND	ND
AR-03	12/15/2010	ND	130	ND	ND
AR-03	3/24/2011	ND	390	ND	ND
AR-03	6/23/2011	297	380	ND	ND
AR-03	9/28/2011	821	270	ND	ND
AR-03	12/21/2011	940	170	ND	ND
AR-03	3/21/2012	ND	ND	ND	ND
AR-03	6/21/2012	ND	340	ND	ND
AR-03	9/10/2012	815 J	650 J	ND	ND
AR-03	12/20/2012	ND	460	ND	ND
AR-03	3/20/2013	78	ND	ND	ND
AR-03	6/26/2013	370	ND	ND	ND
AR-03	9/11/2013	540	280	ND	ND
AR-03	12/11/2013	390	560	ND	ND
AR-03	3/12/2014	ND	1,100 J	ND	ND
AR-03	6/10/2014	ND UJ	2,700	ND	ND
AR-03	9/9/2014	260	3,100	850	ND
AR-03	12/10/2014	ND	2,100	1,100	ND
AR-03	3/10/2015	ND U	1,800	ND	ND
AR-03	6/10/2015	330	3,100	860	ND
AR-03	9/23/2015	620	390	ND	ND
AR-03	12/16/2015	ND	1,100	ND	ND
AR-03	3/8/2016	ND	680	ND U	ND
AR-03	6/9/2016	390	3,500	1,200	ND
AR-03	9/7/2016	780 J	2,200	760	ND
AR-03	12/7/2016	ND U	1,800	ND	ND U
AR-03	3/8/2017	ND	2,100	920	ND
AR-03	6/7/2017	ND	740	ND	ND
AR-03	9/13/2017	420	940	ND	ND
AR-03	12/5/2017	140 J	ND	ND	ND
AR-03	3/21/2018	66	ND	ND	ND
AR-03	9/11/2018	690 J	690	ND	ND
AR-03	3/13/2019	540	ND	ND	ND
AR-03	9/24/2019	480	570	ND	ND
AR-03	3/18/2020	59	410	ND	ND
Cleanup Level		1,000	10,000	10,000	71
Method Reporting Limit		50	250	750	0.5

Table 6. Groundwater Monitoring Analytical Results for TPH and Benzene
Site: Former BP Harbor Island Terminal

Well	Date	TPH-G WTPH-G (µg/L)	TPH-D WTPH-DX (µg/L)	TPH-O WTPH-DX (µg/L)	Benzene EPA 8021 & 8260 (µg/L)
Plant 1 Continued					
AR-03	9/16/2020	680	490	ND	ND
AR-03	3/10/2021	ND	430	ND	ND
AR-03	9/22/2021	390	330	ND	ND
MW-1-T9	12/15/2005	434	785	ND	ND
MW-1-T9	3/22/2006	**1,600**	214	ND	**78.9**
MW-1-T9	7/7/2006	816	ND	ND	0.852
MW-1-T9	9/19/2006	236	ND	ND	ND
MW-1-T9	12/13/2006	307 J	ND UJ	ND UJ	ND UJ
MW-1-T9	3/22/2007	922 J	510	ND	15.8 J
MW-1-T9	6/7/2007	**1,130**	428	ND	0.779
MW-1-T9	9/14/2007	536	ND	ND	ND
MW-1-T9	12/19/2007	120	ND	ND	ND
MW-1-T9	3/26/2008	879	467	ND	18.3
MW-1-T9	6/26/2008	**1,050 J**	ND	ND	7.02
MW-1-T9	9/18/2008	919	ND	ND	0.5
MW-1-T9	12/17/2008	374	ND	ND	ND
MW-1-T9	3/13/2009	377	445	ND	0.666
MW-1-T9	6/11/2009	1,000	R	R	1.7
MW-1-T9	9/17/2009	980	770	ND	0.5
MW-1-T9	12/17/2009	98	590	ND	ND
MW-1-T9	3/31/2010	**1,300 J**	**11,000**	ND	1.4
MW-1-T9	6/10/2010	820	**14,000**	1,200	0.7
MW-1-T9	9/15/2010	473	160	ND	ND
MW-1-T9	12/15/2010	147	120	ND	ND
MW-1-T9	3/24/2011	256	440	ND	ND
MW-1-T9	6/22/2011	437	370	ND	ND
MW-1-T9	9/29/2011	338	ND	ND	ND
MW-1-T9	12/21/2011	438	110	ND	ND
MW-1-T9	3/22/2012	121	ND	ND	ND
MW-1-T9	6/22/2012	268	260	ND	ND
MW-1-T9	9/10/2012	338	580	ND	ND
MW-1-T9	12/20/2012	170	530	ND	ND
MW-1-T9	3/20/2013	300	ND	ND	ND
MW-1-T9	6/26/2013	380	ND	ND	ND
MW-1-T9	9/11/2013	270	ND	ND	ND
MW-1-T9	12/11/2013	560	160	ND	ND
MW-1-T9	3/12/2014	160	3,700 J	890 J	ND
MW-1-T9	6/11/2014	360	5,800	940	ND
MW-1-T9	9/10/2014	350	3,700	700	ND
MW-1-T9	12/10/2014	160	1,600	ND	ND
MW-1-T9	3/11/2015	250	**12,000**	2,500	ND
MW-1-T9	6/10/2015	320	5,300	1,400	ND
MW-1-T9	9/23/2015	250	540	ND	ND
MW-1-T9	12/16/2015	170	1,100	ND	ND
MW-1-T9	3/9/2016	310	2,900	ND	ND
Cleanup Level		1,000	10,000	10,000	71
Method Reporting Limit		50	250	750	0.5

Table 6. Groundwater Monitoring Analytical Results for TPH and Benzene
Site: Former BP Harbor Island Terminal

Well	Date	TPH-G WTPH-G (µg/L)	TPH-D WTPH-DX (µg/L)	TPH-O WTPH-DX (µg/L)	Benzene EPA 8021 & 8260 (µg/L)
Plant 1 Continued					
MW-1-T9	6/9/2016	490	7,900	3,200	ND
MW-1-T9	9/7/2016	320	1,600	ND	ND
MW-1-T9	12/7/2016	150	4,200	1,200	ND U
MW-1-T9	3/8/2017	140	7,100	1,900	ND
MW-1-T9	6/7/2017	260	2,400	ND	ND
MW-1-T9	9/13/2017	280	830	ND	ND
MW-1-T9	12/6/2017	290	ND	ND	ND
MW-1-T9	3/21/2018	200	ND	ND	ND
MW-1-T9	9/12/2018	320	1,000	ND	ND
MW-1-T9	3/13/2019	370	620	ND	ND
MW-1-T9	9/25/2019	220	470	ND	ND
MW-1-T9	3/19/2020	120	1,000	ND	ND
MW-1-T9	9/17/2020	380	500	ND	ND
MW-1-T9	3/11/2021	170	330	ND	ND
MW-1-T9	9/23/2021	290	580	ND	ND
MW-2-T9	12/15/2005	**7,870**	2,270	ND	63.9
MW-2-T9	3/22/2006	**8,070**	212	ND	49.6
MW-2-T9	7/7/2006	**2,670 J**	ND	ND	17.8
MW-2-T9	9/19/2006	**1,280**	ND	ND	13.4
MW-2-T9	12/13/2006	**1,980 J**	ND UJ	ND UJ	7.17 J
MW-2-T9	3/22/2007	**3,700 J**	ND	ND	24.1 J
MW-2-T9	6/7/2007	**2830 J**	0.261	ND	16.6 J
MW-2-T9	9/14/2007	748	ND	ND	4.69 J
MW-2-T9	12/19/2007	869	ND	ND	3.82
MW-2-T9	3/26/2008	**3,420**	ND	ND	21.5
MW-2-T9	6/26/2008	**1,170 J**	ND	ND	7.1
MW-2-T9	9/18/2008	**1,100**	ND	ND	1.62
MW-2-T9	12/17/2008	**1,110**	ND	ND	1.93
MW-2-T9	3/13/2009	**1,140**	ND	ND	2.92
MW-2-T9	6/11/2009	**2,200**	R	R	0.75
MW-2-T9	9/17/2009	940	370	ND	ND
MW-2-T9	12/17/2009	**1,200**	1,500	ND	ND
MW-2-T9	3/31/2010	**2,200 J**	1,100	ND	0.75
MW-2-T9	6/10/2010	**1500 J**	3,100	340	1.5
MW-2-T9	9/15/2010	683	ND	ND	ND
MW-2-T9	12/15/2010	**1,810**	390	ND	0.53
MW-2-T9	3/24/2011	**2,000**	430	ND	ND
MW-2-T9	6/23/2011	**1,400**	250	ND	ND
MW-2-T9	9/29/2011	962	320	ND	ND
MW-2-T9	12/21/2011	**1,280**	120	ND	ND
MW-2-T9	3/22/2012	426	ND	ND	ND
MW-2-T9	6/22/2012	766	270	ND	ND
MW-2-T9	9/10/2012	**1,710**	460	ND	ND
MW-2-T9	12/20/2012	513	ND UJ	ND UJ	ND
MW-2-T9	3/20/2013	580	ND	ND	ND
Cleanup Level		1,000	10,000	10,000	71
Method Reporting Limit		50	250	750	0.5

Table 6. Groundwater Monitoring Analytical Results for TPH and Benzene
Site: Former BP Harbor Island Terminal

Well	Date	TPH-G WTPH-G (µg/L)	TPH-D WTPH-DX (µg/L)	TPH-O WTPH-DX (µg/L)	Benzene EPA 8021 & 8260 (µg/L)
Plant 1, continued					
MW-2-T9	6/26/2013	650	ND	ND	ND
MW-2-T9	9/10/2013	700	ND	ND	ND
MW-2-T9	12/11/2013	700	240	ND	ND
MW-2-T9	3/12/2014	740	1,400 J	ND	ND
MW-2-T9	6/11/2014	380	1,000	ND	ND
MW-2-T9	9/10/2014	520	680	ND	ND
MW-2-T9	12/10/2014	360	1,100	ND	ND
MW-2-T9	3/11/2015	270	1,000	ND	ND
MW-2-T9	6/10/2015	620	1,100	ND	ND
MW-2-T9	9/23/2015	410	680	ND	ND
MW-2-T9	12/16/2015	770	830	ND	ND
MW-2-T9	3/9/2016	660	960	ND	ND
MW-2-T9	6/9/2016	670	1,600	ND	ND
MW-2-T9	9/7/2016	620	1,100	ND	ND
MW-2-T9	12/7/2016	480	1,300	ND	ND U
MW-2-T9	3/8/2017	520	1,800	730	ND
MW-2-T9	6/7/2017	630 J	370	ND	ND
MW-2-T9	9/13/2017	610	420	ND	ND
MW-2-T9	12/6/2017	480	ND	ND	ND
MW-2-T9	3/21/2018	490	190	ND	ND
MW-2-T9	9/12/2018	660	1,000	270	ND
MW-2-T9	3/13/2019	470	350	ND	ND
MW-2-T9	9/25/2019	440	480	ND	ND
MW-2-T9	3/19/2020	470	970	ND	ND
MW-2-T9	9/17/2020	480	610	ND	ND
MW-2-T9	3/11/2021	260	ND	ND	ND
MW-2-T9	9/23/2021	310	480	ND	ND
MW-3-T9	12/15/2005	509	860	ND	2.08
MW-3-T9	3/22/2006	572	543	ND	2.67
MW-3-T9	7/7/2006	749	ND	ND	3.48
MW-3-T9	9/19/2006	609	317	ND	1.48
MW-3-T9	12/13/2006	541	ND	ND	1.33
MW-3-T9	3/22/2007	722	ND	ND	2.33
MW-3-T9	6/7/2007	603	ND	ND	2.1
MW-3-T9	9/14/2007	536	ND	ND	1.68 J
MW-3-T9	12/19/2007	578	ND	ND	1.61
MW-3-T9	3/26/2008	522	ND	ND	1.36
MW-3-T9	6/26/2008	711	ND	ND	4.78
MW-3-T9	9/17/2008	502	ND	ND	0.585
MW-3-T9	12/17/2008	668	ND	ND	5.35
MW-3-T9	3/13/2009	275	ND	ND	0.553
MW-3-T9	6/11/2009	630	2,400	1,800	7
MW-3-T9	9/17/2009	490	ND	ND	ND
MW-3-T9	12/17/2009	580	1,000	ND	ND
MW-3-T9	3/31/2010	690 J	790	ND	5.1
Cleanup Level		1,000	10,000	10,000	71
Method Reporting Limit		50	250	750	0.5

Table 6. Groundwater Monitoring Analytical Results for TPH and Benzene
Site: Former BP Harbor Island Terminal

Well	Date	TPH-G WTPH-G (µg/L)	TPH-D WTPH-DX (µg/L)	TPH-O WTPH-DX (µg/L)	Benzene EPA 8021 & 8260 (µg/L)
Plant 1, continued					
MW-3-T9	6/10/2010	500	2,500	ND	5.2
MW-3-T9	9/15/2010	331	ND	ND	3.8
MW-3-T9	12/15/2010	449	ND	ND	15
MW-3-T9	3/24/2011	826	270	ND	**87.7**
MW-3-T9	6/23/2011	632	ND	ND	69.6
MW-3-T9	9/29/2011	468	ND	ND	40.1
MW-3-T9	12/21/2011	788	ND	ND	58.2
MW-3-T9	3/22/2012	825	ND	ND	**191**
MW-3-T9	6/21/2012	596	ND	ND	**113**
MW-3-T9	9/10/2012	679	ND	ND	**94.9**
MW-3-T9	12/20/2012	617	760	ND	**172**
MW-3-T9	3/20/2013	700	ND	ND	68
MW-3-T9	6/26/2013	520	ND	ND	55
MW-3-T9	9/10/2013	490	ND	ND	39
MW-3-T9	12/11/2013	980	ND	ND	39
MW-3-T9	3/12/2014	1,000	1,400 J	ND	28
MW-3-T9	6/11/2014	670	1,300	ND	14
MW-3-T9	9/10/2014	650	1,400	ND	14
MW-3-T9	12/10/2014	800	1,000	ND	13
MW-3-T9	3/11/2015	1,000	2,100	ND	2.1
MW-3-T9	6/10/2015	760	1,100	ND	0.74
MW-3-T9	9/22/2015	560	250	ND	0.62
MW-3-T9	12/16/2015	930	590	ND	2.4
MW-3-T9	3/9/2016	1,000	1,400	ND U	0.87
MW-3-T9	6/9/2016	810	2,000	ND	ND
MW-3-T9	9/7/2016	820	1,500	ND	0.53
MW-3-T9	12/7/2016	970	1,700	ND	1.50
MW-3-T9	3/8/2017	900	2,700	540	2.50
MW-3-T9	6/7/2017	750	780	ND	1.50
MW-3-T9	9/13/2017	740	290	ND	0.53
MW-3-T9	12/6/2017	800	ND	ND	1.3
MW-3-T9	3/21/2018	750	160	ND	1.9
MW-3-T9	9/12/2018	960	690	ND	ND
MW-3-T9	3/13/2019	880	950	ND	2.3
MW-3-T9	9/25/2019	770	530	ND	ND
MW-3-T9	3/19/2020	710	810	ND	1.1
MW-3-T9	9/17/2020	620	690	ND	ND
MW-3-T9	3/11/2021	740	280	ND	ND
MW-3-T9	9/23/2021	570	ND	ND	ND
MW-4-T9	12/15/2005	ND	ND	ND	1.26
MW-4-T9	3/22/2006	ND	ND	ND	0.836
MW-4-T9	7/7/2006	ND	ND	ND	0.745
MW-4-T9	9/19/2006	ND	ND	ND	1.53
MW-4-T9	12/13/2006	ND UJ	ND UJ	ND UJ	1.46
MW-4-T9	3/22/2007	ND	ND	ND	0.625
Cleanup Level		1,000	10,000	10,000	71
Method Reporting Limit		50	250	750	0.5

Table 6. Groundwater Monitoring Analytical Results for TPH and Benzene
Site: Former BP Harbor Island Terminal

Well	Date	TPH-G WTPH-G (µg/L)	TPH-D WTPH-DX (µg/L)	TPH-O WTPH-DX (µg/L)	Benzene EPA 8021 & 8260 (µg/L)
Plant 1, continued					
MW-4-T9	6/7/2007	81	ND	ND	ND
MW-4-T9	9/14/2007	ND	ND	ND	0.599 J
MW-4-T9	12/19/2007	ND	ND	ND	1.55
MW-4-T9	3/26/2008	ND	ND	ND	ND
MW-4-T9	6/26/2008	ND	ND	ND	ND
MW-4-T9	9/18/2008	ND	ND	ND	0.92
MW-4-T9	12/17/2008	ND	ND	ND	1.1
MW-4-T9	3/13/2009	ND	ND	ND	0.506
MW-4-T9	6/11/2009	ND	R	R	ND
MW-4-T9	9/17/2009	60	ND	ND	ND
MW-4-T9	12/16/2009	ND	ND	ND	ND
MW-4-T9	3/31/2010	ND	ND	ND	ND
MW-4-T9	6/10/2010	ND	210	ND	ND
MW-4-T9	9/15/2010	ND	ND	ND	ND
MW-4-T9	12/15/2010	ND	ND	ND	ND
MW-4-T9	3/24/2011	ND	ND	ND	ND
MW-4-T9	6/23/2011	ND	ND	ND	ND
MW-4-T9	9/28/2011	ND	ND	ND	ND
MW-4-T9	12/21/2011	ND	ND	ND	ND
MW-4-T9	3/21/2012	ND	ND	ND	ND
MW-4-T9	6/21/2012	ND	ND	ND	ND
MW-4-T9	9/10/2012	ND	ND	ND	ND
MW-4-T9	12/20/2012	ND	ND	ND	ND
MW-4-T9	3/20/2013	ND	ND	ND	ND
MW-4-T9	6/26/2013	ND	ND	ND	ND
MW-4-T9	9/10/2013	ND	ND	ND	ND
MW-4-T9	12/11/2013	ND	ND	ND	ND
MW-4-T9	3/12/2014	ND	290 J	ND	ND
MW-4-T9	6/11/2014	ND	480	ND	ND
MW-4-T9	9/9/2014	ND	400	ND	ND
MW-4-T9	12/10/2014	ND	360	ND	ND
MW-4-T9	3/10/2015	ND U	ND	ND	ND
MW-4-T9	6/10/2015	ND	300	ND	ND
MW-4-T9	9/23/2015	ND	320	ND	ND
MW-4-T9	12/16/2015	ND	320	ND	ND
MW-4-T9	3/8/2016	ND	ND	ND U	ND
MW-4-T9	6/9/2016	ND	680	ND	ND
MW-4-T9	9/9/2016	ND	460	ND	ND
MW-4-T9	12/7/2016	ND U	ND	ND	ND U
MW-4-T9	3/8/2017	ND	350	160	ND
MW-4-T9	6/7/2017	ND	ND	ND	ND
MW-4-T9	9/13/2017	ND	ND	ND	ND
MW-4-T9	12/6/2017	ND	ND	ND	ND
MW-4-T9		WELL DELETED FROM MONITORING PROGRAM			
Cleanup Level		1,000	10,000	10,000	71
Method Reporting Limit		50	250	750	0.5

Table 6. Groundwater Monitoring Analytical Results for TPH and Benzene
Site: Former BP Harbor Island Terminal

Well	Date	TPH-G WTPH-G (µg/L)	TPH-D WTPH-DX (µg/L)	TPH-O WTPH-DX (µg/L)	Benzene EPA 8021 & 8260 (µg/L)
Plant 2					
GM-19S	4/10/1997	**1,070**	4,260	1,840	1.3
GM-19S	7/9/1997	**1,030**	1,840	1,150	0.9 J
GM-19S	10/22/1997	800	370	ND	3.6
GM-19S	1/22/1998	400 J	1,320	ND	1.8
GM-19S	3/12/1998	180	1,860	ND	ND
GM-19S	7/8/1998	1,000 J	1,660 J	ND UJ	ND UJ
GM-19S	10/21/1998	570	1,260	ND	2.5
GM-19S	12/17/1998	650	1,970	ND	0.9
GM-19S	3/25/1999	72	1,420	793	ND
GM-19S	6/22/1999	**1,600**	1,100	ND	1.5
GM-19S	9/27/1999	**1,900 J**	NS	NS	44 J
GM-19S	12/13/1999	**1,500 J**	1,160	ND	**470**
GM-19S	3/24/2000	ND	1,530	ND	**955**
GM-19S	7/3/2000	771	1,380	ND	**2,330 J**
GM-19S	9/29/2000	ND UJ	2,290 J	776 J	**4,010 J**
GM-19S	12/21/2000	ND	3,150	806	**2,660**
GM-19S	3/28/2001	**2,940**	2,320	994	**1,730**
GM-19S	6/15/2001	**3,270**	1,230	ND	**3,390**
GM-19S	10/5/2001	Not accessible due to island redevelopment activities			
GM-19S	12/13/2001	**5,140**	2,350	985	**1,990**
GM-19S	3/8/2002	**11,000**	1,940	NS	**723**
GM-19S	6/11/2002	**2,720 J**	3,210	810	**710 J**
GM-19S	9/18/2002	**1,320 J**	2,430 J	ND UJ	**1,960 J**
GM-19S	12/16/2002	730	4590 J	1,770	**2,320 J**
GM-19S	3/25/2003	**9,540**	3,350	960	**1,960**
GM-19S	6/25/2003	**3,640**	3,740 J	1,380 J	**596**
GM-19S	9/19/2003	**1,290**	2,010	ND	**469**
GM-19S	12/23/2003	**1,070 J**	2,190 J	ND	**496**
GM-19S	3/9/2004	**1,450**	ND	ND	**832**
GM-19S	6/17/2004	**1,150**	498	ND	**307**
GM-19S	9/29/2004	679 J	NS	NS	**87.8**
GM-19S	12/9/2004	501	NS	NS	47
GM-19S	3/11/2005	649	NS	NS	**210.0**
GM-19S	6/22/2005	NS	NS	NS	**99.7**
GM-19S	9/28/2005	467	NS	NS	43.9
GM-19S	12/14/2005	581	NS	NS	**508**
GM-19S	3/22/2006	**1,710**	NR	NR	**853**
GM-19S	7/7/2006	850	NR	NR	**426**
GM-19S	9/19/2006	389	NS	NS	63
GM-19S	12/13/2006	445 J	NS	NS	**167 J**
GM-19S	3/22/2007	**1,070 J**	NS	NS	**1,400**
GM-19S	6/7/2007	200 J	NS	NS	15
GM-19S	9/13/2007	484	NS	NS	**956**
GM-19S	12/19/2007	88	NS	NS	**140**
GM-19S	3/27/2008	560	NS	NS	**869**
GM-19S	6/26/2008	958	NS	NS	**164**
Cleanup Level		1,000	10,000	10,000	71
Method Reporting Limit		50	250	750	0.5

Table 6. Groundwater Monitoring Analytical Results for TPH and Benzene
Site: Former BP Harbor Island Terminal

Well	Date	TPH-G WTPH-G (µg/L)	TPH-D WTPH-DX (µg/L)	TPH-O WTPH-DX (µg/L)	Benzene EPA 8021 & 8260 (µg/L)
Plant 2, continued					
GM-19S	9/19/2008	530	NS	NS	**178**
GM-19S	12/18/2008	Well not sampled, sampling has been reduced to a semi-annual event			
GM-19S	3/12/2009	261	NS	NS	**186**
GM-19S	9/17/2009	510	NS	NS	**140**
GM-19S	3/31/2010	220	NS	NS	**110**
GM-19S	9/15/2010	372	NS	NS	**111**
GM-19S	3/23/2011	56.5	NS	NS	26.9
GM-19S	9/28/2011	709	NS	NS	31.0
GM-19S	3/21/2012	355	NS	NS	8.4
GM-19S	9/11/2012	312	NS	NS	47.0
GM-19S	3/20/2013	330	NR	NR	38.0
GM-19S	9/11/2013	750	NR	NR	**160**
GM-19S	3/12/2014	ND	NR	NR	10
GM-19S	9/10/2014	53	NR	NR	44
GM-19S	3/11/2015	1,000 J	NR	NR	4.6
GM-19S	9/23/2015	860	NR	NR	5.8
GM-19S	3/9/2016	ND	NR	NR	ND
GM-19S	9/8/2016	340	NR	NR	ND
GM-19S	3/8/2017	ND	NR	NR	ND
GM-19S	9/13/2017	220	NR	NR	ND
GM-19S	3/21/2018	140	NR	NR	ND
GM-19S		WELL DELETED FROM MONITORING PROGRAM			
GM-19D	4/10/1997	ND	6,680	2,050	**234**
GM-19D	7/9/1997	ND	5,910	1,780	**330**
GM-19D	10/22/1997	70	ND	ND	**263**
GM-19D	1/22/1998	ND	1,820	ND	**260**
GM-19D	3/12/1998	ND	2,630	ND	**140**
GM-19D	7/8/1998	ND UJ	2,120 J	ND UJ	**360 J**
GM-19D	10/21/1998	ND	1,930	ND	**180**
GM-19D	12/17/1998	ND	2,260	ND	**170**
GM-19D	3/25/1999	57	2,280	ND	**150**
GM-19D	6/22/1999	150	1,520	ND	**150**
GM-19D	9/27/1999	75 J	2,460 J	ND UJ	**120 J**
GM-19D	12/13/1999	550 J	1,930	ND	**170**
GM-19D	3/22/2000	ND	2,490	ND	**208**
GM-19D	7/3/2000	ND	5,260	1,280	**225**
GM-19D	9/29/2000	ND UJ	6,490 J	1,470 J	**210 J**
GM-19D	12/21/2000	ND	8,700	984	**225**
GM-19D	3/28/2001	ND	8,100	1,990	**163**
GM-19D	6/12/2001	ND	2,650	ND	**278**
GM-19D	10/5/2001	Not accessible due to island redevelopment activities			
GM-19D	12/13/2001	ND	7,830	1,880	**265**
GM-19D	3/8/2002	ND	3,400	ND	**281**
GM-19D	6/11/2002	63	7,810	1,470	**220**
GM-19D	9/18/2002	59.8 J	1,960 UJ	ND UJ	**215**
Cleanup Level		1,000	10,000	10,000	71
Method Reporting Limit		50	250	750	0.5

Table 6. Groundwater Monitoring Analytical Results for TPH and Benzene
Site: Former BP Harbor Island Terminal

Well	Date	TPH-G WTPH-G (µg/L)	TPH-D WTPH-DX (µg/L)	TPH-O WTPH-DX (µg/L)	Benzene EPA 8021 & 8260 (µg/L)
Plant 2, continued					
GM-19D	12/16/2002	52 J	6880 J	1,020	**263**
GM-19D	3/26/2003	ND	2,880	ND UJ	**270**
GM-19D	6/25/2003	ND	6,930	1,770	**222**
GM-19D	9/19/2003	ND	2,300	ND	**241**
GM-19D	12/23/2003	ND	7710 J	1,140	**261**
GM-19D	3/9/2004	82	ND	ND	**173**
GM-19D	6/17/2004	56.1	3,430	ND	**169**
GM-19D		WELL DELETED FROM MONITORING PROGRAM			
GM-21S	4/10/1997	ND	4,640	2,960	ND
GM-21S	7/9/1997	ND	5,080	2,420	ND
GM-21S	10/23/1997	ND	ND	ND	ND
GM-21S	1/23/1998	ND	1,710	ND	ND
GM-21S	3/12/1998	ND	615	ND	ND
GM-21S	7/9/1998	ND	2,190	ND	ND
GM-21S	10/21/1998	ND	694	ND	ND
GM-21S	12/17/1998	ND	1,050	ND	ND
GM-21S	3/25/1999	NS	793	ND	NS
GM-21S	6/22/1999	NS	875	ND	NS
GM-21S	9/27/1999	NS	3,330 J	ND UJ	NS
GM-21S	12/13/1999	NS	648	ND	NS
GM-21S	3/23/2000	ND	1,480	ND	ND
GM-21S	7/6/2000	ND	3,020	ND	ND
GM-21S	9/29/2000	ND UJ	3,310 J	924 J	ND UJ
GM-21S	12/21/2000	NS	NS	NS	NS
GM-21S	3/28/2001	Not accessible due to island redevelopment activities			
GM-21S	6/12/2001	Not accessible due to island redevelopment activities			
GM-21S	10/5/2001	Not accessible due to island redevelopment activities			
GM-21S	12/13/2001	Not accessible due to island redevelopment activities			
GM-21S	3/6/2002	ND	454	ND	ND
GM-21S		WELL DELETED FROM MONITORING PROGRAM			
GM-21D	4/10/1997	ND	1,730 J	810 J	ND
GM-21D	7/9/1997	ND	1,860	ND	ND
GM-21D	10/23/1997	ND	ND	ND	ND
GM-21D	1/23/1998	ND	744	ND	ND
GM-21D	3/12/1998	ND	1,830	ND	ND
GM-21D	7/9/1998	ND	1,030 J	ND UJ	ND
GM-21D	10/21/1998	ND	684	ND	ND
GM-21D	12/17/1998	ND	926	ND	ND
GM-21D	6/22/1999	NS	1,100	ND	NS
GM-21D	9/27/1999	NS	2,330 J	ND UJ	NS
GM-21D	12/13/1999	NS	986	ND	NS
GM-21D		WELL DELETED FROM MONITORING PROGRAM			
GM-22S		WELL NOT SAMPLED BETWEEN 1997 AND 2000			
Cleanup Level		1,000	10,000	10,000	71
Method Reporting Limit		50	250	750	0.5

Table 6. Groundwater Monitoring Analytical Results for TPH and Benzene
Site: Former BP Harbor Island Terminal

Well	Date	TPH-G WTPH-G (µg/L)	TPH-D WTPH-DX (µg/L)	TPH-O WTPH-DX (µg/L)	Benzene EPA 8021 & 8260 (µg/L)
Plant 2, continued					
GM-22S	3/23/2000	ND	5,060	841	0.538
GM-22S	7/6/2000	ND	8,930	1,050	ND
GM-22S	9/29/2000	ND UJ	3,130 J	1,620 J	2.04 J
GM-22S	12/21/2000	ND	5,070	1,720	ND
GM-22S	3/28/2001	ND	5,430	2,500	ND
GM-22S	6/15/2001	ND	3,110	ND	ND
GM-22S	10/5/2001	Not accessible due to island redevelopment activities			
GM-22S	12/13/2001	55.3	4,780	2,320	ND
GM-22S	3/8/2002	ND	2,710	831	ND
GM-22S		WELL DELETED FROM MONITORING PROGRAM			
GM-23S	4/10/1997	NS	NS	NS	NS
GM-23S	7/9/1997	750	1,830	1,010	ND
GM-23S	10/22/1997	400	ND	ND	ND
GM-23S	1/23/1998	NS	NS	NS	NS
GM-23S	3/12/1998	NS	NS	NS	NS
GM-23S	7/8/1998	480 J	467 J	ND UJ	ND UJ
GM-23S	10/21/1998	500	1,250	ND	ND
GM-23S	12/17/1998	NS	NS	NS	NS
GM-23S	3/25/1999	NS	NS	NS	NS
GM-23S	6/22/1999	680	801	ND	ND
GM-23S	9/28/1999	940	682	ND	ND
GM-23S		WELL DELETED FROM MONITORING PROGRAM			
T-18-1	6/14/2001	ND	1,670	ND	ND
T-18-1	10/5/2001	ND	1,270	ND	ND
T-18-1	12/13/2001	ND	365	ND	ND
T-18-1	3/6/2002	ND	357	ND	ND
T-18-1		WELL DELETED FROM MONITORING PROGRAM			
T-18-2a	6/14/2001	ND	385	ND	ND
T-18-2a	10/5/2001	ND	339	ND	ND
T-18-2a	12/13/2001	ND	323	ND	ND
T-18-2a	3/6/2002	ND	256	ND	ND
T-18-2a		WELL DELETED FROM MONITORING PROGRAM			
MW-03R	6/11/2002	NS	**20,700**	ND	NS
MW-03R	9/18/2002	NS	9,690 J	1,990 J	NS
MW-03R	12/16/2002	NS	NS	NS	NS
MW-03R	3/25/2003	NS	ND	ND UJ	NS
MW-03R	6/26/2003	NS	**10,200**	2,500	NS
MW-03R	9/19/2003	NS	831	ND	NS
MW-03R	12/23/2003	NS	472 J	ND	NS
MW-03R	3/9/2004	NS	645	ND	NS
MW-03R	6/17/2004	NS	935	ND	NS
MW-03R		WELL DELETED FROM MONITORING PROGRAM			
Cleanup Level		1,000	10,000	10,000	71
Method Reporting Limit		50	250	750	0.5

Table 6. Groundwater Monitoring Analytical Results for TPH and Benzene
Site: Former BP Harbor Island Terminal

Well	Date	TPH-G WTPH-G (µg/L)	TPH-D WTPH-DX (µg/L)	TPH-O WTPH-DX (µg/L)	Benzene EPA 8021 & 8260 (µg/L)

Note: Values in **bold** exceed the cleanup level.

J	Estimated value.
µg/L	Micrograms per liter.
NA	Not analyzed.
ND	Constituent not detected above reporting limit.
NS	Not sampled.
TPH	Total petroleum hydrocarbons.
TPH-D	Total petroleum hydrocarbons as diesel.
TPH-G	Total petroleum hydrocarbons as gasoline.
TPH-O	Total petroleum hydrocarbons as oil.
U	Undetected.
WTPH-DX	Washington State Method for Analysis of Diesel and Oil in Water - Extended.
WTPH-G	Washington State Method for Analysis of Gasoline in Water.

EPA 8021 or EPA 9260 - EPA Methods for Analysis of Benzene in Water.

** AMW-02 benzene result from 12/17/2019 of 69.75 is the average of 4 analyses performed from the sample, which were 87, 67 J, 61 J, 64 J.

Table 7. Groundwater Monitoring Analytical Results for cPAHs
Site: Former BP Harbor Island Terminal

Well	Date	Benz(a)anthracene (µg/L)	Benzo(a)pyrene (µg/L)	Benzo(b)fluoranthene (µg/L)	Benzo(k)fluoranthene (µg/L)	Chrysene (µg/L)	Dibenz(a,h)anthracene (µg/L)	Indeno(1,2,3,-cd)pyrene (µg/L)
Plant 1								
GM-11S	4/10/1997	ND	ND	ND	ND	0.01	ND	ND
GM-11S	7/8/1997	ND	ND	ND	ND	0.01 J	ND	0.01 J
GM-11S	10/21/1997	0.02	0.01	0.02	0.01	0.02	0.01	0.01
GM-11S	1/21/1998	ND	ND	ND	ND	0.01 U	ND	ND
GM-11S				WELL DELETED FROM cPAH MONITORING PROGRAM				
GM-12S	4/10/1997	0.02	0.03	**0.04**	**0.04**	**0.06**	ND	**0.04**
GM-12S	7/8/1997	**0.06 J**	**0.07 J**	**0.11 J**	**0.09 J**	**0.13 J**	0.01 J	**0.06 J**
GM-12S	10/20/1997	**0.07 J**	**0.06 J**	**0.1 J**	**0.09 J**	**0.15 J**	0.01	**0.08 J**
GM-12S	1/21/1998	0.1 U	**0.11**	**0.12**	**0.12 U**	**0.16 U**	**0.04**	**0.11**
GM-12S	3/10/1998	**0.05**	**0.06**	**0.1**	**0.07**	**0.12**	0.02	**0.09**
GM-12S	7/6/1998	0.01	0.01	0.03	0.02	**0.04**	ND	0.03
GM-12S	10/20/1998	0.03	0.03	**0.05**	**0.04**	**0.07 J**	0.01	**0.05**
GM-12S	3/26/1999	0.01	0.01	0.02	0.02	0.02	ND	0.02 U
GM-12S	6/23/1999	ND	0.01	0.01	0.01	0.01	ND	0.01
GM-12S				WELL DELETED FROM cPAH MONITORING PROGRAM				
GM-15S	4/9/1997	ND	ND	ND	ND	ND	ND	ND
GM-15S	7/8/1997	ND	0.01 J	0.02 J	0.01 J	ND	ND	0.01 J
GM-15S	10/21/1997	ND	ND	ND	ND	ND	ND	ND
GM-15S	1/21/1998	ND	ND	ND	ND	ND	ND	ND
GM-15S				WELL DELETED FROM cPAH MONITORING PROGRAM				
GM-16S	4/9/1997	ND	ND	ND	ND	ND	ND	ND
GM-16S	7/8/1997	ND	ND	ND	ND	ND	ND	ND
GM-16S	10/21/1997	ND	ND	ND	ND	ND	ND	ND
GM-16S	1/21/1998	ND	ND	ND	ND	ND	ND	ND
GM-16S				WELL DELETED FROM cPAH MONITORING PROGRAM				
GM-17S	4/9/1997	ND	ND	ND	ND	ND	ND	ND
GM-17S	7/9/1997	0.01 J	ND	0.01 J	0.01 J	0.02 J	0.01 J	0.01 J
GM-17S	10/21/1997	ND	ND	ND	ND	ND	ND	ND
GM-17S	1/22/1998	ND	ND	ND	ND	ND	ND	ND
GM-17S				WELL DELETED FROM cPAH MONITORING PROGRAM				
GM-24S	4/9/1997	ND	ND	ND	ND	ND	ND	ND
GM-24S	7/9/1997	ND	ND	ND	ND	ND	ND	ND
GM-24S	10/22/1997	ND	ND	ND	ND	ND	ND	ND
GM-24S	1/22/1998	ND	ND	ND	ND	ND	ND	ND
GM-24S				WELL DELETED FROM cPAH MONITORING PROGRAM				
AR-03	4/9/1997	ND R	ND R	ND R	ND R	ND R	ND R	ND R
AR-03	7/8/1997	ND	ND	ND	ND	ND	ND	ND
AR-03	10/21/1997	ND	ND	ND	ND	ND	ND	ND
AR-03	1/21/1998	ND	ND	ND	ND	ND	ND	ND
AR-03				WELL DELETED FROM cPAH MONITORING PROGRAM				
Cleanup Level		0.031	0.031	0.031	0.031	0.031	0.031	0.031

Table 7. Groundwater Monitoring Analytical Results for cPAHs
Site: Former BP Harbor Island Terminal

Well	Date	Benz(a)anthracene (µg/L)	Benzo(a)pyrene (µg/L)	Benzo(b)fluoranthene (µg/L)	Benzo(k)fluoranthene (µg/L)	Chrysene (µg/L)	Dibenz(a,h)anthracene (µg/L)	Indeno(1,2,3,-cd)pyrene (µg/L)
Plant 1, continued								
AMW-01	12/21/2000	ND	ND	0.116	ND	ND	ND	ND
AMW-01	3/28/2001	**0.0372 J**	**0.0821 J**	**0.04585 * J**	**0.04585 * J**	**0.0347 J**	ND UJ	ND UJ
AMW-01	6/13/2001	ND	ND	ND *	ND *	ND	**0.052**	ND
AMW-01	10/4/2001	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-01	12/12/2001	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-01	3/7/2002	ND	ND	ND	ND	ND	ND	ND
AMW-01	6/12/2002	ND	ND	ND	ND	ND	ND	ND
AMW-01	9/19/2002	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-01	12/17/2002	0.0292 J	ND	ND	ND	ND	ND	ND
AMW-01	6/16/2004	ND	ND	ND	ND	ND	ND	ND
AMW-01	9/28/2004	ND	ND	ND	ND	ND	ND	ND
AMW-01	12/6/2004	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-01	3/10/2005	U	U	**0.0509**	U	**0.0637**	**0.0483**	**0.0506**
AMW-01	6/21/2005	0.024	ND	**0.0411**	**0.0502**	**0.0322**	ND	0.0222
AMW-01	9/27/2005	ND	ND	ND	ND	ND	ND	ND
AMW-01	12/13/2005	ND	ND	ND	ND	ND	ND	ND
AMW-01	3/21/2006	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-01	7/6/2006	ND	ND	ND	ND	ND	ND	ND
AMW-01	9/18/2006	ND	ND	ND	ND	ND	ND	ND
AMW-01	12/12/2006	ND R	ND R	ND R	ND R	ND R	NDR	ND R
AMW-01	3/21/2007	**0.212 J**	**0.177 J**	**0.22 J**	**0.29 J**	**0.215 J**	**0.237 J**	**0.229 J**
AMW-01	6/6/2007	ND	ND	ND	ND	ND	ND	ND
AMW-01	9/12/2007	0.0124 J	ND UJ	ND UJ	ND UJ	0.0133 J	ND UJ	ND UJ
AMW-01	12/18/2007	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-01	3/25/2008	ND	ND	ND	ND	ND	ND	ND
AMW-01	6/25/2008	cPAH Sampling Reduced to an Annual Event						
AMW-01	12/16/2008	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-01	12/16/2009	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-01	12/14/2010	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-01	12/21/2011	ND	ND	0.018	ND	ND	ND	ND
AMW-01	12/19/2012	ND	ND	ND	ND	ND	ND	ND
AMW-01	12/10/2013	ND	ND	ND	ND	ND	ND	ND
AMW-01	12/9/2014	ND	ND	ND	ND	ND	ND	ND
AMW-01	12/15/2015	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-01	12/6/2016	ND	ND U	ND	ND	ND	ND U	ND
AMW-01	12/5/2017	ND	ND UJ	ND UJ	ND	ND	ND	ND UJ
AMW-01	12/11/2018	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-01	12/17/2019	ND	ND	ND	ND	ND	ND	ND
AMW-01	12/16/2020	ND	ND	0.022	ND	ND	ND	ND
AMW-01	12/8/2021	ND	ND	ND	ND	ND	ND	ND
AMW-02	12/21/2000	ND	ND	ND	ND	ND	ND	ND
AMW-02	3/28/2001	Warehouse not accessible due to earthquake damage.						
AMW-02	6/13/2001	ND UJ	ND UJ	ND UJ *	ND UJ *	ND UJ	**0.052 J**	ND UJ
AMW-02	10/4/2001	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-02	12/12/2001	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
Cleanup Level		0.031	0.031	0.031	0.031	0.031	0.031	0.031

Table 7. Groundwater Monitoring Analytical Results for cPAHs
Site: Former BP Harbor Island Terminal

Well	Date	Benz(a)anthracene (µg/L)	Benzo(a)pyrene (µg/L)	Benzo(b)fluoranthene (µg/L)	Benzo(k)fluoranthene (µg/L)	Chrysene (µg/L)	Dibenz(a,h)anthracene (µg/L)	Indeno(1,2,3,-cd)pyrene (µg/L)
Plant 1, continued								
AMW-02	6/12/2002	ND	ND	ND	ND	ND	ND	ND
AMW-02	9/19/2002	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-02	12/17/2002	ND	ND	ND	ND	ND	ND	ND
AMW-02	6/16/2004	ND	ND	ND	ND	**0.0322**	ND	ND
AMW-02	9/28/2004	ND	ND	ND	ND	ND	ND	ND
AMW-02	12/8/2004	ND	ND	ND	ND	ND	ND	ND
AMW-02	3/10/2005	U	U	0.136	U	U	0.0153	0.0143
AMW-02	6/21/2005	ND	ND	ND	ND	ND	ND	ND
AMW-02	9/27/2005	ND	ND	ND	ND	ND	ND	ND
AMW-02	12/13/2005	ND	ND	ND	ND	ND	ND	ND
AMW-02	3/21/2006	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-02	7/6/2006	ND	ND	ND	ND	ND	ND	ND
AMW-02	9/18/2006	ND	ND	ND	ND	ND	ND	ND
AMW-02	12/12/2006	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	NDUJ
AMW-02	3/21/2007	**0.201**	**0.191**	**0.207**	**0.237**	**0.215**	**0.226**	**0.232**
AMW-02	6/6/2007	ND	ND	ND	ND	ND	ND	ND
AMW-02	9/12/2007	ND UJ	ND UJ	ND UJ	ND UJ	0.0117 J	ND UJ	ND UJ
AMW-02	12/18/2008	ND	ND	ND	ND	ND	ND	ND
AMW-02	3/25/2008	ND	ND	ND	ND	ND	ND	ND
AMW-02	6/25/2008	cPAH Sampling Reduced to an Annual Event						
AMW-02	12/16/2008	ND	ND	ND	ND	ND	ND	ND
AMW-02	12/16/2009	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-02	12/14/2010	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-02	12/21/2011	ND	ND	ND	0.017	ND	ND	ND
AMW-02	12/19/2012	ND	ND	ND	ND	ND	ND	ND
AMW-02	12/10/2013	0.016	ND	ND	ND	ND	ND	ND
AMW-02	12/9/2014	ND	ND	ND	ND	ND	ND	ND
AMW-02	12/15/2015	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-02	12/6/2016	ND	ND U	ND	ND	ND	ND	ND
AMW-02	12/5/2017	0.029	**0.041**	**0.068**	ND	**0.045**	ND	**0.042**
AMW-02	12/11/2018	ND	ND	ND	ND	ND	ND	ND
AMW-02	12/17/2019	ND	ND	ND	ND	ND	ND	ND
AMW-02	12/16/2020	ND	ND	ND	ND	ND	ND	ND
AMW-02	12/8/2021	ND	ND	ND	ND	ND	ND	ND
AMW-03	12/21/2000	ND	ND	ND	ND	ND	ND	ND
AMW-03	3/28/2001	Warehouse not accessible due to earthquake damage.						
AMW-03	6/13/2001	ND	ND	ND *	ND *	ND	**0.051**	ND
AMW-03	10/4/2001	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-03	12/12/2001	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-03	6/12/2002	ND	ND	ND	ND	ND	ND	ND
AMW-03	9/19/2002	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-03	12/17/2002	ND	ND	ND	ND	ND	ND	ND
AMW-03	6/16/2004	ND	ND	ND	ND	ND	ND	ND
AMW-03	9/28/2004	ND	ND	ND	ND	ND	ND	ND
AMW-03	1/20/2005	ND	ND	ND	ND	ND	ND	ND
Cleanup Level		0.031	0.031	0.031	0.031	0.031	0.031	0.031

Table 7. Groundwater Monitoring Analytical Results for cPAHs
Site: Former BP Harbor Island Terminal

Well	Date	Benz(a)anthracene (µg/L)	Benzo(a)pyrene (µg/L)	Benzo(b)fluoranthene (µg/L)	Benzo(k)fluoranthene (µg/L)	Chrysene (µg/L)	Dibenz(a,h)anthracene (µg/L)	Indeno(1,2,3,-cd)pyrene (µg/L)
Plant 1, continued								
AMW-03	3/10/2005	U	ND	0.142	U	U	ND	ND
AMW-03	6/21/2005	ND	ND	ND	ND	ND	ND	ND
AMW-03	9/27/2005	ND	ND	ND	ND	ND	ND	ND
AMW-03	12/13/2005	ND	ND	ND	ND	ND	ND	ND
AMW-03	3/21/2006	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-03	7/6/2006	ND	ND	ND	ND	ND	ND	ND
AMW-03	9/18/2006	ND	ND	ND	ND	ND	ND	ND
AMW-03	12/12/2006	**0.0835J**	NDUJ	0.157J	**0.0387J**	**0.0784J**	**0.116J**	**0.125J**
AMW-03	3/21/2007	**0.0714**	**0.0689**	**0.0583**	**0.0773**	**0.0851**	**0.0823**	**0.0752**
AMW-03	6/6/2007	ND	ND	ND	ND	ND	ND	ND
AMW-03	9/12/2007	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-03	12/18/2007	ND	ND	ND	ND	ND	ND	ND
AMW-03	3/25/2008	ND	ND	ND	ND	ND	ND	ND
AMW-03	6/25/2008	cPAH Sampling Reduced to an Annual Event						
AMW-03	12/16/2008	ND	ND	ND	ND	ND	ND	ND
AMW-03	12/16/2009	ND	ND	ND	ND	ND	ND	ND
AMW-03	12/14/2010	ND	ND	ND	ND	ND	ND	ND
AMW-03	12/21/2011	0.017	0.028	**0.051**	0.017	0.030	ND	0.030
AMW-03	12/19/2012	ND	ND	ND	ND	ND	ND	ND
AMW-03	12/10/2013	ND	ND	ND	0.019	0.016	ND	ND
AMW-03	12/9/2014	ND	ND	0.024	ND	0.027	ND	ND
AMW-03	12/15/2015	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-03	12/6/2016	ND	ND U	ND	ND	ND	ND	ND
AMW-03	12/5/2017	0.029	0.028	**0.049**	ND	**0.037**	ND	**0.036**
AMW-03	12/11/2018	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-03	12/17/2019	ND	ND	ND	ND	ND	ND	ND
AMW-03	12/16/2020	ND	ND	ND	ND	ND	ND	ND
AMW-03	12/8/2021	ND	ND	ND	ND	ND	ND	ND
AMW-04	12/21/2000	ND	ND	ND	ND	ND	ND	ND
AMW-04	3/28/2001	**0.0497**	**0.0762 J**	**0.04325 * J**	**0.04325 * J**	**0.0451 J**	ND UJ	ND UJ
AMW-04	6/13/2001	ND	ND	ND *	ND *	ND	**0.054**	ND
AMW-04	10/4/2001	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-04	12/12/2001	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-04	3/7/2002	0.0264	ND	0.0276	ND	**0.0350**	ND	ND
AMW-04	6/12/2002	ND	ND	ND	ND	ND	ND	ND
AMW-04	9/19/2002	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-04	12/17/2002	**0.0396 J**	ND	ND	ND	ND	ND	ND
AMW-04	6/16/2004	ND	ND	ND	ND	ND	ND	ND
AMW-04	9/27/2004	**0.0338**	ND	0.0116	0.0152	**0.0343**	ND	ND
AMW-04	12/6/2004	ND	ND	ND	ND	ND	ND	ND
AMW-04	3/10/2005	ND	ND	ND	ND	ND	ND	ND
AMW-04	6/21/2005	ND R	ND R	ND R	ND R	ND R	ND R	ND R
AMW-04	9/27/2005	ND	ND	ND	ND	ND	ND	ND
AMW-04	12/13/2005	ND	ND	ND	ND	ND	ND	ND
AMW-04	3/21/2006	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
Cleanup Level		0.031	0.031	0.031	0.031	0.031	0.031	0.031

Table 7. Groundwater Monitoring Analytical Results for cPAHs
Site: Former BP Harbor Island Terminal

Well	Date	Benz(a)anthracene (µg/L)	Benzo(a)pyrene (µg/L)	Benzo(b)fluoranthene (µg/L)	Benzo(k)fluoranthene (µg/L)	Chrysene (µg/L)	Dibenz(a,h)anthracene (µg/L)	Indeno(1,2,3,-cd)pyrene (µg/L)
Plant 1, continued								
AMW-04	7/6/2006	ND	ND	ND	ND	ND	ND	ND
AMW-04	9/18/2006	ND	ND	ND	ND	ND	ND	ND
AMW-04	12/12/2006	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-04	3/21/2007	ND	ND	ND	ND	ND	ND	ND
AMW-04	6/6/2007	ND	ND	ND	ND	ND	ND	ND
AMW-04	9/12/2007	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-04	12/18/2007	ND	ND	ND	ND	ND	ND	ND
AMW-04	3/26/2008	ND	ND	ND	ND	ND	ND	ND
AMW-04	6/25/2008			cPAH Sampling Reduced to an Annual Event				
AMW-04	12/16/2008	ND	ND	ND	ND	ND	ND	ND
AMW-04	12/16/2009	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-04	12/14/2010	**0.031 J**	0.023 J	**0.034 J**	**0.044 J**	**0.043 J**	**0.085 J**	**0.076 J**
AMW-04	12/21/2011	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-04	12/19/2012	ND	ND	ND	ND	ND	ND	ND
AMW-04	12/10/2013	ND	ND	ND	ND	ND	ND	ND
AMW-04	12/9/2014	ND	ND	ND	ND	ND	ND	ND
AMW-04	12/15/2015	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-04	12/6/2016	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-04	12/5/2017	0.021	0.025	**0.041**	ND	**0.035**	ND	0.028
AMW-04	12/11/2018	ND	ND	ND	ND	ND	ND	ND
AMW-04	12/17/2019	ND	ND	ND	ND	ND	ND	ND
AMW-04	12/16/2020	ND	ND	ND	ND	ND	ND	ND
AMW-04	12/8/2021	ND	ND	ND	ND	ND	ND	ND
								ND
AMW-05	12/21/2000	ND	ND	ND	ND	ND	ND	ND
AMW-05	3/28/2001	0.0280 J	**0.0750 J**	**0.0431 * J**	**0.0431 * J**	0.0301 J	ND UJ	ND UJ
AMW-05	6/13/2001	ND UJ	ND UJ	ND UJ *	ND UJ *	ND UJ	ND UJ	ND UJ
AMW-05	10/4/2001	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-05	12/12/2001	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-05	3/7/2002	ND	ND	ND	ND	ND	ND	ND
AMW-05	6/12/2002	ND	ND	ND	ND	ND	ND	ND
AMW-05	9/19/2002	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-05	12/17/2002	ND	ND	ND	ND	ND	ND	ND
AMW-05	6/16/2004	ND	ND	ND	ND	ND	ND	ND
AMW-05	6/16/2004	ND	ND	ND	ND	ND	ND	ND
AMW-05	12/6/2004	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-05	3/10/2005	ND	ND	ND	ND	ND	ND	ND
AMW-05	6/21/2005	0.0132	ND	0.0189	0.0185	0.0178	ND	0.0142
AMW-05	9/27/2005	ND	ND	ND	ND	ND	ND	ND
AMW-05	12/13/2005	ND	ND	ND	ND	ND	ND	ND
AMW-05	3/21/2006	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-05	7/6/2006	ND	ND	ND	ND	ND	ND	ND
AMW-05	9/18/2006	ND	ND	ND	ND	**0.0832 J**	ND	ND
AMW-05	12/12/2006	**0.0771J**	ND UJ	**0.157J**	**0.0397J**	**0.0768J**	**0.121J**	**0.129J**
AMW-05	3/21/2007	**0.0499**	**0.0534**	**0.0551**	**0.51**	**0.0562**	**0.051**	**0.0633**
AMW-05	6/6/2007	ND	ND	ND	ND	ND	ND	ND
Cleanup Level		0.031	0.031	0.031	0.031	0.031	0.031	0.031

Table 7. Groundwater Monitoring Analytical Results for cPAHs
Site: Former BP Harbor Island Terminal

Well	Date	Benz(a)anthracene (µg/L)	Benzo(a)pyrene (µg/L)	Benzo(b)fluoranthene (µg/L)	Benzo(k)fluoranthene (µg/L)	Chrysene (µg/L)	Dibenz(a,h)anthracene (µg/L)	Indeno(1,2,3,-cd)pyrene (µg/L)
Plant 1, continued								
AMW-05	9/12/2007	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-05	12/18/2007	ND	ND	ND	ND	ND	ND	ND
AMW-05	3/26/2008	0.0159	ND	ND	ND	0.0116	ND	ND
AMW-05	6/25/2008	cPAH Sampling Reduced to an Annual Event						
AMW-05	12/16/2008	ND	ND	ND	ND	ND	ND	ND
AMW-05	12/16/2009	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-05	12/14/2010	0.019 J	0.018 J	0.021 J	0.020 J	0.025 J	ND UJ	ND UJ
AMW-05	12/21/2011	ND	ND	0.018	ND	ND	ND	ND
AMW-05	12/19/2012	ND	ND	ND	ND	ND	ND	ND
AMW-05	12/10/2013	**0.037**	**0.031**	**0.053**	ND	**0.051**	ND	0.030
AMW-05	12/9/2014	ND	ND	ND	ND	ND	ND	ND
AMW-05	12/15/2015	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-05	12/6/2016	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-05	12/5/2017	0.023	**0.032**	**0.049**	ND	**0.035**	ND	**0.034**
AMW-05	12/11/2018	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ	ND UJ
AMW-05	12/17/2019	ND	ND	ND	ND	ND	ND	ND
AMW-05	12/16/2020	ND	ND	ND	ND	ND	ND	ND
AMW-05	12/8/2021	ND	ND	ND	ND	ND	ND	ND
Plant 2								
GM-19S	4/10/1997	ND	ND	ND	ND	ND	ND	ND
GM-19S	7/9/1997	ND	ND	ND	ND	ND	ND	ND
GM-19S	10/22/1997	ND	ND	ND	ND	ND	ND	ND
GM-19S	1/22/1998	ND	ND	ND	ND	ND	ND	ND
GM-19S		WELL DELETED FROM cPAH MONITORING PROGRAM						
GM-19D	4/10/1997	ND	ND	ND	ND	ND	ND	ND
GM-19D	7/9/1997	ND	ND	ND	ND	ND	ND	ND
GM-19D	10/22/1997	ND	ND	ND	ND	ND	ND	ND
GM-19D	1/22/1998	ND	ND	ND	ND	ND	ND	ND
GM-19D		WELL DELETED FROM cPAH MONITORING PROGRAM						
GM-21S	4/10/1997	ND	ND	ND	ND	ND	ND	ND
GM-21S	7/9/1997	ND	ND	ND	ND	ND	ND	ND
GM-21S	10/23/1997	ND	ND	ND	ND	ND	ND	ND
GM-21S	1/23/1998	ND	ND	ND	ND	ND	ND	ND
GM-21S		WELL DELETED FROM cPAH MONITORING PROGRAM						
GM-21D	4/10/1997	ND	ND	ND	ND	ND	ND	ND
GM-21D	7/9/1997	0.01 J	0.01 J	0.02 J	0.02 J	0.02 UJ	ND	0.01 J
GM-21D	10/23/1997	ND	ND	ND	ND	ND	ND	ND
GM-21D	1/23/1998	ND	ND	ND	ND	ND	ND	ND
GM-21D		WELL DELETED FROM cPAH MONITORING PROGRAM						
GM-23S	7/9/1997	ND	ND	ND	ND	ND	ND	ND
GM-23S	10/22/1997	ND	ND	ND	ND	ND	ND	ND
GM-23S		WELL DELETED FROM cPAH MONITORING PROGRAM						
Cleanup Level		0.031	0.031	0.031	0.031	0.031	0.031	0.031

Table 7. Groundwater Monitoring Analytical Results for cPAHs
Site: Former BP Harbor Island Terminal

Well	Date	Benz(a)anthracene (µg/L)	Benzo(a)pyrene (µg/L)	Benzo(b)fluoranthene (µg/L)	Benzo(k)fluoranthene (µg/L)	Chrysene (µg/L)	Dibenz(a,h)anthracene (µg/L)	Indeno(1,2,3,-cd)pyrene (µg/L)

Note: Values in **bold** exceed the cleanup level.

cPAHs Carcinogenic polynuclear aromatic hydrocarbons.
J Estimated value.
µg/L Micrograms per liter.
NA Not analyzed.
ND Constituent not detected above reporting limit.
R Rejected; the presence or absence of the constituent cannot be verified.
U Undetected.

Table 8. Monthly Groundwater LNAPL and Sheen Monitoring
Site: Former BP Harbor Island Terminal

Well	Date	Free Product
Plant 1		
GM-11S	9/29/1999	**~0.29 foot**
GM-11S	10/19/1999	**~0.59 foot**
GM-11S	11/19/1999	**~0.51 foot**
GM-11S	12/28/1999	**~0.10 foot**
GM-11S	1/21/2000	**~0.01 foot**
GM-11S	2/16/2000	**~0.01 foot**
GM-11S	3/27/2000	**~0.01 foot**
GM-11S	4/14/2000	**~0.01 foot**
GM-11S	5/15/2000	**~0.34 foot**
GM-11S	6/26/2000	**~0.07 foot**
GM-11S	7/19/2000	None
GM-11S	8/15/2000	None
GM-11S	9/29/2000	**Sheen**
GM-11S	10/12/2000	None
GM-11S	11/14/2000	**~0.03 foot**
GM-11S	12/14/2000	None
GM-11S	1/11/2001	**~0.01 foot**
GM-11S	2/15/2001	None
GM-11S	3/15/2001	None
GM-11S	4/13/2001	None
GM-11S	5/16/2001	**~0.13 foot**
GM-11S	6/11/2001	None
GM-11S	7/24/2001	None
GM-11S	8/21/2001	None
GM-11S	9/6/2001	**Sheen**
GM-11S	10/19/2001	None
GM-11S	11/15/2001	**Sheen**
GM-11S	12/10/2001	**Sheen**
GM-11S	1/16/2002	**Sheen**
GM-11S	2/21/2002	**Sheen**
GM-11S	3/18/2002	**Sheen**
GM-11S	4/18/2002	**Sheen**
GM-11S	5/20/2002	**Sheen**
GM-11S	6/19/2002	**Sheen**
GM-11S	7/15/2002	**Sheen**
GM-11S	8/20/2002	**Sheen**
GM-11S	9/20/2002	**Sheen**
GM-11S	10/15/2002	**Sheen**
GM-11S	11/27/2002	**Sheen**
GM-11S	12/18/2002	**Sheen**
GM-11S	1/16/2003	**Sheen**
GM-11S	2/11/2003	**Sheen**
GM-11S	3/11/2003	**Sheen**
GM-11S	4/15/2003	**Sheen**
GM-11S	5/15/2003	**Sheen**
GM-11S	6/17/2003	**Sheen**
GM-11S	7/15/2003	**Sheen**
GM-11S	8/13/2003	**Sheen**
GM-11S	9/16/2003	**Sheen**
GM-11S	10/14/2003	**Sheen**
GM-11S	11/19/2003	**Sheen**
GM-11S	12/17/2003	**Sheen**
GM-11S	1/13/2004	**Sheen**
GM-11S	2/10/2004	**Sheen**
Cleanup Level		No Sheen

Well	Date	Free Product
Plant 1, continued		
GM-11S	3/17/2004	**Sheen**
GM-11S	4/15/2004	**Sheen**
GM-11S	5/25/2004	**Sheen**
GM-11S	6/13/2004	**Sheen**
GM-11S	7/13/2004	**Sheen**
GM-11S	8/12/2004	**Sheen**
GM-11S	9/16/2004	**Sheen**
GM-11S	10/13/2004	**Sheen**
GM-11S	11/18/2004	**Sheen**
GM-11S	12/16/2004	**Sheen**
GM-11S	1/13/2005	**Sheen**
GM-11S	2/15/2005	**Sheen**
GM-11S	3/15/2005	**Sheen**
GM-11S	4/15/2005	**Sheen**
GM-11S	5/20/2005	**Sheen**
GM-11S	6/10/2005	**Sheen**
GM-11S	7/15/2005	**Sheen**
GM-11S	8/12/2005	**Sheen**
GM-11S	9/14/2005	**Sheen**
GM-11S	10/14/2005	**Sheen**
GM-11S	11/23/2005	**Sheen**
GM-11S	12/19/2005	**Sheen**
GM-11S	1/25/2006	**Sheen**
GM-11S	2/14/2006	**Sheen**
GM-11S	3/15/2006	**Sheen**
GM-11S	4/14/2006	**Sheen**
GM-11S	5/17/2006	**Sheen**
GM-11S	6/14/2006	**Sheen**
GM-11S	7/12/2006	**Sheen**
GM-11S	8/16/2006	**Sheen**
GM-11S	9/13/2006	**Sheen**
GM-11S	10/12/2006	**Sheen**
GM-11S	11/17/2006	**Sheen**
GM-11S	12/19/2006	**Sheen**
GM-11S	1/19/2007	**Sheen**
GM-11S	2/16/2007	**Sheen**
GM-11S	3/19/2007	**Sheen**
GM-11S	4/19/2007	**Sheen**
GM-11S	5/17/2007	**Sheen**
GM-11S	6/14/2007	**Sheen**
GM-11S	7/13/2007	**Sheen**
GM-11S	8/16/2007	**Sheen**
GM-11S	9/10/2007	**Sheen**
GM-11S	10/17/2007	**Sheen**
GM-11S	11/16/2007	**Sheen**
GM-11S	12/14/2007	**Sheen**
GM-11S	1/22/2008	**Sheen**
GM-11S	2/14/2008	**Sheen**
GM-11S	3/14/2008	**Sheen**
GM-11S	4/18/2008	**Sheen**
GM-11S	5/16/2008	**Sheen**
GM-11S	6/18/2008	**Sheen**
GM-11S	7/16/2008	**Sheen**
GM-11S	8/18/2008	**Sheen**
Cleanup Level		No Sheen

Table 8. Monthly Groundwater LNAPL and Sheen Monitoring
Site: Former BP Harbor Island Terminal

Well	Date	Free Product
Plant 1, continued		
GM-11S	9/16/2008	**Sheen**
GM-11S	10/15/2008	**Sheen**
GM-11S	11/14/2008	**Sheen**
GM-11S	12/11/2008	**Sheen**
GM-11S	1/14/2009	**Sheen**
GM-11S	2/18/2009	**Sheen**
GM-11S	3/17/2009	**Sheen**
GM-11S	4/16/2009	None
GM-11S	5/14/2009	None
GM-11S	6/16/2009	None
GM-11S	7/22/2009	**Sheen**
GM-11S	8/18/2009	**Sheen**
GM-11S	9/14/2009	**Sheen**
GM-11S	10/20/2009	**Sheen**
GM-11S	11/18/2009	None
GM-11S	12/15/2009	None
GM-11S	1/21/2010	**Sheen**
GM-11S	2/17/2010	**Sheen**
GM-11S	3/16/2010	**Sheen**
GM-11S	4/15/2010	None
GM-11S	5/18/2010	**Sheen**
GM-11S	6/17/2010	**Sheen**
GM-11S	7/29/2010	**Sheen**
GM-11S	8/19/2010	**Sheen**
GM-11S	9/22/2010	**Sheen**
GM-11S	10/20/2010	**Sheen**
GM-11S	11/30/2010	**Sheen**
GM-11S	12/23/2010	**Sheen**
GM-11S	1/19/2011	**Sheen**
GM-11S	2/16/2011	**Sheen**
GM-11S	3/29/2011	**Sheen**
GM-11S	4/21/2011	**Sheen**
GM-11S	5/19/2011	**Sheen**
GM-11S	6/15/2011	**Sheen**
GM-11S	7/20/2011	None
GM-11S	8/17/2011	None
GM-11S	9/14/2011	None
GM-11S	10/12/2011	None
GM-11S	11/23/2011	None
GM-11S	12/14/2011	None
GM-11S	1/24/2012	None
GM-11S	2/15/2012	None
GM-11S	3/16/2012	None
GM-11S	4/18/2012	None
GM-11S	5/16/2012	None
GM-11S	6/13/2012	None
GM-11S	7/20/2012	None
GM-11S	9/6/2012	None
GM-11S	10/24/2012	None
GM-11S	11/28/2012	None
GM-11S	12/18/2012	None
GM-11S	1/23/2013	**Sheen**
GM-11S	2/21/2013	**Sheen**
GM-11S	8/15/2012	None
Cleanup Level		No Sheen

Table 8. Monthly Groundwater LNAPL and Sheen Monitoring
Site: Former BP Harbor Island Terminal

Well	Date	Free Product
Plant 1, continued		
GM-11S	3/13/2013	None
GM-11S	4/17/2013	None
GM-11S	5/22/2013	None
GM-11S	6/12/2013	None
GM-11S	7/24/2013	**Sheen**
GM-11S	8/21/2013	None
GM-11S	9/25/2013	**Sheen**
GM-11S	10/15/2013	None
GM-11S	11/20/2013	None
GM-11S	12/18/2013	None
GM-11S	1/15/2014	None
GM-11S	2/12/2014	None
GM-11S	3/20/2014	None
GM-11S	4/16/2014	None
GM-11S	5/21/2014	None
GM-11S	6/18/2014	None
GM-11S	7/25/2014	None
GM-11S	8/13/2014	None
GM-11S	9/17/2014	None
GM-11S	10/15/2014	None
GM-11S	11/18/2014	None
GM-11S	12/17/2014	None
GM-11S	1/14/2015	None
GM-11S	2/11/2015	None
GM-11S	3/18/2015	None
GM-11S	4/15/2015	None
GM-11S	5/14/2015	None
GM-11S	6/17/2015	None
GM-11S	7/15/2015	None
GM-11S	8/12/2015	None
GM-11S	9/16/2015	None
GM-11S	10/14/2015	None
GM-11S	11/18/2015	None
GM-11S	12/10/2015	None
GM-11S	1/13/2016	None
GM-11S	2/10/2016	None
GM-11S	3/16/2016	None
GM-11S	4/13/2016	None
GM-11S	5/18/2016	None
GM-11S	6/15/2016	None
GM-11S	7/12/2016	None
GM-11S	8/18/2016	None
GM-11S	9/21/2016	None
GM-11S	10/19/2016	None
GM-11S	11/16/2016	None
GM-11S	12/14/2016	None
GM-11S	1/18/2017	None
GM-11S	2/15/2017	None
GM-11S	3/15/2017	None
GM-11S	4/12/2017	None
GM-11S	5/17/2017	None
GM-11S	6/14/2017	None
GM-11S	7/19/2017	None
GM-11S	8/16/2017	None
Cleanup Level		No Sheen

Table 8. Monthly Groundwater LNAPL and Sheen Monitoring
Site: Former BP Harbor Island Terminal

Well	Date	Free Product
Plant 1, continued		
GM-11S	9/20/2017	None
GM-11S	10/18/2017	**Sheen**
GM-11S	11/15/2017	**Sheen**
GM-11S	12/13/2017	None
GM-11S	1/17/2018	None
GM-11S	2/14/2018	None
GM-11S	3/14/2018	None
GM-11S	4/18/2018	None
GM-11S	5/16/2018	**Sheen**
GM-11S	6/13/2018	**Sheen**
GM-11S	7/18/2018	**Sheen**
GM-11S	8/15/2018	**Sheen**
GM-11S	9/19/2018	None
GM-11S	10/17/2018	None
GM-11S	11/14/2018	None
GM-11S	12/19/2018	None
GM-11S	1/16/2019	None
GM-11S	2/15/2019	None
GM-11S	3/20/2019	None
GM-11S	4/24/2019	None
GM-11S	5/14/2019	None
GM-11S	6/10/2019	None
GM-11S	7/10/2019	None
GM-11S	8/13/2019	None
GM-11S	9/10/2019	None
GM-11S	10/16/2019	None
GM-11S	11/20/2019	None
GM-11S	12/11/2019	None
GM-11S	1/23/2020	None
GM-11S	2/20/2020	None
GM-11S	3/24/2020	None
GM-11S	4/23/2020	None
GM-11S	5/28/2020	None
GM-11S	6/18/2020	None
GM-11S	7/23/2020	None
GM-11S	8/20/2020	None
GM-11S	9/24/2020	None
GM-11S	10/22/2020	None
GM-11S	11/19/2020	None
GM-11S	12/23/2020	None
GM-11S	1/21/2021	None
GM-11S	2/18/2021	None
GM-11S	3/18/2021	None
GM-11S	4/15/2021	None
GM-11S	5/20/2021	None
GM-11S	6/24/2021	None
GM-11S	7/22/2021	None
GM-11S	8/26/2021	None
GM-11S	9/16/2021	None
GM-11S	10/21/2021	**Slight Sheen**
GM-11S	11/18/2021	None
GM-11S	12/16/2021	None
GM-11S	1/20/2022	None
GM-11S	2/17/2022	None
Cleanup Level		No Sheen

Table 8. Monthly Groundwater LNAPL and Sheen Monitoring
Site: Former BP Harbor Island Terminal

Well	Date	Free Product
Plant 1, continued		
GM-11S	3/17/2022	None
GM-12S	4/14/2000	None
GM-12S	5/15/2000	NM
GM-12S	6/15/2000	NM
GM-12S	7/19/2000	NM
GM-12S	8/15/2000	NM
GM-12S	9/29/2000	None
GM-12S	10/12/2000	None
GM-12S	11/14/2000	None
GM-12S	12/14/2000	None
GM-12S	1/11/2001	None
GM-12S	2/15/2001	None
GM-12S	3/15/2001	None
GM-12S	4/13/2001	None
GM-12S	5/16/2001	None
GM-12S	6/11/2001	None
GM-12S	7/24/2001	None
GM-12S	8/21/2001	None
GM-12S	9/6/2001	None
GM-12S	10/19/2001	None
GM-12S	11/15/2001	None
GM-12S	12/10/2001	None
GM-12S	1/16/2002	NM
GM-12S	2/21/2002	None
GM-12S	3/18/2002	None
GM-12S	4/18/2002	None
GM-12S	5/20/2002	None
GM-12S	6/19/2002	None
GM-12S	7/15/2002	None
GM-12S	8/20/2002	None
GM-12S	9/20/2002	None
GM-12S	10/15/2002	None
GM-12S	11/27/2002	None
GM-12S	12/18/2002	None
GM-12S	1/16/2003	None
GM-12S	2/11/2003	None
GM-12S	3/11/2003	None
GM-12S	4/15/2003	None
GM-12S	5/15/2003	None
GM-12S	6/17/2003	None
GM-12S	7/15/2003	None
GM-12S	8/13/2003	None
GM-12S	9/16/2003	None
GM-12S	10/14/2003	None
GM-12S	11/19/2003	None
GM-12S	12/17/2003	None
GM-12S	1/13/2004	None
GM-12S	2/10/2004	None
GM-12S	3/17/2004	None
GM-12S	4/15/2004	None
GM-12S	5/25/2004	None
GM-12S	6/13/2004	None
GM-12S	7/13/2004	None
Cleanup Level		No Sheen

Table 8. Monthly Groundwater LNAPL and Sheen Monitoring
Site: Former BP Harbor Island Terminal

Well	Date	Free Product
Plant 1, continued		
GM-12S	8/12/2004	None
GM-12S	9/16/2004	None
GM-12S	10/13/2004	None
GM-12S	11/18/2004	None
GM-12S	12/16/2004	None
GM-12S	1/13/2005	None
GM-12S	2/15/2005	None
GM-12S	3/15/2005	None
GM-12S	4/15/2005	None
GM-12S	5/20/2005	None
GM-12S	6/10/2005	None
GM-12S	7/15/2005	None
GM-12S	8/12/2005	None
GM-12S	9/14/2005	None
GM-12S	10/14/2005	None
GM-12S	11/23/2005	None
GM-12S	12/19/2005	None
GM-12S	1/25/2006	None
GM-12S	2/14/2006	None
GM-12S	3/15/2006	None
GM-12S	4/14/2006	None
GM-12S	5/17/2006	None
GM-12S	6/14/2006	None
GM-12S	7/12/2006	None
GM-12S	8/16/2006	None
GM-12S	9/13/2006	None
GM-12S	10/12/2006	None
GM-12S	11/17/2006	None
GM-12S	12/19/2006	None
GM-12S	1/19/2007	None
GM-12S	2/16/2007	None
GM-12S	3/19/2007	None
GM-12S	4/19/2007	None
GM-12S	5/17/2007	None
GM-12S	6/14/2007	None
GM-12S	7/13/2007	None
GM-12S	8/16/2007	None
GM-12S	9/10/2007	None
GM-12S	10/17/2007	None
GM-12S	11/16/2007	None
GM-12S	12/14/2007	None
GM-12S	1/22/2008	None
GM-12S	2/14/2008	None
GM-12S	3/14/2008	None
GM-12S	4/18/2008	None
GM-12S	5/16/2008	None
GM-12S	6/18/2008	None
GM-12S	7/16/2008	None
GM-12S	8/18/2008	None
GM-12S	9/16/2008	None
GM-12S	10/15/2008	None
GM-12S	11/14/2008	None
GM-12S	12/11/2008	None
GM-12S	1/14/2009	None
Cleanup Level		No Sheen

Table 8. Monthly Groundwater LNAPL and Sheen Monitoring
Site: Former BP Harbor Island Terminal

Well	Date	Free Product
Plant 1, continued		
GM-12S	2/18/2009	None
GM-12S	3/17/2009	None
GM-12S	4/16/2009	None
GM-12S	5/14/2009	None
GM-12S	6/16/2009	None
GM-12S	7/22/2009	None
GM-12S	8/18/2009	None
GM-12S	9/14/2009	None
GM-12S	10/20/2009	None
GM-12S	11/18/2009	None
GM-12S	12/15/2009	None
GM-12S	1/21/2010	None
GM-12S	2/17/2010	None
GM-12S	3/16/2010	None
GM-12S	4/15/2010	None
GM-12S	5/18/2010	None
GM-12S	6/17/2010	None
GM-12S	7/29/2010	None
GM-12S	8/19/2010	None
GM-12S	9/22/2010	None
GM-12S	10/20/2010	None
GM-12S	11/30/2010	None
GM-12S	12/23/2010	None
GM-12S	1/19/2011	None
GM-12S	2/16/2011	None
GM-12S	3/29/2011	None
GM-12S	4/21/2011	None
GM-12S	5/19/2011	None
GM-12S	6/15/2011	None
GM-12S	7/20/2011	None
GM-12S	8/17/2011	None
GM-12S	9/14/2011	None
GM-12S	10/12/2011	None
GM-12S	11/23/2011	None
GM-12S	12/14/2011	None
GM-12S	1/24/2012	None
GM-12S	2/15/2012	None
GM-12S	3/16/2012	None
GM-12S	4/18/2012	None
GM-12S	5/16/2012	None
GM-12S	6/13/2012	None
GM-12S	7/20/2012	None
GM-12S	8/15/2012	None
GM-12S	9/6/2012	None
GM-12S	10/24/2012	None
GM-12S	11/28/2012	None
GM-12S	12/18/2012	None
GM-12S	1/23/2012	None
GM-12S	2/21/2013	None
GM-12S	3/13/2013	None
GM-12S	4/17/2013	None
GM-12S	5/22/2013	None
GM-12S	6/12/2013	None
GM-12S	7/24/2013	None
Cleanup Level		No Sheen

Table 8. Monthly Groundwater LNAPL and Sheen Monitoring
Site: Former BP Harbor Island Terminal

Well	Date	Free Product
Plant 1, continued		
GM-12S	8/21/2013	None
GM-12S	9/25/2013	None
GM-12S	10/15/2013	None
GM-12S	11/20/2013	None
GM-12S	12/18/2013	None
GM-12S	1/15/2014	None
GM-12S	2/12/2014	None
GM-12S	3/20/2014	None
GM-12S	4/16/2014	None
GM-12S	5/21/2014	None
GM-12S	6/18/2014	None
GM-12S	7/25/2014	None
GM-12S	8/13/2014	None
GM-12S	9/17/2014	None
GM-12S	10/15/2014	None
GM-12S	11/18/2014	None
GM-12S	12/17/2014	None
GM-12S	1/14/2015	None
GM-12S	2/11/2015	None
GM-12S	3/18/2015	None
GM-12S	4/15/2015	None
GM-12S	5/14/2015	None
GM-12S	6/17/2015	None
GM-12S	7/15/2015	None
GM-12S	8/12/2015	None
GM-12S	9/16/2015	None
GM-12S	10/14/2015	None
GM-12S	11/18/2015	None
GM-12S	12/10/2015	None
GM-12S	1/13/2016	None
GM-12S	2/10/2016	None
GM-12S	3/16/2016	None
GM-12S	4/13/2016	None
GM-12S	5/18/2016	None
GM-12S	6/15/2016	None
GM-12S	7/12/2016	None
GM-12S	8/18/2016	None
GM-12S	9/21/2016	None
GM-12S	10/19/2016	None
GM-12S	11/16/2016	None
GM-12S	12/14/2016	None
GM-12S	1/18/2017	None
GM-12S	2/15/2017	None
GM-12S	3/15/2017	Noine
GM-12S	4/12/2017	None
GM-12S	5/17/2017	None
GM-12S	6/14/2017	None
GM-12S	7/19/2017	None
GM-12S	8/16/2017	None
GM-12S	9/20/2017	Noine
GM-12S	10/18/2017	None
GM-12S	11/15/2017	None
GM-12S	12/13/2017	None
GM-12S	1/17/2018	None
Cleanup Level		No Sheen

Well	Date	Free Product
Plant 1, continued		
GM-12S	2/14/2018	None
GM-12S	3/14/2018	None
GM-12S	4/18/2018	None
GM-12S	5/16/2018	None
GM-12S	6/13/2018	None
GM-12S	7/18/2018	None
GM-12S	8/15/2018	None
GM-12S	9/19/2018	None
GM-12S	10/17/2018	None
GM-12S	11/14/2018	None
GM-12S	12/19/2018	None
GM-12S	1/16/2019	None
GM-12S	2/15/2019	None
GM-12S	3/20/2019	None
GM-12S	4/24/2019	None
GM-12S	5/14/2019	None
GM-12S	6/10/2019	None
GM-12S	7/10/2019	None
GM-12S	8/13/2019	None
GM-12S	9/10/2019	None
GM-12S	10/16/2019	None
GM-12S	11/20/2019	None
GM-12S	12/11/2019	None
GM-12S	1/23/2020	None
GM-12S	2/20/2020	None
GM-12S	3/24/2020	None
GM-12S	4/23/2020	None
GM-12S	5/28/2020	None
GM-12S	6/18/2020	None
GM-12S	7/23/2020	None
GM-12S	8/20/2020	None
GM-12S	9/24/2020	None
GM-12S	10/22/2020	None
GM-12S	11/19/2020	None
GM-12S	12/23/2020	None
GM-12S	1/21/2021	None
GM-12S	2/18/2021	None
GM-12S	3/18/2021	None
GM-12S	4/15/2021	None
GM-12S	5/20/2021	None
GM-12S	6/24/2021	None
GM-12S	7/22/2021	None
GM-12S	8/26/2021	None
GM-12S	9/16/2021	None
GM-12S	10/21/2021	None
GM-12S	11/18/2021	None
GM-12S	12/16/2021	None
GM-12S	1/20/2022	None
GM-12S	2/17/2022	None
GM-12S	3/17/2022	None
GM-13S	7/6/1998	**Yes***
GM-13S	10/20/1998	**~0.08 foot**
GM-13S	11/18/1998	**~0.08 foot**
Cleanup Level		No Sheen

Well	Date	Free Product
Plant 1, continued		
GM-13S	12/15/1998	**~0.01 foot**
GM-13S	2/17/1999	**~0.08 foot**
GM-13S	3/15/1999	**~0.34 foot**
GM-13S	4/14/1999	**~0.20 foot**
GM-13S	5/13/1999	**~0.44 foot**
GM-13S	6/15/1999	**~0.35 foot**
GM-13S	7/15/1999	**~0.31 foot**
GM-13S	8/17/1999	**~0.19 foot**
GM-13S	9/16/1999	**~0.09 foot**
GM-13S	10/19/1999	**~0.10 foot**
GM-13S	11/19/1999	**~0.11 foot**
GM-13S	12/28/1999	**~0.12 foot**
GM-13S	1/21/2000	**~0.11 foot**
GM-13S	2/16/2000	
GM-13S	3/21/2000	**~0.11 foot**
GM-13S	4/14/2000	**~0.13 foot**
GM-13S	5/15/2000	**~0.10 foot**
GM-13S	6/16/2000	**Sheen**
GM-13S	7/19/2000	**Sheen**
GM-13S	8/15/2000	**Sheen**
GM-13S	9/29/2000	None
GM-13S	10/12/2000	**Sheen**
GM-13S	11/14/2000	**~0.01 foot**
GM-13S	12/14/2000	NM
GM-13S	1/11/2001	NM
GM-13S	2/15/2001	NM
GM-13S	3/15/2001	NM
GM-13S	4/13/2001	NM
GM-13S	5/16/2001	None
GM-13S	6/11/2001	None
GM-13S	7/24/2001	None
GM-13S	8/21/2001	None
GM-13S	9/6/2001	**Sheen**
GM-13S	10/19/2001	None
GM-13S	11/15/2001	None
GM-13S	12/10/2001	**Sheen**
GM-13S	1/16/2002	**Sheen**
GM-13S	2/21/2002	NM
GM-13S	3/18/2002	None
GM-13S	4/18/2002	None
GM-13S	5/20/2002	None
GM-13S	6/19/2002	None
GM-13S	7/15/2002	None
GM-13S	8/20/2002	None
GM-13S	9/20/2002	None
GM-13S	10/15/2002	None
GM-13S	11/27/2002	None
GM-13S	12/18/2002	None
GM-13S	1/16/2003	None
GM-13S	2/11/2003	None
GM-13S	3/11/2003	**Sheen**
GM-13S	4/15/2003	**Sheen**
GM-13S	5/15/2003	**Sheen**
GM-13S	6/17/2003	None
Cleanup Level		No Sheen

Table 8. Monthly Groundwater LNAPL and Sheen Monitoring
Site: Former BP Harbor Island Terminal

Well	Date	Free Product
Plant 1, continued		
GM-13S	7/15/2003	None
GM-13S	8/13/2003	None
GM-13S	9/16/2003	None
GM-13S	10/14/2003	None
GM-13S	11/19/2003	None
GM-13S	12/17/2003	None
GM-13S	1/13/2004	None
GM-13S	2/10/2004	None
GM-13S	3/17/2004	None
GM-13S	4/15/2004	None
GM-13S	5/25/2004	**Sheen**
GM-13S	6/13/2004	**Sheen**
GM-13S	7/13/2004	**Sheen**
GM-13S	8/12/2004	None
GM-13S	9/16/2004	None
GM-13S	10/13/2004	None
GM-13S	11/18/2004	None
GM-13S	12/16/2004	None
GM-13S	1/13/2005	None
GM-13S	2/15/2005	None
GM-13S	3/15/2005	None
GM-13S	4/15/2005	None
GM-13S	5/20/2005	None
GM-13S	6/10/2005	None
GM-13S	7/15/2005	None
GM-13S	8/12/2005	None
GM-13S	9/14/2005	None
GM-13S	10/14/2005	None
GM-13S	11/23/2005	None
GM-13S	12/19/2005	None
GM-13S	1/25/2006	None
GM-13S	2/14/2006	None
GM-13S	3/15/2006	None
GM-13S	4/14/2006	None
GM-13S	5/17/2006	None
GM-13S	6/14/2006	None
GM-13S	7/12/2006	None
GM-13S	8/16/2006	**Sheen**
GM-13S	9/13/2006	**Sheen**
GM-13S	10/12/2006	None
GM-13S	11/17/2006	None
GM-13S	12/19/2006	None
GM-13S	1/19/2007	None
GM-13S	2/16/2007	None
GM-13S	3/19/2007	**Sheen**
GM-13S	4/19/2007	None
GM-13S	5/17/2007	None
GM-13S	6/14/2007	None
GM-13S	7/13/2007	None
GM-13S	8/16/2007	None
GM-13S	9/10/2007	None
GM-13S	10/17/2007	None
GM-13S	11/16/2007	None
GM-13S	12/14/2007	None
Cleanup Level		No Sheen

Table 8. Monthly Groundwater LNAPL and Sheen Monitoring
Site: Former BP Harbor Island Terminal

Well	Date	Free Product
Plant 1, continued		
GM-13S	1/22/2008	None
GM-13S	2/14/2008	None
GM-13S	3/14/2008	None
GM-13S	4/18/2008	None
GM-13S	5/16/2008	None
GM-13S	6/18/2008	None
GM-13S	7/16/2008	None
GM-13S	8/18/2008	None
GM-13S	9/16/2008	None
GM-13S	10/15/2008	None
GM-13S	11/14/2008	None
GM-13S	12/11/2008	None
GM-13S	1/14/2009	None
GM-13S	2/18/2009	None
GM-13S	3/17/2009	None
GM-13S	4/16/2009	None
GM-13S	5/14/2009	None
GM-13S	6/16/2009	None
GM-13S	7/22/2009	None
GM-13S	8/18/2009	None
GM-13S	9/14/2009	None
GM-13S	10/20/2009	None
GM-13S	11/18/2009	None
GM-13S	12/15/2009	None
GM-13S	1/21/2010	None
GM-13S	2/17/2010	**Sheen**
GM-13S	3/16/2010	**Film**
GM-13S	4/15/2010	**Film**
GM-13S	5/18/2010	**Film**
GM-13S	6/17/2010	**Film**
GM-13S	7/29/2010	**Sheen**
GM-13S	8/19/2010	None
GM-13S	9/22/2010	**Film**
GM-13S	10/20/2010	None
GM-13S	11/30/2010	None
GM-13S	12/23/2010	None
GM-13S	1/19/2011	None
GM-13S	2/16/2011	None
GM-13S	3/29/2011	**Film**
GM-13S	4/21/2011	**~0.01 foot**
GM-13S	5/19/2011	**Film**
GM-13S	6/15/2011	None
GM-13S	7/20/2011	**Film**
GM-13S	8/17/2011	None
GM-13S	9/14/2011	None
GM-13S	10/12/2011	None
GM-13S	11/23/2011	None
GM-13S	12/14/2011	None
GM-13S	1/24/2012	None
GM-13S	2/15/2012	None
GM-13S	3/16/2012	None
GM-13S	4/18/2012	None
GM-13S	5/16/2012	None
GM-13S	6/13/2012	None
Cleanup Level		No Sheen

Table 8. Monthly Groundwater LNAPL and Sheen Monitoring
Site: Former BP Harbor Island Terminal

Well	Date	Free Product
Plant 1, continued		
GM-13S	7/20/2012	**Film**
GM-13S	8/15/2012	**Film**
GM-13S	9/6/2012	**Film**
GM-13S	10/24/2012	**Film**
GM-13S	11/28/2012	**Film**
GM-13S	12/18/2012	None
GM-13S	1/23/2013	None
GM-13S	2/21/2013	None
GM-13S	3/13/2013	None
GM-13S	4/17/2013	None
GM-13S	5/22/2013	None
GM-13S	6/13/2013	None
GM-13S	7/24/2013	None
GM-13S	8/21/2013	None
GM-13S	9/25/213	None
GM-13S	10/15/2013	None
GM-13S	11/20/2013	None
GM-13S	12/18/2013	None
GM-13S	1/15/2014	None
GM-13S	2/12/2014	None
GM-13S	3/20/2014	None
GM-13S	4/16/2014	None
GM-13S	5/21/2014	None
GM-13S	6/18/2014	None
GM-13S	7/25/2014	None
GM-13S	8/13/2014	None
GM-13S	9/17/2014	None
GM-13S	10/15/2014	None
GM-13S	11/18/2014	None
GM-13S	12/17/2014	None
GM-13S	1/14/2015	None
GM-13S	2/11/2015	None
GM-13S	3/18/2015	None
GM-13S	4/15/2015	None
GM-13S	5/14/2015	None
GM-13S	6/17/2015	None
GM-13S	7/15/2015	None
GM-13S	8/12/2015	None
GM-13S	9/16/2015	None
GM-13S	10/14/2015	None
GM-13S	11/18/2015	None
GM-13S	12/10/2015	None
GM-13S	1/13/2016	None
GM-13S	2/10/2016	None
GM-13S	3/16/2016	None
GM-13S	4/13/2016	**Sheen**
GM-13S	5/18/2016	None
GM-13S	6/15/2016	None
GM-13S	7/12/2016	None
GM-13S	8/18/2016	None
GM-13S	9/21/2016	**Sheen**
GM-13S	10/19/2016	None
GM-13S	11/16/2016	None
GM-13S	12/14/2016	None
Cleanup Level		No Sheen

Table 8. Monthly Groundwater LNAPL and Sheen Monitoring
Site: Former BP Harbor Island Terminal

Well	Date	Free Product
Plant 1, continued		
GM-13S	1/18/2017	None
GM-13S	2/15/2017	None
GM-13S	3/15/2017	None
GM-13S	4/12/2017	None
GM-13S	5/17/2017	None
GM-13S	6/14/2017	None
GM-13S	7/19/2017	None
GM-13S	8/16/2017	**Sheen**
GM-13S	9/20/2017	None
GM-13S	10/18/2017	None
GM-13S	11/15/2017	None
GM-13S	12/13/2017	None
GM-13S	1/17/2018	**Sheen**
GM-13S	2/14/2018	None
GM-13S	3/14/2018	None
GM-13S	4/18/2018	None
GM-13S	5/16/2018	**Sheen**
GM-13S	6/13/2018	None
GM-13S	7/18/2018	None
GM-13S	8/15/2018	None
GM-13S	9/19/2018	None
GM-13S	10/17/2018	**Sheen**
GM-13S	11/14/2018	None
GM-13S	12/19/2018	None
GM-13S	1/16/2019	None
GM-13S	2/15/2019	None
GM-13S	3/20/2019	None
GM-13S	4/24/2019	None
GM-13S	5/14/2019	None
GM-13S	6/10/2019	None
GM-13S	7/10/2019	None
GM-13S	8/13/2019	None
GM-13S	9/10/2019	None
GM-13S	10/16/2019	None
GM-13S	11/20/2019	None
GM-13S	12/11/2019	None
GM-13S	1/23/2020	None
GM-13S	2/20/2020	None
GM-13S	3/24/2020	None
GM-13S	4/23/2020	None
GM-13S	5/28/2020	None
GM-13S	6/18/2020	None
GM-13S	7/23/2020	None
GM-13S	8/20/2020	None
GM-13S	9/24/2020	None
GM-13S	10/22/2020	None
GM-13S	11/19/2020	None
GM-13S	12/23/2020	None
GM-13S	1/21/2021	None
GM-13S	2/18/2021	None
GM-13S	3/18/2021	None
GM-13S	4/15/2021	None
GM-13S	5/20/2021	None
GM-13S	6/24/2021	None
Cleanup Level		No Sheen

Well	Date	Free Product
Plant 1, continued		
GM-13S	7/22/2021	None
GM-13S	8/26/2021	None
GM-13S	9/16/2021	**Slight Sheen**
GM-13S	10/21/2021	**Slight Sheen**
GM-13S	11/18/2021	None
GM-13S	12/16/2021	None
GM-13S	1/20/2022	**Slight Sheen**
GM-13S	2/17/2022	None
GM-13S	3/17/2022	**Slight Sheen**
GM-14S	4/9/1997	**Sheen**
GM-14S	7/9/1997	**Sheen**
GM-14S	10/22/1997	**Sheen**
GM-14S	1/22/1998	**Sheen**
GM-14S	3/12/1998	**Sheen**
GM-14S	7/6/1998	**Sheen**
GM-14S	10/20/1998	**Sheen**
GM-14S	12/15/1998	**Sheen**
GM-14S	3/26/1999	**Sheen**
GM-14S	6/28/1999	**Sheen**
GM-14S	9/28/1999	None
GM-14S	8/15/2000	None
GM-14S	9/29/2000	None
GM-14S	10/12/2000	None
GM-14S	11/14/2000	None
GM-14S	12/14/2000	None
GM-14S	1/11/2001	None
GM-14S	2/15/2001	None
GM-14S	3/15/2001	None
GM-14S	4/13/2001	None
GM-14S	5/16/2001	None
GM-14S	6/11/2001	None
GM-14S	7/24/2001	None
GM-14S	8/21/2001	None
GM-14S	9/6/2001	None
GM-14S	10/19/2001	None
GM-14S	11/15/2001	None
GM-14S	12/10/2001	None
GM-14S	1/16/2002	None
GM-14S	2/21/2002	None
GM-14S	3/18/2002	None
GM-14S	4/18/2002	None
GM-14S	5/20/2002	None
GM-14S	6/19/2002	None
GM-14S	7/15/2002	None
GM-14S	8/20/2002	None
GM-14S	9/20/2002	None
GM-14S	10/15/2002	None
GM-14S	11/27/2002	None
GM-14S	12/18/2002	None
GM-14S	1/16/2003	None
GM-14S	2/11/2003	None
GM-14S	3/11/2003	None
GM-14S	4/15/2003	None
Cleanup Level		No Sheen

Table 8. Monthly Groundwater LNAPL and Sheen Monitoring
Site: Former BP Harbor Island Terminal

Well	Date	Free Product
Plant 1, continued		
GM-14S	5/15/2003	None
GM-14S	6/17/2003	None
GM-14S	7/15/2003	None
GM-14S	8/13/2003	None
GM-14S	9/16/2003	None
GM-14S	10/14/2003	None
GM-14S	11/19/2003	None
GM-14S	12/17/2003	None
GM-14S	1/13/2004	None
GM-14S	2/10/2004	None
GM-14S	3/17/2004	None
GM-14S	4/15/2004	None
GM-14S	5/25/2004	None
Converted to Compliance Monitoring		
Plant 2		
MW-03	1/25/1999	NM
MW-03	2/17/1999	None
MW-03	3/15/1999	None
MW-03	4/15/1999	NM
MW-03	5/13/1999	None
MW-03	6/15/1999	NM
MW-03	7/15/1999	NM
MW-03	8/17/1999	**~0.43 foot**
MW-03	9/16/1999	**~0.50 foot**
MW-03	10/19/1999	**~0.42 foot**
MW-03	11/19/1999	**~0.49 foot**
MW-03	12/28/1999	**~0.34 foot**
MW-03	1/21/2000	**~0.02 foot**
MW-03	2/16/2000	**~0.02 foot**
MW-03	3/27/2000	**~0.03 foot**
MW-03	4/14/2000	**~0.04 foot**
Abandoned		
MW-03R	8/21/2001	None
MW-03R	9/16/2001	NM
MW-03R	10/19/2001	NM
MW-03R	11/15/2001	NM
MW-03R	12/10/2001	NM
MW-03R	1/16/2002	NM
MW-03R	2/21/2002	NM
MW-03R	3/18/2002	None
MW-03R	4/18/2002	None
MW-03R	5/20/2002	None
MW-03R	6/19/2002	None
MW-03R	7/15/2002	None
MW-03R	8/20/2002	None
MW-03R	9/20/2002	None
MW-03R	10/15/2002	None
MW-03R	11/27/2002	None
MW-03R	12/18/2002	NM
MW-03R	1/16/2003	NM
MW-03R	2/11/2003	NM
MW-03R	3/11/2003	NM
Cleanup Level		No Sheen

Table 8. Monthly Groundwater LNAPL and Sheen Monitoring
Site: Former BP Harbor Island Terminal

Well	Date	Free Product
Plant 2, continued		
MW-03R	3/25/2003	None
MW-03R	4/15/2003	None
MW-03R	5/15/2003	None
MW-03R	6/17/2003	None
MW-03R	7/15/2003	None
MW-03R	8/13/2003	None
MW-03R	9/16/2003	None
MW-03R	10/14/2003	None
MW-03R	11/19/2003	None
MW-03R	12/17/2003	None
MW-03R	1/13/2004	None
MW-03R	2/10/2004	None
MW-03R	3/17/2004	None
MW-03R	4/15/2004	None
MW-03R	5/25/2004	None
MW-03R	6/13/2004	None
MW-03R	7/13/2004	None
MW-03R	8/12/2004	Deleted from Monitoring
Cleanup Level		No Sheen

Notes: Values in **bold** exceed the cleanup level.

Due to maintenance of a sorbent "sock" placed in GM-13S and MW-03, these measurements do not necessarily reflect actual product thicknesses in the wells.

Active product recovery from GM-11S began in April 2000. Product thickness recorded in GM-11S after that date is not representative of static conditions.

MW-03 was destroyed during Island redevelopment activities and was replaced by MW-03R.

* Free product present, thickness not measured.

~ Approximately.

NM Not measured due to inaccessibility.

Table 9. 2021 Quarterly Performance Monitoring Groundwater Elevations
Site: Former BP Harbor Island Terminal

Well	Date	TOC Elevation (feet)	Depth to Water (ft below TOC)	Groundwater Elevation (feet)
Plant 1				
GM-14S	3/11/2021	11.77	3.66	8.11
GM-14S	6/17/2021		4.43	7.34
GM-14S	9/23/2021		5.21	6.56
GM-14S	12/8/2021		3.44	8.33
GM-15S	3/10/2021	12.32	4.63	7.69
GM-15S	9/22/2021		6.02	6.30
GM-16S	3/11/2021	11.99	4.18	7.81
GM-16S	6/17/2021		4.93	7.06
GM-16S	9/23/2021		5.76	6.23
GM-16S	12/8/2021		4.18	7.81
GM-17S	3/11/2021	12.56	3.98	8.58
GM-17S	6/17/2021		4.92	7.64
GM-17S	9/23/2021		5.91	6.65
GM-17S	12/8/2021		3.64	8.92
GM-24S	3/11/2021	11.11	2.74	8.37
GM-24S	6/17/2021		3.65	7.46
GM-24S	9/23/2021		4.53	6.58
GM-24S	12/8/2021		2.62	8.49
AR-03	3/10/2021	12.49	5.23	7.26
AR-03	9/22/2021		6.74	5.75
AMW-01	3/10/2021	12.17	5.39	6.78
AMW-01	6/17/2021		6.72	5.45
AMW-01	9/22/2021		5.61	6.56
AMW-01	12/8/2021		4.51	7.66
AMW-02	3/10/2021	15.36	9.13	6.23
AMW-02	6/17/2021		10.52	4.84
AMW-02	9/22/2021		8.71	6.65
AMW-02	12/8/2021		7.87	7.49
AMW-03	3/10/2021	15.29	9.34	5.95
AMW-03	6/17/2021		10.32	4.97
AMW-03	9/22/2021		8.24	7.05
AMW-03	12/8/2021		8.66	6.63
AMW-04	3/10/2021	11.42	4.94	6.48
AMW-04	6/17/2021		6.09	5.33
AMW-04	9/22/2021		6.37	5.05
AMW-04	12/8/2021		3.19	8.23

Table 9. 2021 Quarterly Performance Monitoring Groundwater Elevations
Site: Former BP Harbor Island Terminal

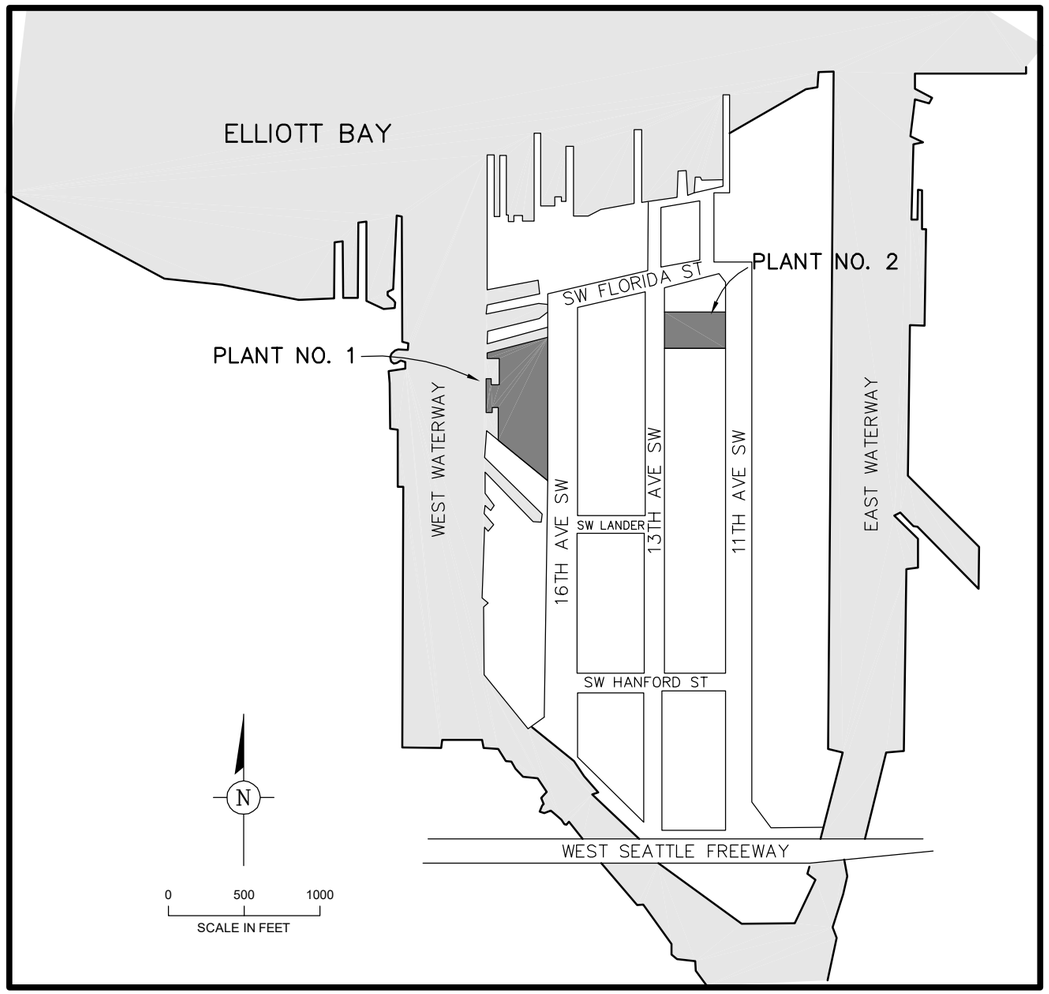
Well	Date	TOC Elevation (feet)	Depth to Water (ft below TOC)	Groundwater Elevation (feet)
Plant 1 Continued				
AMW-05	3/10/2021	11.05	4.78	6.27
AMW-05	6/17/2021		5.82	5.23
AMW-05	9/22/2021		5.40	5.65
AMW-05	12/8/2021		3.05	8.00
MW-06	3/10/2021	11.66	4.13	7.53
MW-06	6/17/2021		4.64	7.02
MW-06	9/22/2021		5.23	6.43
MW-06	12/8/2021		3.79	7.87
MW-1-T9	3/11/2021	12.21	4.99	7.22
MW-1-T9	9/23/2021		6.56	5.65
MW-2-T9	3/11/2021	12.37	4.78	7.59
MW-2-T9	9/23/2021		6.46	5.91
MW-3-T9	3/11/2021	11.87	4.54	7.33
MW-3-T9	9/23/2021		5.91	5.96

Definitions:

ft	Feet
Elevation	Elevations listed are in feet to North American Vertical Datum of 1988 (NAVD88) . Subtract approximately 3.4 feet to listed NAVD88 elevations to convert to the National Geodetic Vertical Datum of 1929 (NGVD 29) elevations for comparison to historic elevations provided in previous reports.
TOC	Top of casing

FIGURES

AREA PLAN



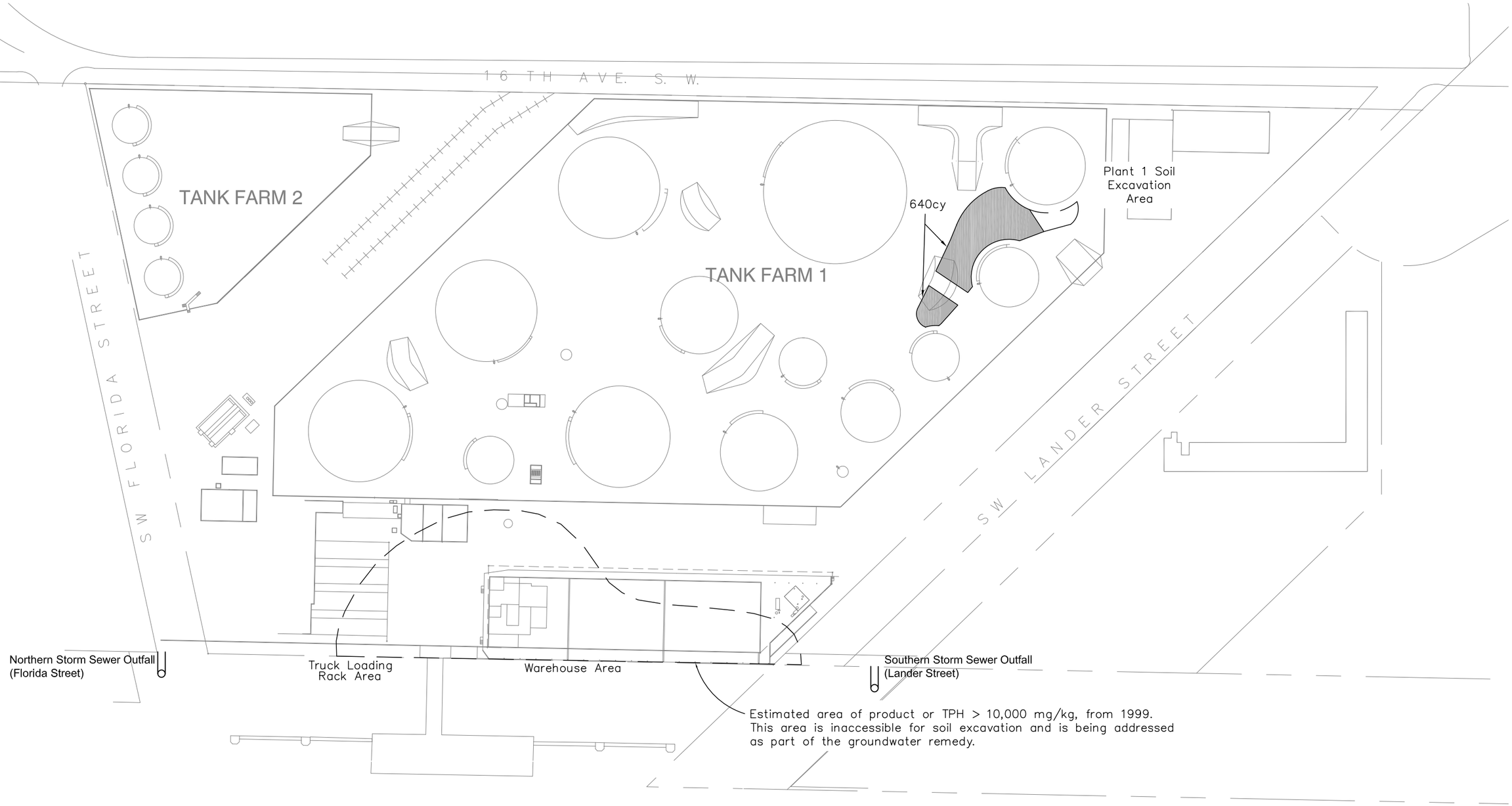
SITE PLAN

TECHSOLVE ENVIRONMENTAL
7518 NE 169th Street, Kenmore WA 98028
(425) 402-8277 FAX (425) 402-7917

Site Location Map

Site: Former BP Harbor Island Terminal
1652 Southwest Lander Street
Seattle, WA 98134

FIGURE
1



LEGEND

FROM 1999: ESTIMATED AREA OF INACCESSIBLE SOILS WITH PRODUCT OR TPH > 20,000 ppm.

EXCAVATED REMEDIATION AREAS

640cy = AMOUNT OF TPH CONTAMINATED SOIL REMOVED (CUBIC YARDS)

N

0 50 100

SCALE IN FEET

TECHSOLVE ENVIRONMENTAL

Areas of Remediation - Plant 1

Site: Former BP Harbor Island Terminal
1652 Southwest Lander Street
Seattle, WA 98134

FIGURE

2

C:\Data\CAD\Projects\TechSolv\ARCO 21T.dwg\ARCO21T.dwg << Areas of Remediation - P1 >> 11/26/2018 (SL)

EAST OF
PLANT 2 FIREWALL
EXCAVATION AREA

1,646cy

5.1cy

1,110cy

NORTH OF
PLANT 2
EXCAVATION AREA

PLANT 2
TANK FARM
EXCAVATION AREA

58cy

2.2cy

9cy

LEGEND

FROM 1999: ESTIMATED AREA OF INACCESSIBLE SOILS WITH PRODUCT OR TPH > 20,000 ppm.

EXCAVATED REMEDIATION AREAS

N

0 50 100

SCALE IN FEET

TECHSOLVE ENVIRONMENTAL

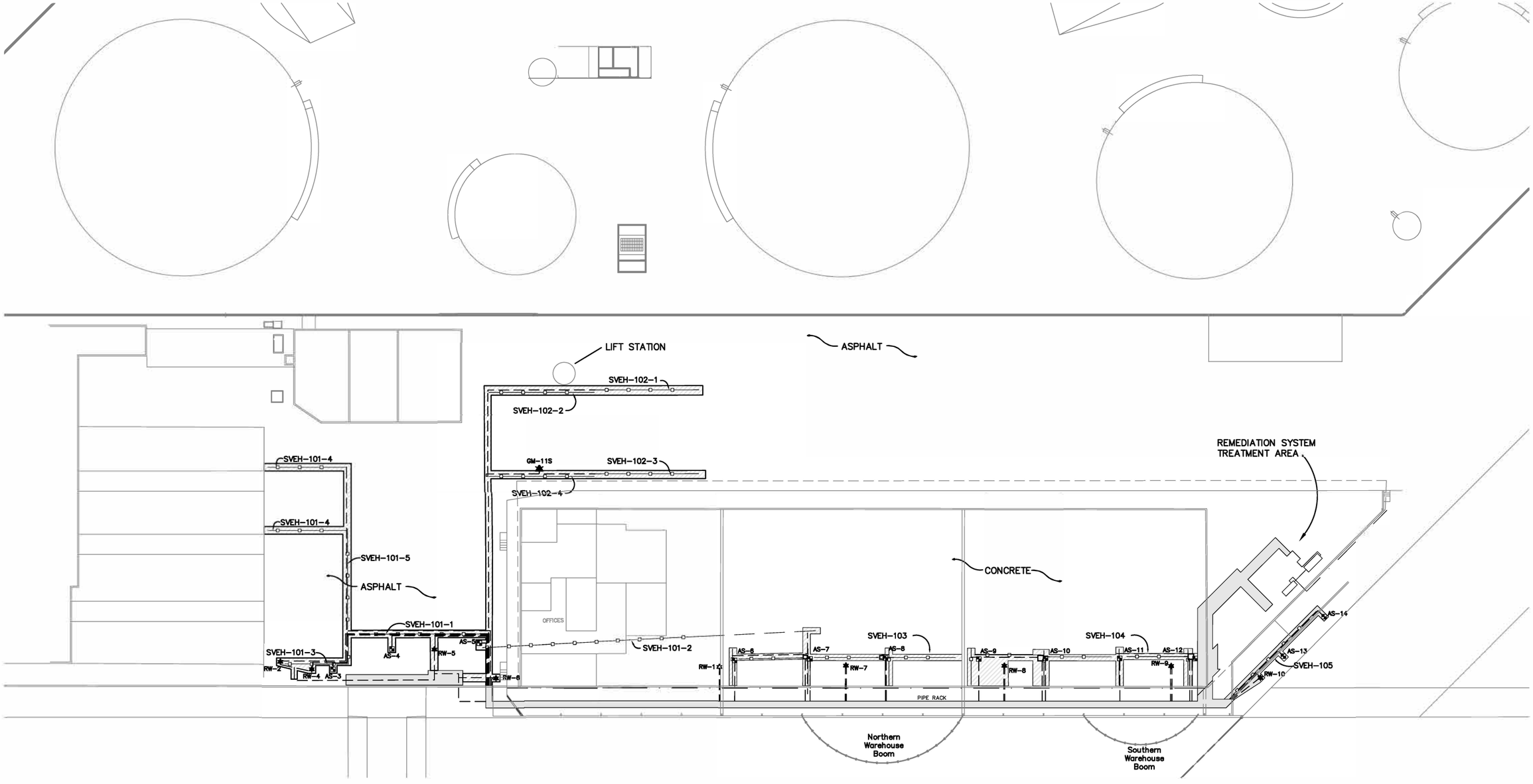
Areas of Remediation - Plant 2

Site: Former BP Harbor Island Terminal
2406 13th Avenue SW
Seattle, WA 98134

FIGURE

3

C:\Data\CAD\Projects\TechSolv\ARCO 21T\dwg\ARCO21T.dwg << Areas for Remediation - P2 >> OCT 07 2008 09:48:43 (bCAD)



LEGEND

RW-1	GROUNDWATER RECOVERY WELL
RW-5	GROUNDWATER RECOVERY WELL
SVE-1	SOIL VAPOR EXTRACTION WELL
MW-2	GROUNDWATER MONITORING WELL
AS-1	AIR SPARGE WELL
	SVE LINES
	AS LINES
	WATERWAY BOOMS

N

0 20 40

SCALE IN FEET

TECHSOLVE ENVIRONMENTAL
7518 NE 169th Street
Kenmore, WA 98028
Phone: 425.402.8277

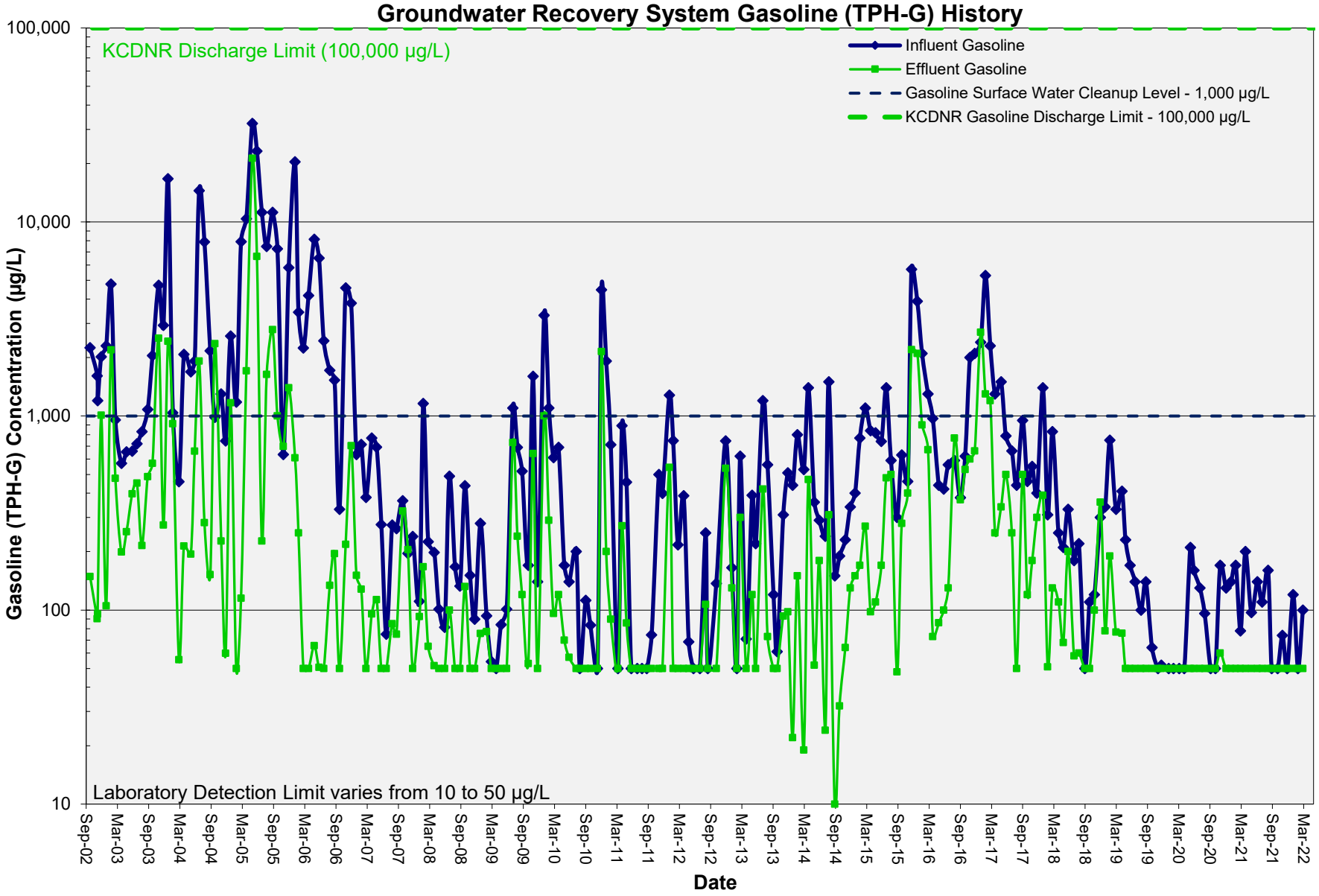
Remediation System Plant 1 Waterfront

Site: Former BP Harbor Island Terminal
1652 Southwest Lander Street
Seattle, WA 98134

FIGURE

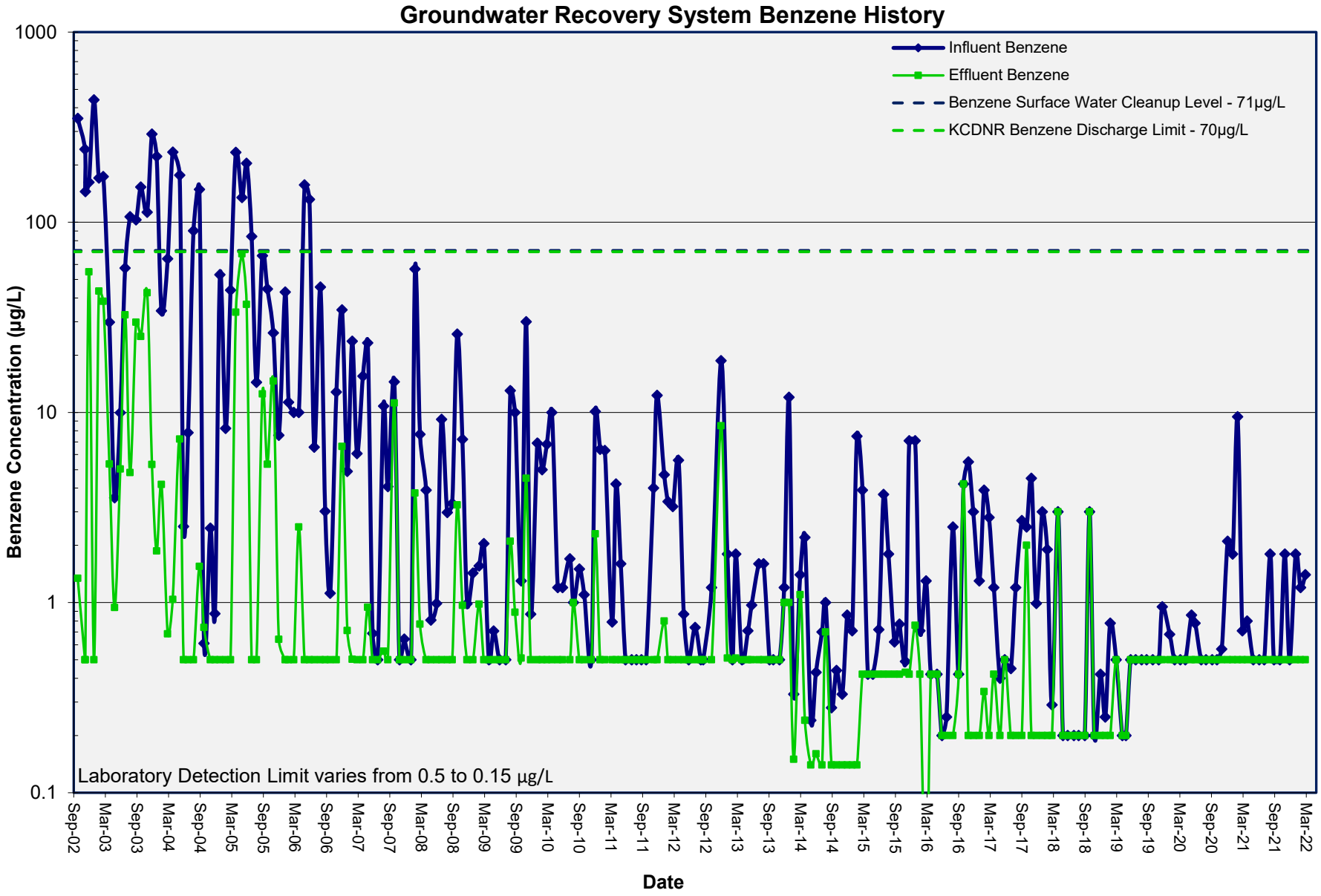
4

Figure 5. Final System Influent vs. Effluent Gasoline Concentrations
October 2002 through March 2022
Site: Former BP Harbor Island Terminal



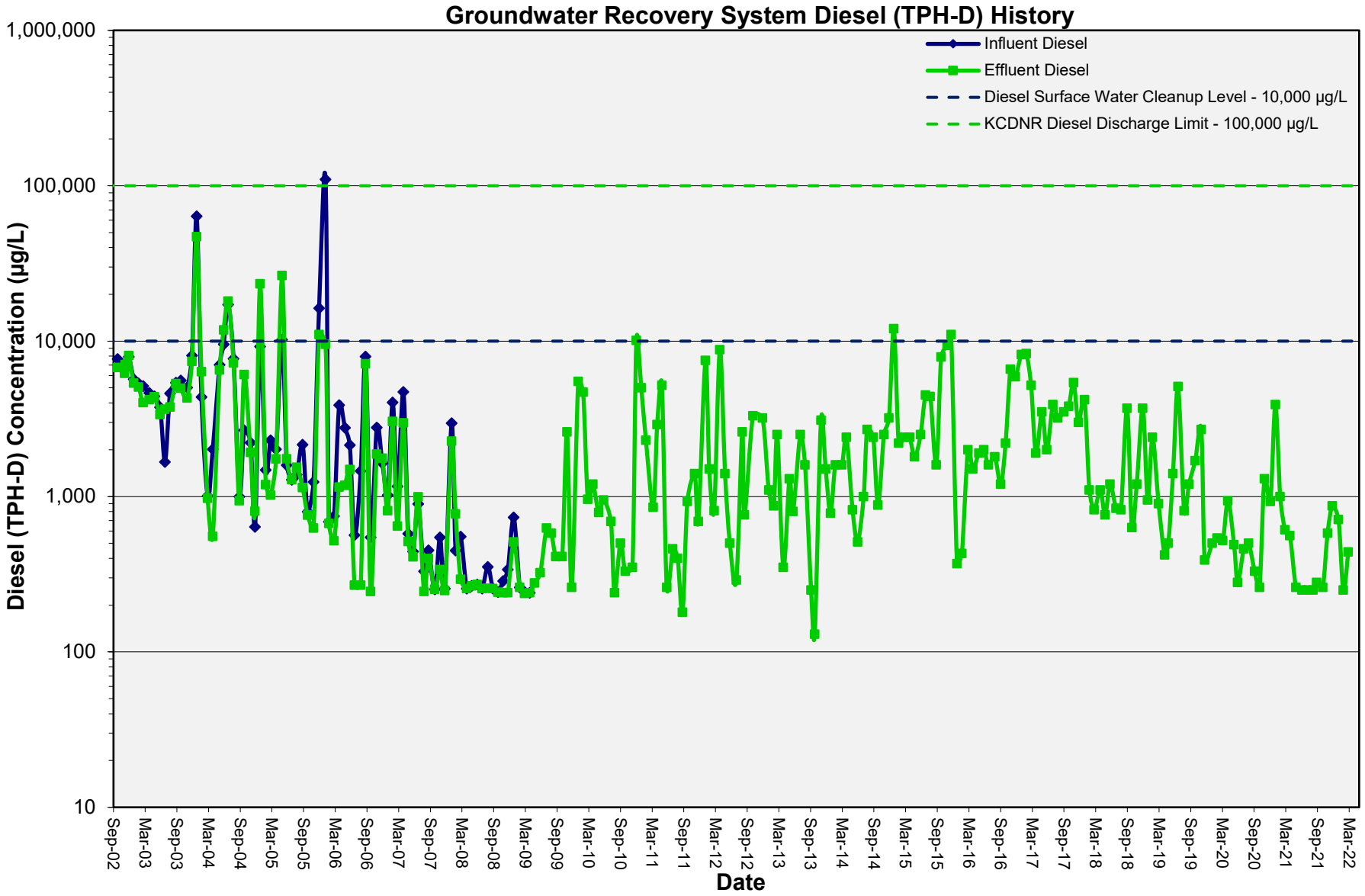
Note: Data is included since startup of the final groundwater and product recovery system in 2002.

Figure 6. Final System Influent vs. Effluent Benzene Concentrations
October 2002 through March 2022
Site: Former BP Harbor Island Terminal



Note: Data is included since startup of the final groundwater and product recovery system in 2002.

Figure 7. Final System Influent vs. Effluent Diesel Concentrations
October 2002 through March 2022
Site: Former BP Harbor Island Terminal



Note: Data is included since startup of the final groundwater and product recovery system in 2002.

West

East

NOAA TIDAL DATUMS FOR 9447110

Max Tide= +13.94' (11.56' NAVD88)

MHHW = +11.38' (9.00' NAVD88)

MHW = +10.52' (8.14' NAVD88)

MSL = +6.65' (4.27' NAVD88)

MLW = +2.84' (0.46 NAVD88)

MLLW = +0.00'(−2.38' NAVD88)

Min Tide = −4.19'(−6.57' NAVD88)

Concrete Apron (Walkway)

Warehouse Building

Warehouse Concrete Slab
Average Elevation = 15.35' NAVD88

Steel H Piling

Timber Piling

Timber Lagging

Timber Piling

Concrete Foundation

Silty Sand (Fill)

Recovery Well
(RW−8)

Performance/Confirmation Well
(AMW−02)

Typical Tidal Elevation & Location
Range of Historically Observed
Sheen on Surface Water.

Groundwater Elevation Maximum (8.57')

Groundwater Elevation Average (6.86')

Groundwater Elevation Minimum (5.17')

Western Duwamish Waterway

Riprap

Sediment

Sandy Silt & Clay (Native Soils)

Warehouse Concrete
Foundation Tip
Elev = −7'

Steel Sheetpile

Warehouse Sheetpile
Est. Tip Elev = −14'

Zone of Groundwater /
Surface Water Exchange

Well AMW−02
Screened Interval

LEGEND

Average Groundwater Surface

Approximate Fill/Native Soil Interface

Elevation range of warehouse area soils sampled during the 2019 Probing Investigation that exceeded the Total TPH cleanup level (CUL) of 10,000 mg/kg. Note that this zone of TPH impacted soil is discontinuous and does not extend throughout the warehouse. See TPH contour figures for specific locations and depths of soil exceeding the CUL.

Groundwater Elevation Maximum, Average, and Minimum values are based upon 2000−2019 monthly gauging data (230 individual gauging events) collected from Monitoring Well GM−13S, which is screened in shallow groundwater.

NOAA Tidal Datums for Station 9447110 (Lockheed Shipyard, Harbor Island) are to Mean Low Low Water (MLLW). Subtract 2.38' from MLLW elevations to convert to North American Vertical Datum of 1988 (NAVD88).

W

0 2.5 5

SCALE IN FEET

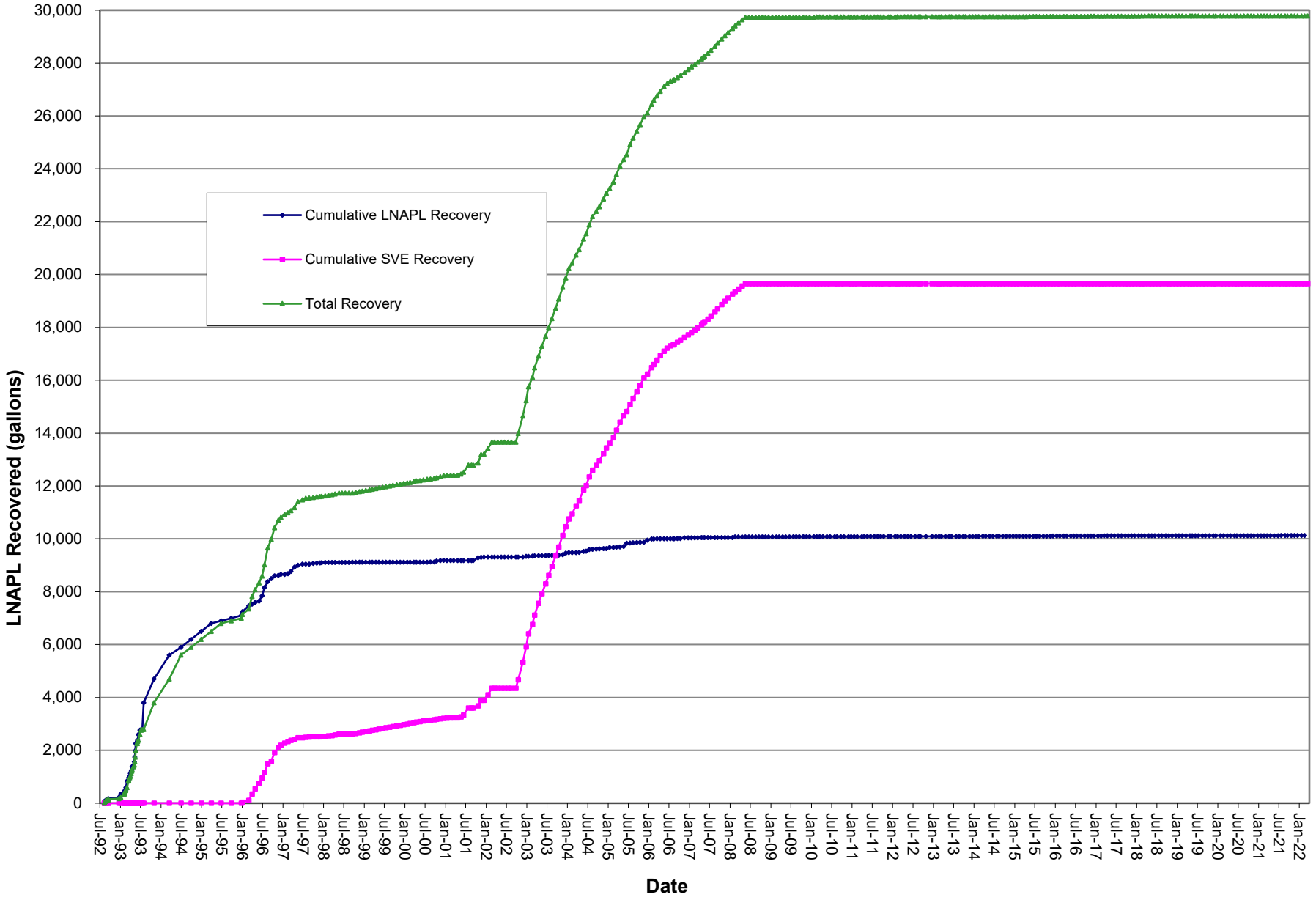
TECHSOLVE ENVIRONMENTAL
7518 N.E. 169th Street
Kenmore, WA 98028
P:(425) 402-8277 F:(425) 402-7917

Plant 1 East/West Cross Section
Warehouse Construction & Waterway Details

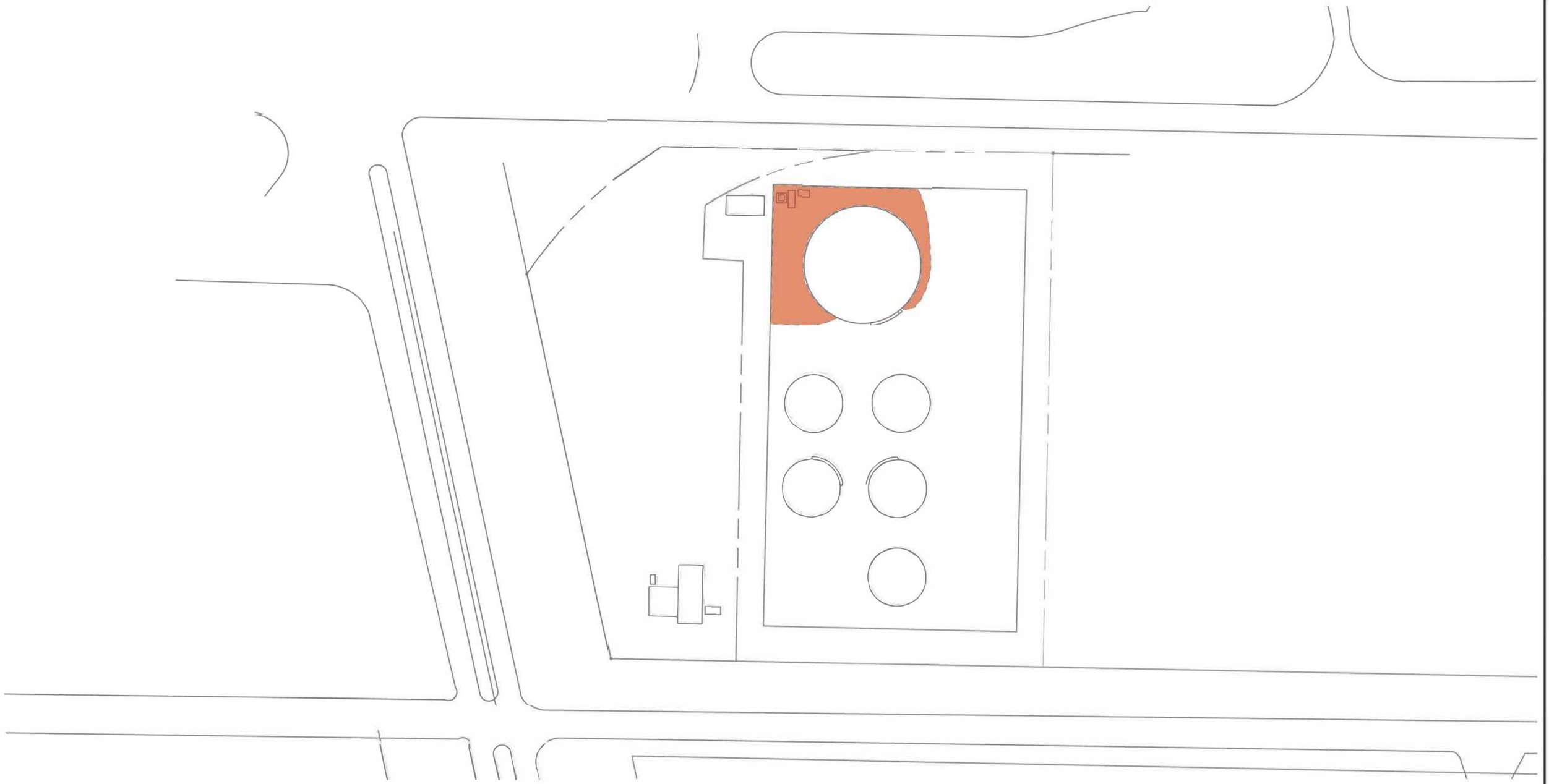
BP West Coast Products Terminal 21T
1652 Southwest Lander Street
Seattle, WA 98134

FIGURE
8

Figure 9. **Cumulative Waterfront LNAPL Recovery Through March 2022**
Site: Former BP Harbor Island Terminal



Note: Soil vapor extraction recovery occurred January 1996 through May 2008.



LEGEND

Areas where construction or soil excavation activities are regulated by the Restrictive Covenant of the Consent Decree due to total petroleum hydrocarbons potentially above cleanup levels.

N

0 50 100

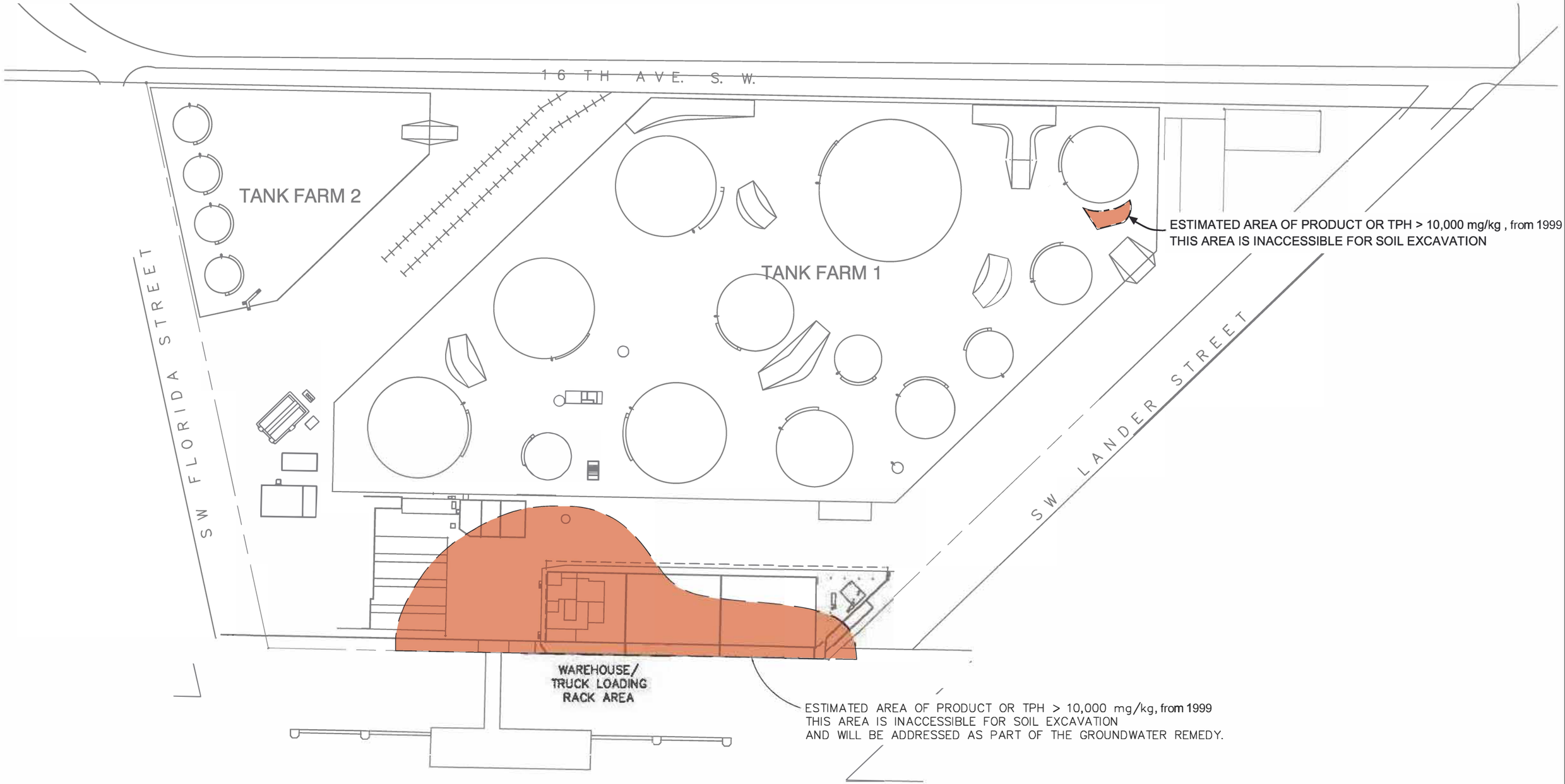
SCALE IN FEET

TECHSOLVE ENVIRONMENTAL
7518 NE 169th Street, Kenmore, WA 98126
(425) 402 – 8277 Fax: (425) 402 - 7917

Areas of Restriction - Plant 2

Site: Former BP Harbor Island Terminal
2406 13th Avenue SW
Seattle, WA 98134

FIGURE
10



LEGEND

Areas where construction or soil excavation activities are regulated by the Restrictive Covenant of the Consent Decree due to total petroleum hydrocarbons potentially above cleanup levels.

N

0 50 100

SCALE IN FEET

TECHSOLVE ENVIRONMENTAL
7518 NE 169th Street, Kenmore, WA 98126
(425) 402 – 8277 Fax: (425) 402 - 7917

Areas of Restriction - Plant 1

Site: Former BP Harbor Island Terminal
1652 Southwest Lander Street
Seattle, WA 98134

FIGURE

11

TANK 9

TANK 13

TANK 10

NK 14

4.32
WALL RET COR..

B-004
10
ND

MW-1-T9
B-012
ND
ND

B-005
12
0.0845

B-003
3290
4.32

MW-2-T9

P1

B-011
13900
16.8

B-006
5790
1.4.4

B-002
59
0.185

P2

AR03

B-010
8510
8.53

B-007
55
0.217

B-001
904
1.21

P3

MW-3-T9

B-009
1760
ND

B-008
ND
ND

GM-15S

MW-4-T9

10,000 mg/kg

1,000 mg/kg

100 mg/kg

10 mg/kg

2,685 sq.ft.

14,185 sq.ft.

26,560 sq.ft.

46,900 sq.ft.

LANDERS

LEGEND

B-002	BORING LOCATION
59	TOTAL PETROLEUM HYDROCARBONS (MG/KG)
0.185	BENZENE (MG/KG)

GRAPHIC SCALE

0 15 30

(IN FEET)

TECHSOLVE ENVIRONMENTAL
(425) 402-8277 FAX (425) 402-7917

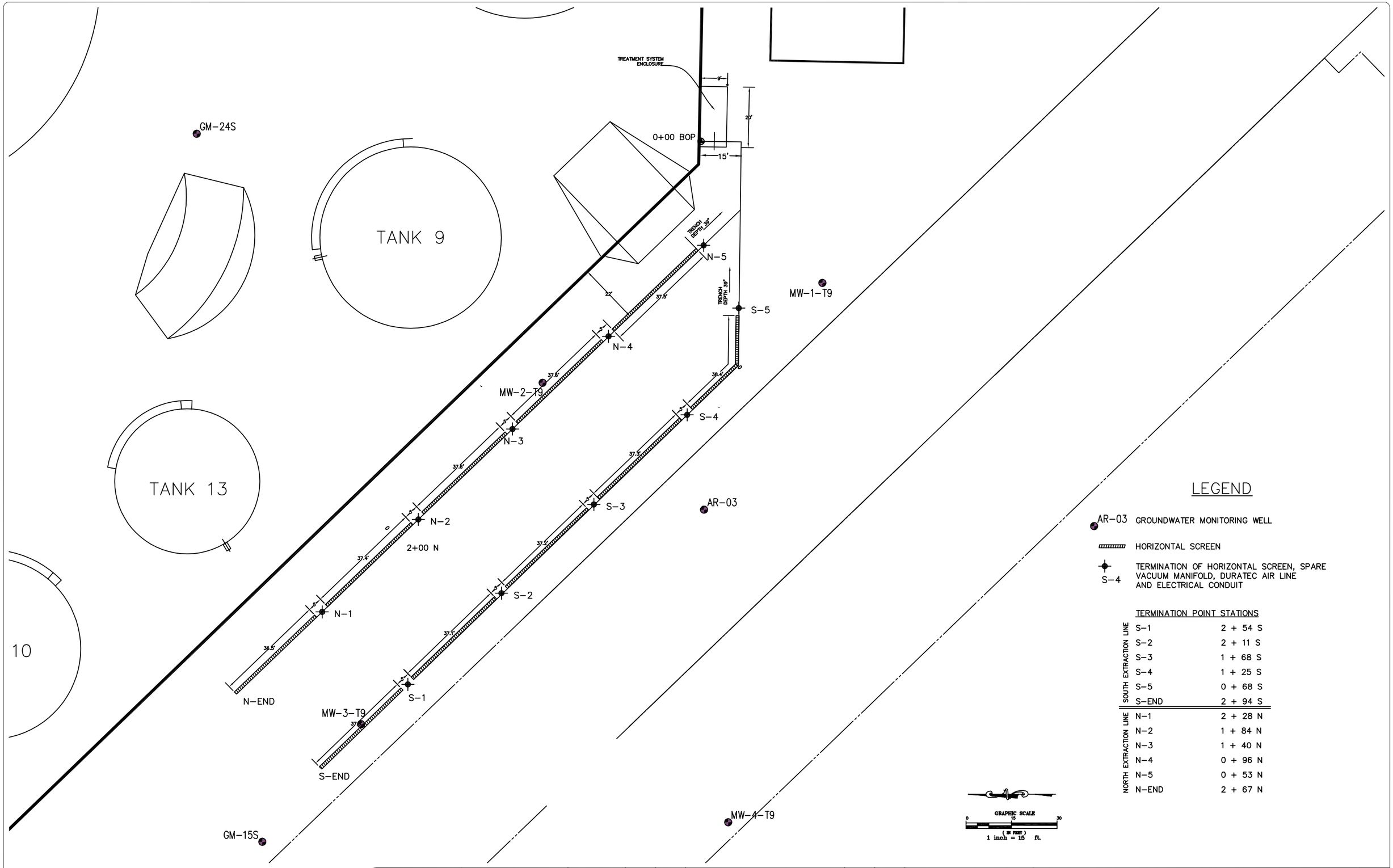
SCALE VERIFICATION
THIS BAR REPRESENTS ONE INCH ON THE ORIGINAL DRAWING
USE TO VERIFY FIGURE REPRODUCTION SCALE

REV. NO.	DATE	DESCRIPTION	BY	APPR.

DWG DATE: DWGDATE
PRJCT NO.: PRJCTNO
DRAWING: DRAWING2
CHECKED: CHECKER
APPROVED: APPROVED
DRAFTER: DRAFTER

Former Hydrocarbon Mass Distribution
Plant 1 Southern Property Boundary
Site: Former BP Harbor Island Terminal

FIGURE
12



LEGEND

AR-03 GROUNDWATER MONITORING WELL

HORIZONTAL SCREEN

S-4 TERMINATION OF HORIZONTAL SCREEN, SPARE VACUUM MANIFOLD, DURATEC AIR LINE AND ELECTRICAL CONDUIT

TERMINATION POINT STATIONS

SOUTH EXTRACTION LINE	S-1	2 + 54 S
	S-2	2 + 11 S
	S-3	1 + 68 S
	S-4	1 + 25 S
	S-5	0 + 68 S
	S-END	2 + 94 S
NORTH EXTRACTION LINE	N-1	2 + 28 N
	N-2	1 + 84 N
	N-3	1 + 40 N
	N-4	0 + 96 N
	N-5	0 + 53 N
	N-END	2 + 67 N

TECHSOLVE ENVIRONMENTAL
7518 NE 169th Street
Kenmore, WA 98082

SCALE VERIFICATION
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USE TO VERIFY FIGURE REPRODUCTION SCALE

REV. NO.	DATE	DESCRIPTION	BY	APPR.

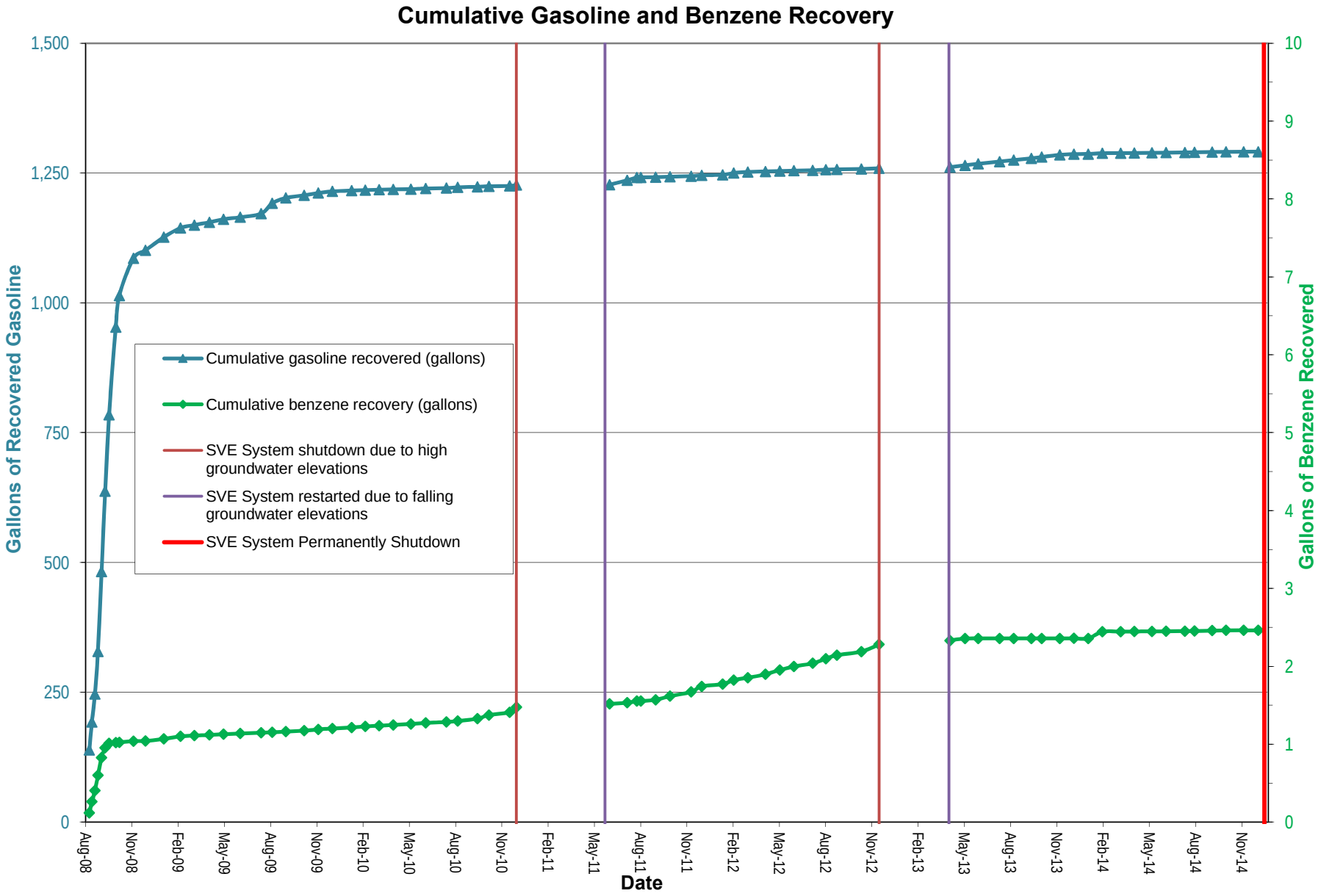
DWG DATE: 2/1/2018
PRJCT NO.: ATR110066.02.G
DRAWING: SVEDESIGN-AS-BUILT.DWG
CHECKED: LARSEN
APPROVED: NA
DESIGNER: NA

INLAND SVE REMEDIATION SYSTEM LAYOUT
VICINITY GROUNDWATER MONITORING WELLS

Site: Former BP Harbor Island Terminal

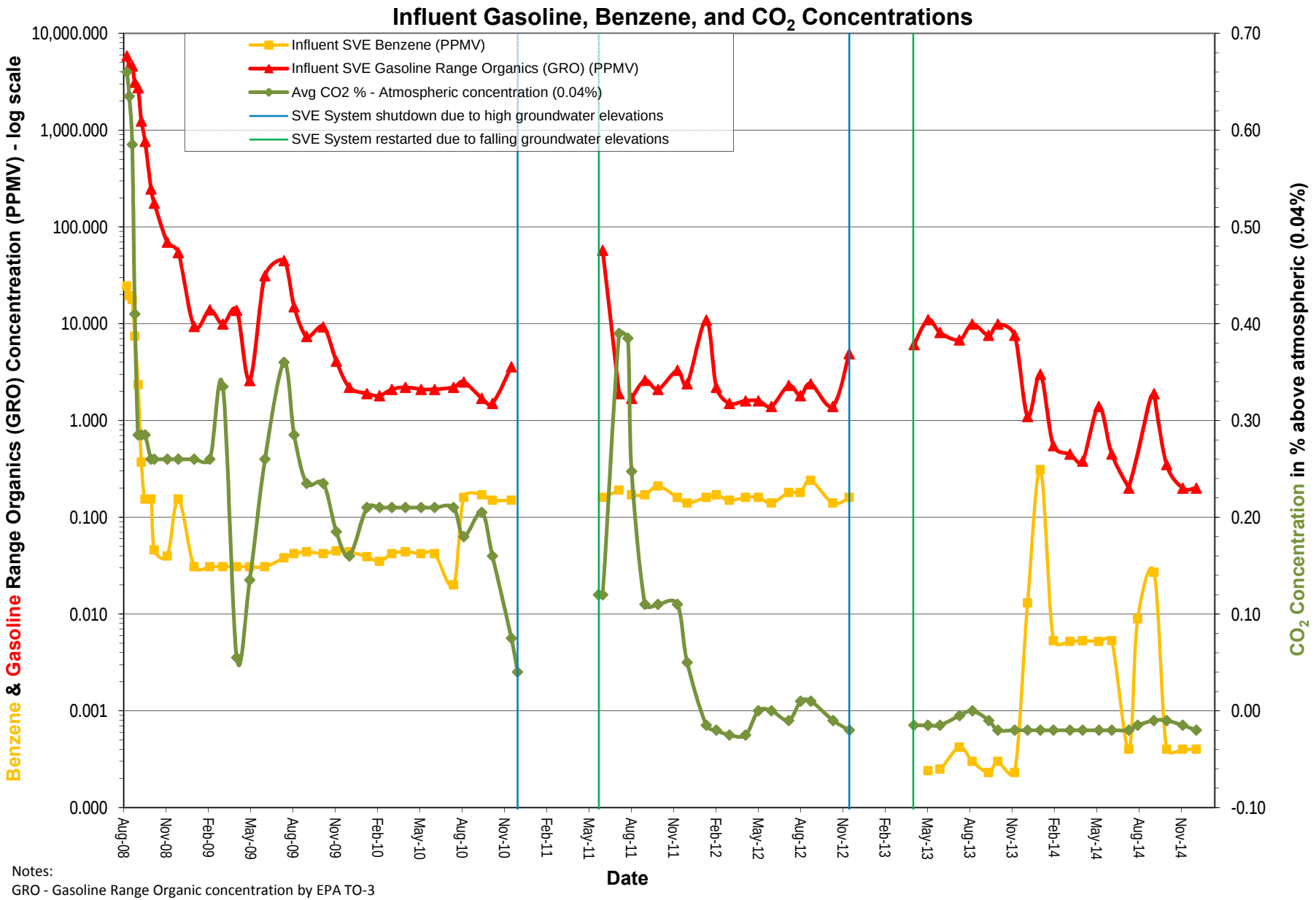
FIGURE
13

Figure 14. Inland SVE System Cumulative Hydrocarbon Recovery
Site: Former BP Harbor Island Terminal



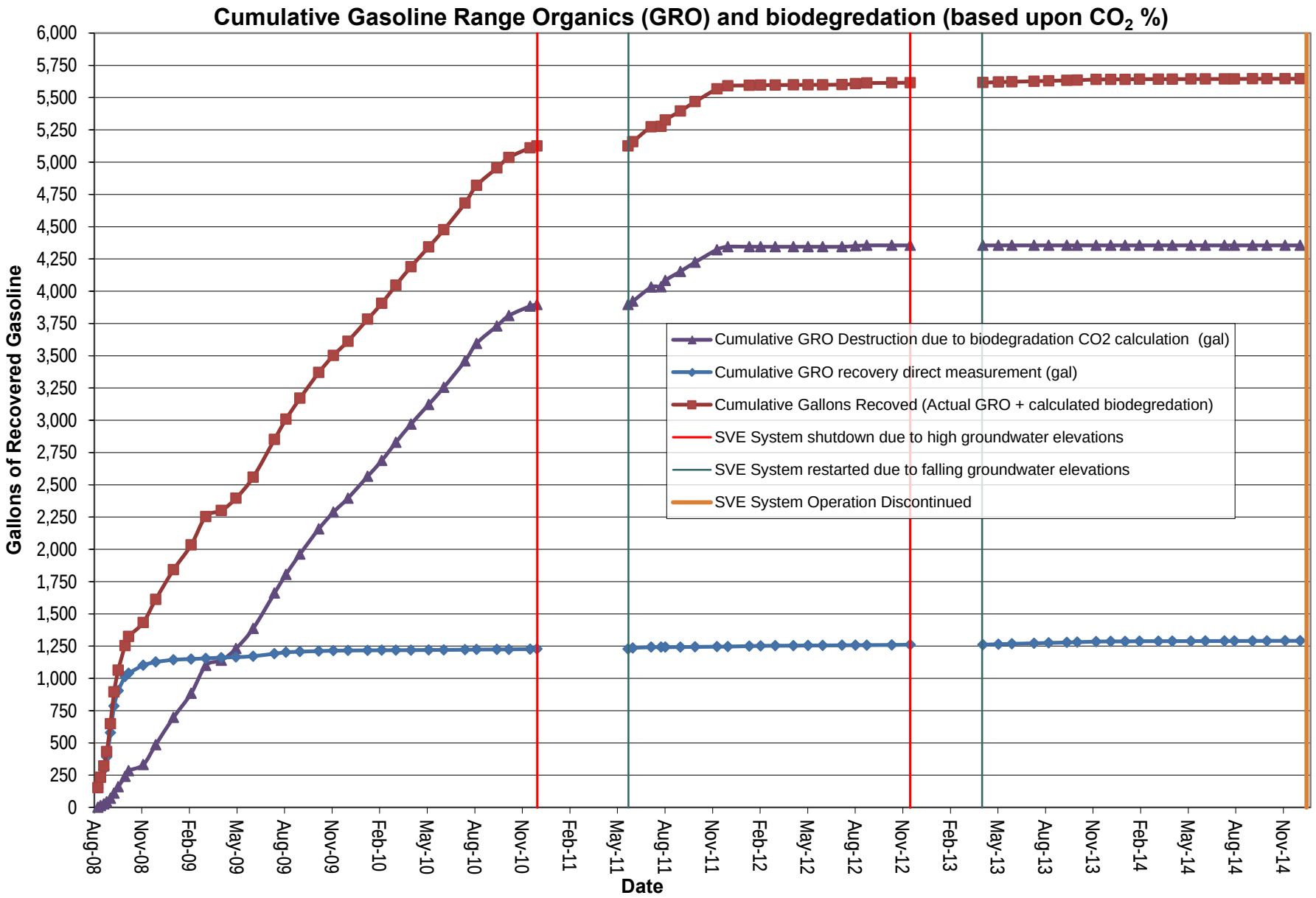
Note: Benzene and gasoline recovery are biased high as recovery is calculated assuming that benzene and gasoline are present at the laboratory decection limit for all samples reported as non detections from the laboratory.

Figure 15. Inland SVE System Gasoline, Benzene, and Carbon Dioxide History
Site: Former BP Harbor Island Terminal



Notes:
GRO - Gasoline Range Organic concentration by EPA TO-3
CO_2 - Concentration by detector tube minus atmospheric CO_2 concentration of 0.04%
PPMV - Parts Per Million Volume

Figure 16. Inland SVE Biodegradation and Vapor Recovery
Site: Former BP Harbor Island Terminal



LEGEND

GM-16S	MONITORING WELL
AMW-01	PERFORMANCE/CONFIRMATION WELL
GM-13D	PERFORMANCE WELL
GM-13S	PRODUCT PERFORMANCE WELL

N

0 50 100

SCALE IN FEET

TECHSOLVE ENVIRONMENTAL
7518 N.E. 169th Street
Kenmore, WA 98028
P:(425) 402-8277 F:(425) 402-7917

Plant 1 Monitoring Well Network

Site: Former BP Harbor Island Terminal
1652 Southwest Lander Street
Seattle, WA 98134

FIGURE 17

\\server\ServerData\data\AproJect\ARCO 21T\Drawings and CAD files\Autocad files\Quarterly GWM Figures

P1-GWGM-14S-121	
Date	3/11/2021
GW Elev.	8.11'
Benzene	<0.5
TPH-G	700
TPH-D	440
TPH-O	<750

P1-GWGM-17S-121	
Date	3/11/2021
GW Elev.	8.58'
Benzene	<0.5
TPH-G	<50
TPH-D	<250
TPH-O	<750

P1-GWGM-24S-121	
Date	3/11/2021
GW Elev.	8.37'
Benzene	0.59
TPH-G	**2,300**
TPH-D	680
TPH-O	<750

P1-GWGM-16S-121	
Date	3/11/2021
GW Elev.	7.81'
Benzene	<0.5
TPH-G	59
TPH-D	460
TPH-O	<750

P1-GWMW-1-T9-121	
Date	3/11/2021
GW Elev.	7.22'
Benzene	<0.5
TPH-G	170
TPH-D	330
TPH-O	<750

P1-GWMW-2-T9-121	
Date	3/11/2021
GW Elev.	7.59'
Benzene	<0.5
TPH-G	260
TPH-D	<250
TPH-O	<750

P1-GWAR-03-121	
Date	3/10/2021
GW Elev.	7.26'
Benzene	<0.5
TPH-G	<50
TPH-D	430
TPH-O	<750

P1-GWMW-3-T9-121	
Date	3/11/2021
GW Elev.	7.33'
Benzene	<0.5
TPH-G	740
TPH-D	280
TPH-O	<750

P1-GWGM-15S-121	
Date	3/10/2021
GW Elev.	7.69'
Benzene	<0.5
TPH-G	<50
TPH-D	<250
TPH-O	<750

P1-GWAMW-05-121	
Date	3/10/2021
GW Elev.	6.27'
Benzene	<0.5
TPH-G	<50
TPH-D	<250
TPH-O	<750

P1-GWAMW-04-121	
Date	3/10/2021
GW Elev.	6.48'
Benzene	<0.5
TPH-G	<50
TPH-D	<250
TPH-O	<750

P1-GWAMW-03-121	
Date	3/10/2021
GW Elev.	5.95'
Benzene	<0.5
TPH-G	<50
TPH-D	<250
TPH-O	<750

P1-GWAMW-02-121	
Date	3/10/2021
GW Elev.	6.23'
Benzene	0.94
TPH-G	<50
TPH-D	<250
TPH-O	<750

P1-GWAMW-01-121	
Date	3/10/2021
GW Elev.	6.78'
Benzene	<0.5
TPH-G	<50
TPH-D	<250
TPH-O	<750

Date	3/10/2021
GW Elev.	3.90'

GM-18S, GM-17D, GM-17S, GM-16S, GM-24S, GM-14S, GM-15S, GM-11S, GM-12S, GM-10S, GM-10D, GM-13D, GM-13S, AMW-1-T9, AMW-2-T9, AMW-3-T9, AMW-4-T9, AR-03, MW-06, AMW-05, AMW-04, AMW-03, AMW-02, AMW-01, RW-1, RW-2, RW-4, RW-5, RW-6, RW-7, RW-8, RW-9, RW-10

TANK 1, TANK 2, TANK 3, TANK 4, TANK 5, TANK 6, TANK 7, TANK 9, TANK 10, TANK 11, TANK 14, TANK 15, TANK 16, TANK 17, TANK 18, TANK 19, TANK 20

Northern Warehouse Boom

Southern Warehouse Boom

LEGEND

- GM-16S Monitoring Well
- AMW-01 Performance/Confirmation Well
- GM-13D Performance Well
- GM-13S Product Performance Well
- 8.1 Groundwater Contour (Feet NAVD88)
- RW-5 Recovery Well

Sample ID	
Date	Date Sample Collected
GW Elev.	Groundwater Elevation in Feet NAVD88
Benzene	Benzene (EPA 8260) in µg/L
TPH-G	Total Petroleum Hydrocarbons as Gasoline (NWTPH-GX) in µg/L
TPH-D	Total Petroleum Hydrocarbons as Diesel (NWTPH-DX) in µg/L
TPH-O	Total Petroleum Hydrocarbons as Oil (NWTPH-DX) in µg/L

Notes: **Bold** - Detected concentration exceeds site specific cleanup level
< = Not detected at listed laboratory reporting limit

N

0 50 100
SCALE IN FEET

TECHSOLVE ENVIRONMENTAL
7518 N.E. 169th Street
Kenmore, WA 98028
P:(425) 402-8277 F:(425) 402-7917

Plant 1 First Quarter 2021 Groundwater Monitoring Analytical Results

Site: Former BP Harbor Island Terminal
1652 Southwest Lander Street
Seattle, WA 98134

FIGURE
18

\\server\ServerData\data\Aproject\ARCD 21T\Drawings and CAD files\Autocad files\ Plant 1 GWM Figs.dwg December 12, 2019

P1-GWGM-14S-221	
Date	6/17/2021
GW Elev.	7.34'
Benzene	6.5
TPH-G	**2,000**
TPH-D	830
TPH-O	<750

Date	6/17/2021
GW Elev.	7.64'

P1-GWGM-24S-221	
Date	6/17/2021
GW Elev.	7.46'
Benzene	<0.5
TPH-G	530
TPH-D	350
TPH-O	<750

Date	6/17/2021
GW Elev.	7.06'

Date	6/24/2021
GW Elev.	6.23'

Date	6/24/2021
GW Elev.	6.51'

Date	6/24/2021
GW Elev.	6.52'

Date	6/24/2021
GW Elev.	6.80'

Date	6/23/2020
GW Elev.	7.02'

P1-GWAMW-05-221	
Date	6/17/2021
GW Elev.	5.23'
Benzene	<0.5
TPH-G	<50
TPH-D	<250
TPH-O	<750

P1-GWAMW-04-221	
Date	6/17/2021
GW Elev.	5.33'
Benzene	<0.5
TPH-G	<50
TPH-D	<250
TPH-O	<750

P1-GWAMW-03-221	
Date	6/17/2021
GW Elev.	4.97'
Benzene	<0.5
TPH-G	<50
TPH-D	<250
TPH-O	<750

P1-GWAMW-02-221	
Date	6/17/2021
GW Elev.	4.84'
Benzene	0.58
TPH-G	<50
TPH-D	<250
TPH-O	<750

P1-GWAMW-01-221	
Date	6/17/2021
GW Elev.	5.45'
Benzene	<0.5
TPH-G	<50
TPH-D	<250
TPH-O	<750

LEGEND

- GM-16S Monitoring Well
- AMW-01 Performance/Confirmation Well
- GM-13D Performance Well
- GM-13S Product Performance Well
- 3.1 Groundwater Contour (Feet MSL)
- RW-5 Recovery Well

Sample ID	
Date	Date Sample Collected
GW Elev.	Groundwater Elevation in Feet NAVD88
Benzene	Benzene (EPA 8260) in µg/L
TPH-G	Total Petroleum Hydrocarbons as Gasoline (NWTPH-GX) in µg/L
TPH-D	Total Petroleum Hydrocarbons as Diesel (NWTPH-DX) in µg/L
TPH-O	Total Petroleum Hydrocarbons as Oil (NWTPH-DX) in µg/L

Notes: **Bold** - Detected concentration exceeds site specific cleanup level
< = Not detected at listed laboratory reporting limit

N

0 50 100
SCALE IN FEET

TECHSOLVE ENVIRONMENTAL
7518 N.E. 169th Street
Kenmore, WA 98028
P:(425) 402-8277 F:(425) 402-7917

Plant 1 Second Quarter 2021 Groundwater Monitoring Analytical Results

Site: Former BP Harbor Island Terminal
1652 Southwest Lander Street
Seattle, WA 98134

FIGURE
19

P1-GWGM-14S-321	
Date	9/23/2021
GW Elev.	6.56'
Benzene	**220**
TPH-G	**1,700**
TPH-D	3,900
TPH-O	930

P1-GWGM-17S-321	
Date	9/23/2021
GW Elev.	6.65'
Benzene	<0.5
TPH-G	<50
TPH-D	<250
TPH-O	<750

P1-GWGM-24S-321	
Date	9/23/2021
GW Elev.	6.58'
Benzene	<0.5
TPH-G	640
TPH-D	470
TPH-O	<750

P1-GWGM-16S-321	
Date	9/23/2021
GW Elev.	6.23'
Benzene	<0.5
TPH-G	80
TPH-D	490
TPH-O	<750

P1-GWMW-1-T9-321	
Date	9/23/2021
GW Elev.	5.65'
Benzene	<0.5
TPH-G	290
TPH-D	580
TPH-O	<750

P1-GWMW-2-T9-321	
Date	9/23/2021
GW Elev.	5.91'
Benzene	<0.5
TPH-G	310
TPH-D	480
TPH-O	<750

P1-GWAR-03-321	
Date	9/22/2021
GW Elev.	5.75'
Benzene	<0.5
TPH-G	390
TPH-D	330
TPH-O	<750

P1-GWMW-3-T9-321	
Date	9/23/2021
GW Elev.	5.96'
Benzene	<0.5
TPH-G	570
TPH-D	<250
TPH-O	<750

P1-GWGM-15S-321	
Date	9/22/2021
GW Elev.	6.30'
Benzene	<0.5
TPH-G	180
TPH-D	<250
TPH-O	<750

P1-GWAMW-05-321	
Date	9/22/2021
GW Elev.	5.65'
Benzene	<0.5
TPH-G	<50
TPH-D	<250
TPH-O	<750

P1-GWAMW-04-321	
Date	9/22/2021
GW Elev.	5.05'
Benzene	<0.5
TPH-G	<50
TPH-D	<250
TPH-O	<750

P1-GWAMW-03-321	
Date	9/22/2021
GW Elev.	7.05'
Benzene	<0.5
TPH-G	<50
TPH-D	<250
TPH-O	<750

P1-GWAMW-02-321	
Date	9/22/2021
GW Elev.	6.65'
Benzene	0.94
TPH-G	<50
TPH-D	<250
TPH-O	<750

P1-GWAMW-01-321	
Date	9/22/2021
GW Elev.	6.56'
Benzene	<0.5
TPH-G	<50
TPH-D	<250
TPH-O	<750

Date	9/22/2021
GW Elev.	6.43'

GM-18S GM-17D GM-17S GM-24S GM-16S GM-14S GM-15S MW-06 GM-11S GM-12S GM-10S GM-10D AMW-05 RW-2 RW-4 AMW-04 RW-5 RW-6 RW-1 AMW-03 RW-7 AMW-02 RW-8 GM-13D GM-13S RW-9 AMW-01 RW-10 IMW-1-T9 IMW-2-T9 IAR-03 IMW-3-T9 IMW-4-T9

TANK 1 TANK 2 TANK 3 TANK 4 TANK 5 TANK 6 TANK 7 TANK 8 TANK 9 TANK 10 TANK 11 TANK 12 TANK 13 TANK 14 TANK 15 TANK 16 TANK 17 TANK 18 TANK 19 TANK 20

6.6 6.5 6.4 6.3 6.2 6.1 6 5.9 5.8

Northern Warehouse Boom

Southern Warehouse Boom

Image © 2018 DigitalGlobe

LEGEND

- GM-16S Monitoring Well
- AMW-01 Performance/Confirmation Well
- GM-13D Performance Well
- GM-13S Product Performance Well
- RW-5 Recovery Well
- 3.1 Groundwater Contour (Feet NAVD88)

Sample ID	
Date	Date Sample Collected
GW Elev.	Groundwater Elevation in Feet NAVD88
Benzene	Benzene (EPA 8260) in µg/L
TPH-G	Total Petroleum Hydrocarbons as Gasoline (NWTPH-GX) in µg/L
TPH-D	Total Petroleum Hydrocarbons as Diesel (NWTPH-DX) in µg/L
TPH-O	Total Petroleum Hydrocarbons as Oil (NWTPH-DX) in µg/L

Notes: **Bold** - Detected concentration exceeds site specific cleanup level
< = Not detected at listed laboratory reporting limit

N

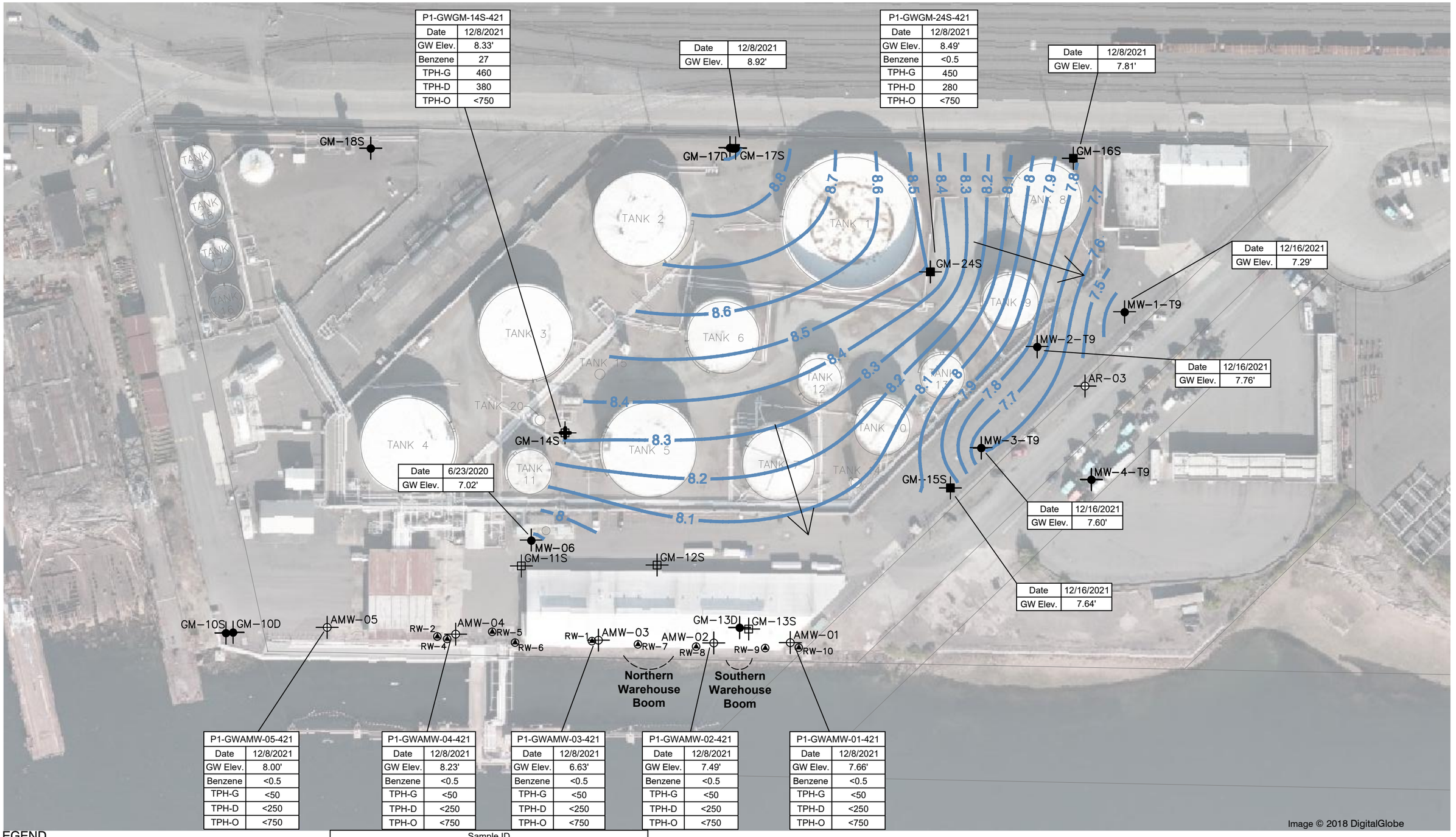
0 50 100
SCALE IN FEET

TECHSOLVE ENVIRONMENTAL
7518 N.E. 169th Street
Kenmore, WA 98028
P:(425) 402-8277 F:(425) 402-7917

Plant 1 Third Quarter 2021 Groundwater Monitoring Analytical Results

Site: Former BP Harbor Island Terminal
1652 Southwest Lander Street
Seattle, WA 98134

FIGURE
20



LEGEND

- GM-16S Monitoring Well
- AMW-01 Performance/Confirmation Well
- GM-13D Performance Well
- GM-13S Product Performance Well
- 8.1 Groundwater Contour (Feet MSL)
- RW-5 Recovery Well

Sample ID	
Date	Date Sample Collected
GW Elev.	Groundwater Elevation in Feet NAVD88
Benzene	Benzene (EPA 8260) in µg/L
TPH-G	Total Petroleum Hydrocarbons as Gasoline (NWTPH-GX) in µg/L
TPH-D	Total Petroleum Hydrocarbons as Diesel (NWTPH-DX) in µg/L
TPH-O	Total Petroleum Hydrocarbons as Oil (NWTPH-DX) in µg/L

Notes: **Bold** - Detected concentration exceeds site specific cleanup level
< = Not detected at listed laboratory reporting limit

N

0 50 100
SCALE IN FEET

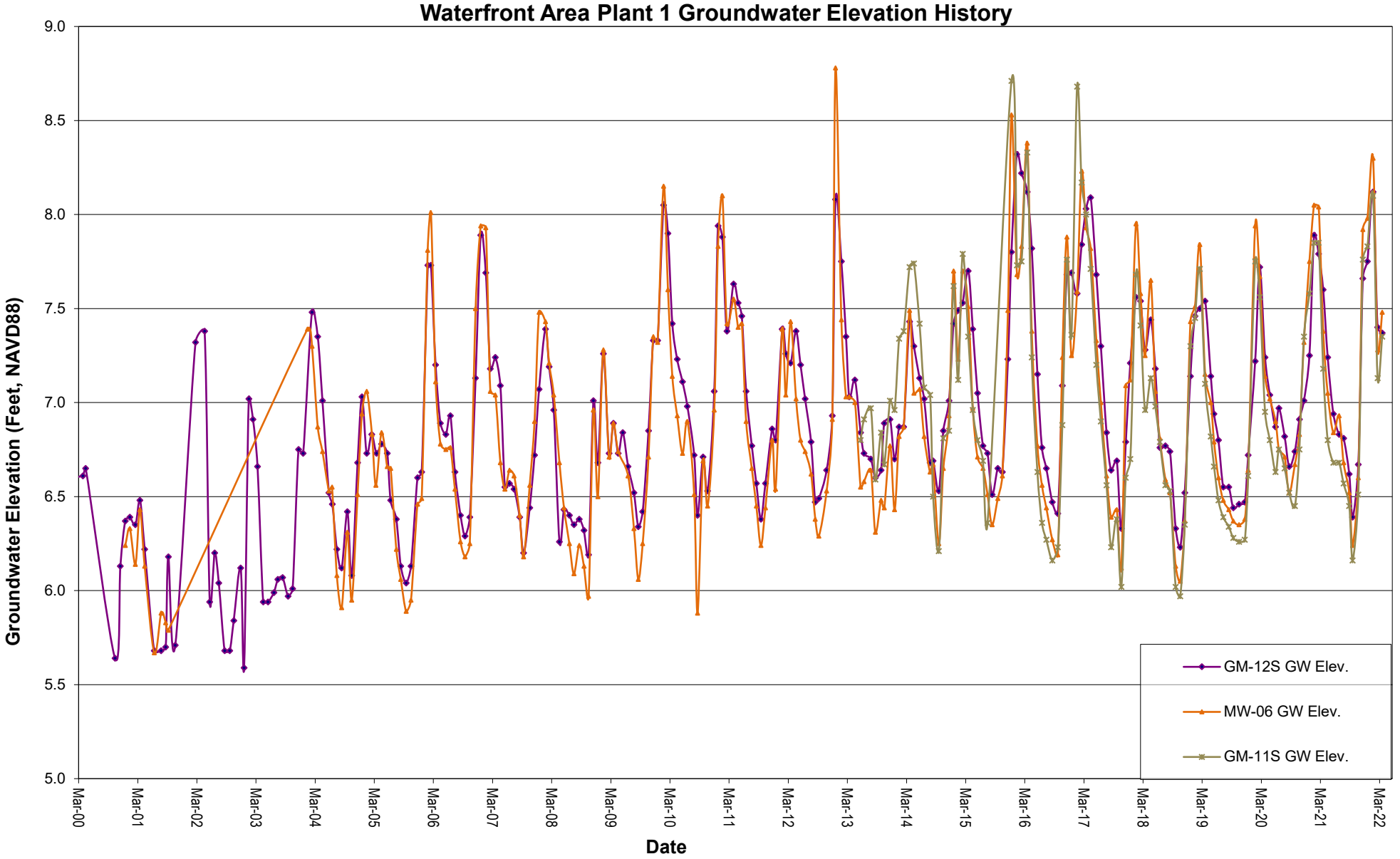
TECHSOLVE ENVIRONMENTAL
7518 N.E. 169th Street
Kenmore, WA 98028
P:(425) 402-8277 F:(425) 402-7917

Plant 1 Fourth Quarter 2021 Groundwater Monitoring Analytical Results

Site: Former BP Harbor Island Terminal
1652 Southwest Lander Street
Seattle, WA 98134

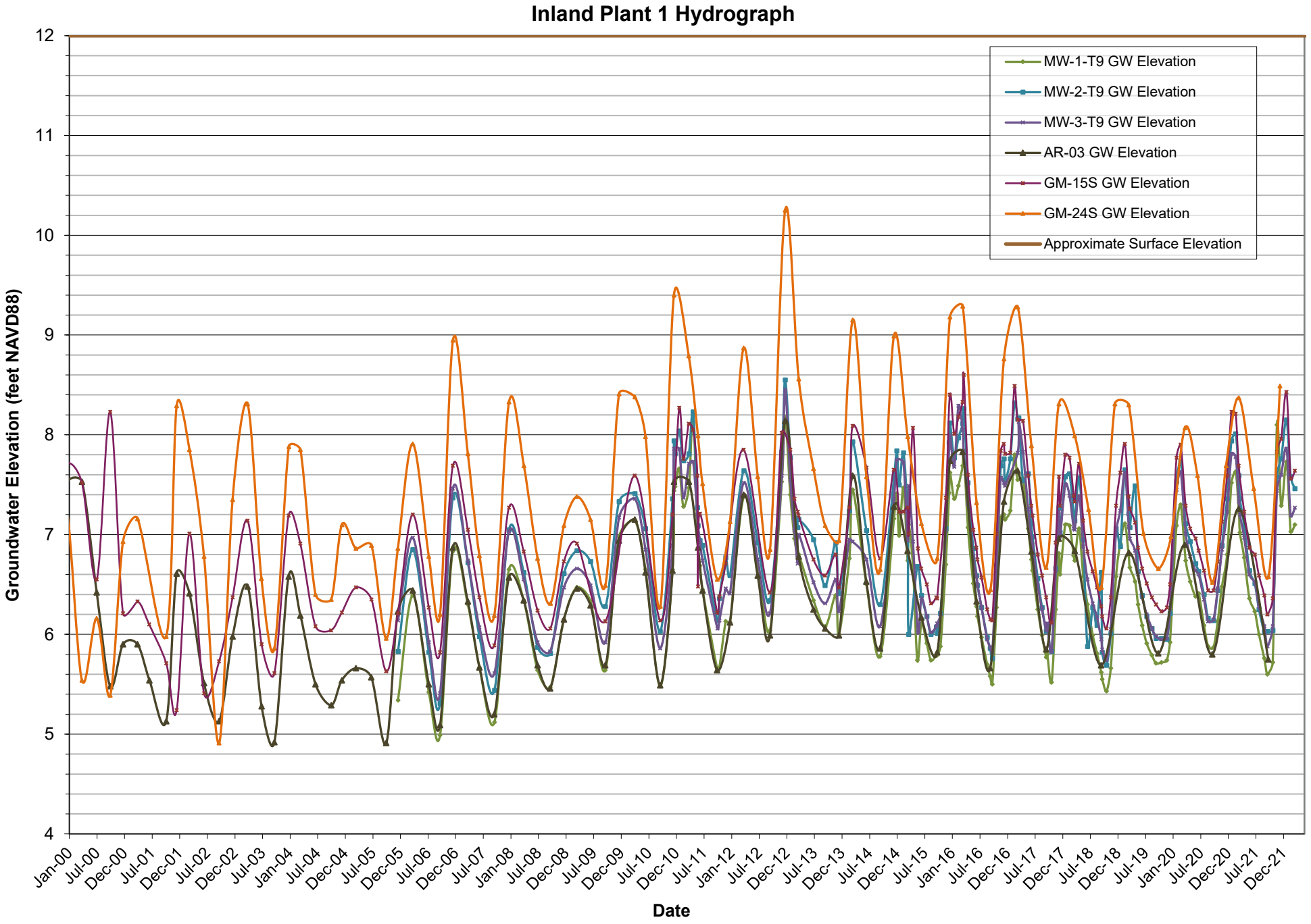
FIGURE
21

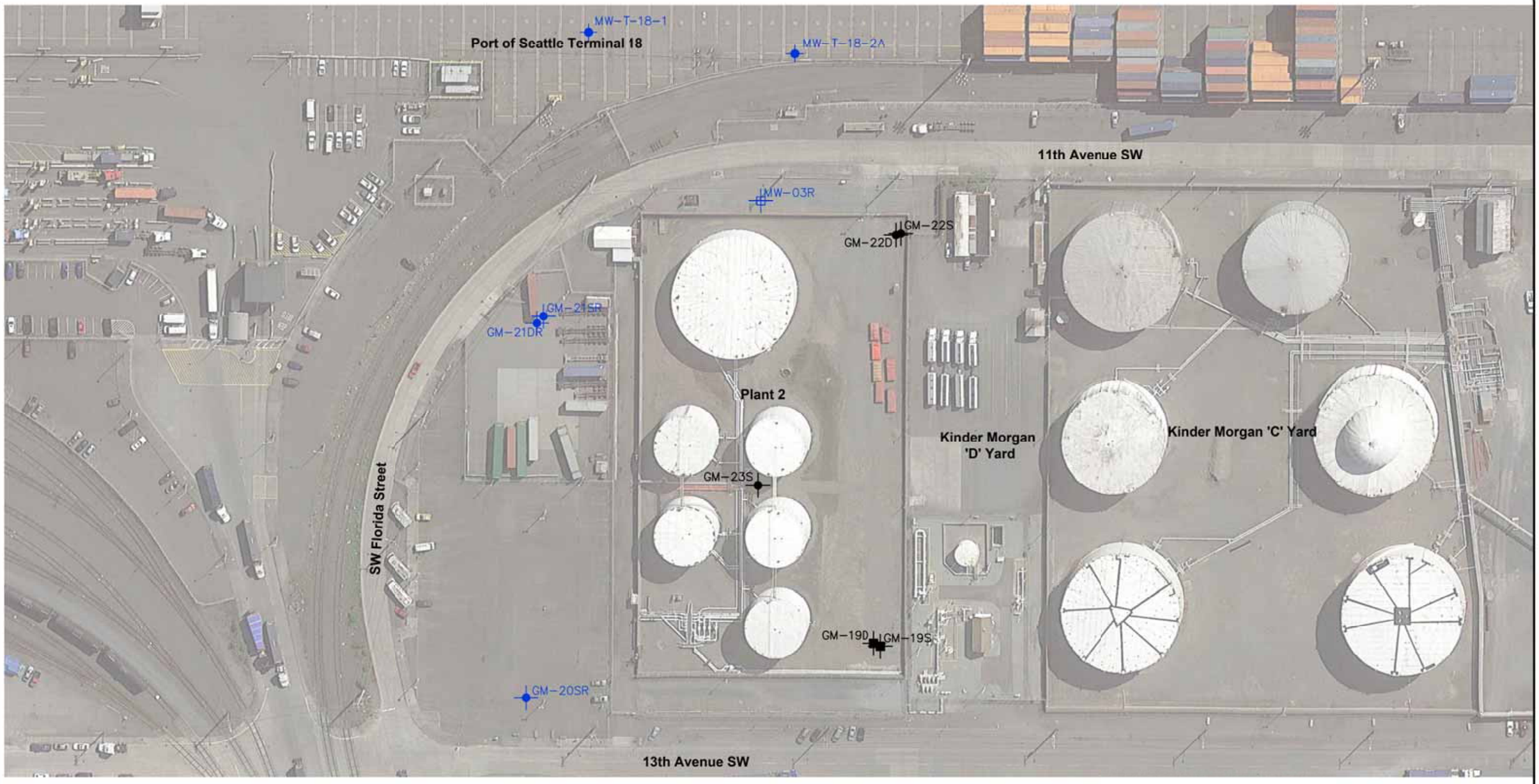
Figure 22. Plant 1 Waterfront Hydrograph
March 2000 through March 2022
Site: Former BP Harbor Island Terminal



Note: Groundwater monitoring in well MW-06 is conducted voluntarily by TechSolve and is not part of the required monitoring program. Well GM-13S is excluded from the hydrograph as it has been shown to be tidally affected and within the recovery system capture zone. Data for well GM-11S is only included after May 2013, when it was no longer used as a recovery well.

Figure 23. Plant 1 Southern Boundary Area Hydrograph
January 2000 through March 2022
Site: Former BP Harbor Island Terminal





LEGEND

- GROUNDWATER MONITORING WELL
- PRODUCT PERFORMANCE WELL
- PERFORMANCE WELL
- WELLS HIGHLIGHTED IN BLUE HAVE BEEN DECOMMISSIONED

N

0 50 100
SCALE IN FEET

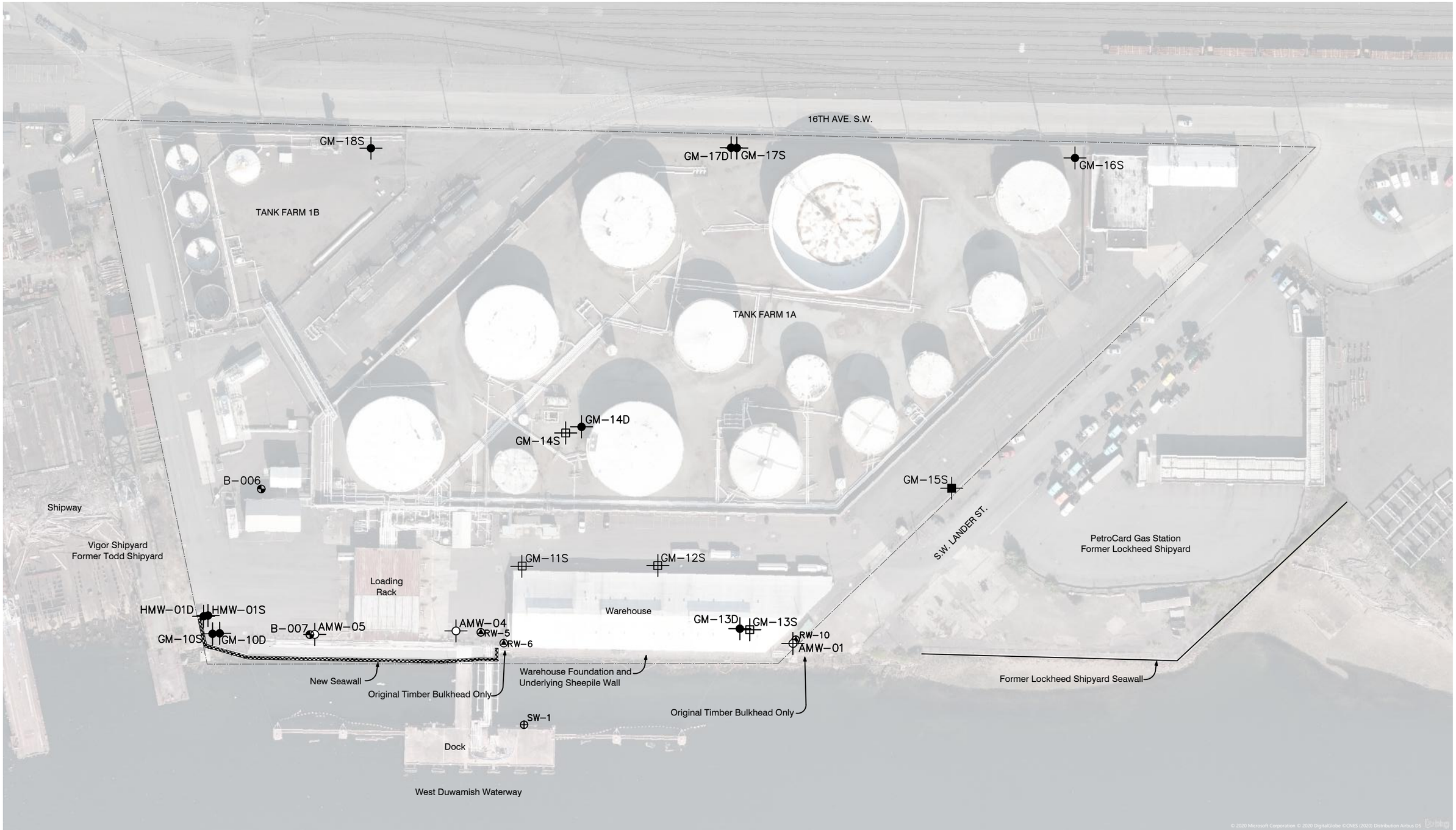
TECHSOLVE ENVIRONMENTAL
7518 N.E. 169th Street,
Kenmore, WA 98028
P:(425) 402-8277 F:(425) 402-7917

Plant 2 Monitoring Well Network

BP Harbor Island Terminal
2406 13th Avenue SW
Seattle, WA 98134

FIGURE
24

C:\Data\CAD\Projects\TechSolv\ARCO 21T\dwg\ARCO21T.dwg << Plant 2 Monitoring Well Network >> OCT 07 2008 09:48:43 (bCAD)



LEGEND

GM-16S	Monitoring Well	RW-6	Recovery Well
AMW-01	Performance/Confirmation Well	SW-1	Stilling Well
GM-13D	Performance Well	B-006	Piezometer Well
GM-13S	Product Performance Well		Property Line

N

0 50 100
SCALE IN FEET

TECHSOLVE ENVIRONMENTAL
7518 N.E. 169th Street
Kenmore, WA 98028
P:(425) 402-8277 F:(425) 402-7917

Plant 1 Hydraulic Evaluation Study Wells

Site: BP Harbor Island Terminal
1652 Southwest Lander Street
Seattle, WA 98134

FIGURE
25

\\server\ServerData\data\Aproject\ARCO 21T\Drawings and CAD files\Autocad files\Quarterly GWM Figures: P1 Hyd Eval Wells Mods (6/29/21)

APPENDIX A

King County Industrial Waste Semi-Annual Self-Monitoring Reports

King County

Industrial Waste Program Semi-Annual Self-Monitoring Report

TECHSOLVE GROUNDWATER REMEDIATION PROJECT

Send to: King County Industrial Waste Program
201 S. Jackson Street, Suite 513
Seattle, WA 98104-3855
Phone 206-477-5300 / FAX 206-263-3001
Email: info.KCIW@kingcounty.gov

Company Name: TLP Management Services, LLC

This form is available at www.kingcounty.gov/industrialwaste

Please specify year: **2021** **Semi-Annual Report for Semester 1** **Sample Site No.:** **A43262** **Permit/DA No.:** **7592-06**

All units are mg/l unless otherwise noted. Note: Write in self-monitoring parameters, if not provided, e.g. Silver (Ag) or settleable solids (ml/L).

	Sample Date month/day	Sample Type C (Composite) G (Grab) BC (Batch)	Benzene (CAS # 71-43-2)	Ethylbenzene (CAS # 100-41-4)	Toluene (CAS# 108-88-3)	Xylenes, Total (1330-20-7)	Nonpolar fats, oils & grease (FOG) (Record average of 3 grabs only)	Discharge Volume on sample day (gallons)	Total Monthly Flow (gallons)
Semester 1	JAN/21	G	<0.0005	<0.001	<0.001	<0.003	Diesel: 3.9 Oil: <0.75	1,870	60,290
	FEB/18	G	<0.0005	<0.001	<0.001	<0.003	Diesel: 1.0 Oil: <0.75	1,340	51,720
	MAR/18	G	<0.0005	<0.001	<0.001	<0.003	Diesel: 0.61 Oil: <0.75	1,200	38,490
	APR/15	G	<0.0005	<0.001	<0.001	<0.003	FOG (non-polar): <5.0	1,200	36,890
	MAY/20	G and C for FOG	<0.0005	<0.001	<0.001	<0.003	Diesel: 0.26 Oil: <0.75	1,240	17,770
	JUN/24	G	<0.0005	<0.001	<0.001	<0.003	Diesel: <0.25 Oil: <0.75	1,460	39,040

—► **Total Volume Semester 1: 244,200 gallons**

—► Maximum daily flow from Semester 1: **3,720 gallons.** Date on which maximum daily flow occurred: **1/12/2021**

NOTES: **Page 1 of 2. Daily discharge volumes reported based upon flowmeter readings sent from telemetry unit. All analyses referenced in this report were performed by ALS Environmental of Everett, Washington. All laboratory reports are retained by TechSolve Environmental, Inc. TPH-D = Total Petroleum Hydrocarbons as Diesel. TPH-O = Total Petroleum Hydrocarbons as Oil.**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further certify that all data requiring a laboratory analysis were analyzed by a Washington State Department of Ecology accredited laboratory for each parameter tested.

Signature of Principal Executive or Authorized Agent

Date 7/6/2021

Due Date: Semi-annual report for **Semester 1** is due by **July15** each year. **Please Note:** Do not include original laboratory reports with this form unless otherwise requested. Keep the original laboratory reports on file and available for inspection for at least three years.

King County

Industrial Waste Program Semi-Annual Self-Monitoring Report

TECHSOLVE GROUNDWATER REMEDIATION PROJECT

Send to: King County Industrial Waste Program
201 S. Jackson Street, Suite 513
Seattle, WA 98104-3855
Phone 206-477-5300 / FAX 206-263-3001
Email: info.KCIW@kingcounty.gov

Company Name: TLP Management Services, LLC

This form is available at www.kingcounty.gov/industrialwaste

Please specify year: **2021** **Semi-Annual Report for Semester 2** **Sample Site No.:** **A43262** **Permit/DA No.:** **7592-06**

All units are mg/l unless otherwise noted. Note: Write in self-monitoring parameters, if not provided, e.g. Silver (Ag) or settleable solids (ml/L).

	Sample Date month/day	Sample Type C (Composite) G (Grab) BC (Batch)	Benzene (CAS # 71-43-2)	Ethylbenzene (CAS # 100-41-4)	Toluene (CAS# 108-88-3)	Xylenes, Total (1330-20-7)	Nonpolar fats, oils & grease (FOG) (Record average of 3 grabs only)	Discharge Volume on sample day (gallons)	Total Monthly Flow (gallons)
Semester 2	**JUL/22**	G	<0.0005	<0.001	<0.001	<0.003	Diesel: <0.25 Oil: <0.75	1,220	35,060
	AUG/26	G	<0.0005	<0.001	<0.001	<0.003	Diesel: <0.25 Oil: <0.75	1,110	43,520
	SEP/16	G	<0.0005	<0.001	<0.001	<0.003	Diesel: 0.28 Oil: <0.75	1,220	26,100
	OCT/21	G	<0.0005	<0.001	<0.001	<0.003	Diesel: 0.26 Oil: <0.75	1,780	46,830
	NOV/18	G and C for FOG	<0.0005	<0.001	<0.001	<0.003	FOG (non-polar): <5.0	1,680	58,060
	DEC/16	G	<0.0005	<0.001	<0.001	<0.003	Diesel: 0.87 Oil: <0.75	1,870	54,040

—► **Total Volume Semester 2: 266,030 gallons**

—► Maximum daily flow from Semester 2: **3,150 gallons.** Date on which maximum daily flowoccurred:**12/8/2021**

NOTES: **Page 1 of 2. Daily discharge volumes reported based upon flowmeter readings sent from telemetry unit. All analyses referenced in this report were performed by ALS Environmental of Everett Washington. All laboratory reports are retained by TechSolve Environmental, Inc.. TPH-D = Total Petroleum Hydrocarbons as Diesel. TPH-O = Total Petroleum Hydrocarbons as Oil.**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further certify that all data requiring a laboratory analysis were analyzed by a Washington State Department of Ecology accredited laboratory for each parameter tested.

Signature of Principal Executive or Authorized Agent

Date 1/5/2022

Due Date: Semi-annual report for **Semester 2** is due by **January 15** each year. **Please Note:** Do not include original laboratory reports with this form unless otherwise requested. Keep the original laboratory reports on file and available for inspection for at least three years.

King County

Industrial Waste Program Semi-Annual Self-Monitoring Report

TECHSOLVE GROUNDWATER REMEDIATION PROJECT

Send to: King County Industrial Waste Program
201 S. Jackson Street, Suite 513
Seattle, WA 98104-3855
Phone 206-477-5300 / FAX 206-263-3001
Email: info.KCIW@kingcounty.gov

This form is available at www.kingcounty.gov/industrialwaste

Company Name: TLP Management Services, LLC

Please specify year: **2021** **Semi-Annual Report for Semester 2** **Sample Site No.:** **A43262** **Permit/DA No.:** **7592-06**

All units are mg/l unless otherwise noted. Note: Write in self-monitoring parameters, if not provided, e.g. Silver (Ag) or settleable solids (ml/L).

	Sample Date month/day	Sample Type C (Composite) G (Grab) BC (Batch)	Arsenic, Total Self Monitoring	Cadmium, Total Self Monitoring	Chromium, Total Self Monitoring	Copper, Total Self Monitoring	Lead, Total Self Monitoring	Mercury, Total Self Monitoring	Nickel, Total Self Monitoring	Silver, Total Self Monitoring	Zinc, Total Self Monitoring
Semester 2	**JUL/____**										
	AUG/____										
	SEP/____										
	OCT/____										
	NOV/18	G	<0.002	<0.002	<0.004	0.013	0.0023	<0.0002	<0.004	<0.002	0.110
	DEC/____										

—► **Total Volume Semester 2: 266,030 gallons**

—► Maximum daily flow from Semester 2: **3,150 gallons.** Date on which maximum daily flow occurred: **12/8/2021**

NOTES: **Page 2 of 2. Daily discharge volumes reported based upon flowmeter readings sent from telemetry unit. All analyses referenced in this report were performed by ALS Environmental of Everett Washington. All laboratory reports are retained by TechSolve Environmental, Inc..**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations. I further certify that all data requiring a laboratory analysis were analyzed by a Washington State Department of Ecology accredited laboratory for each parameter tested.

Signature of Principal Executive or Authorized Agent

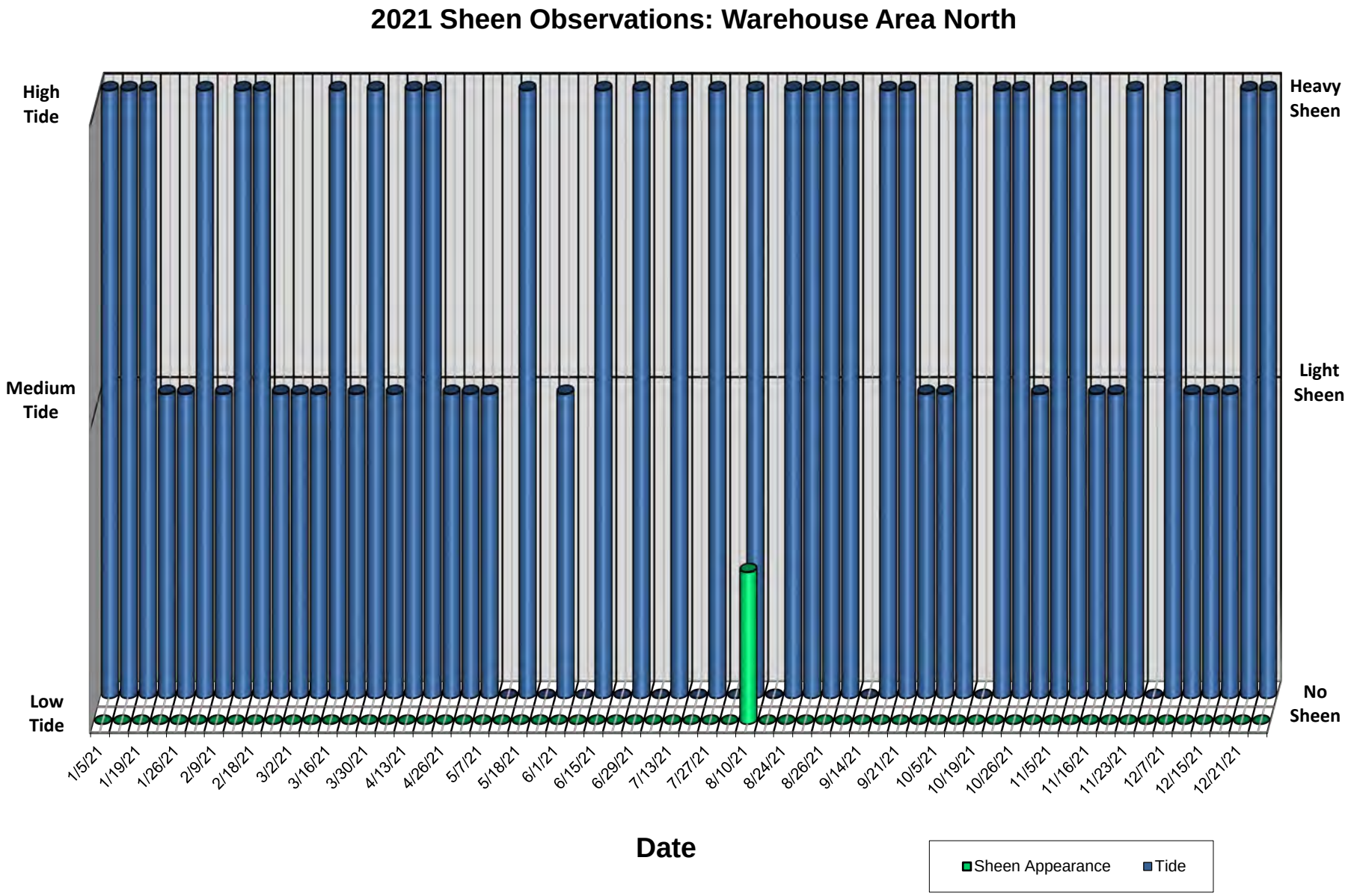
Date 1/5/2022

Due Date: Semi-annual report for **Semester 2** is due by **January 15** each year. **Please Note:** Do not include original laboratory reports with this form unless otherwise requested. Keep the original laboratory reports on file and available for inspection for at least three years.

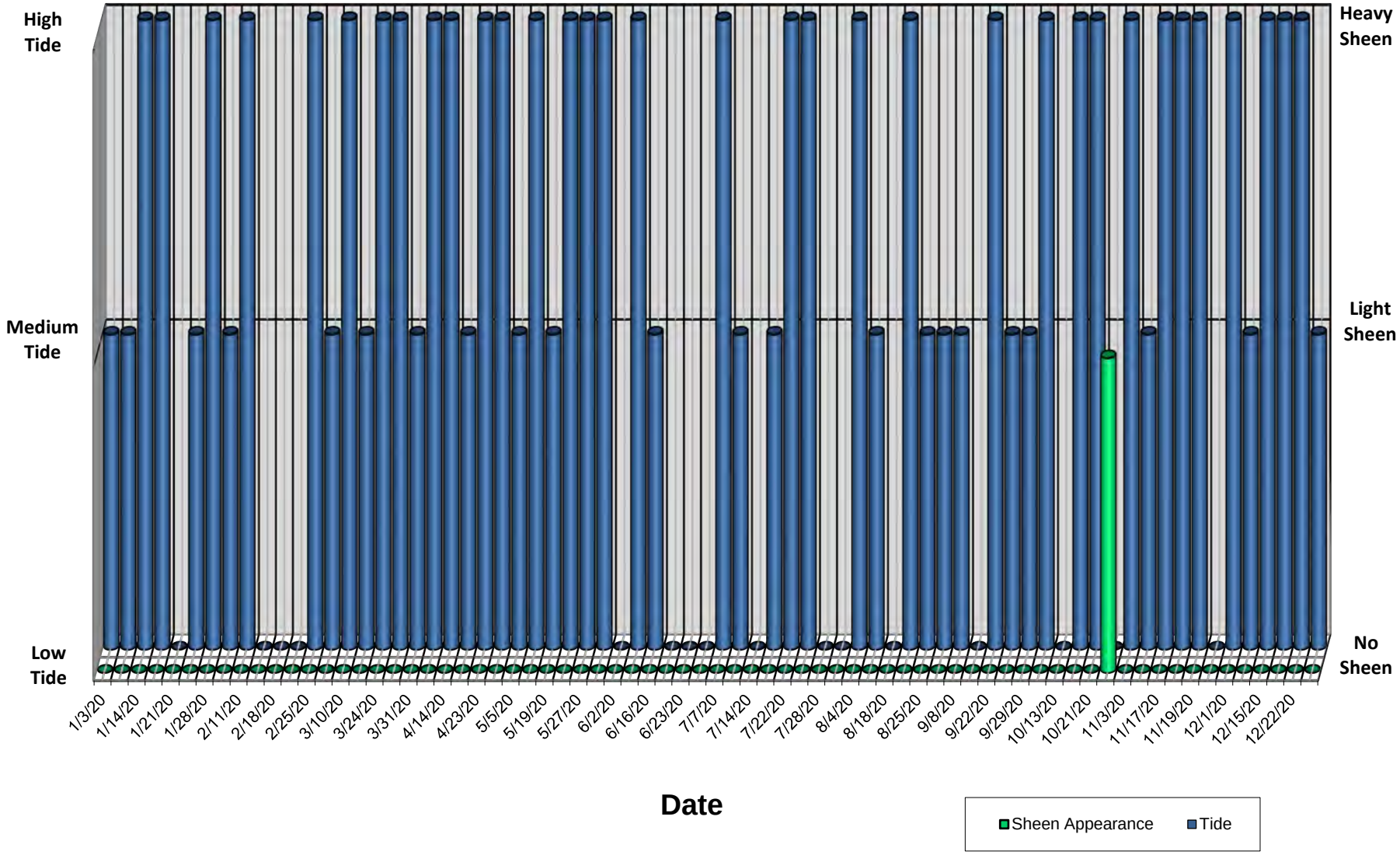
APPENDIX B

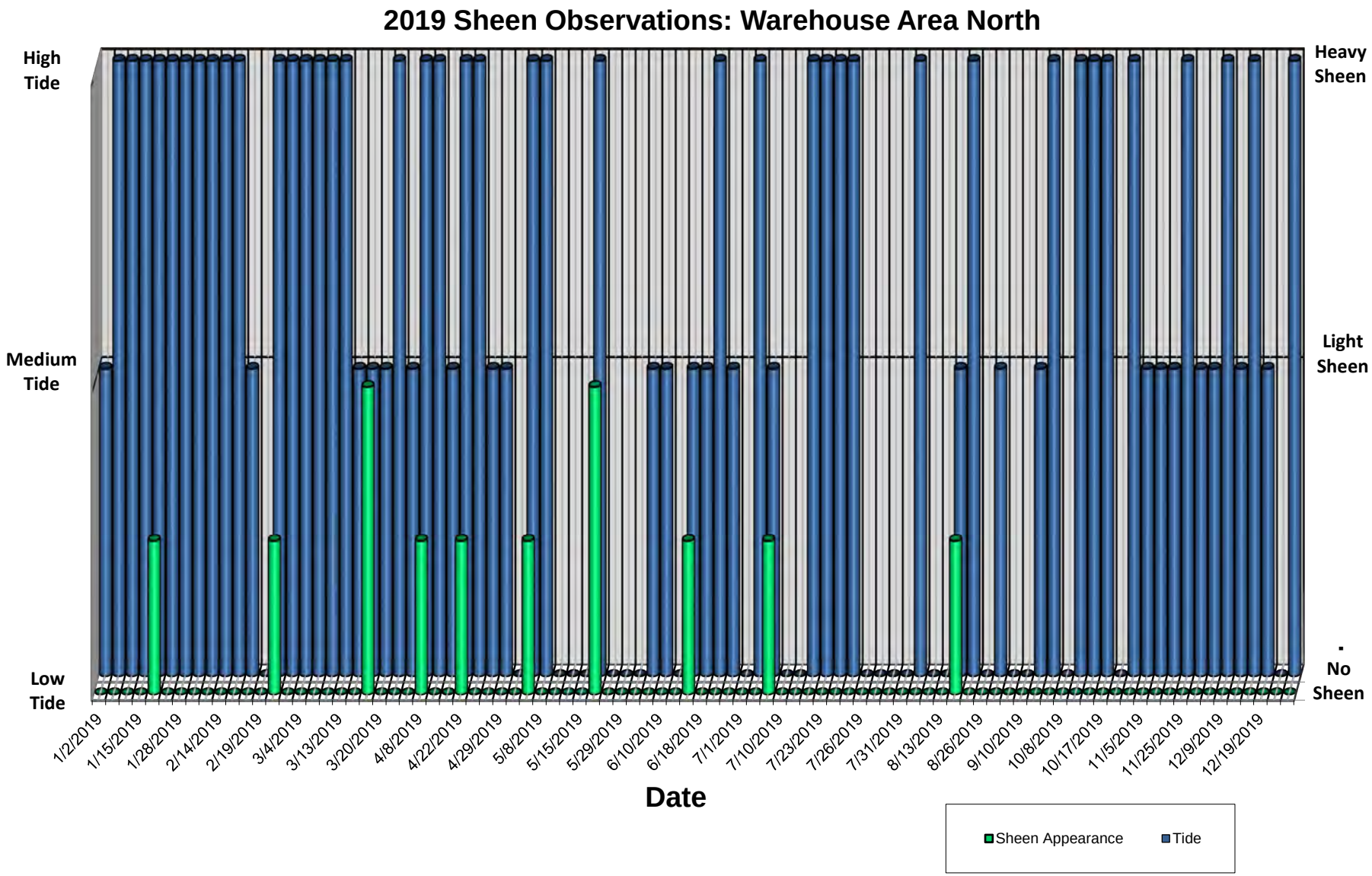
Sheen Observations – Loading Rack & Warehouse 2021 Through 1996

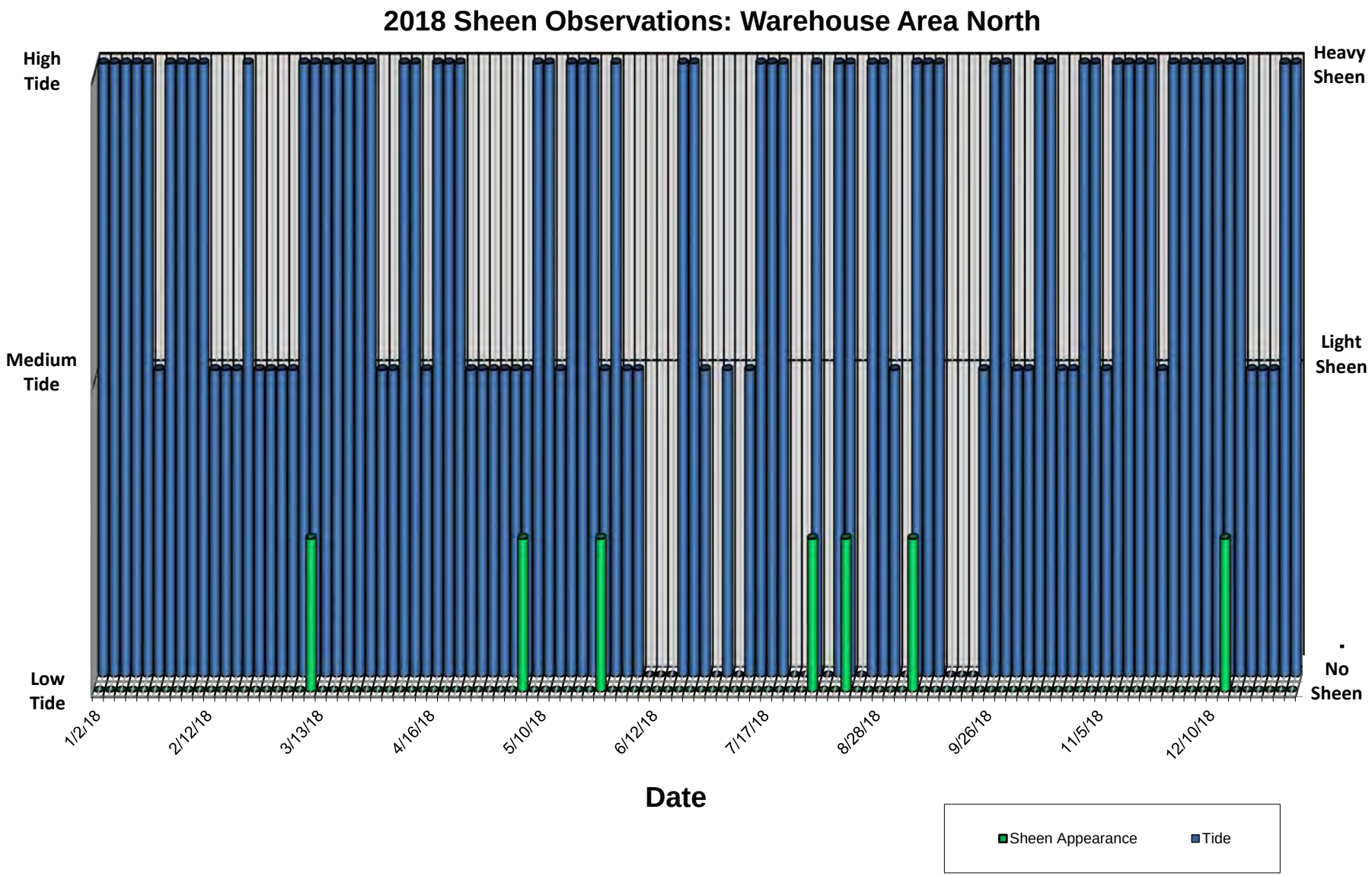
Sheen Observations - Northern Warehouse Boom
Seaport Midstream Partners LLC Seattle Terminal

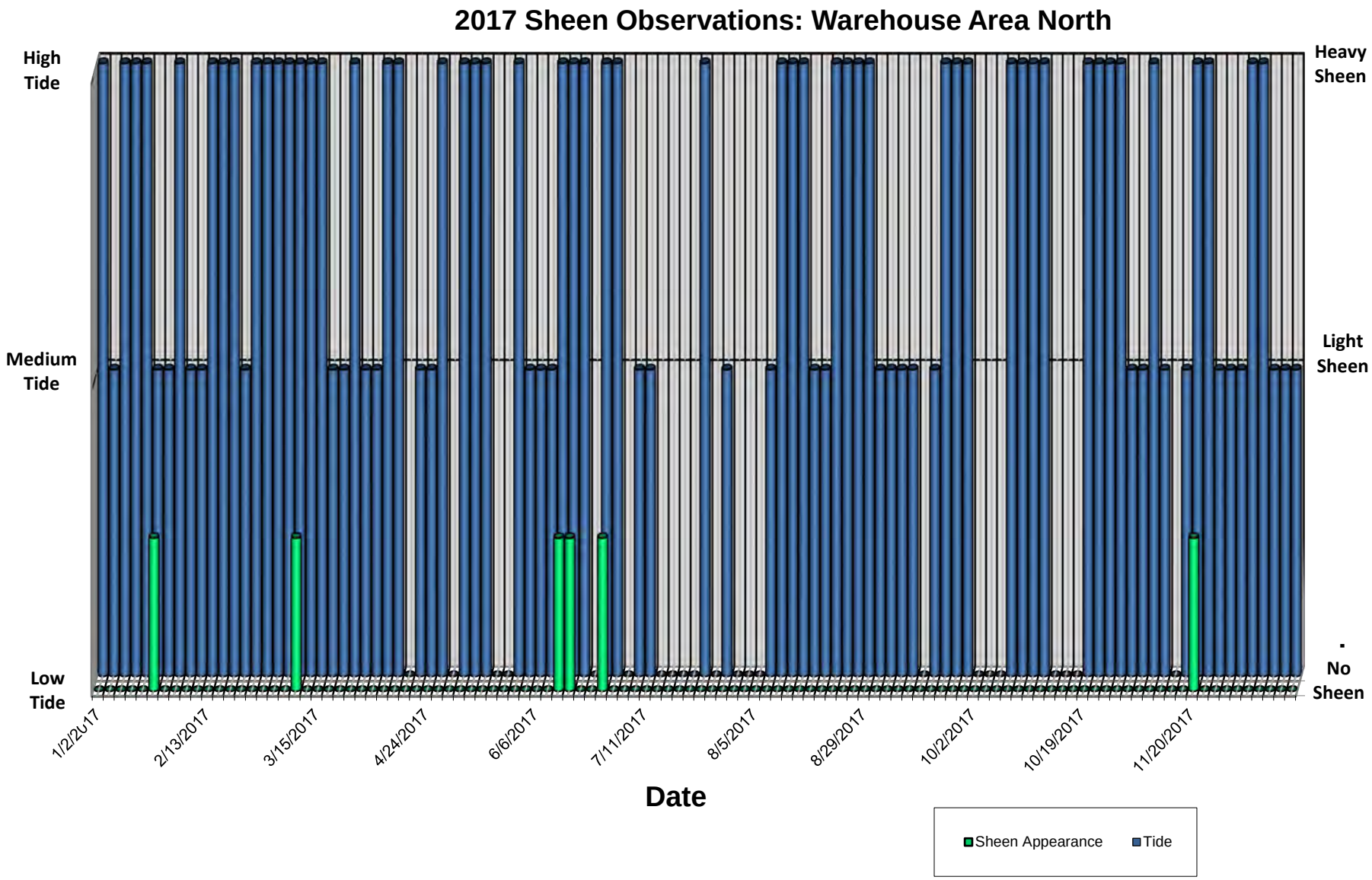


2020 Sheen Observations: Warehouse Area North

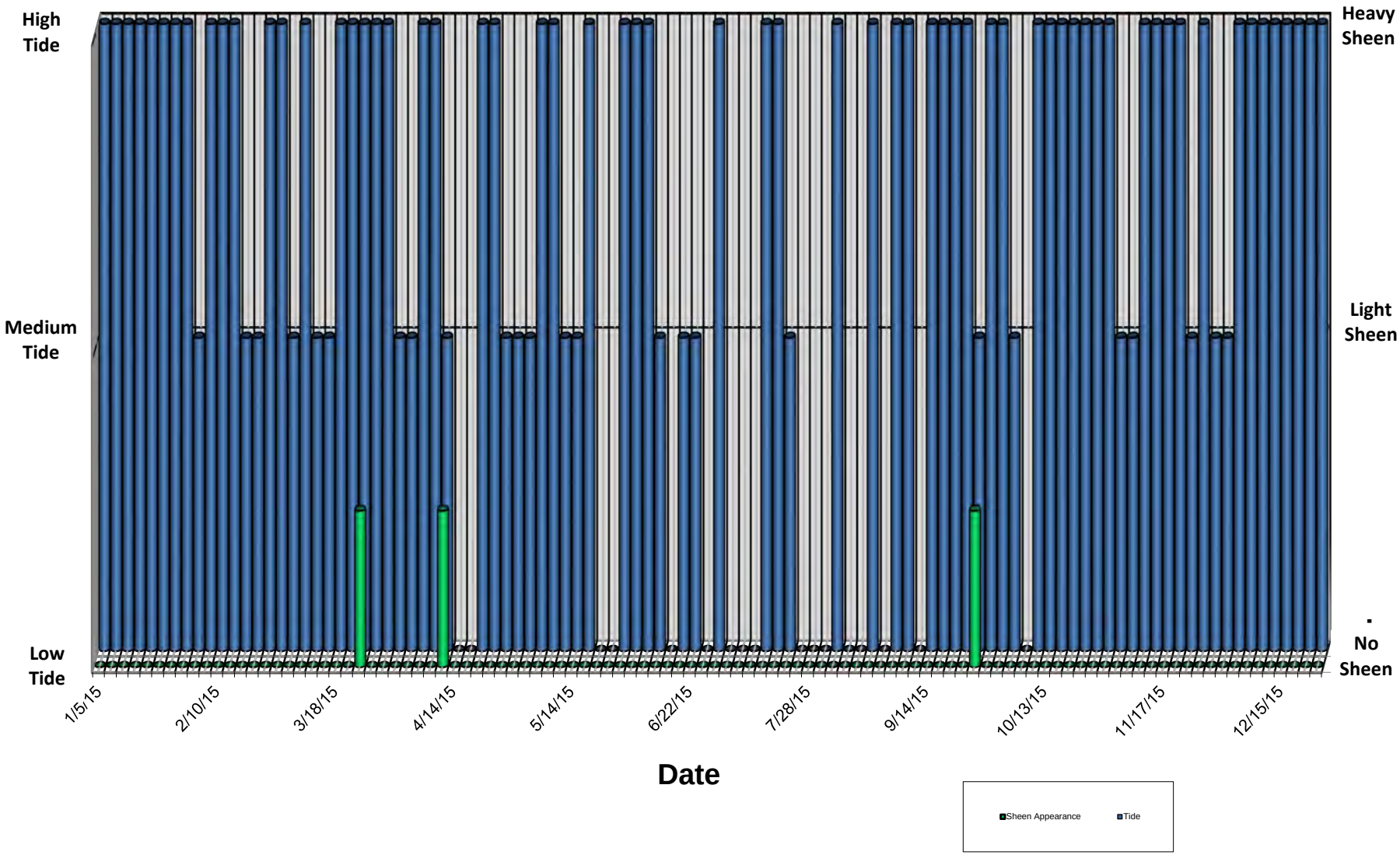


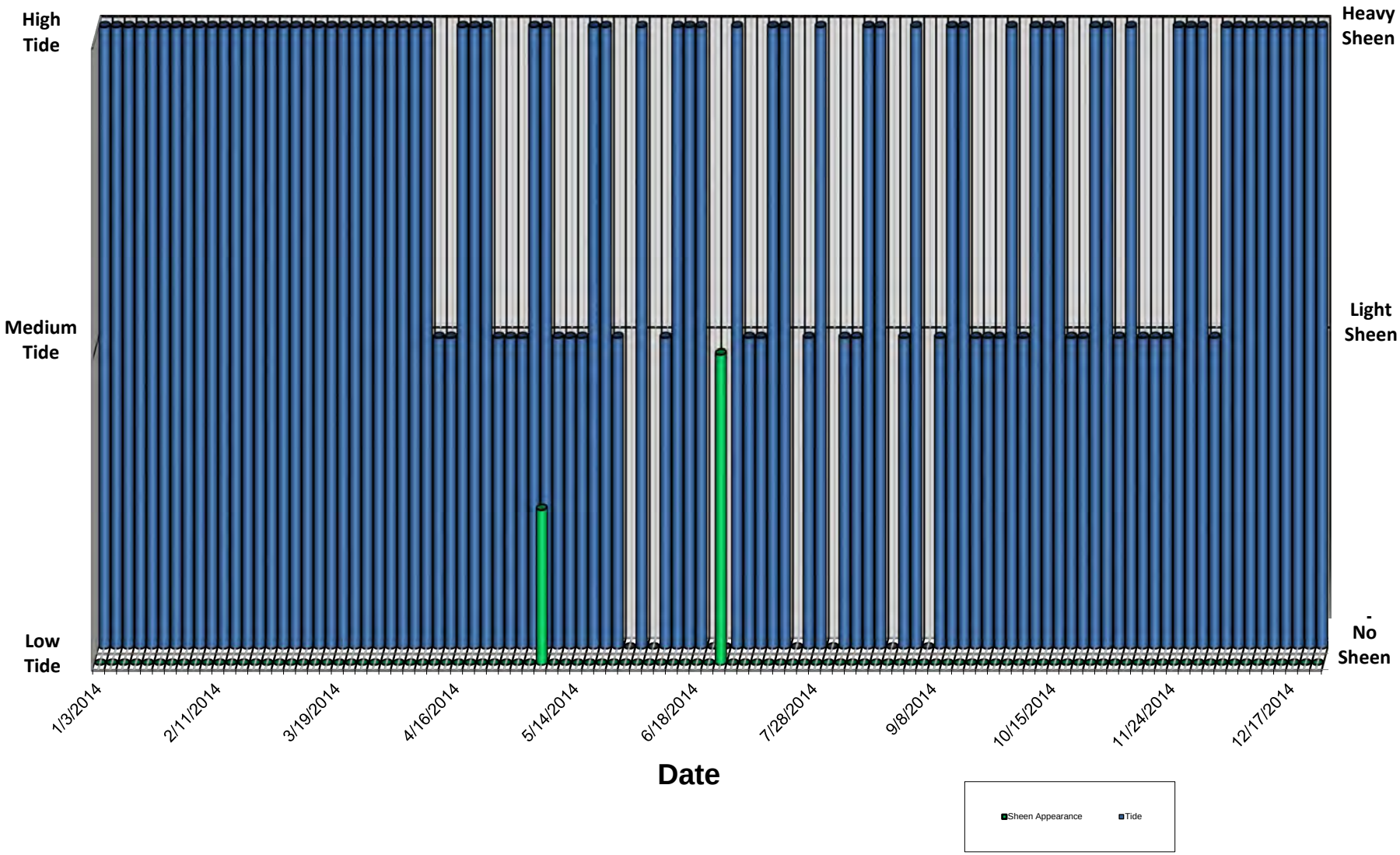

2019 Sheen Observations: Warehouse Area North
High Tide
Medium Tide
Low Tide
Heavy Sheen
Light Sheen
No Sheen
1/2/2019
1/15/2019
1/28/2019
2/14/2019
2/19/2019
3/4/2019
3/13/2019
3/20/2019
4/8/2019
4/22/2019
4/29/2019
5/8/2019
5/15/2019
5/29/2019
6/10/2019
6/18/2019
7/1/2019
7/10/2019
7/23/2019
7/26/2019
7/31/2019
8/13/2019
8/26/2019
9/10/2019
10/8/2019
10/17/2019
11/5/2019
11/25/2019
12/9/2019
12/19/2019
Date
Sheen Appearance
Tide

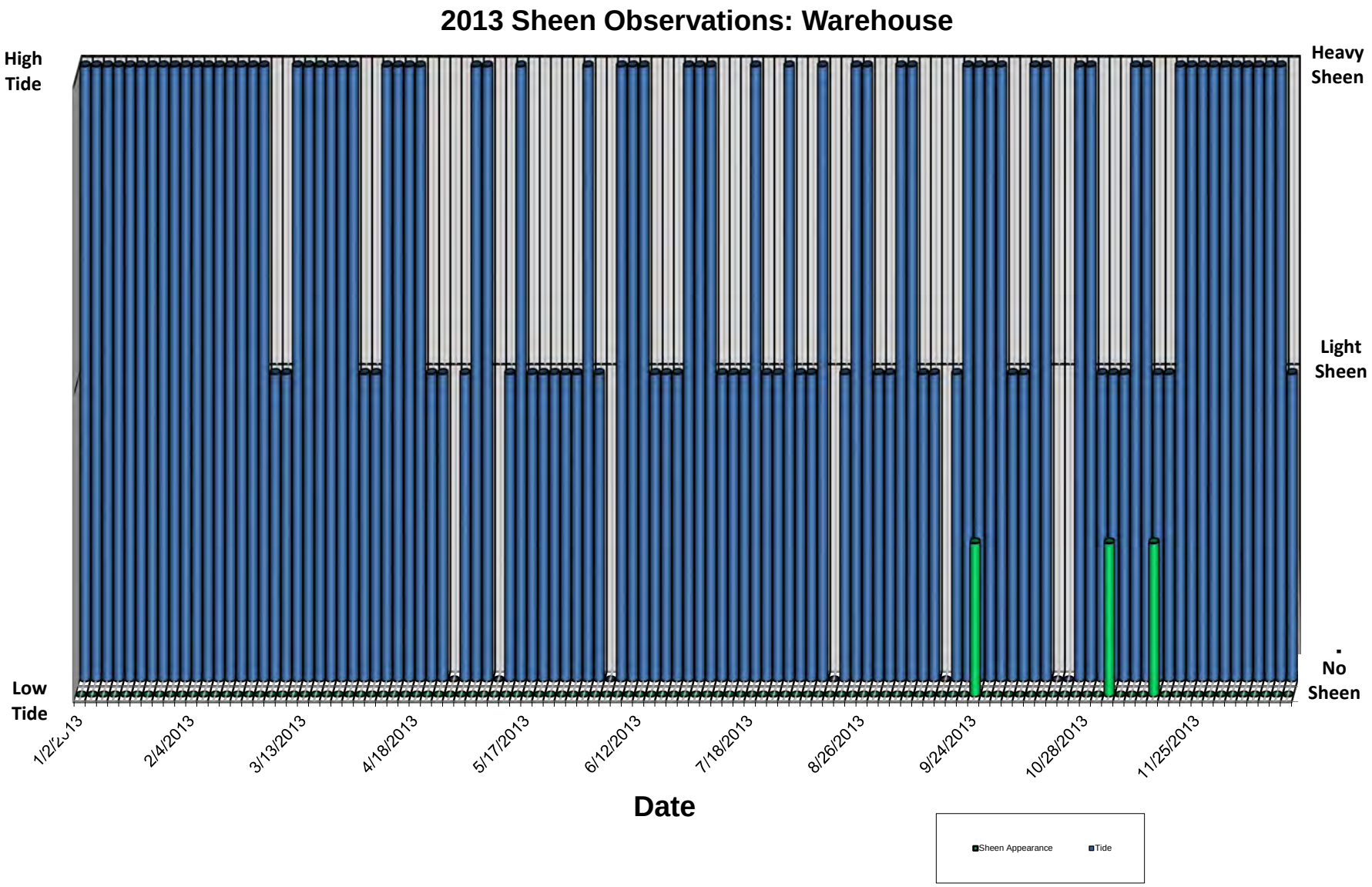

2018 Sheen Observations: Warehouse Area North
High Tide
Medium Tide
Low Tide
Heavy Sheen
Light Sheen
No Sheen
1/2/18
2/12/18
3/13/18
4/16/18
5/10/18
6/12/18
7/17/18
8/28/18
9/26/18
11/5/18
12/10/18
Date
Sheen Appearance
Tide


2017 Sheen Observations: Warehouse Area North
High Tide
Medium Tide
Low Tide
Heavy Sheen
Light Sheen
-
No Sheen
1/2/2017
2/13/2017
3/15/2017
4/24/2017
6/6/2017
7/11/2017
8/5/2017
8/29/2017
10/2/2017
10/19/2017
11/20/2017
Date
Sheen Appearance
Tide

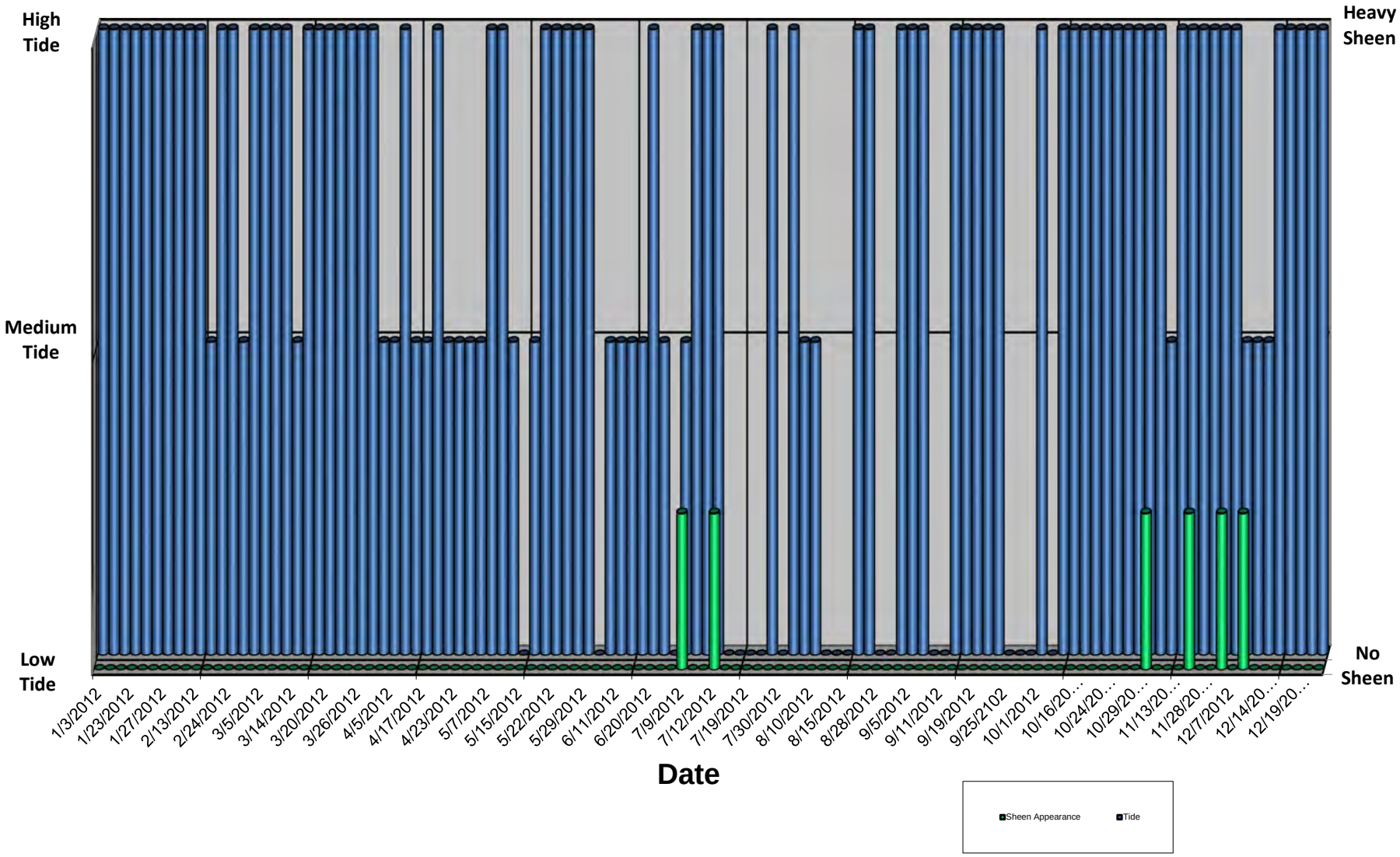

2016 Sheen Observations: Warehouse Area North
High Tide
Medium Tide
Low Tide
Heavy Sheen
Light Sheen
No Sheen
1/4/16
2/10/16
3/15/16
4/12/16
5/9/16
6/8/16
7/21/16
8/25/16
9/28/16
10/27/16
11/22/16
Date
Sheen Appearance
Tide


2015 Sheen Observations: Warehouse
High Tide
Medium Tide
Low Tide
Heavy Sheen
Light Sheen
No Sheen
1/5/15
2/10/15
3/18/15
4/14/15
5/14/15
6/22/15
7/28/15
9/14/15
10/13/15
11/17/15
12/15/15
Date
Sheen Appearance
Tide

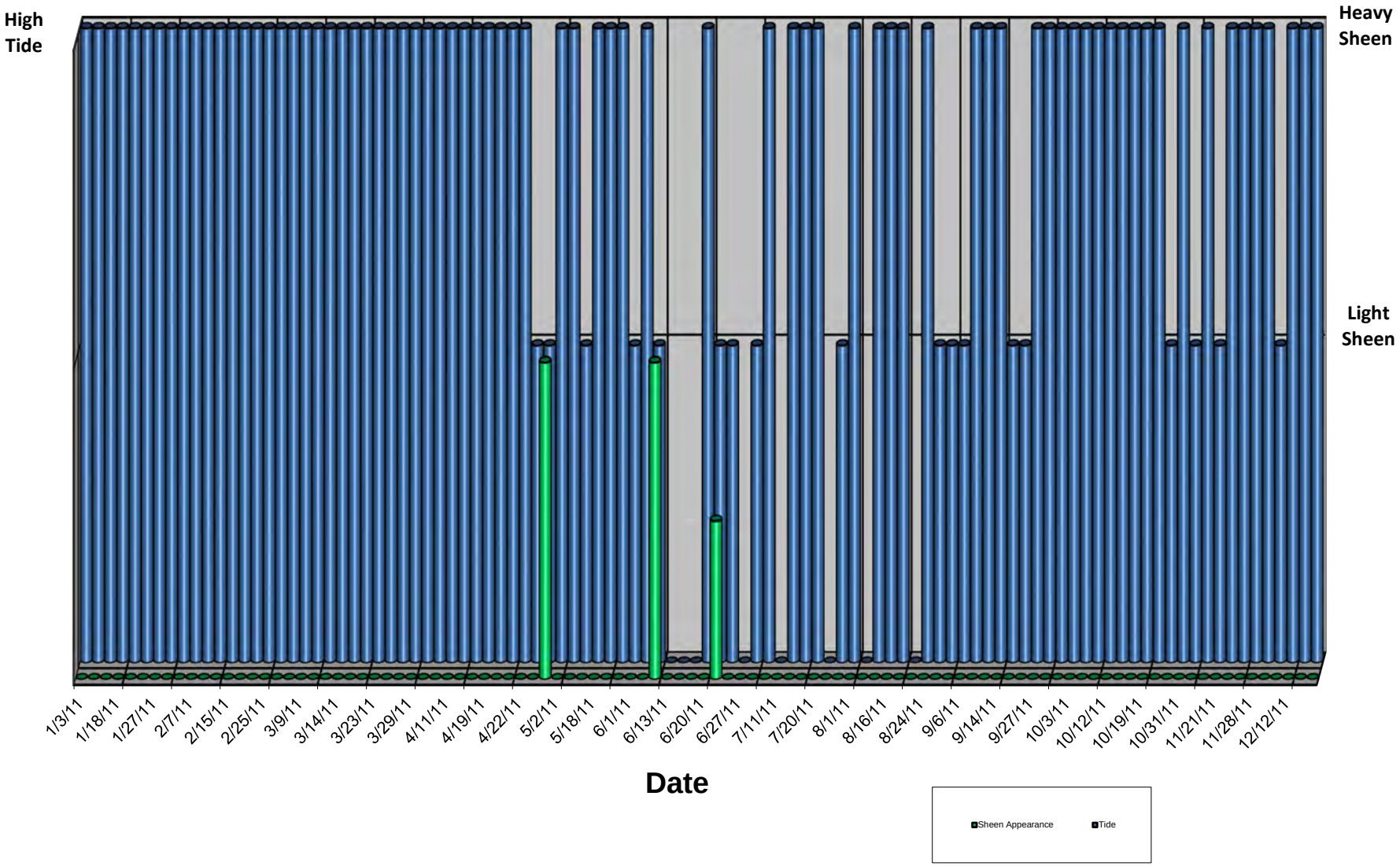

2014 Sheen Observations: Warehouse
High Tide
Medium Tide
Low Tide
Heavy Sheen
Light Sheen
No Sheen
1/3/2014
2/11/2014
3/19/2014
4/16/2014
5/14/2014
6/18/2014
7/28/2014
9/8/2014
10/15/2014
11/24/2014
12/17/2014
Date
Sheen Appearance
Tide


2013 Sheen Observations: Warehouse
High Tide
Low Tide
Heavy Sheen
Light Sheen
No Sheen
1/2/2013
2/4/2013
3/13/2013
4/18/2013
5/17/2013
6/12/2013
7/18/2013
8/26/2013
9/24/2013
10/28/2013
11/25/2013
Date
Sheen Appearance
Tide

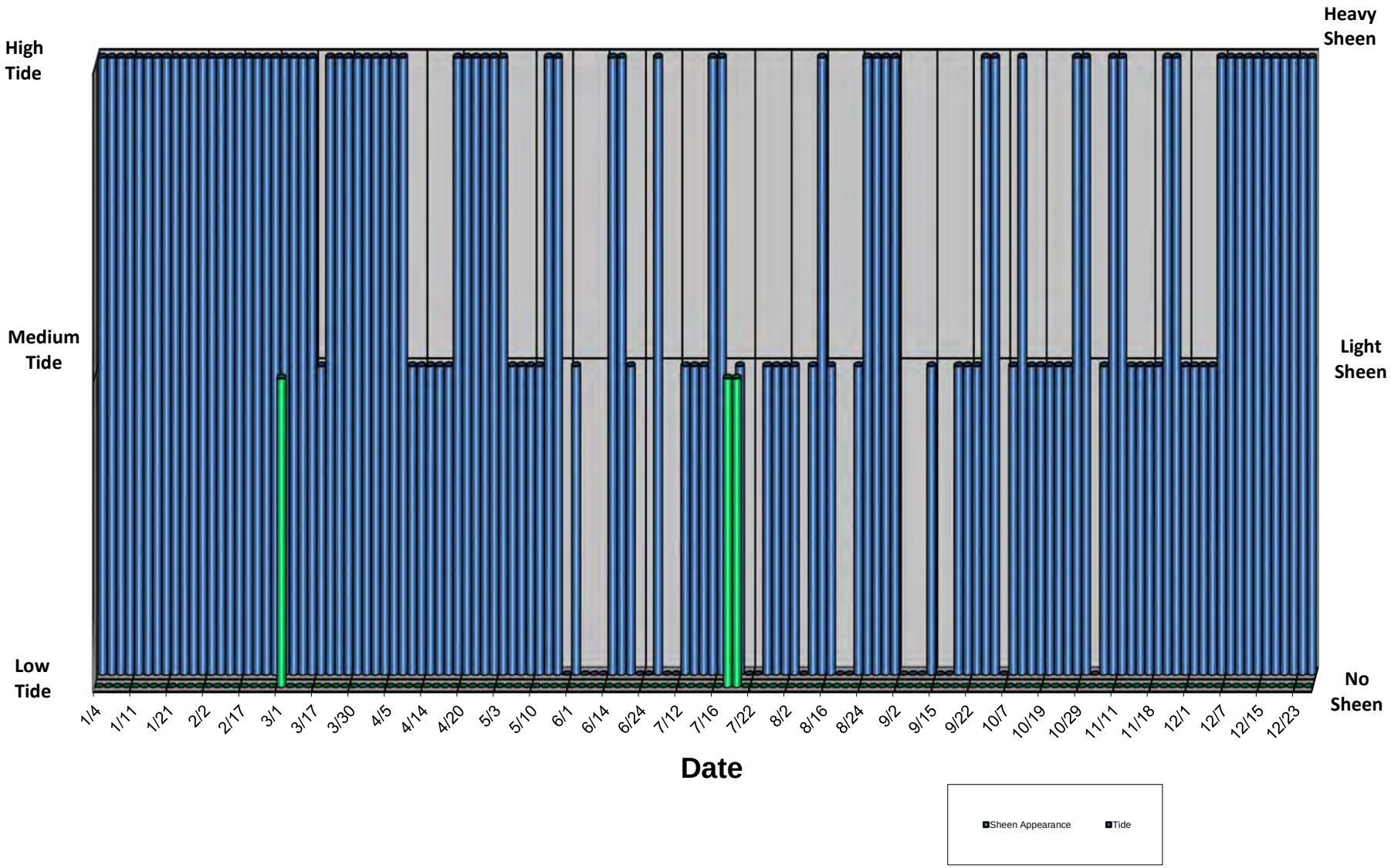
2012 Sheen Observations: Warehouse



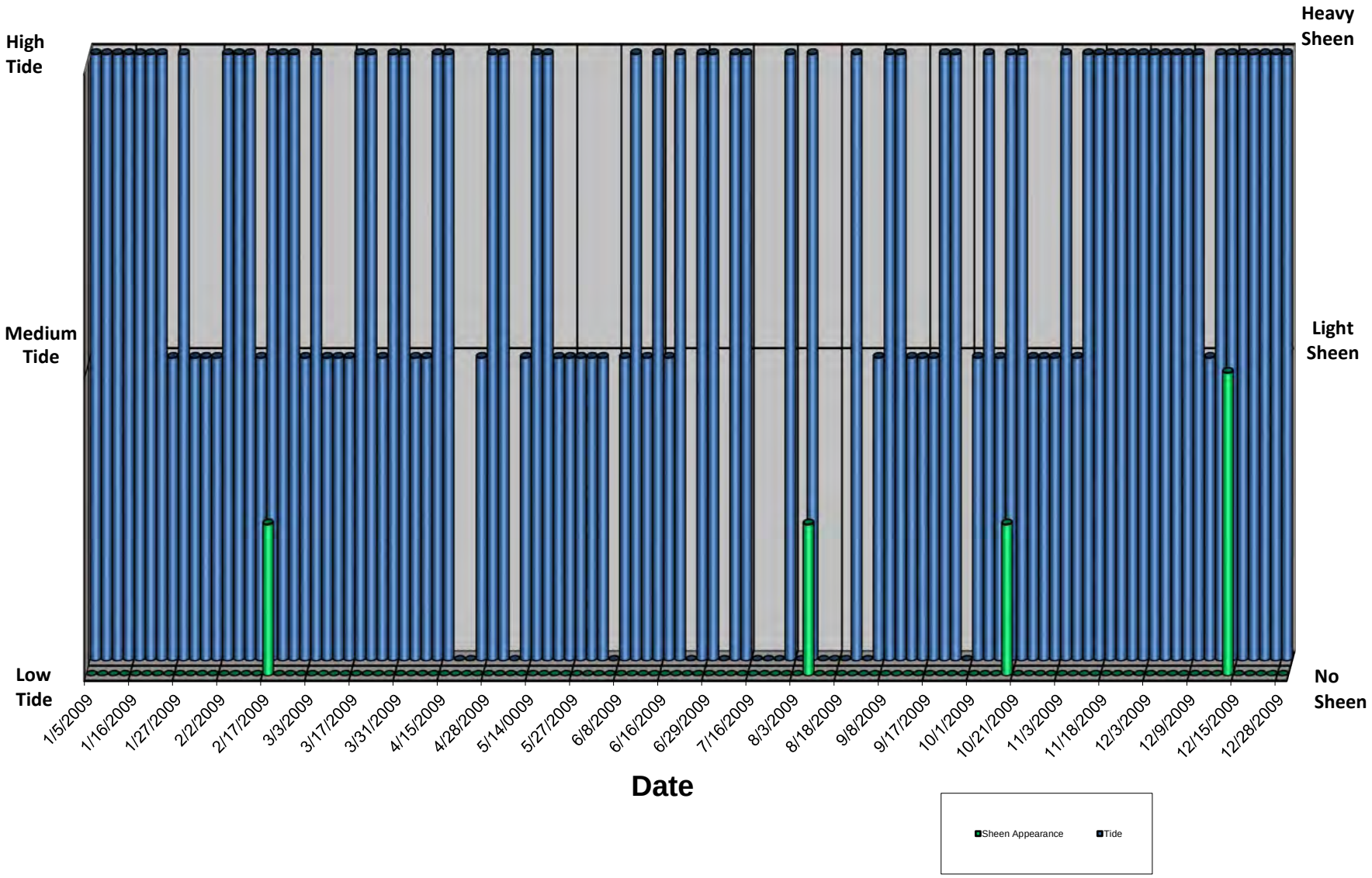
2011 Sheen Observations: Warehouse



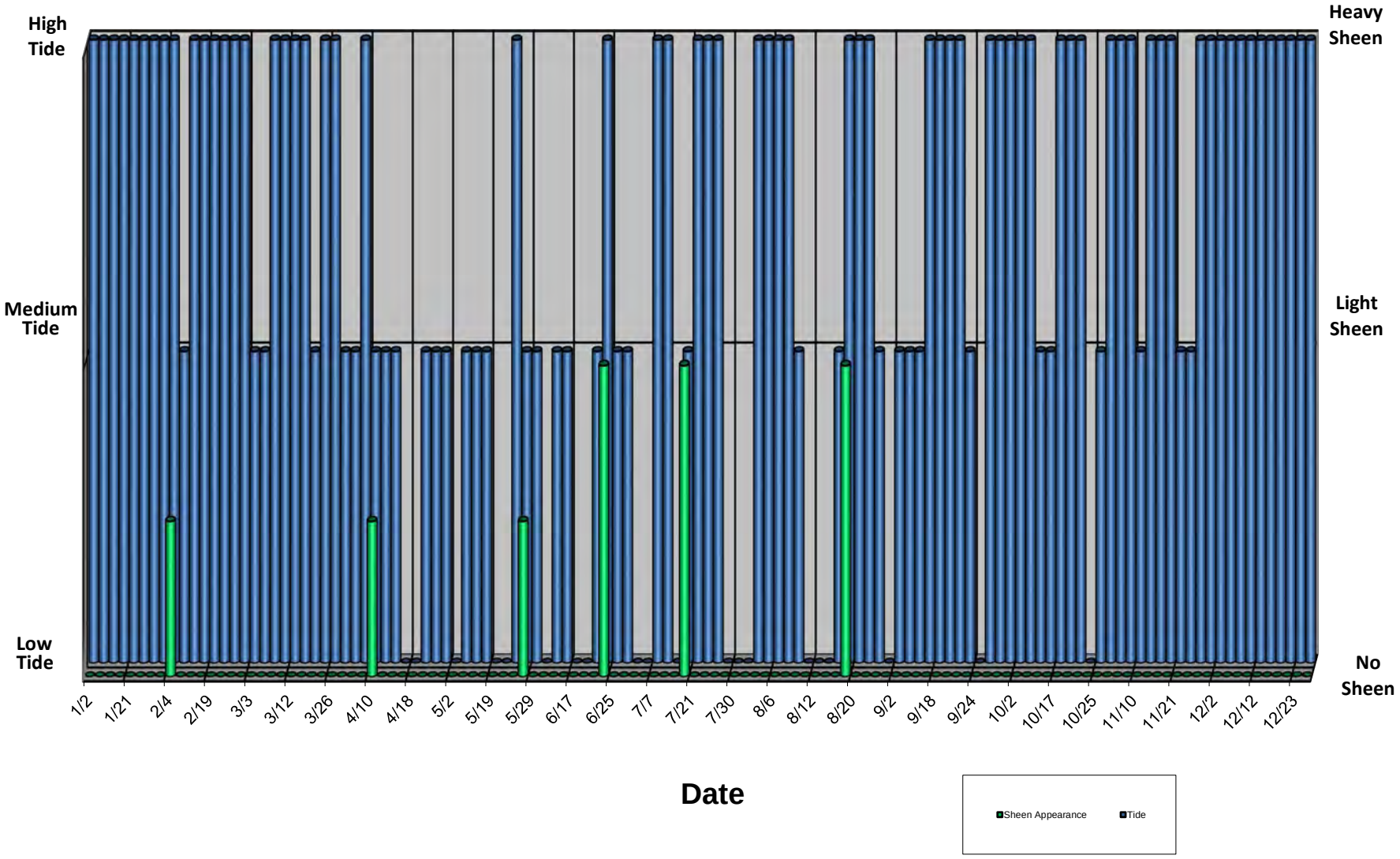
2010 Sheen Observations: Warehouse



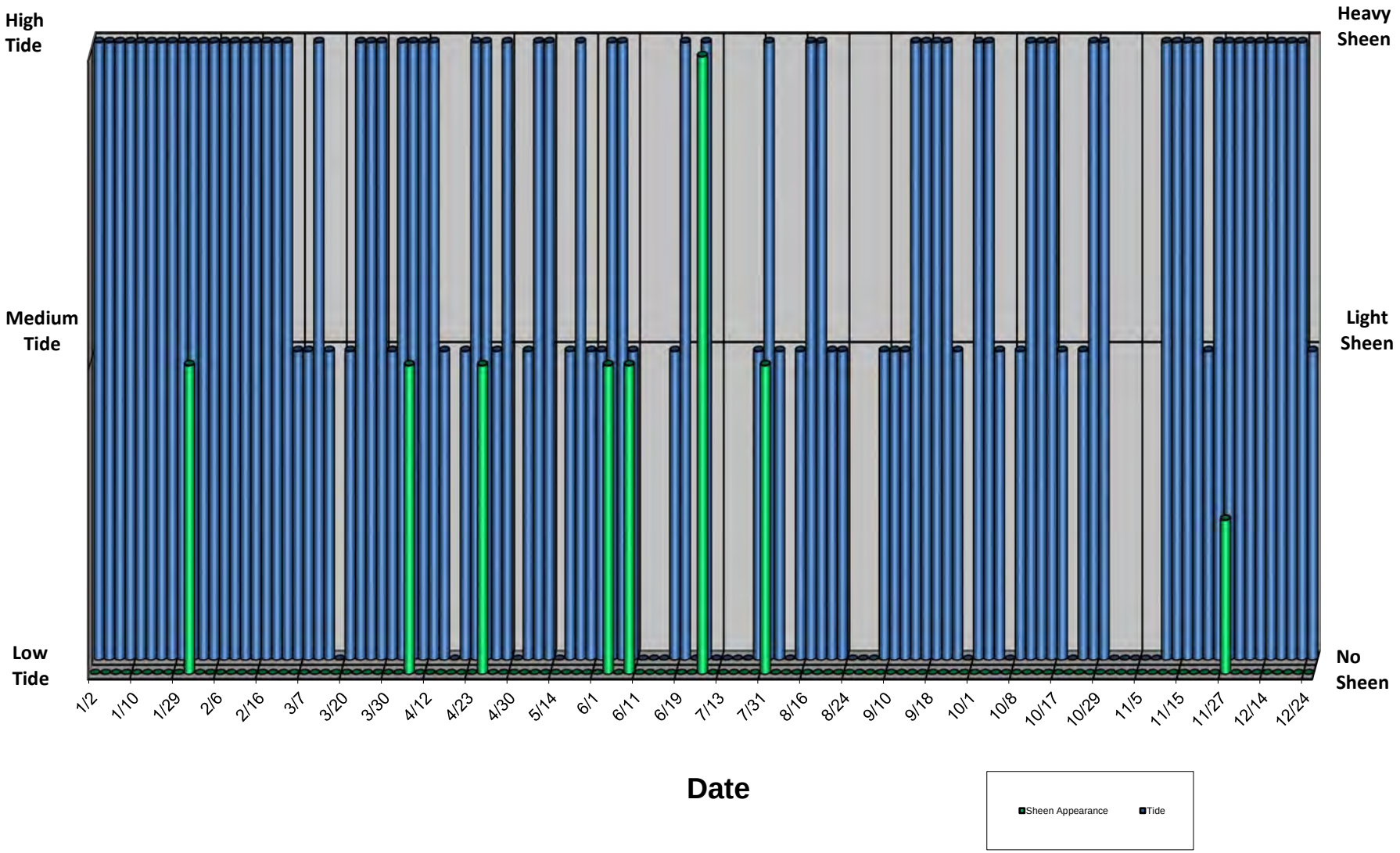
2009 Sheen Observations: Warehouse



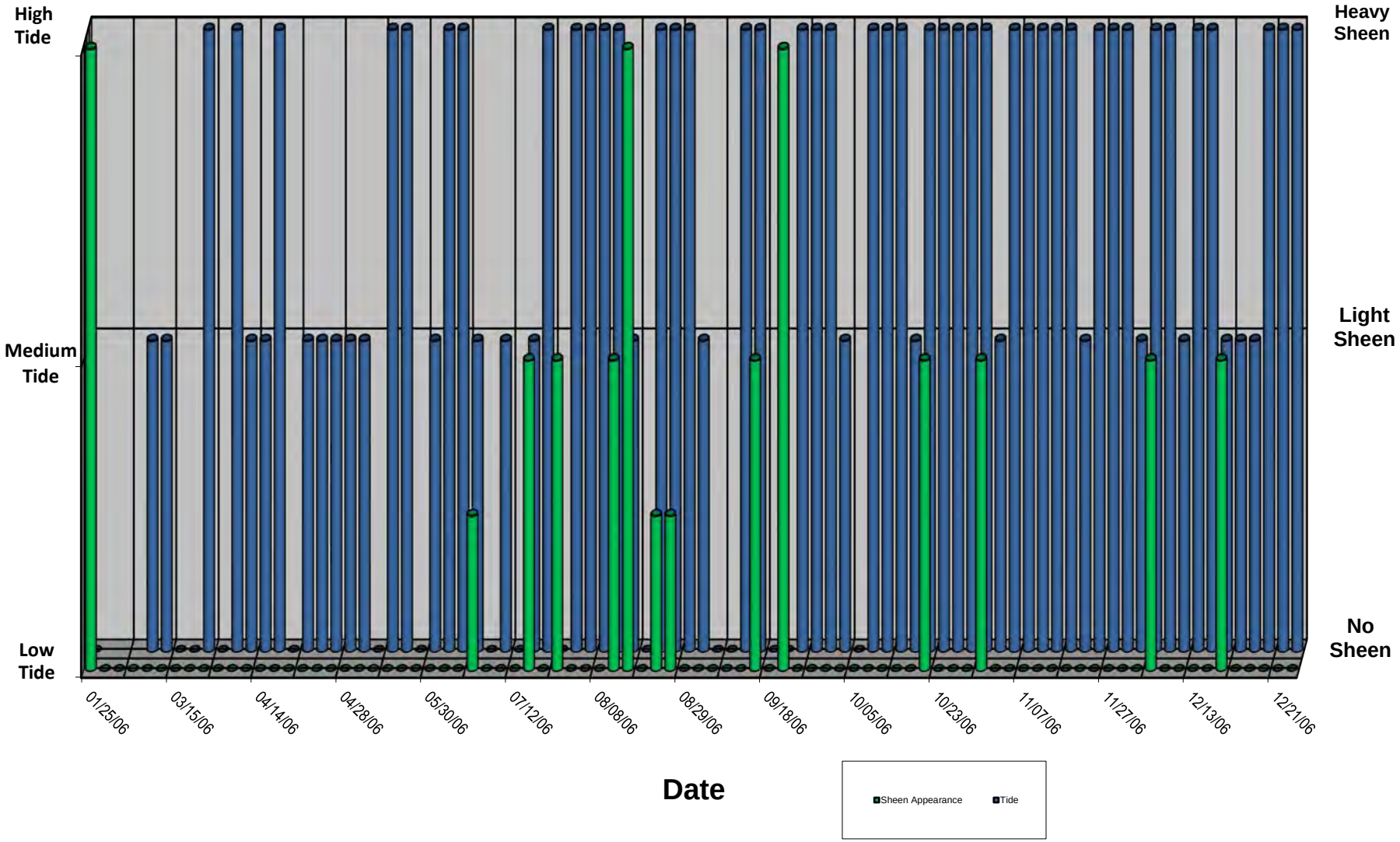
2008 Sheen Observations: Warehouse



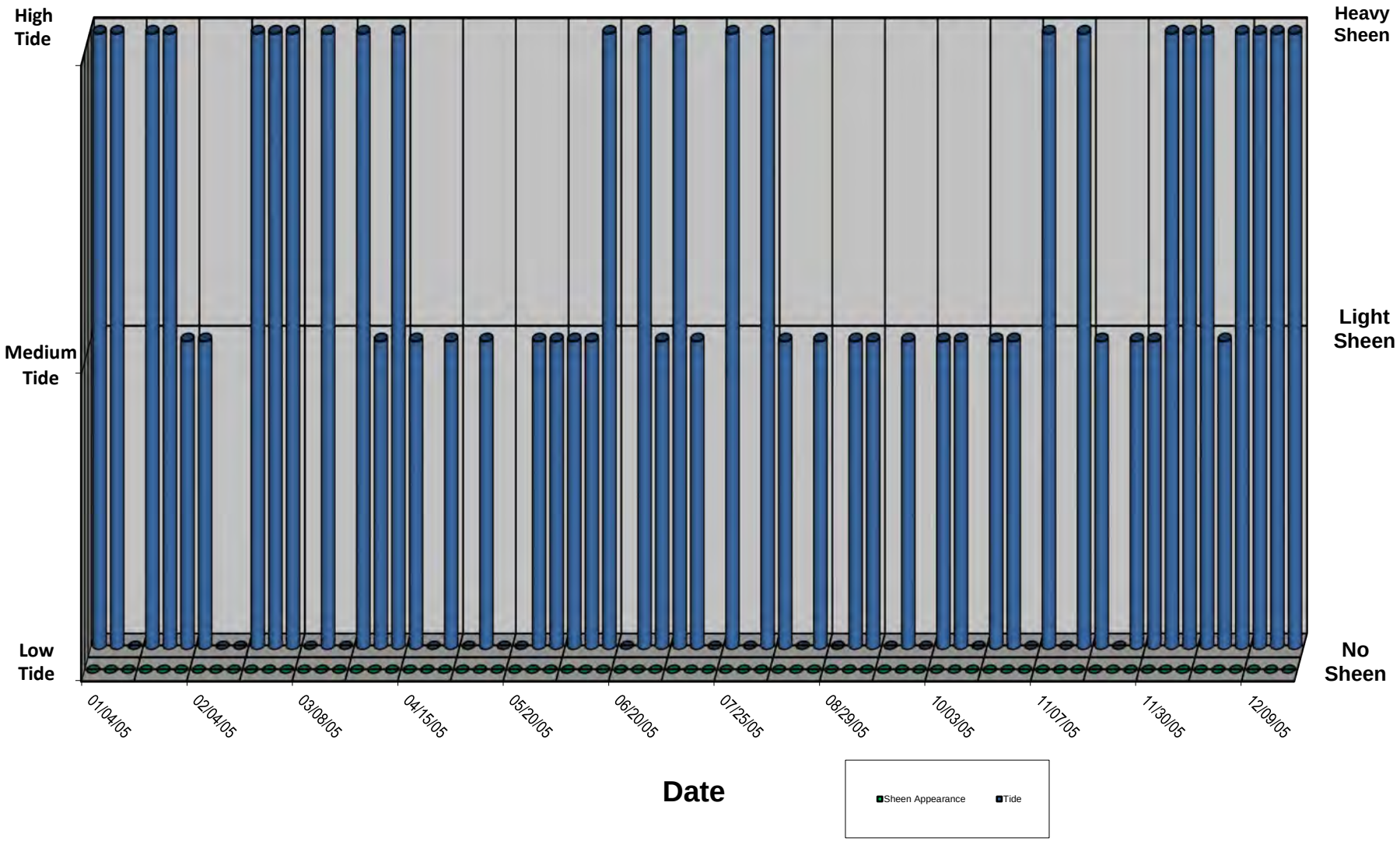
2007 Sheen Observations: Warehouse



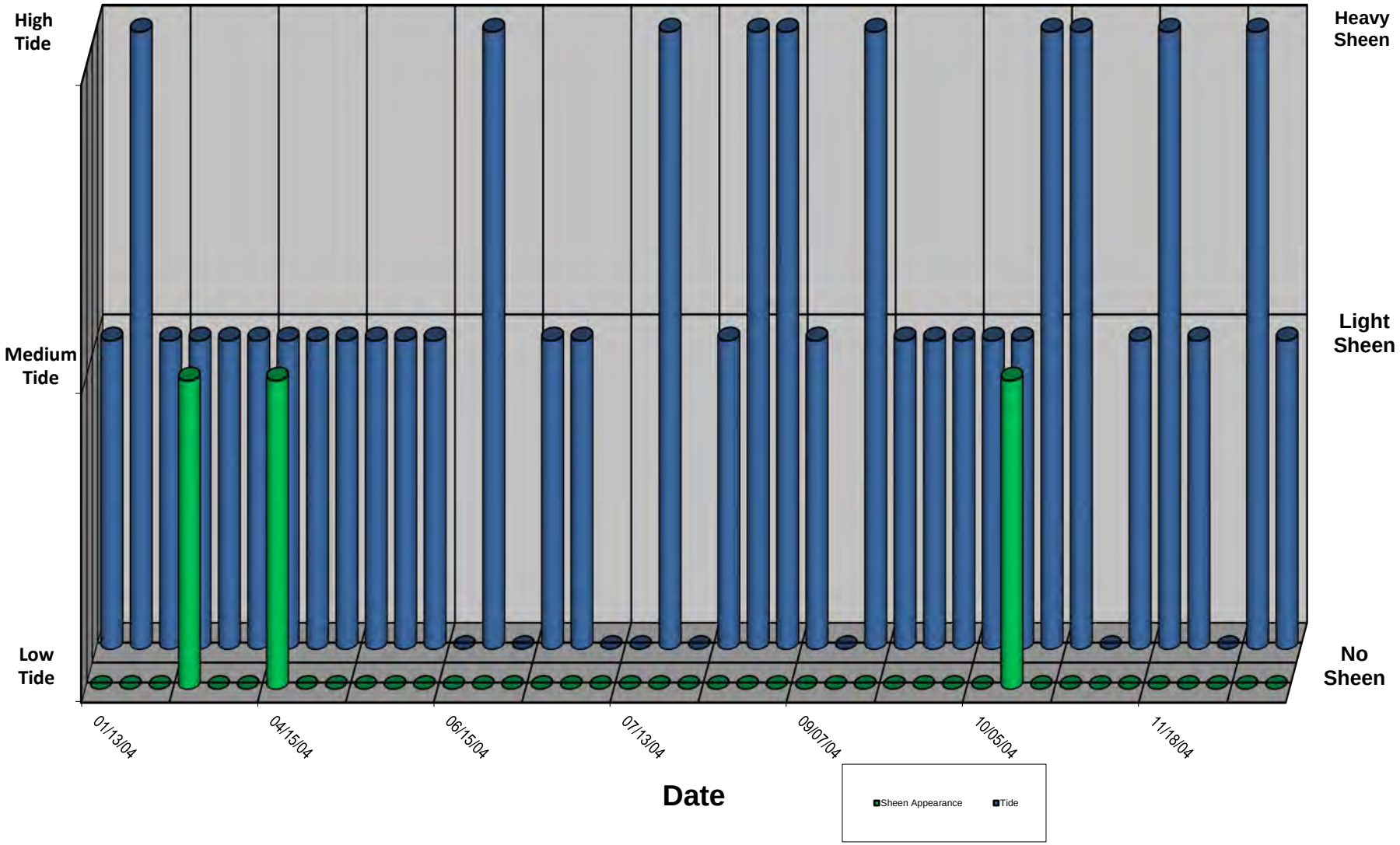
2006 Sheen Observations: Warehouse



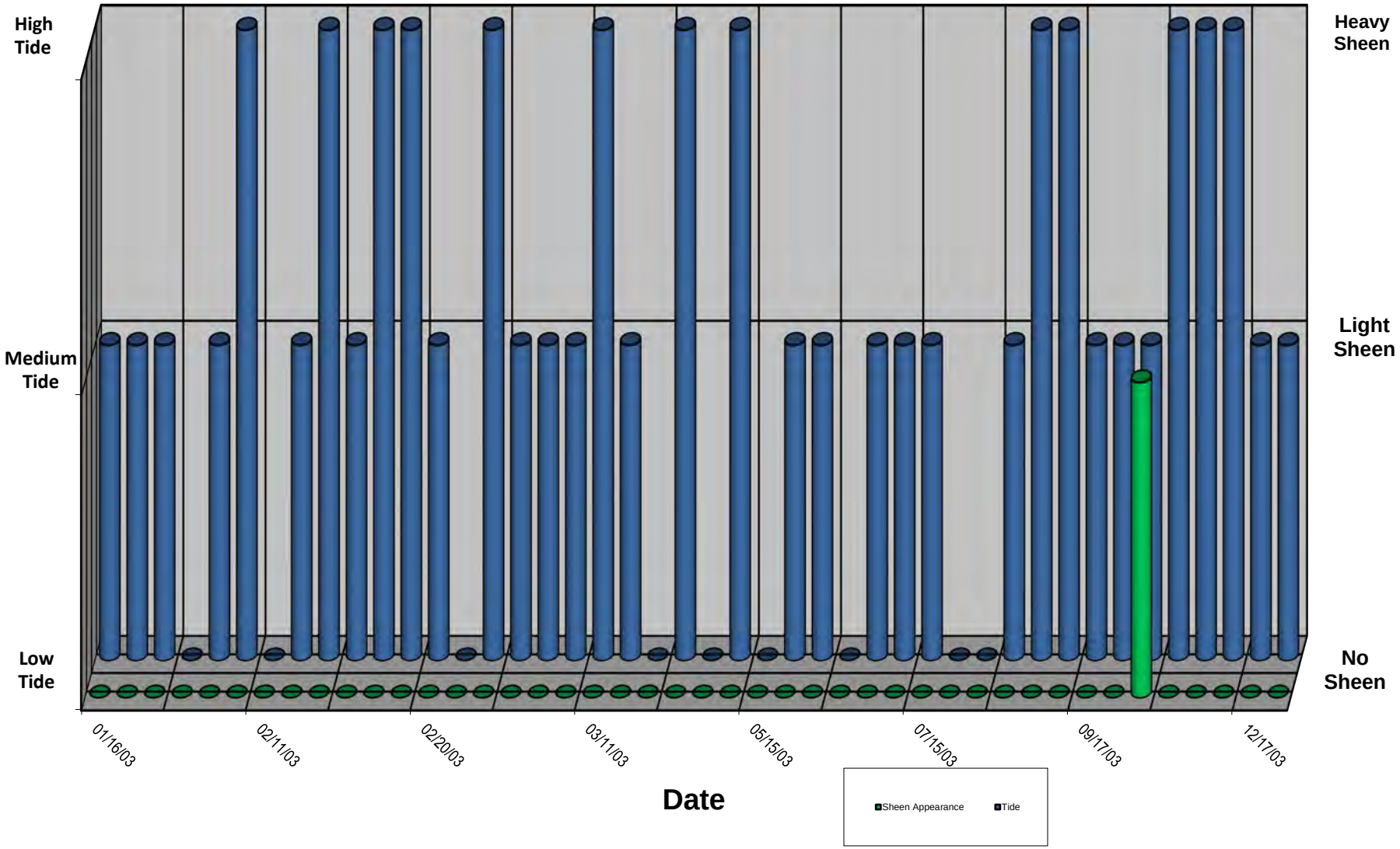
2005 Sheen Observations: Warehouse



2004 Sheen Observations: Warehouse

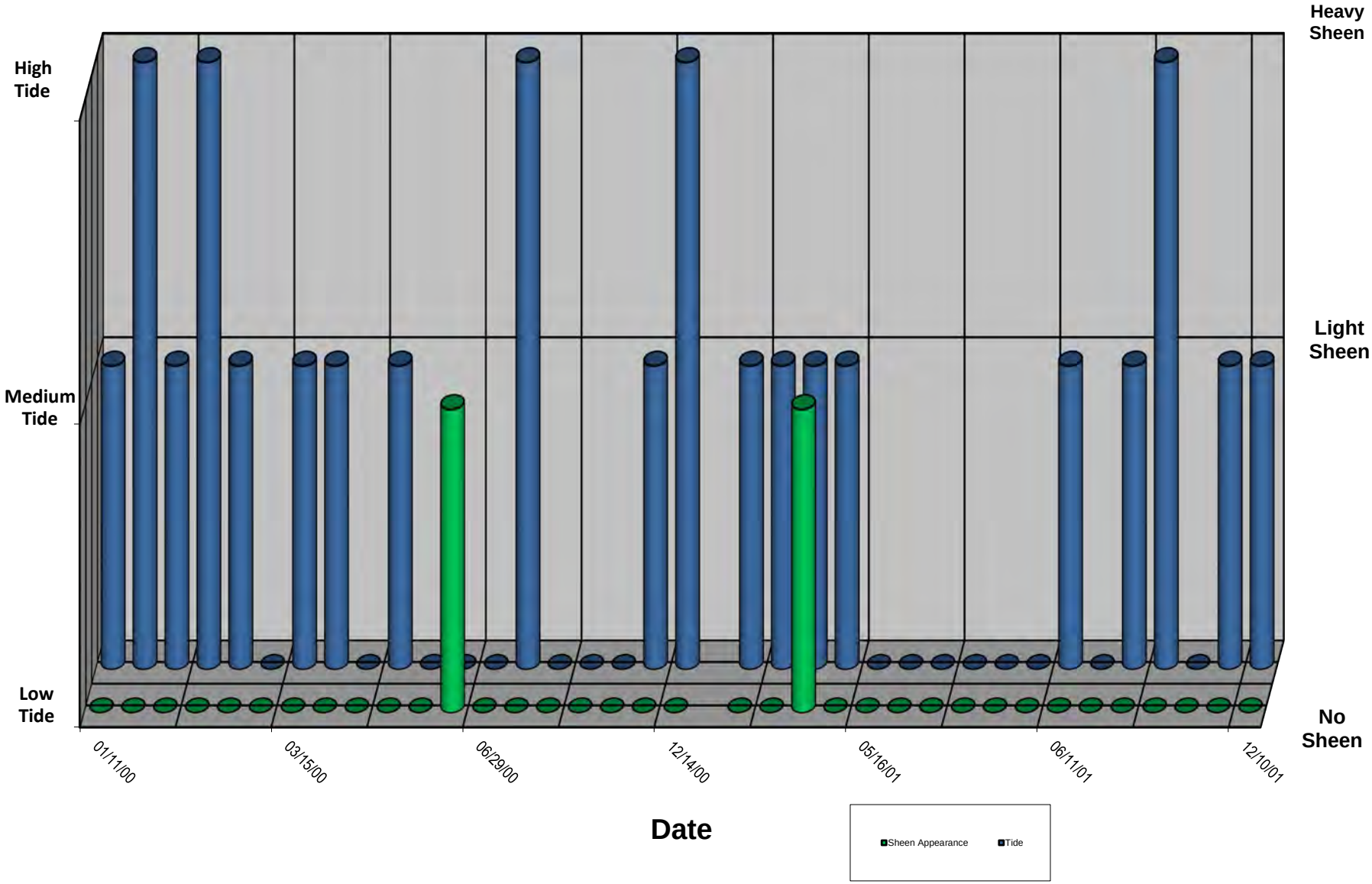


2003 Sheen Observations: Warehouse

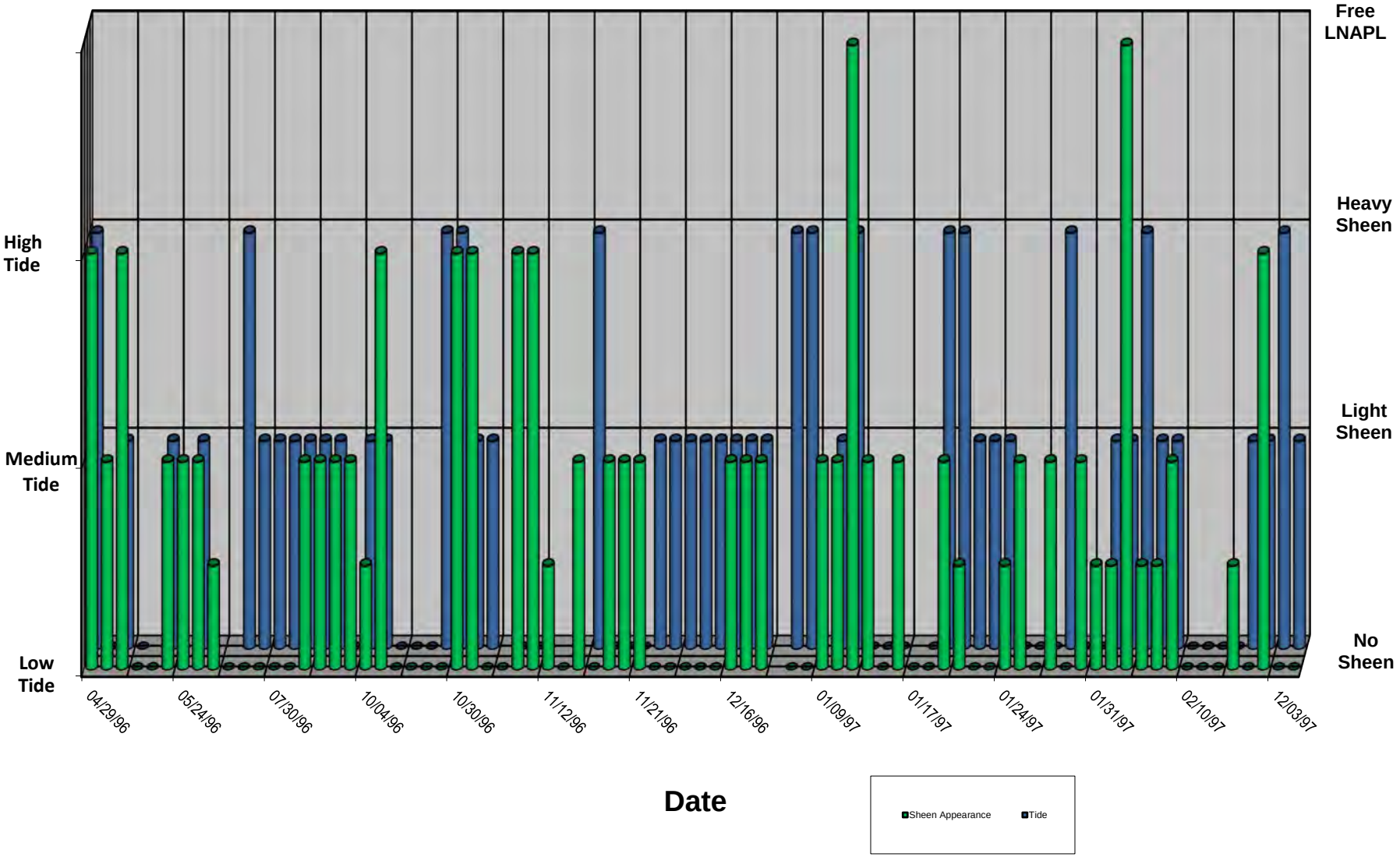



2002 Sheen Observations: Warehouse
High Tide
Medium Tide
Low Tide
Heavy Sheen
Light Sheen
No Sheen
01/04/02
02/04/02
03/27/02
06/18/02
09/20/02
Date
Sheen Appearance
Tide

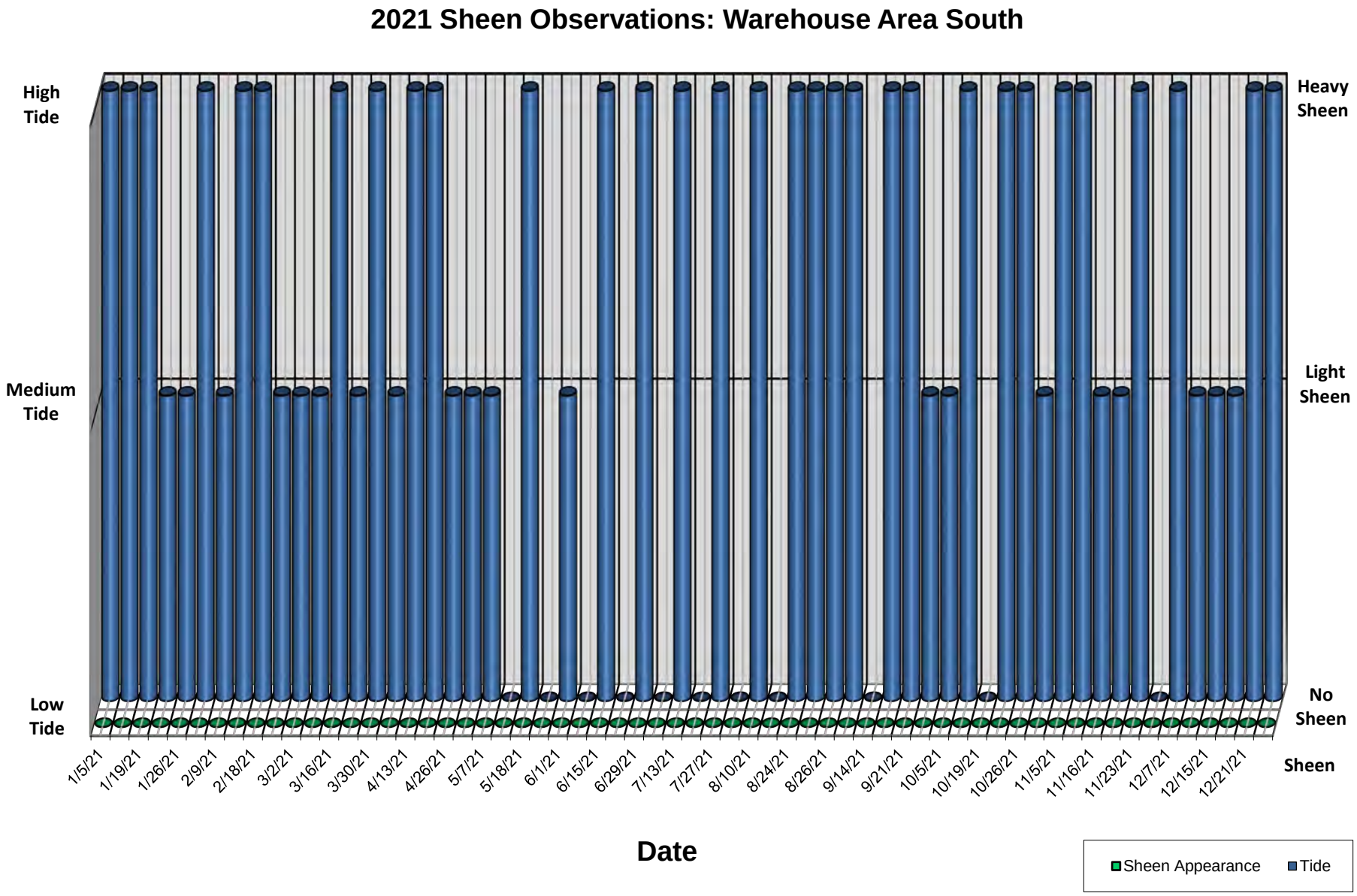
2000-2001 Sheen Observations: Warehouse



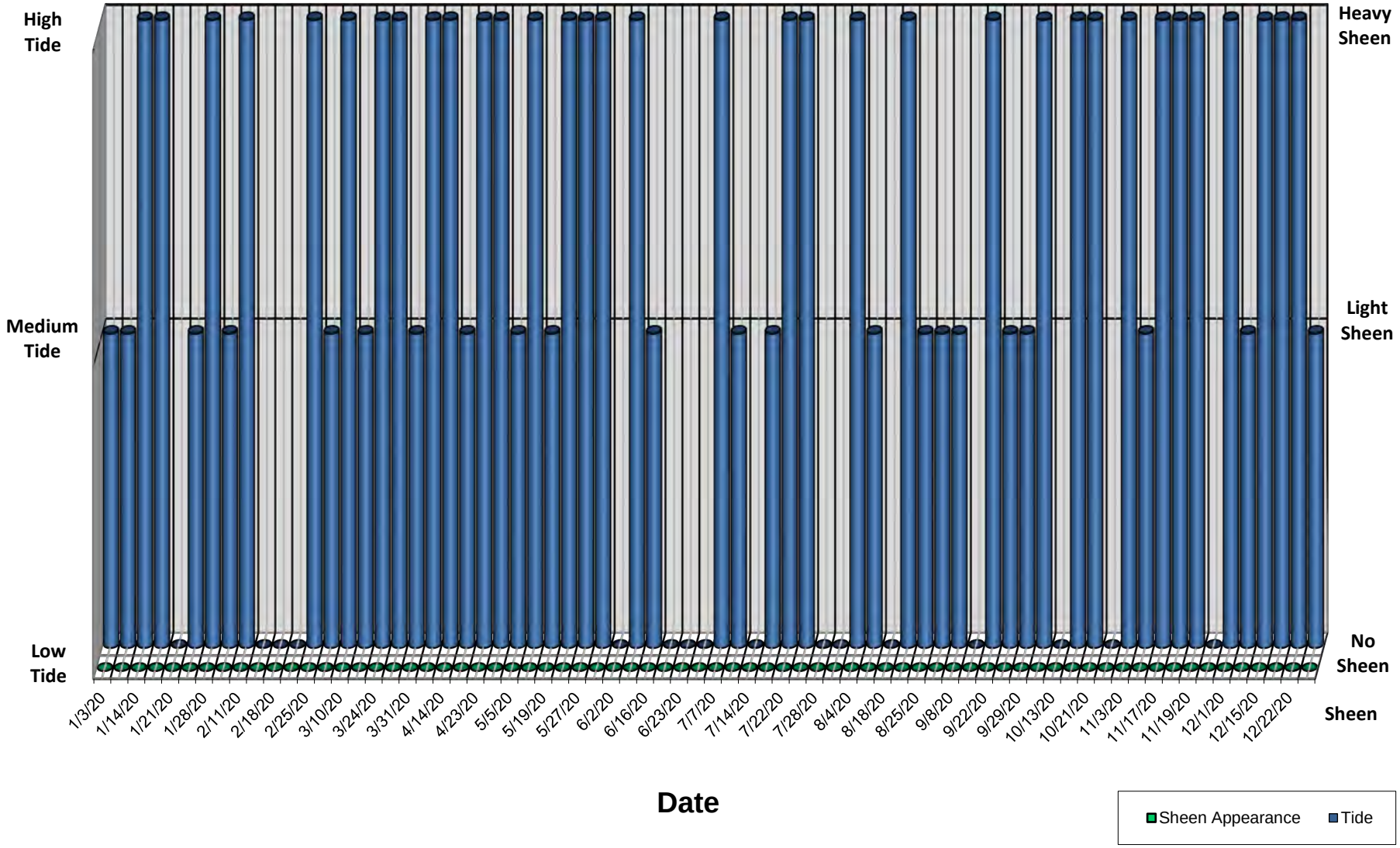
1996-1997 Sheen Observations: Warehouse



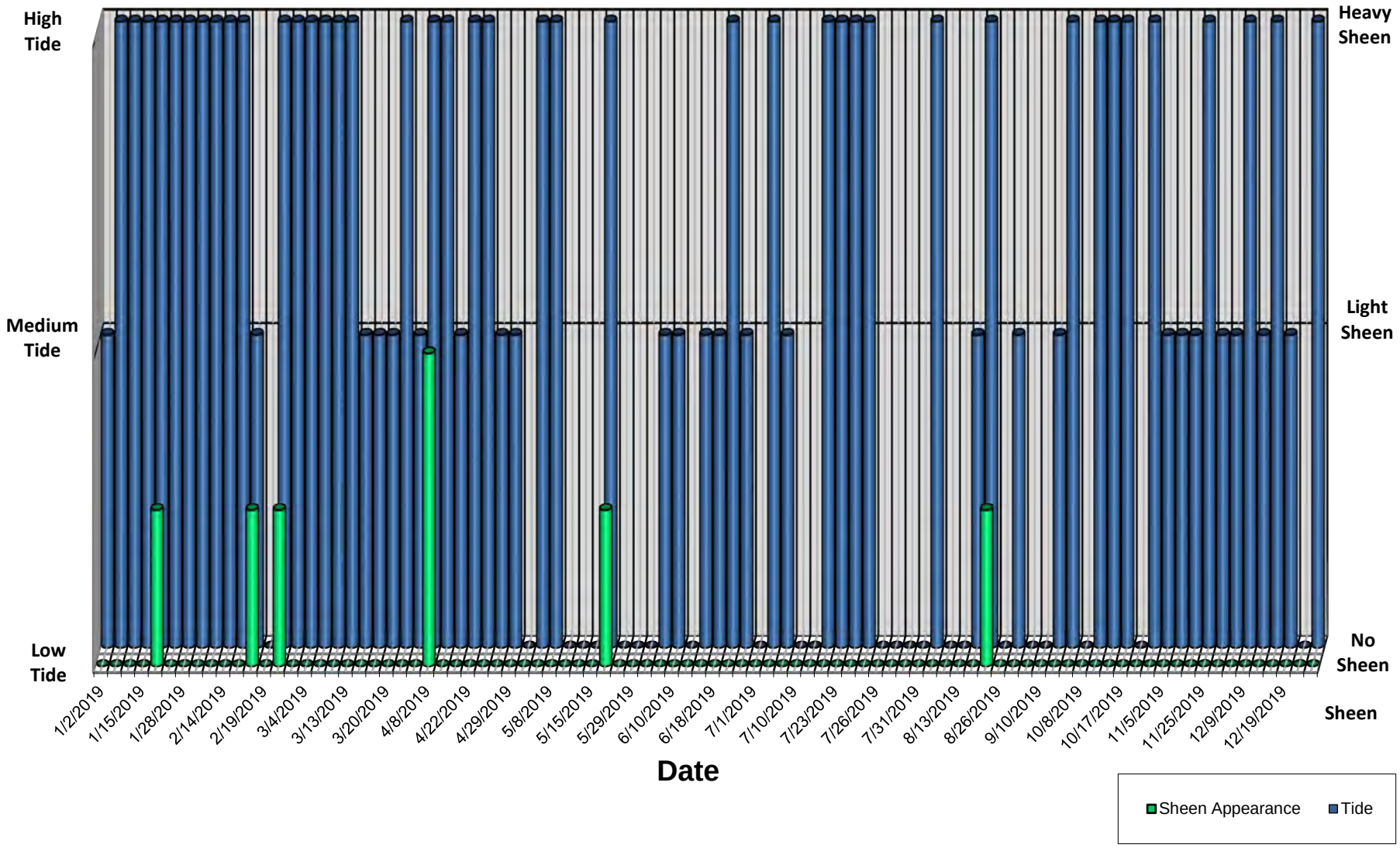
Sheen Observations - Southern Warehouse Boom
Seaport Midstream Partners LLC Seattle Terminal

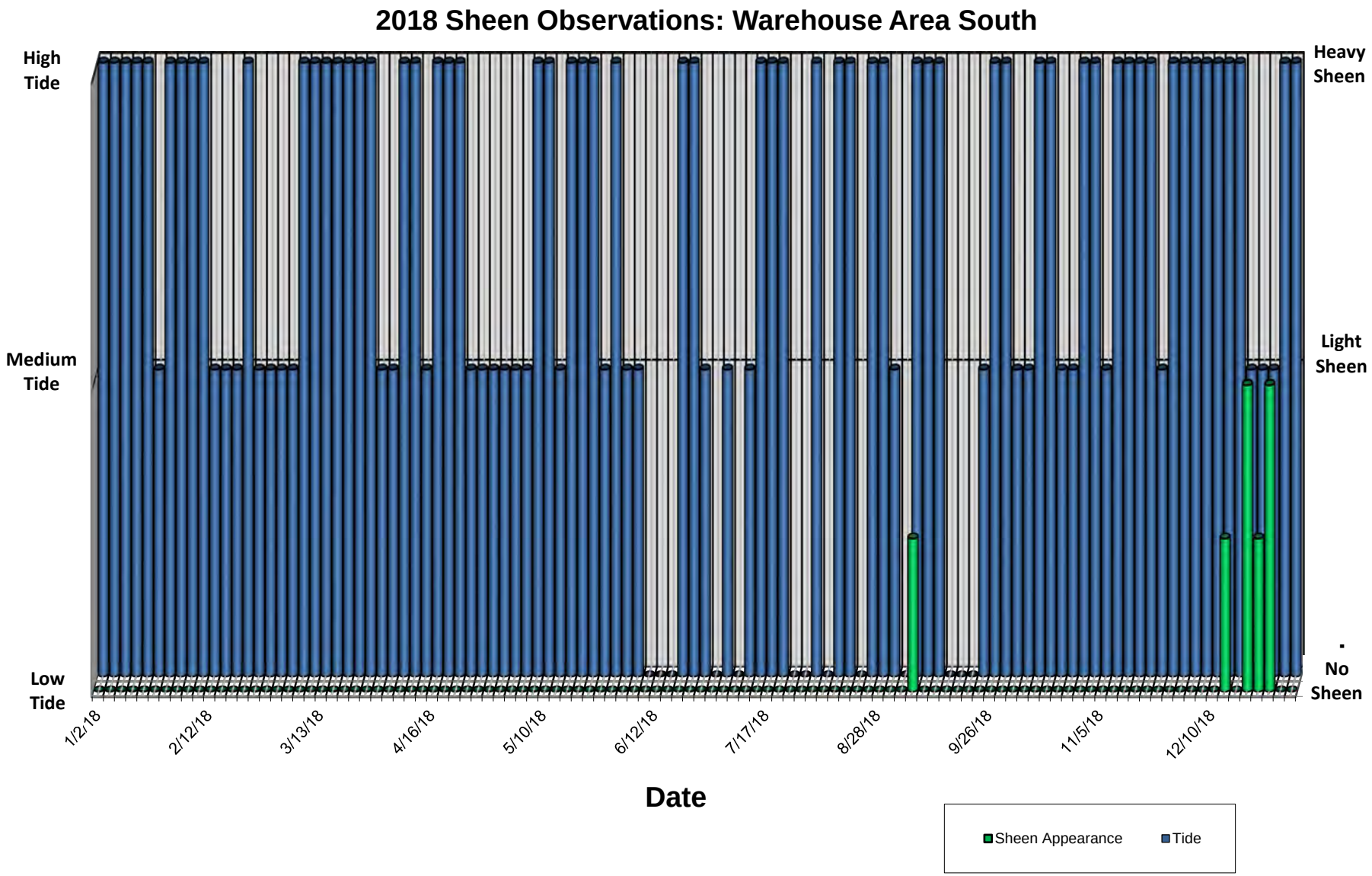


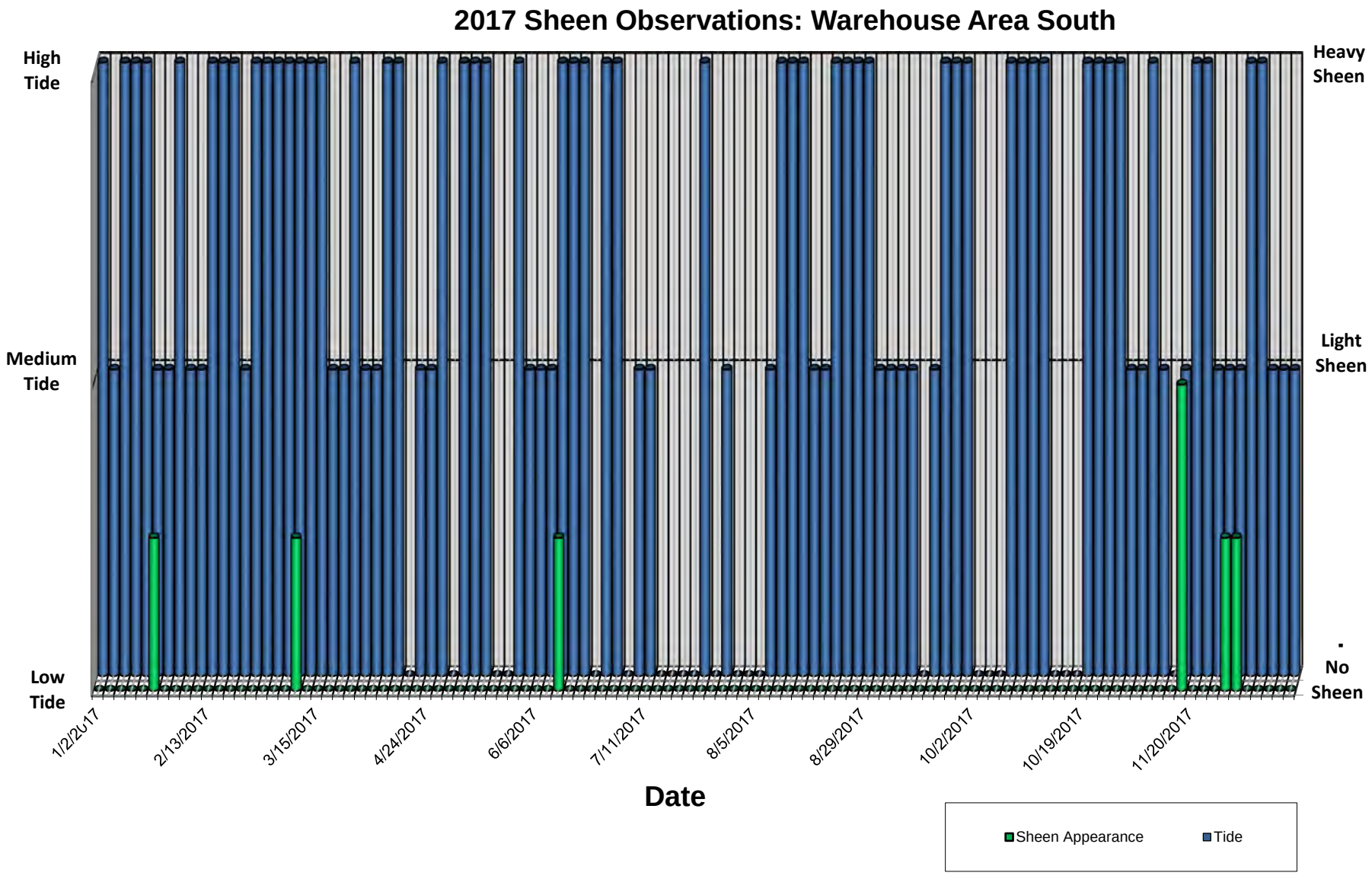
2020 Sheen Observations: Warehouse Area South

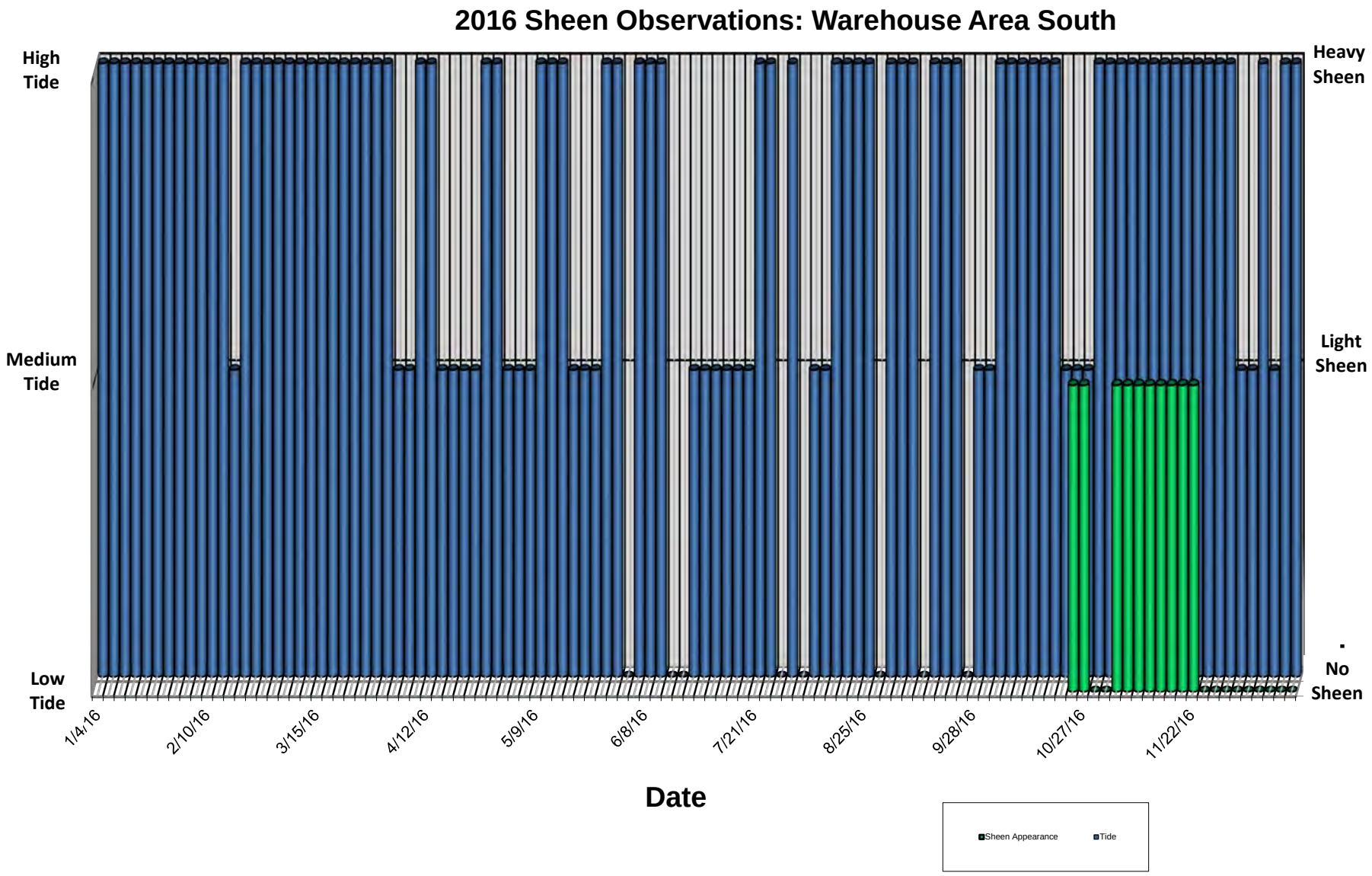


2019 Sheen Observations: Warehouse Area South

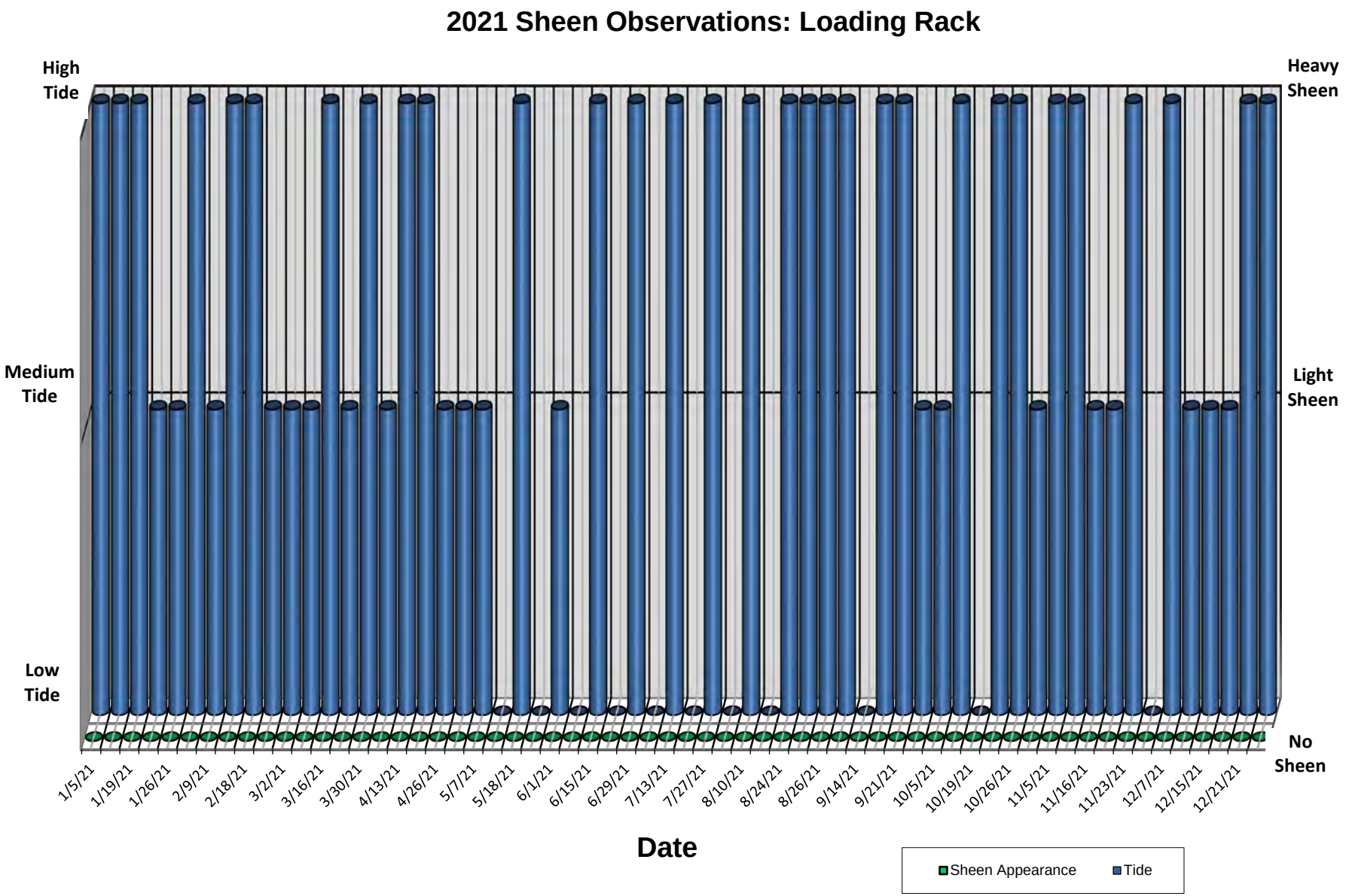



2018 Sheen Observations: Warehouse Area South
High Tide
Medium Tide
Low Tide
Heavy Sheen
Light Sheen
No Sheen
1/2/18
2/12/18
3/13/18
4/16/18
5/10/18
6/12/18
7/17/18
8/28/18
9/26/18
11/5/18
12/10/18
Date
Sheen Appearance
Tide


2017 Sheen Observations: Warehouse Area South
High Tide
Medium Tide
Low Tide
Heavy Sheen
Light Sheen
No Sheen
1/2/2017
2/13/2017
3/15/2017
4/24/2017
6/6/2017
7/11/2017
8/5/2017
8/29/2017
10/2/2017
10/19/2017
11/20/2017
Date
Sheen Appearance
Tide

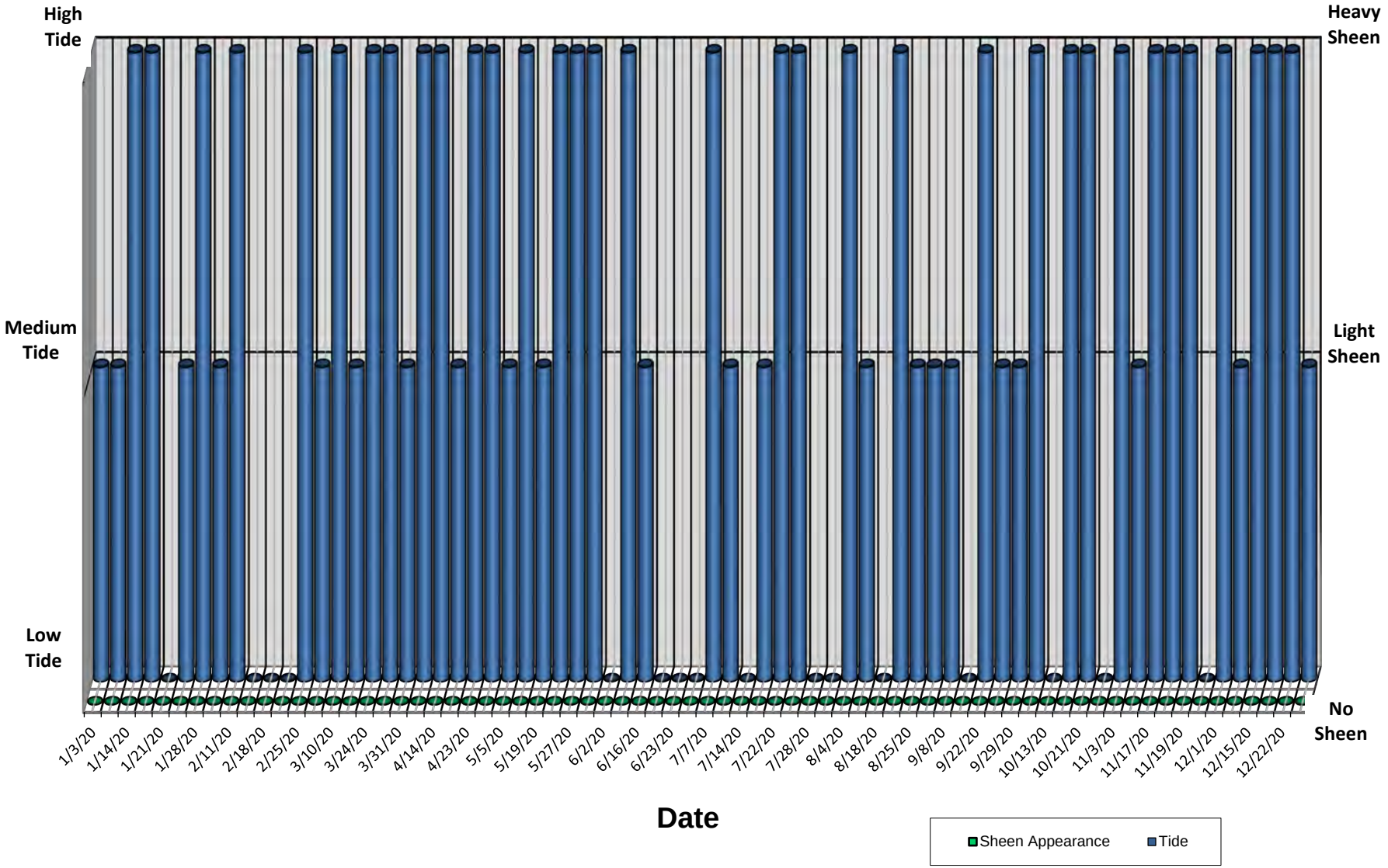

2016 Sheen Observations: Warehouse Area South
High Tide
Medium Tide
Low Tide
Heavy Sheen
Light Sheen
No Sheen
1/4/16
2/10/16
3/15/16
4/12/16
5/9/16
6/8/16
7/21/16
8/25/16
9/28/16
10/27/16
11/22/16
Date
Sheen Appearance
Tide

Sheen Observations - Loading Rack Area
Seaport Midstream Partners LLC Seattle Terminal

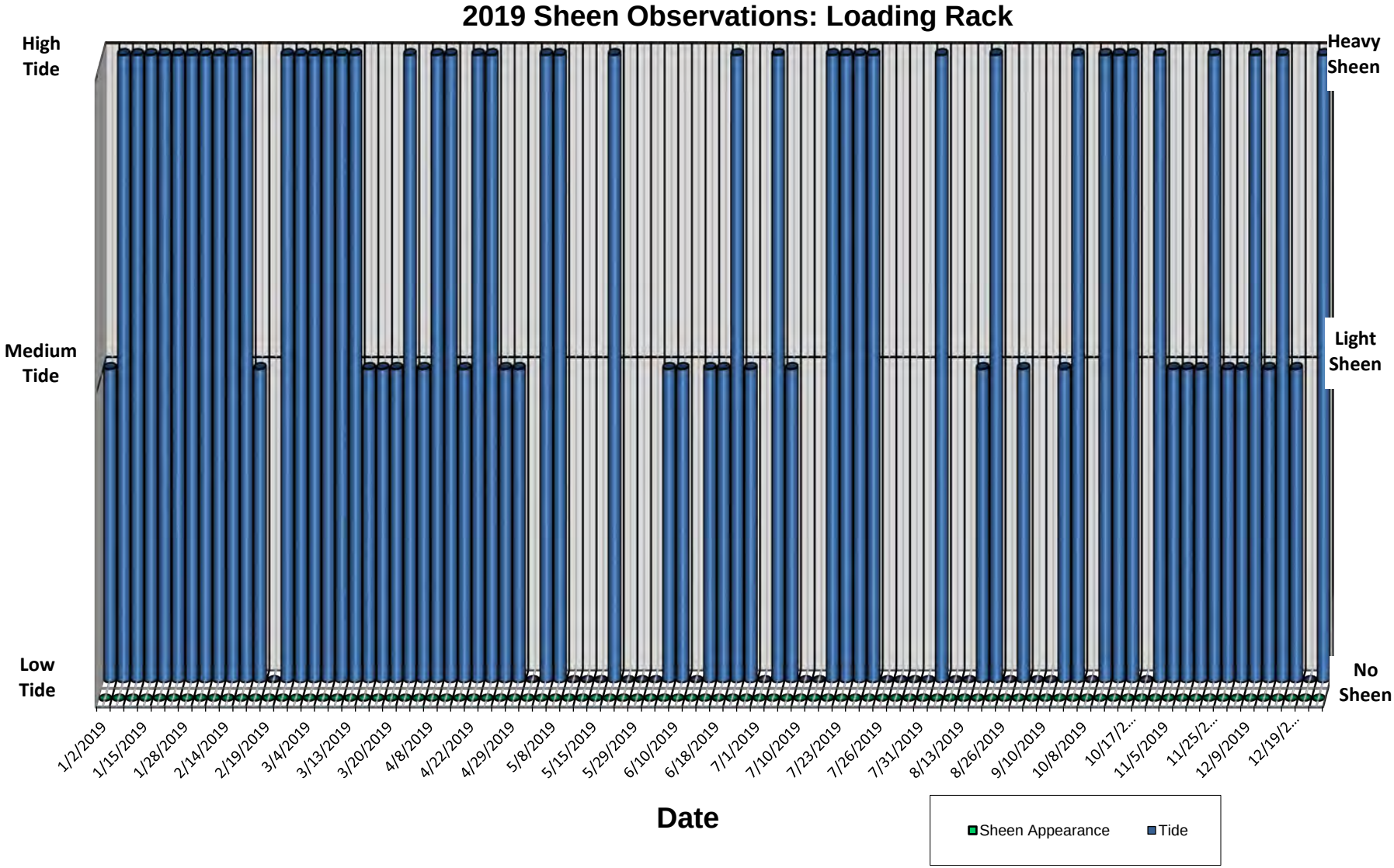


Loading Rack Area Boom removed in August 2017 with concurrance from Ecology due to persistent lack of sheens.

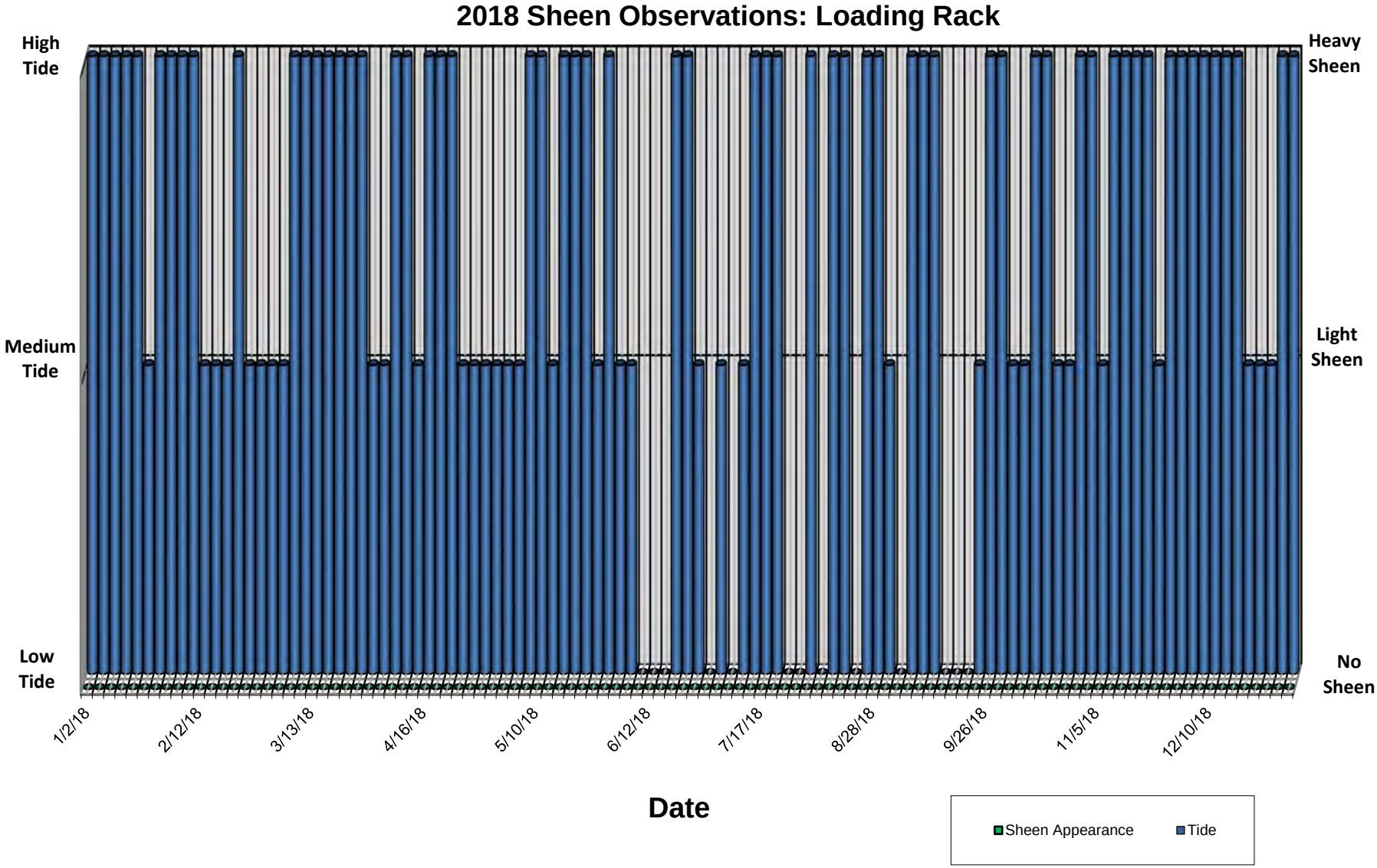
2020 Sheen Observations: Loading Rack



Loading Rack Area Boom removed in August 2017 with concurrance from Ecology due to persistent lack of sheens.

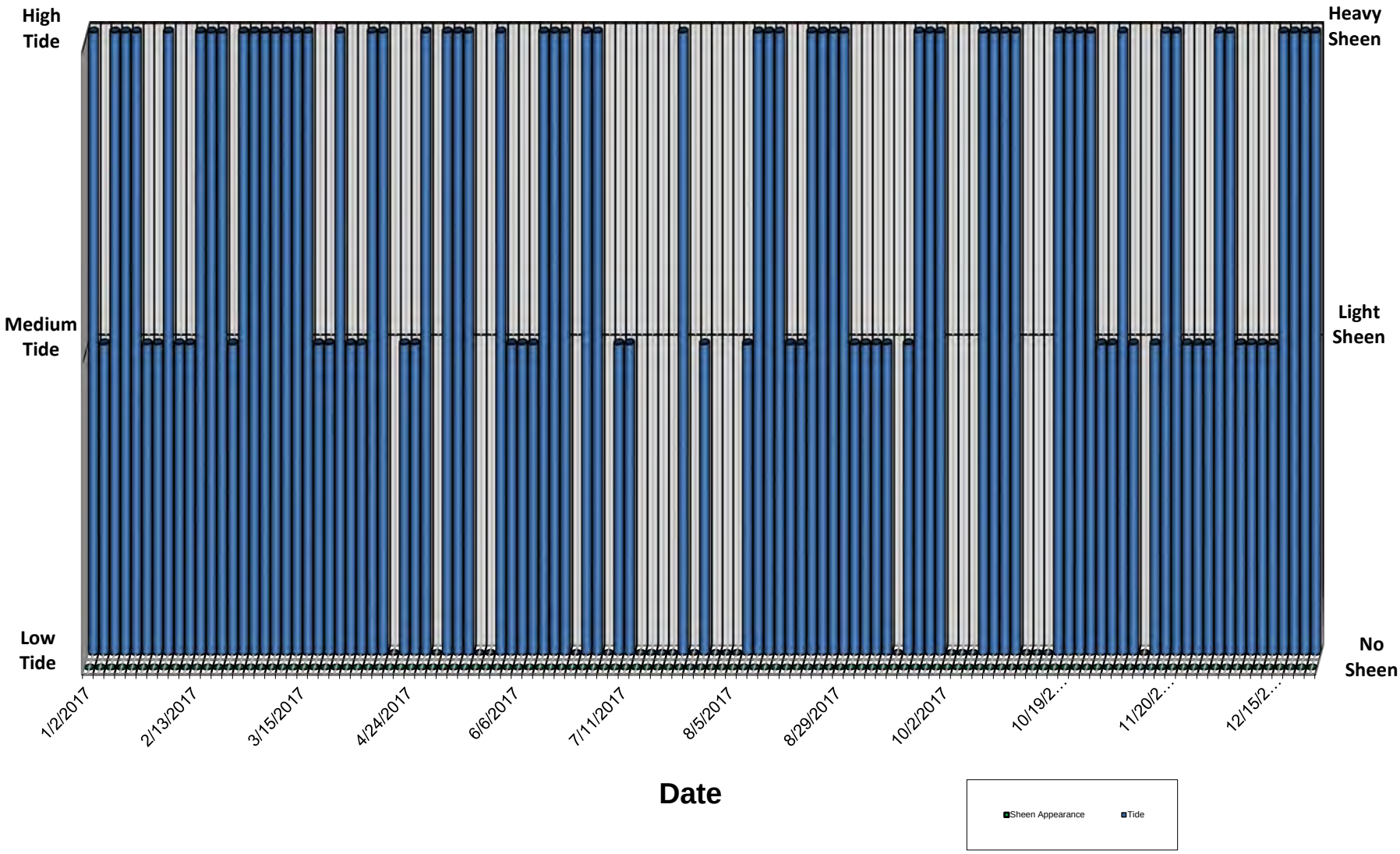


Loading Rack Area Boom removed in August 2017 with concurrance from Ecology due to persistent lack of sheens.



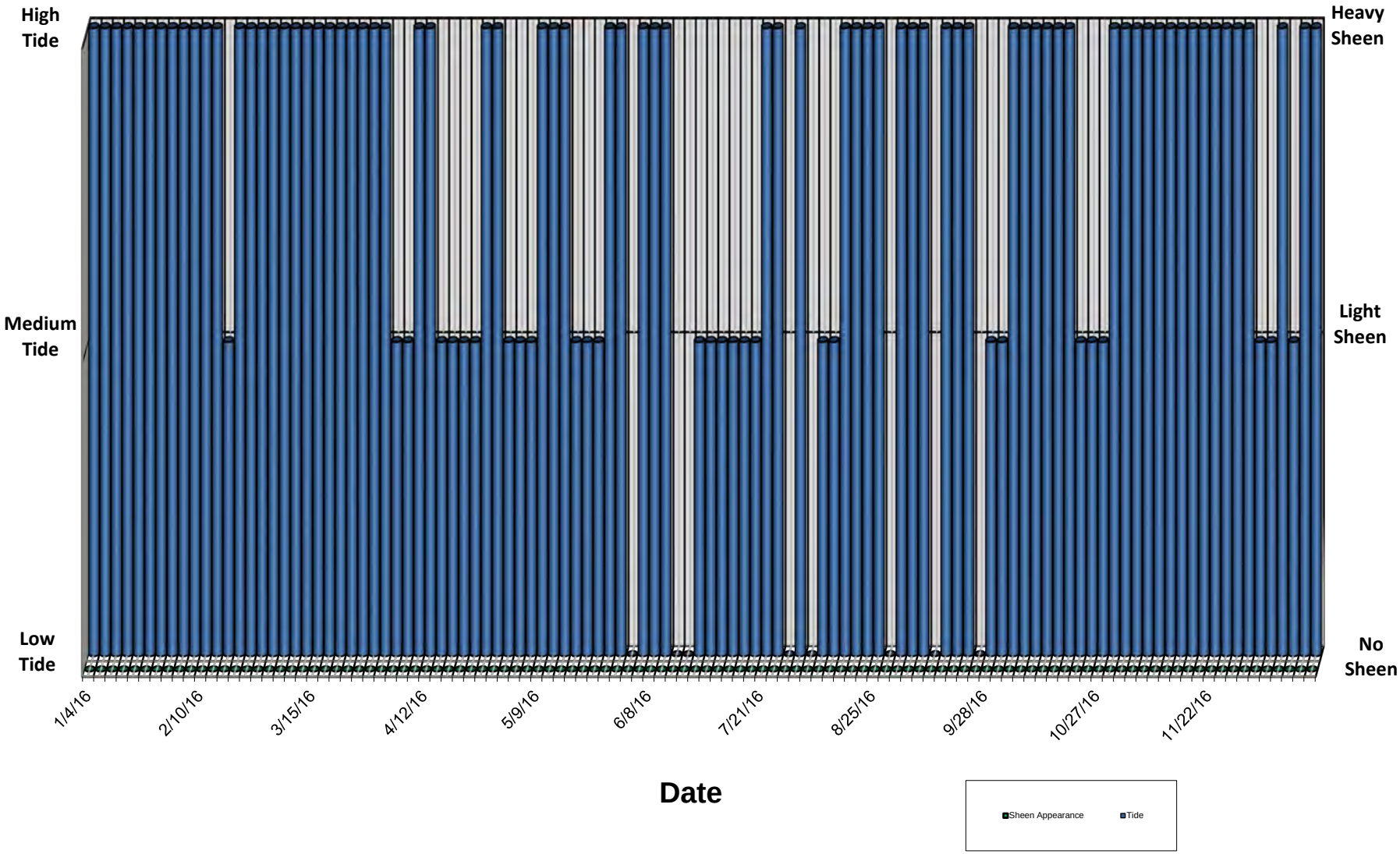
Loading Rack Area Boom removed in August 2017 with concurrance from Ecology due to persistent lack of sheens.

2017 Sheen Observations: Loading Rack

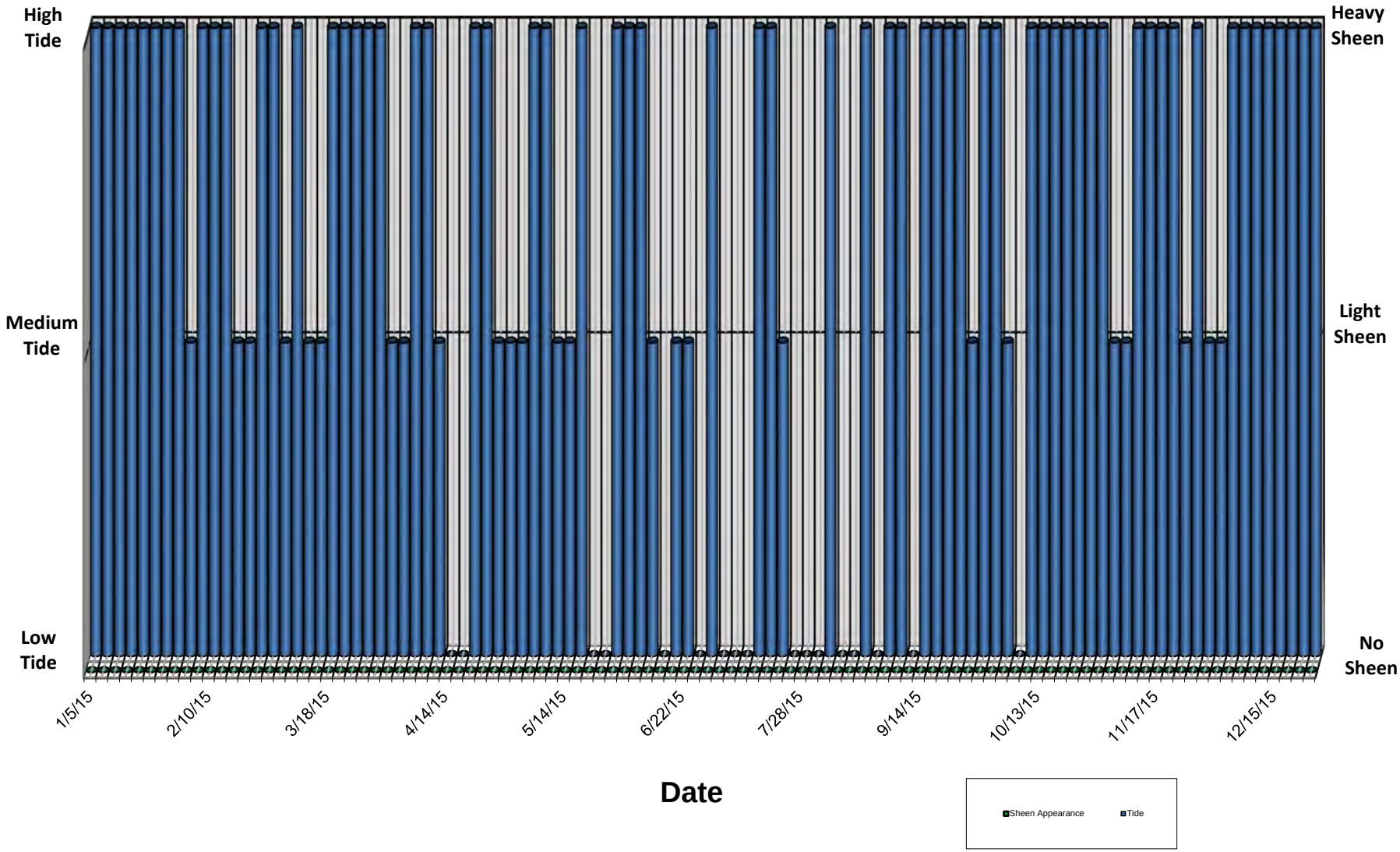


Loading Rack Area Boom removed in August 2017 with concurrance from Ecology due to persistent lack of sheens.

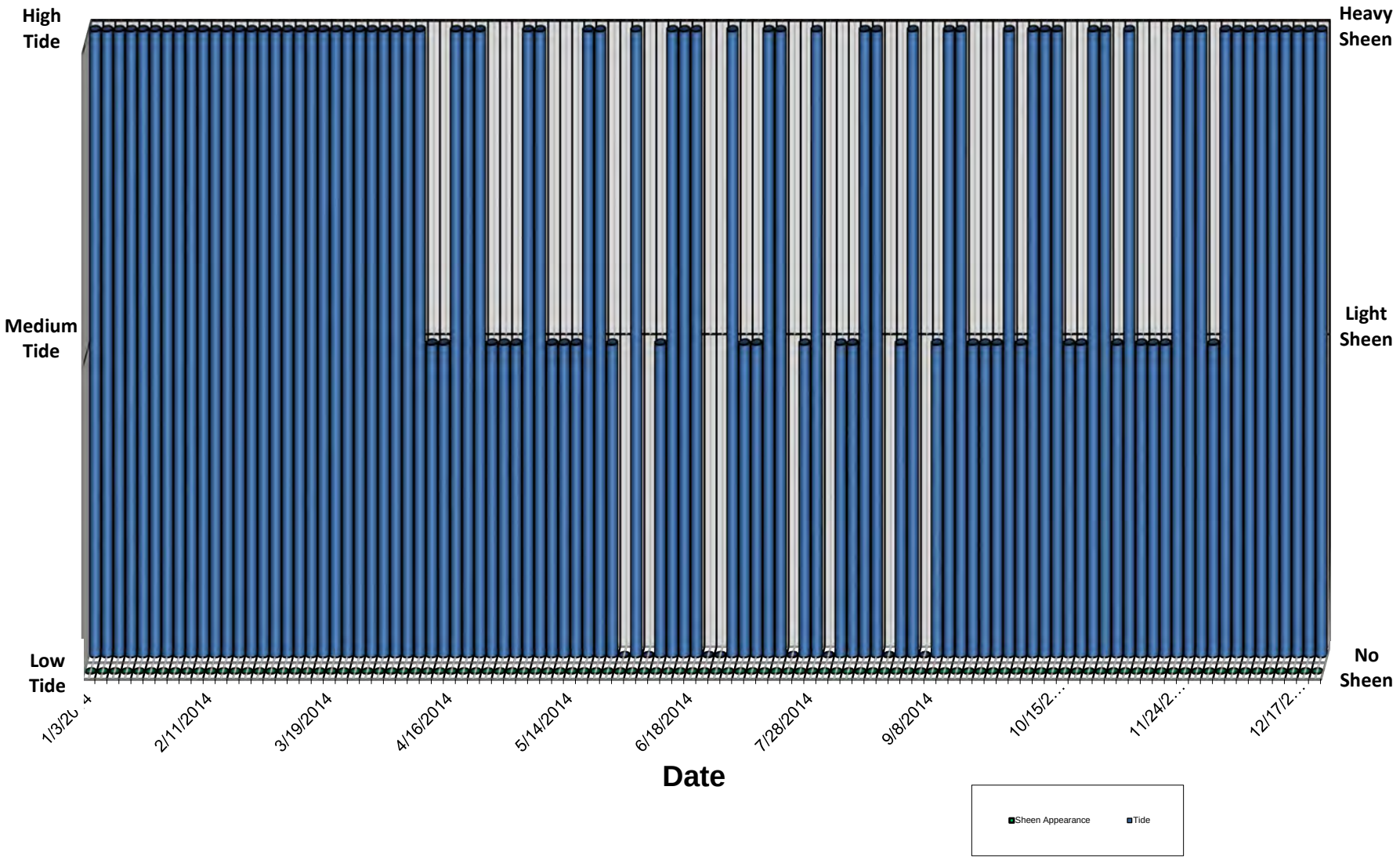
2016 Sheen Observations: Loading Rack

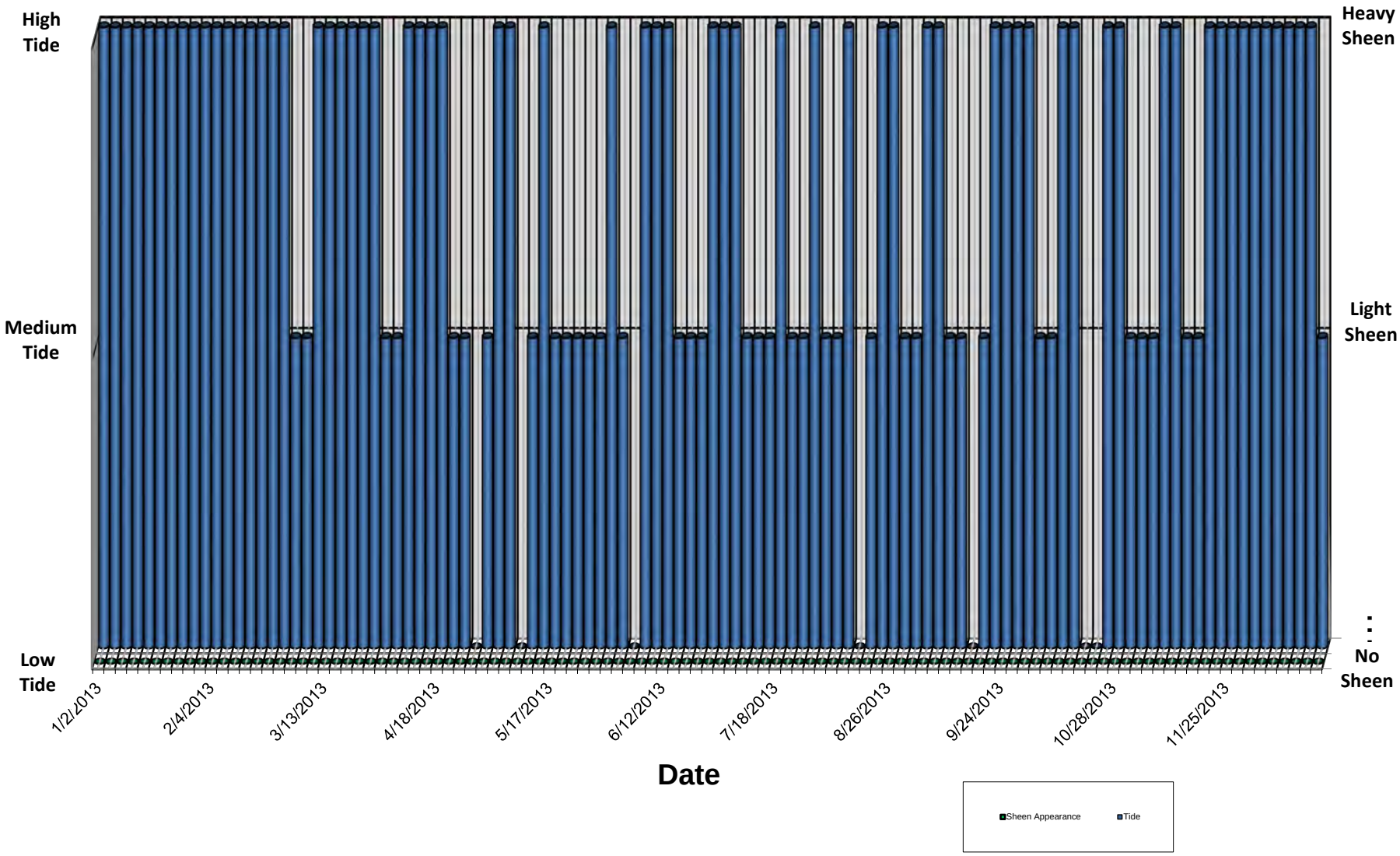


2015 Sheen Observations: Loading Rack

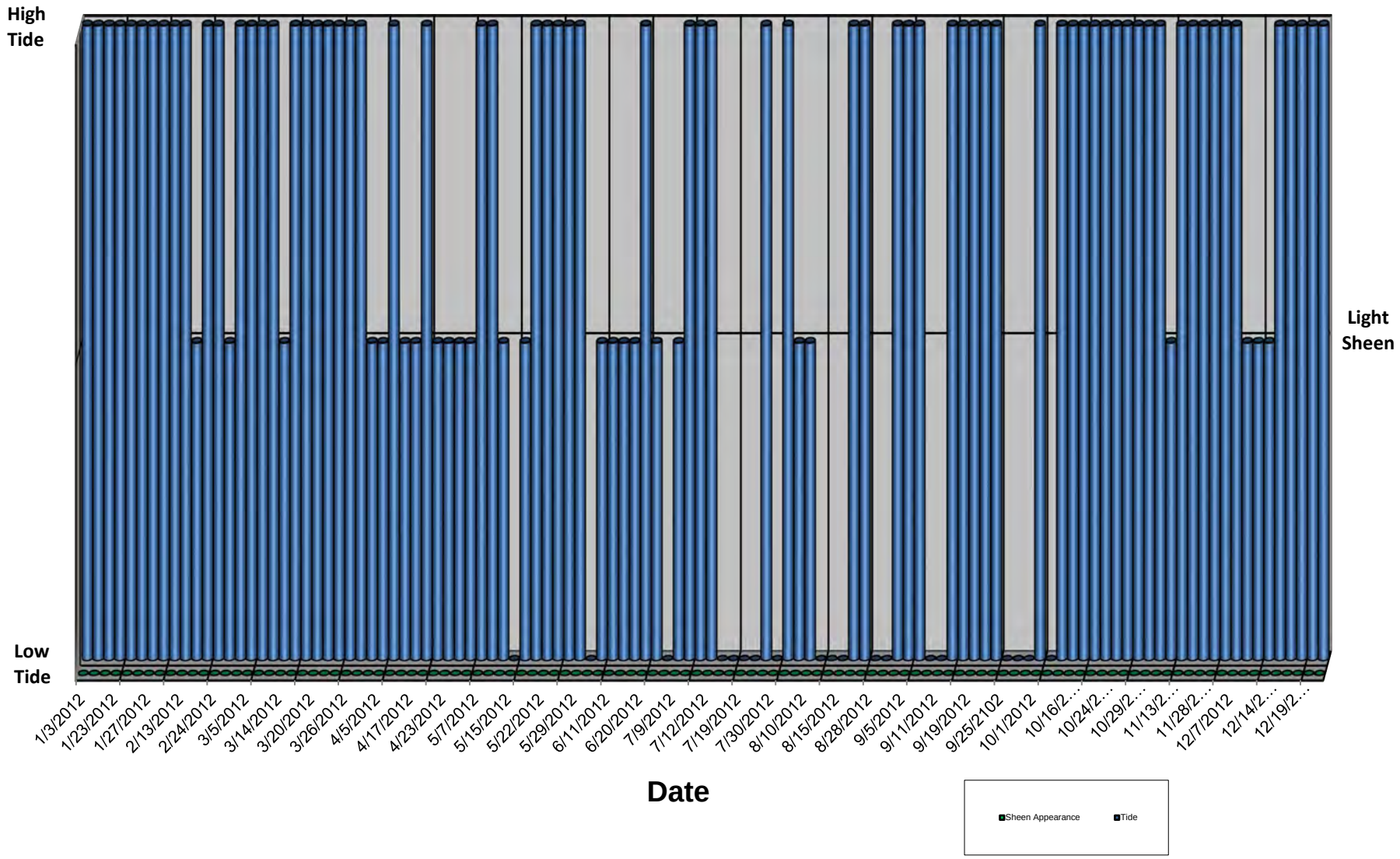


2014 Sheen Observations: Loading Rack

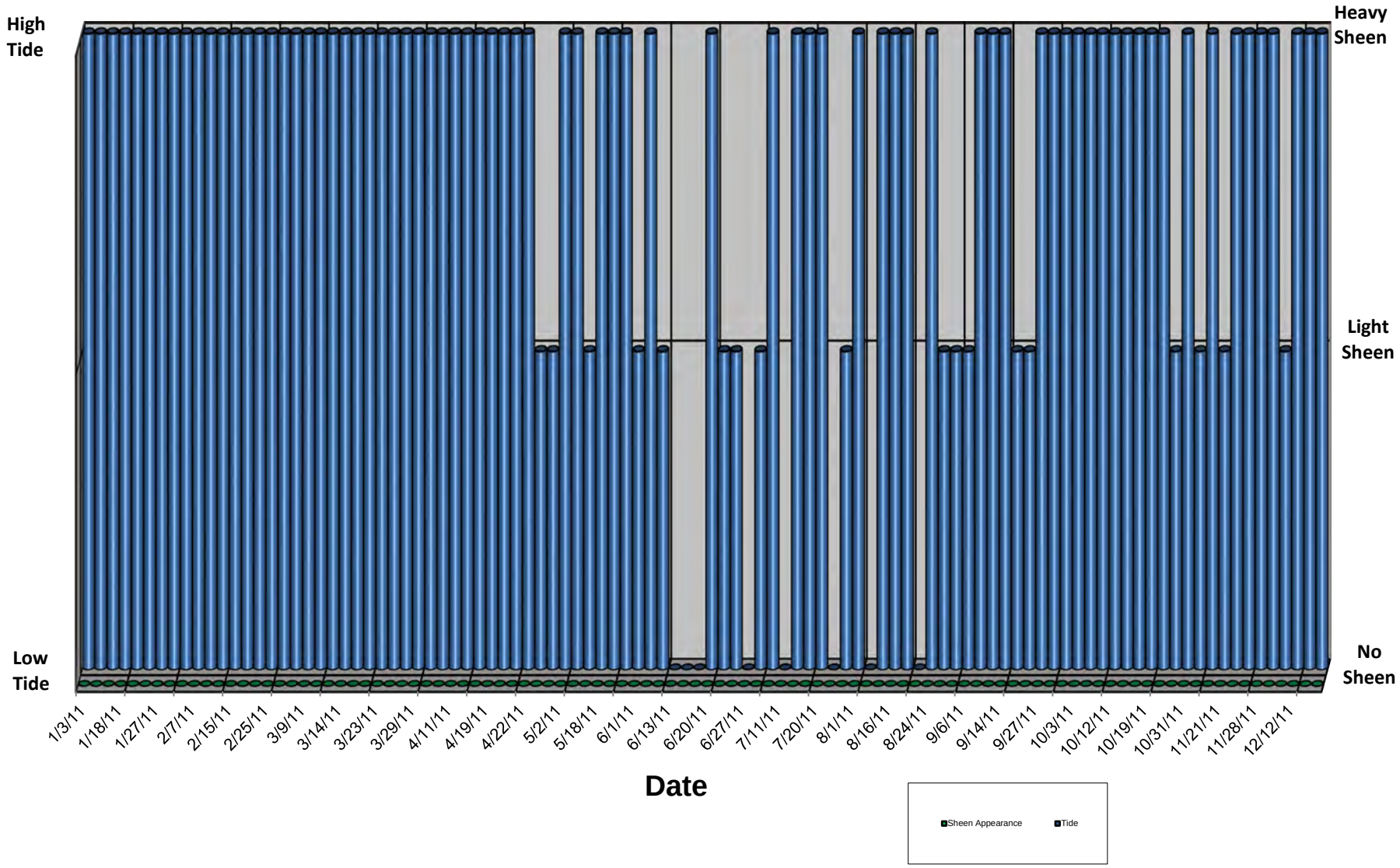



2013 Sheen Observations: Loading Rack
High Tide
Medium Tide
Low Tide
Heavy Sheen
Light Sheen
No Sheen
1/2/2013
2/4/2013
3/13/2013
4/18/2013
5/17/2013
6/12/2013
7/18/2013
8/26/2013
9/24/2013
10/28/2013
11/25/2013
Date
Sheen Appearance
Tide

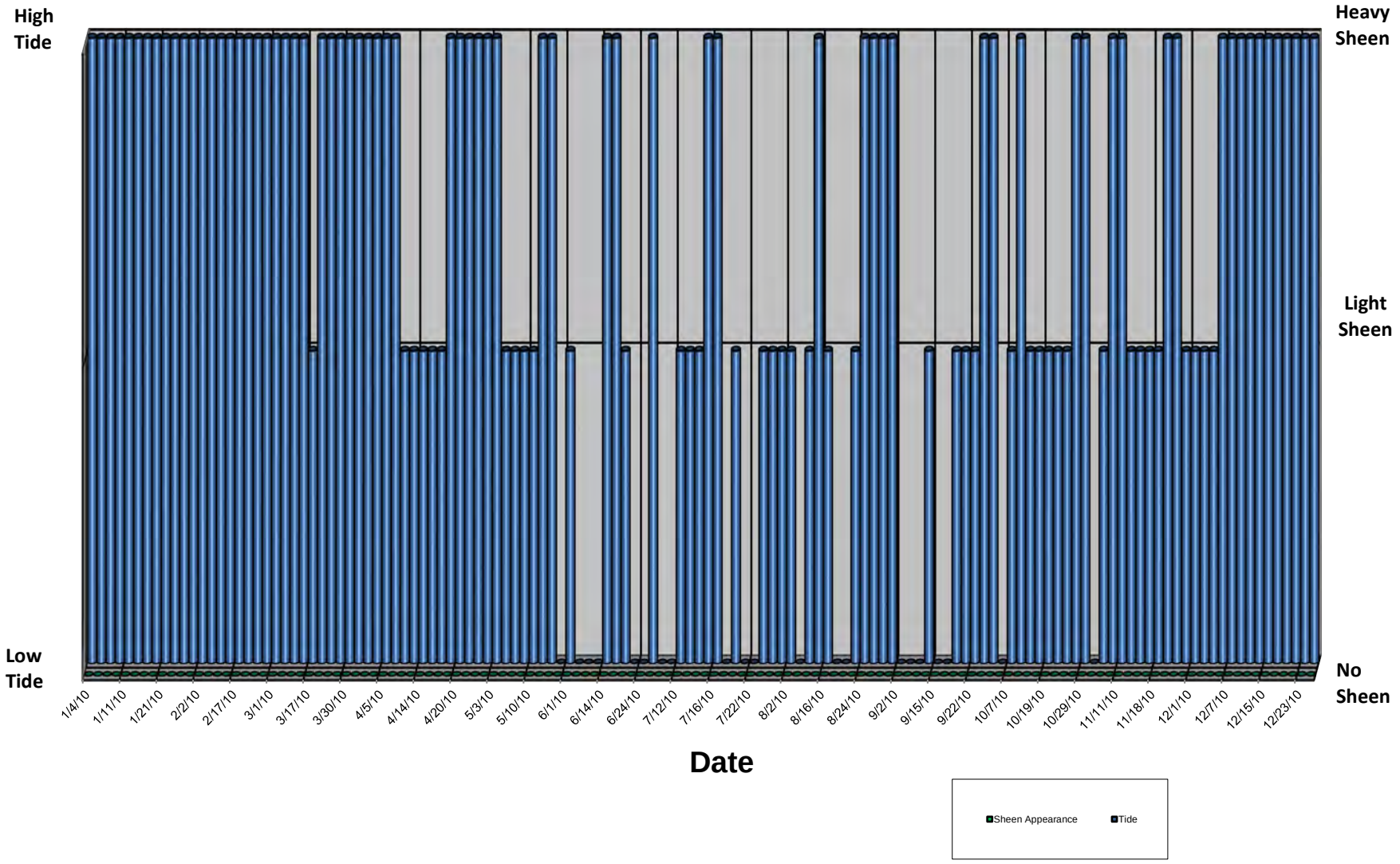
2012 Sheen Observations: Loading Rack

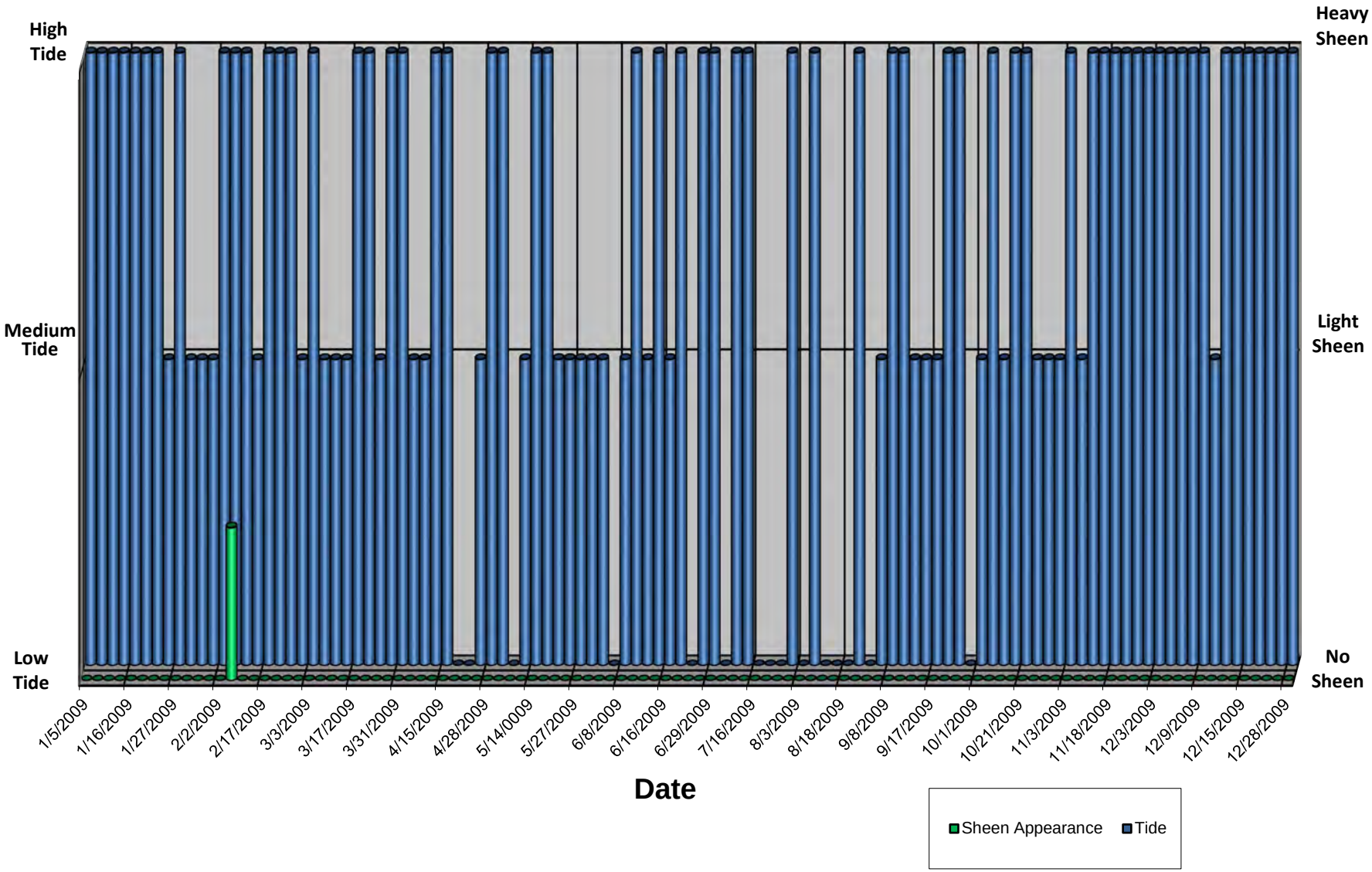


2011 Sheen Observations: Loading Rack

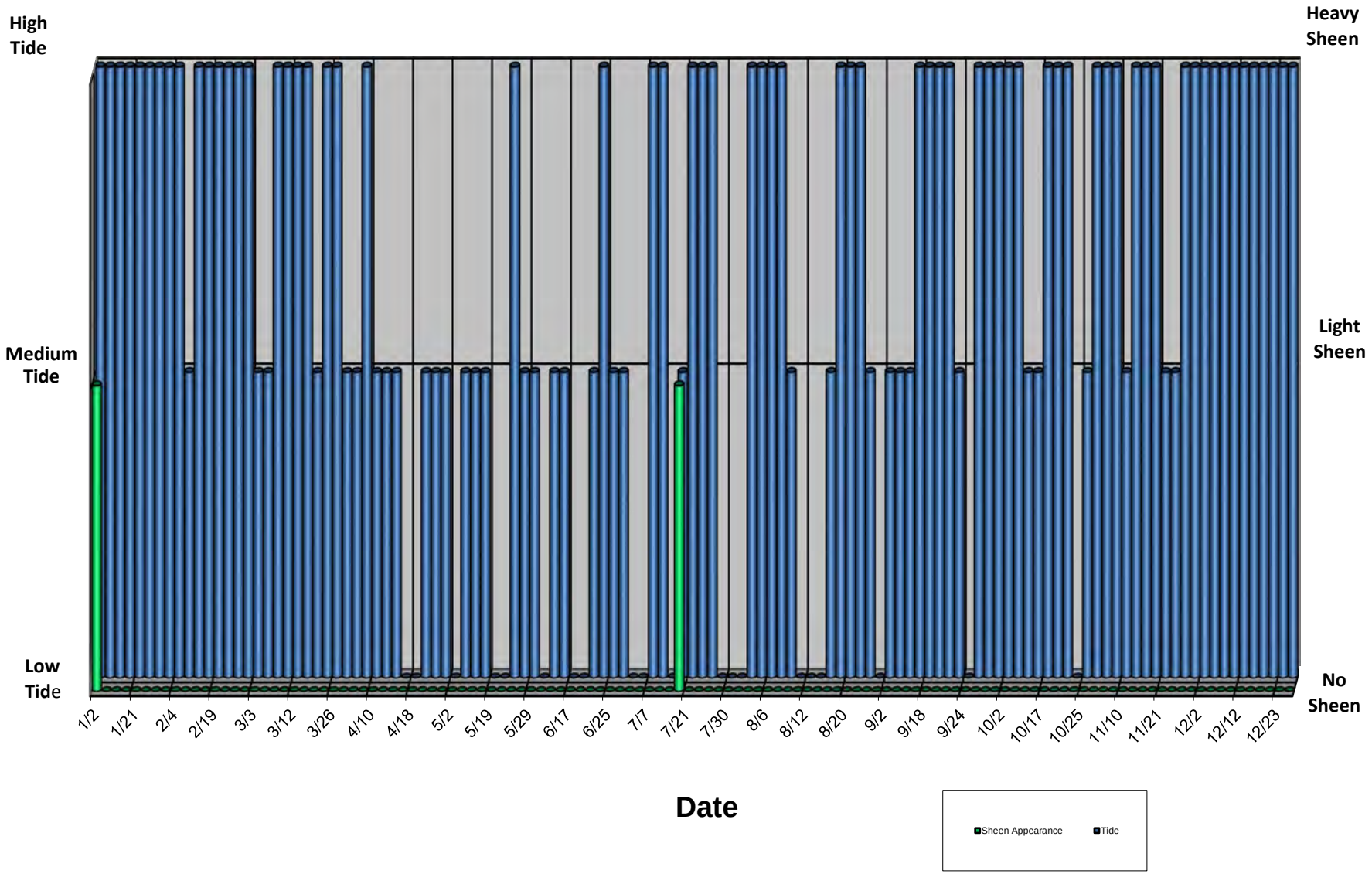


2010 Sheen Observations: Loading Rack

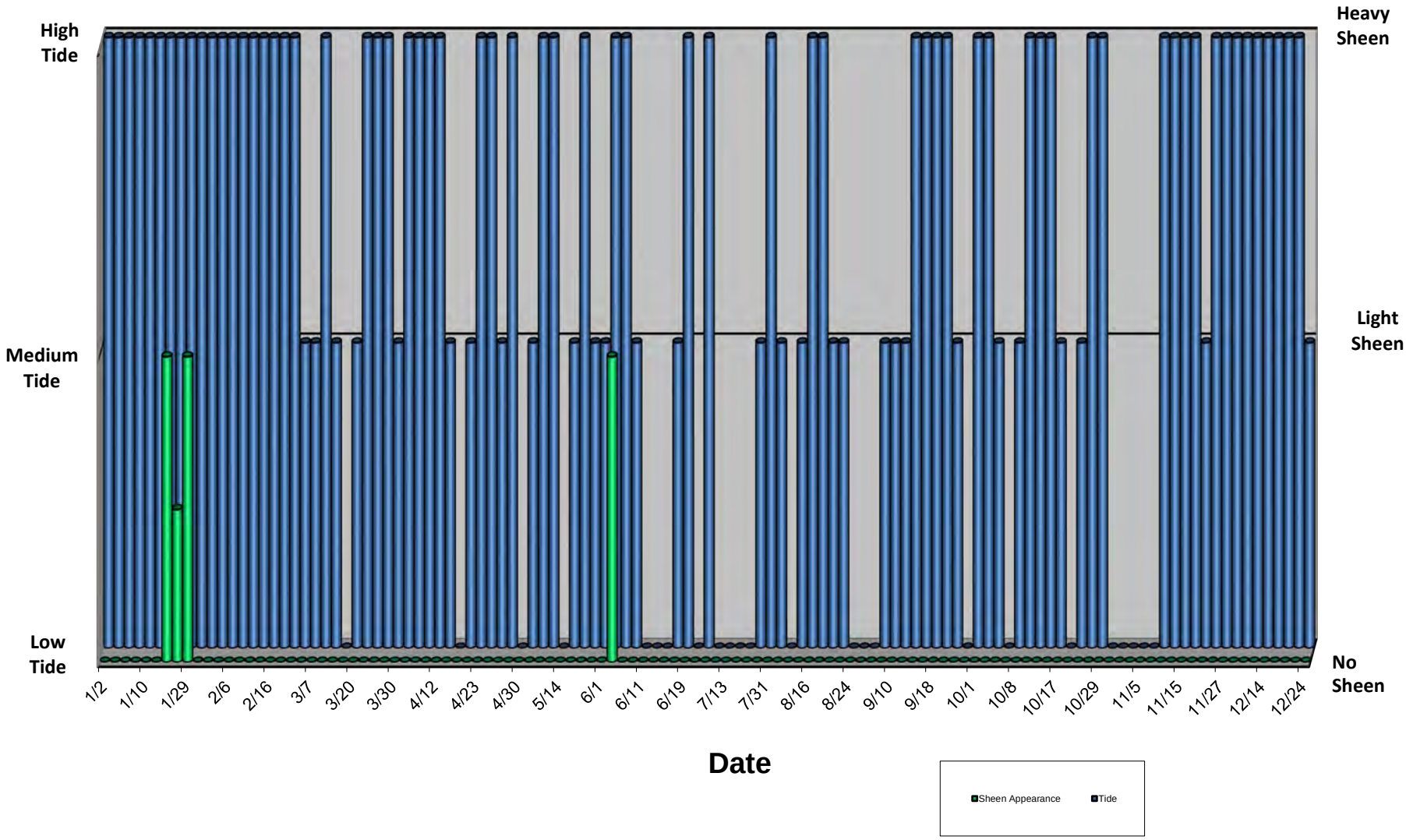



2009 Sheen Observations: Loading Rack
High Tide
Medium Tide
Low Tide
Heavy Sheen
Light Sheen
No Sheen
1/5/2009
1/16/2009
1/27/2009
2/2/2009
2/17/2009
3/3/2009
3/17/2009
3/31/2009
4/15/2009
4/28/2009
5/14/0009
5/27/2009
6/8/2009
6/16/2009
6/29/2009
7/16/2009
8/3/2009
8/18/2009
9/8/2009
9/17/2009
10/1/2009
10/21/2009
11/3/2009
11/18/2009
12/3/2009
12/9/2009
12/15/2009
12/28/2009
Date
Sheen Appearance
Tide

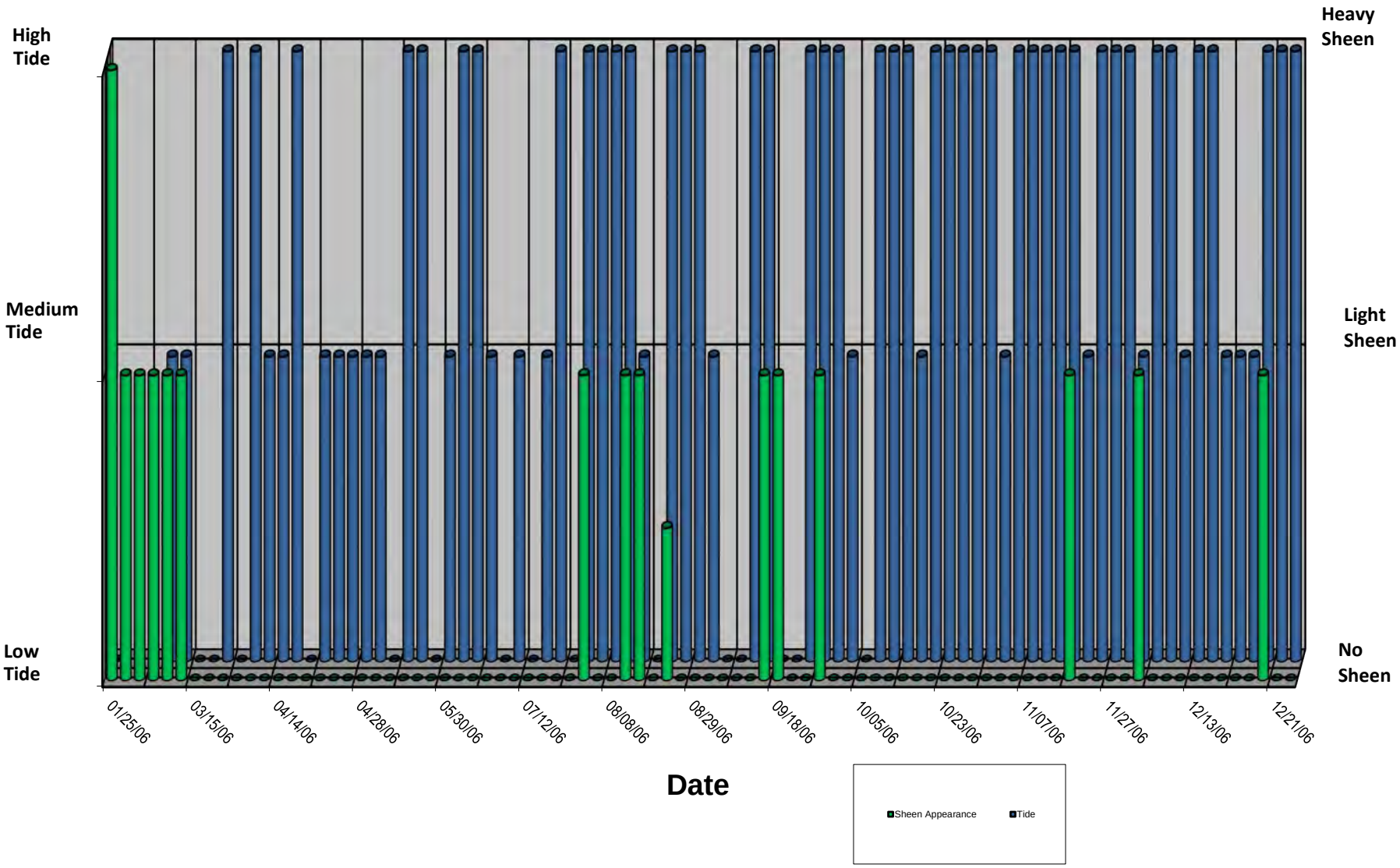
2008 Sheen Observations: Loading Rack



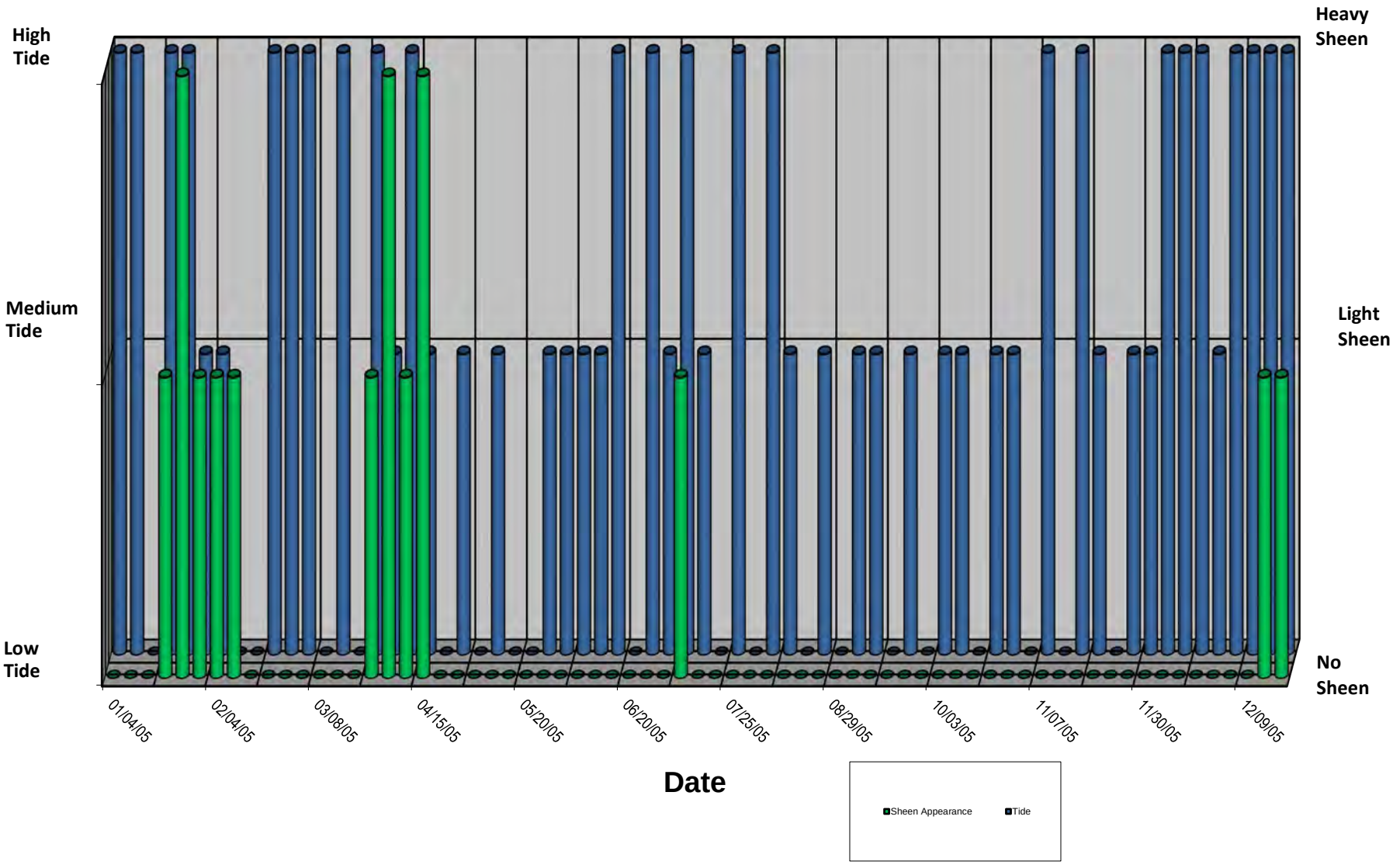
2007 Sheen Observations: Loading Rack



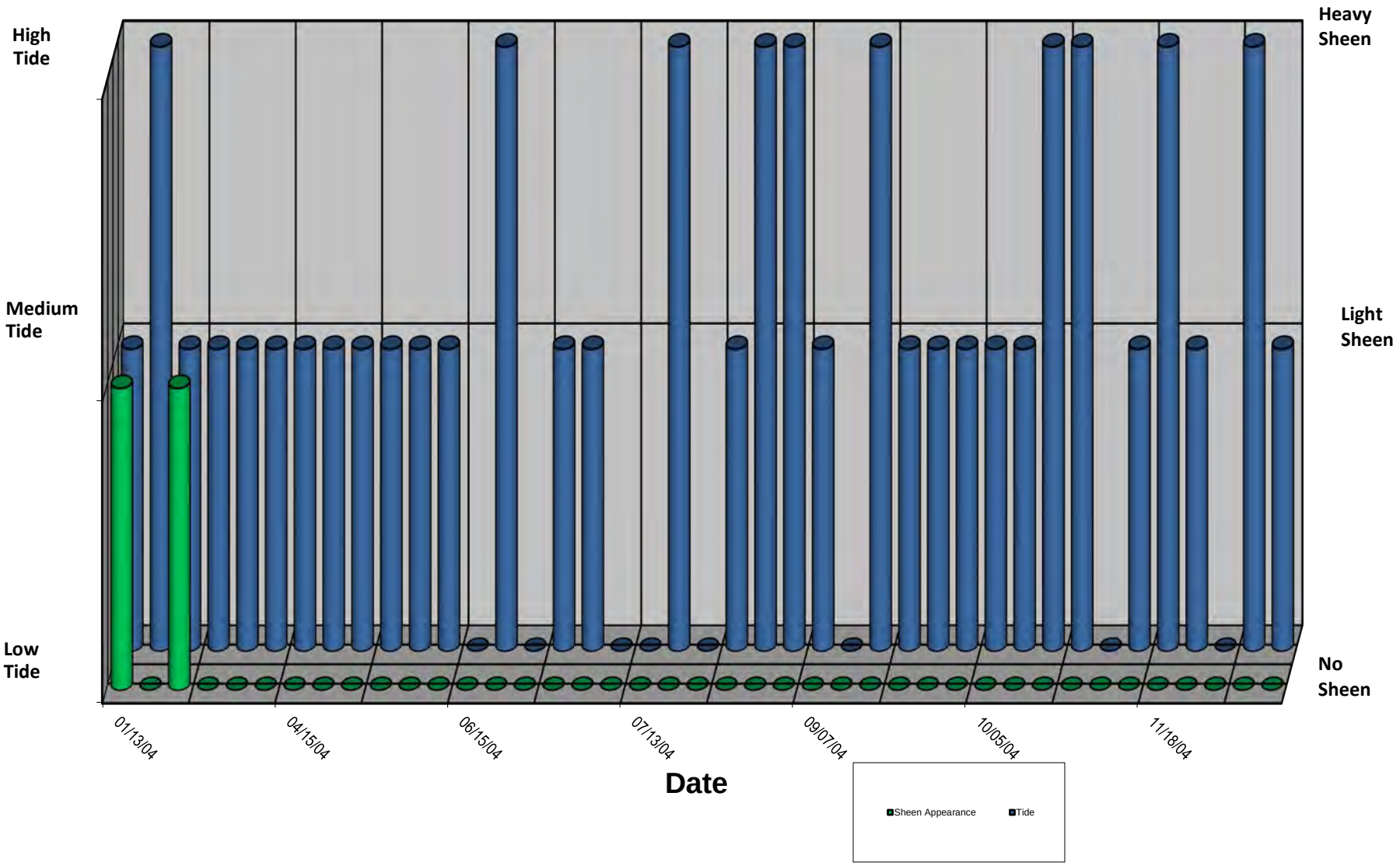
2006 Sheen Observations: Loading Rack



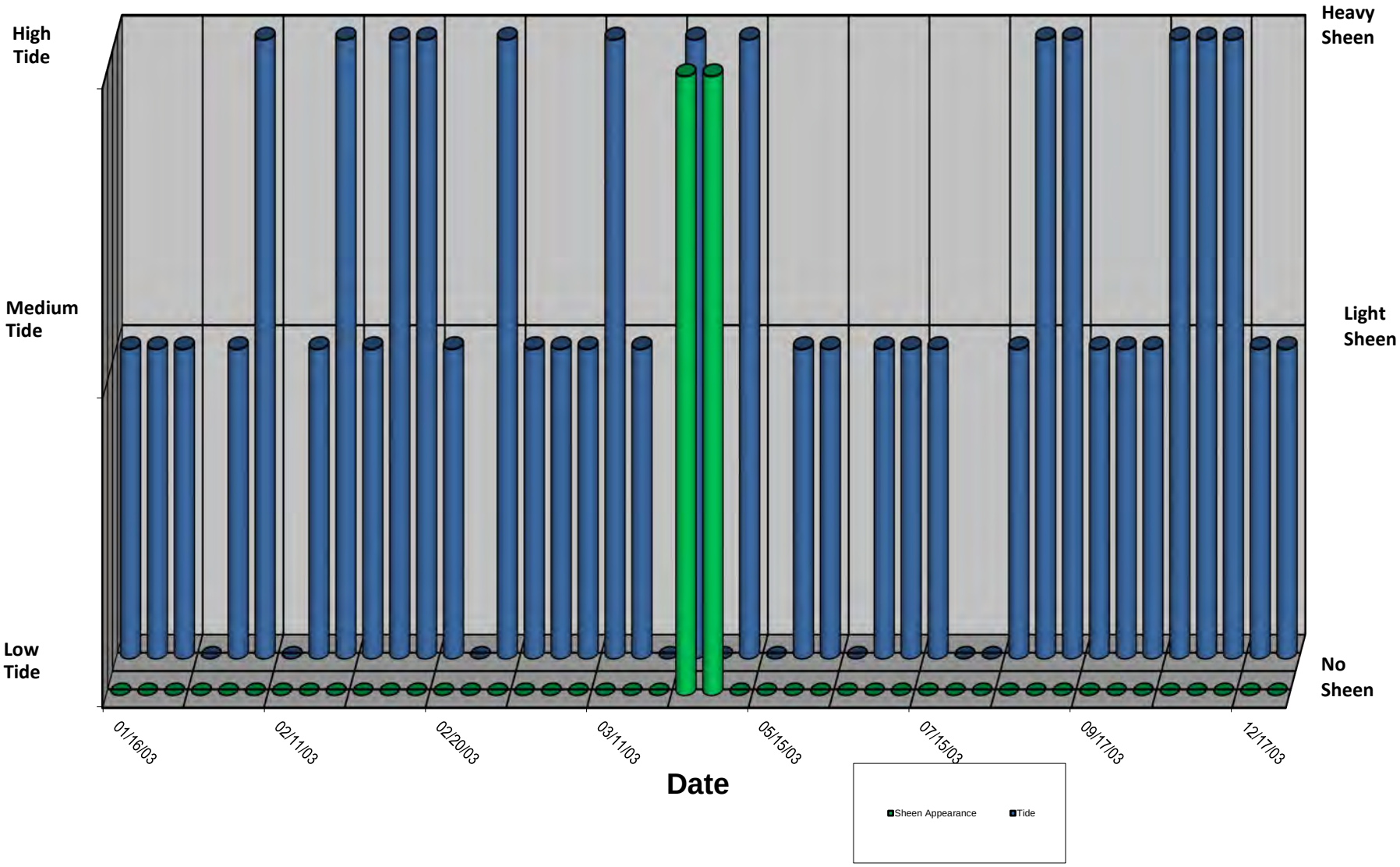
2005 Sheen Observations: Loading Rack

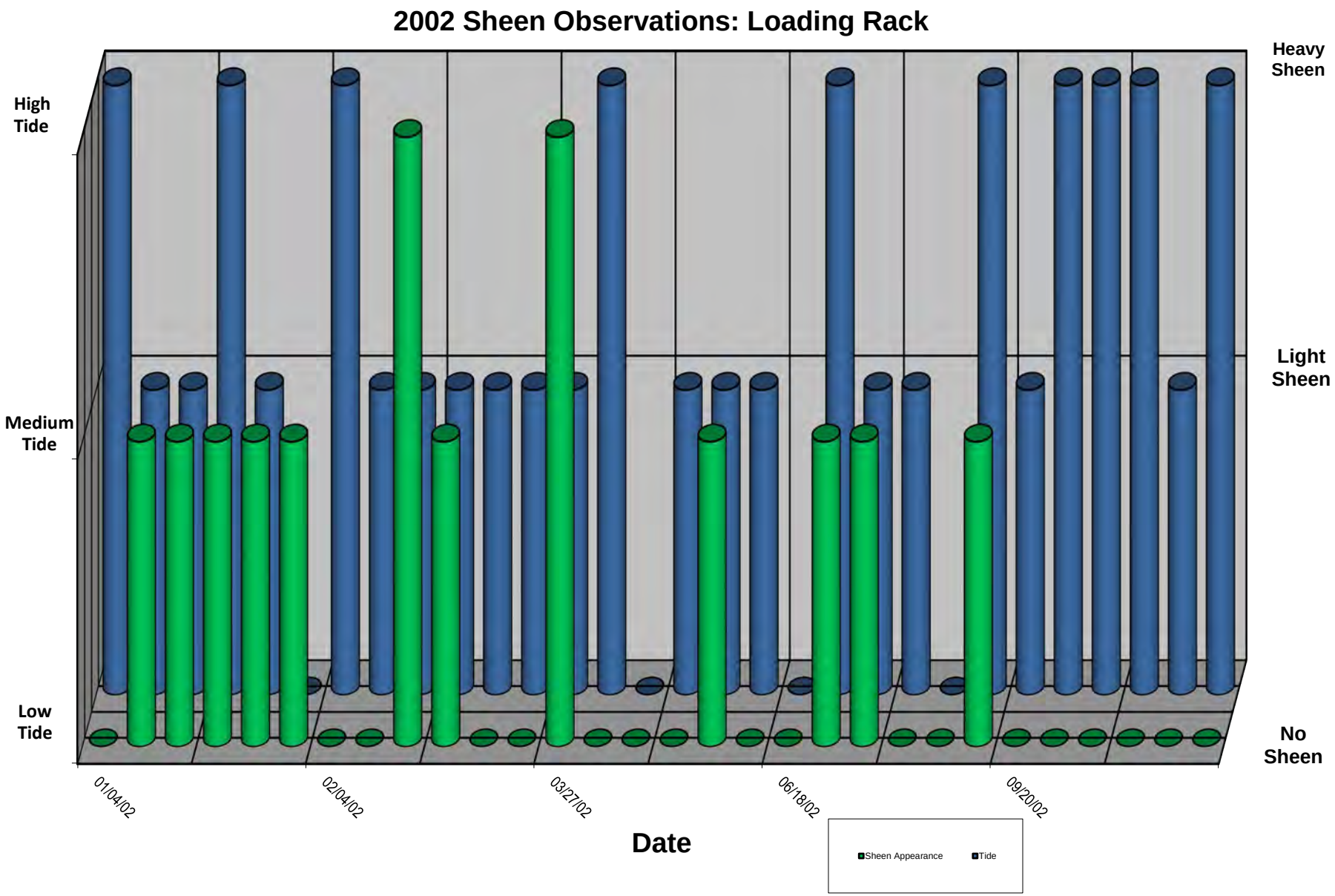


2004 Sheen Observations: Loading Rack

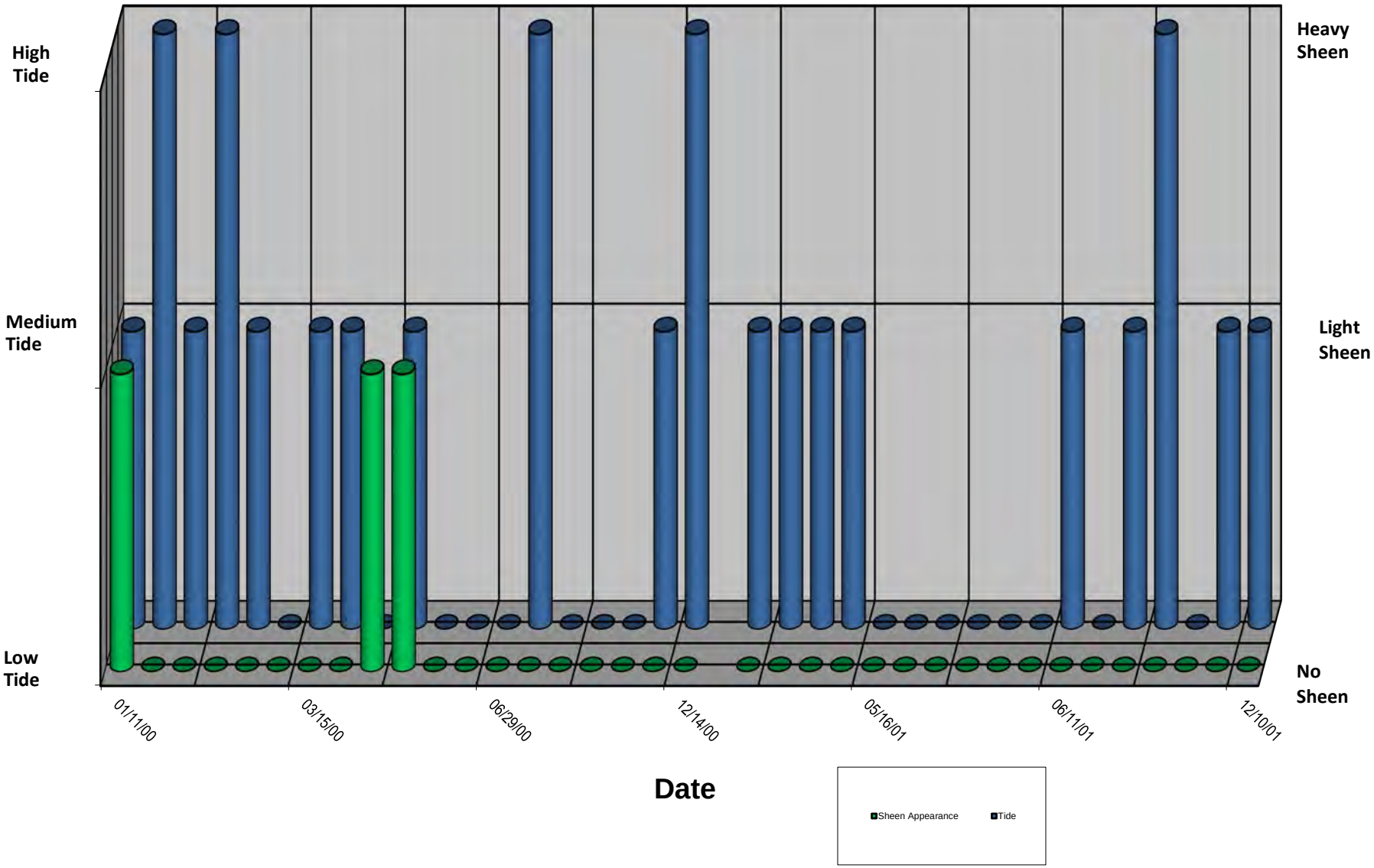


2003 Sheen Observations: Loading Rack

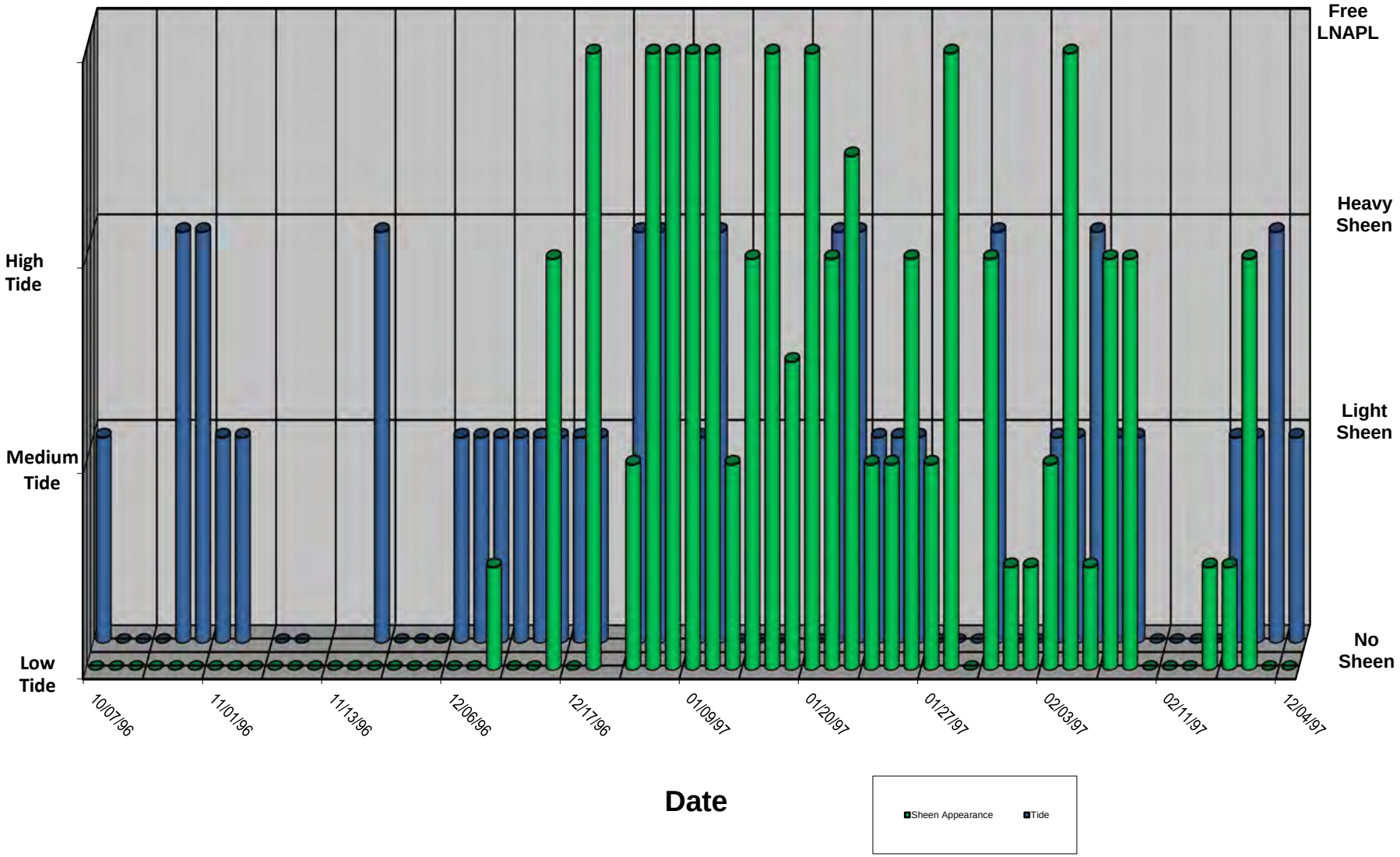



2002 Sheen Observations: Loading Rack
High Tide
Medium Tide
Low Tide
Heavy Sheen
Light Sheen
No Sheen
01/04/02
02/04/02
03/27/02
06/18/02
09/20/02
Date
Sheen Appearance
Tide

2000-2001 Sheen Observations: Loading Rack

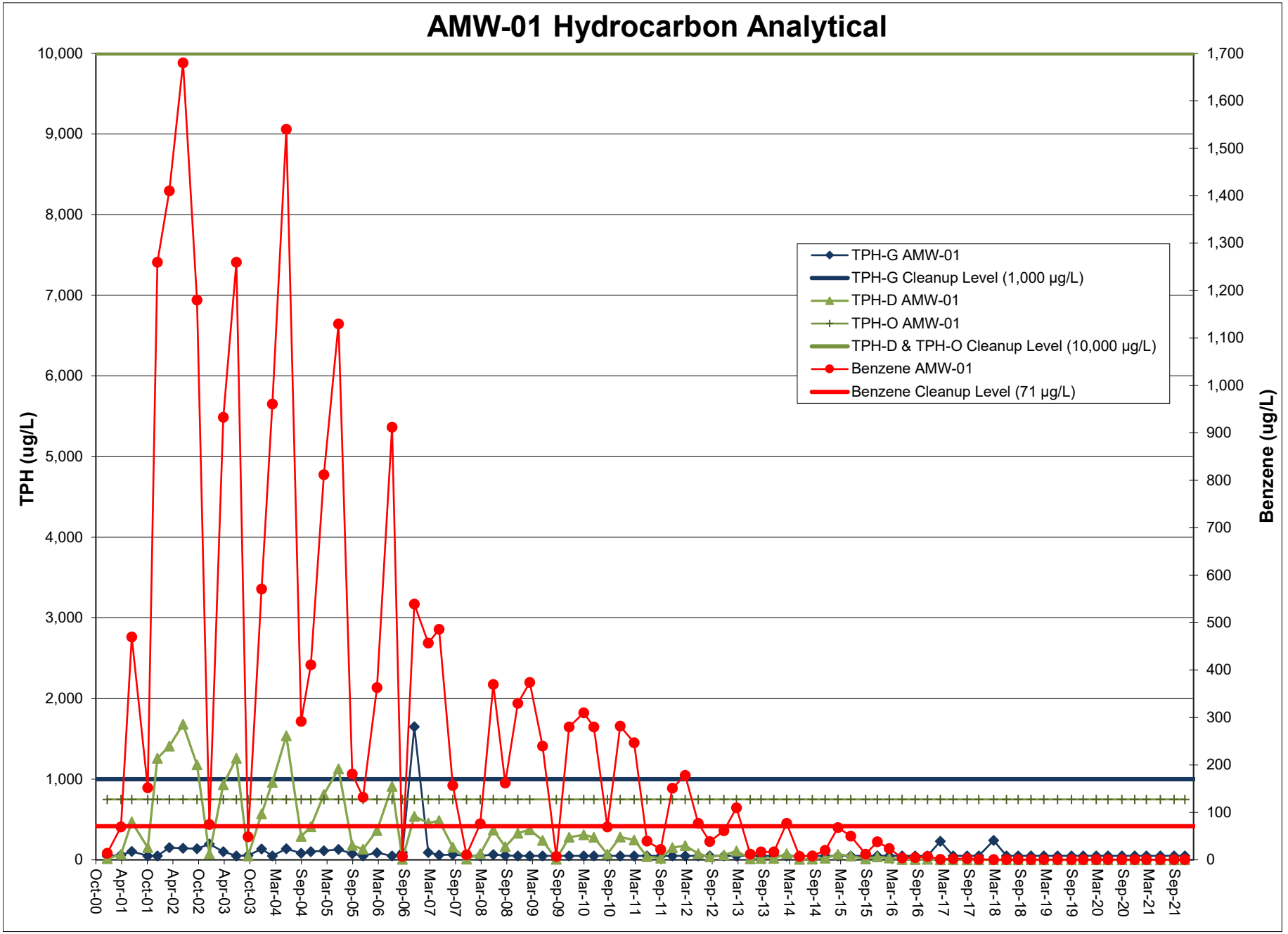


1996-1997 Sheen Observations: Loading Rack



APPENDIX C

Groundwater Monitoring Wells Hydrocarbon Analytical Graphs


AMW-01 Hydrocarbon Analytical
TPH (ug/L)
Benzene (ug/L)
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
1,700
1,600
1,500
1,400
1,300
1,200
1,100
1,000
900
800
700
600
500
400
300
200
100
0
TPH-G AMW-01
TPH-G Cleanup Level (1,000 µg/L)
TPH-D AMW-01
TPH-O AMW-01
TPH-D & TPH-O Cleanup Level (10,000 µg/L)
Benzene AMW-01
Benzene Cleanup Level (71 µg/L)
Oct-00
Apr-01
Oct-01
Apr-02
Oct-02
Apr-03
Oct-03
Mar-04
Sep-04
Mar-05
Sep-05
Mar-06
Sep-06
Mar-07
Sep-07
Mar-08
Sep-08
Mar-09
Sep-09
Mar-10
Sep-10
Mar-11
Sep-11
Mar-12
Sep-12
Mar-13
Sep-13
Mar-14
Sep-14
Mar-15
Sep-15
Mar-16
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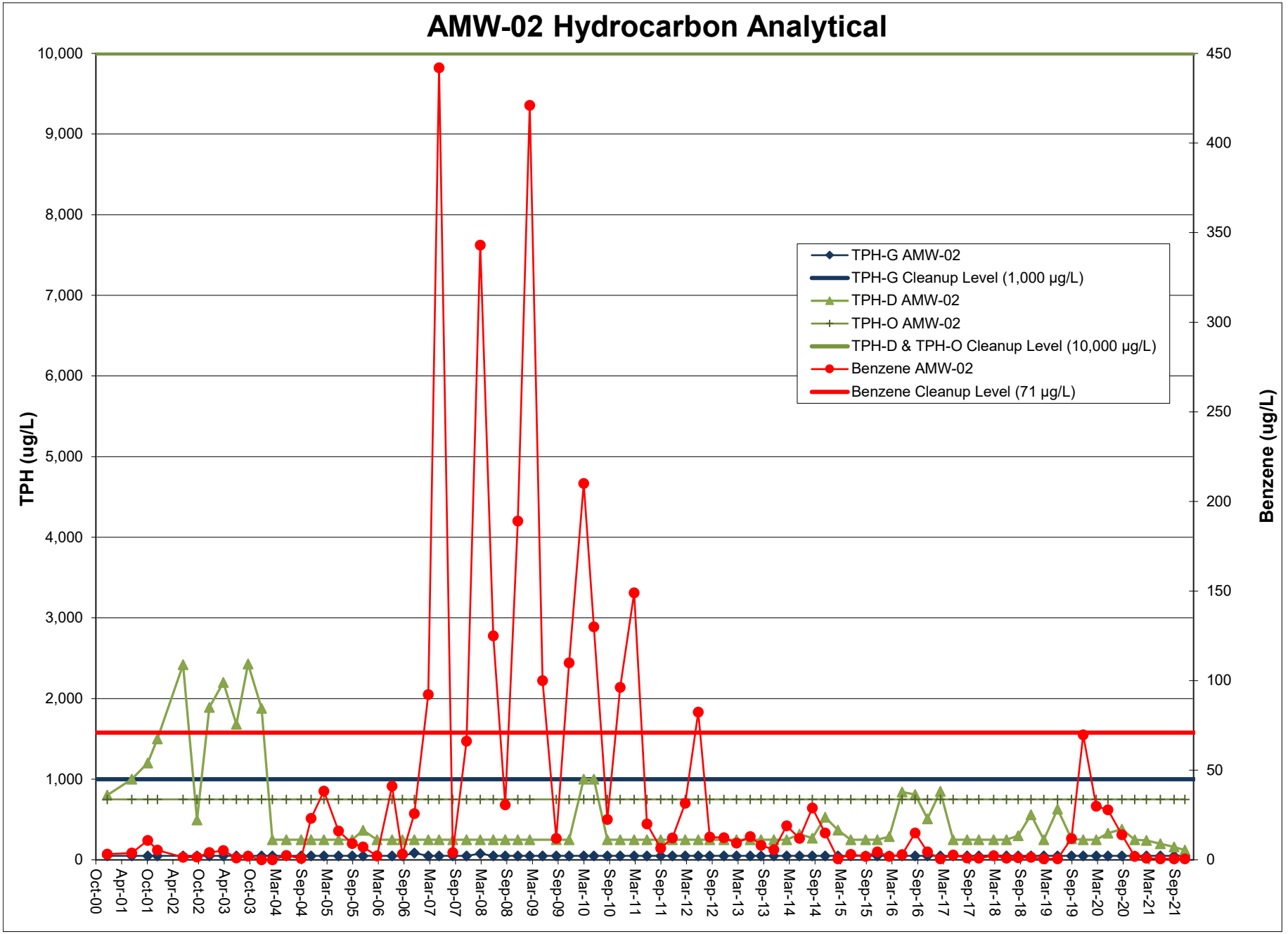
Sep-18
Mar-19
Sep-19
Mar-20
Sep-20
Mar-21
Sep-21


AMW-02 Hydrocarbon Analytical
TPH (ug/L)
Benzene (ug/L)
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
450
400
350
300
250
200
150
100
50
0
TPH-G AMW-02
TPH-G Cleanup Level (1,000 µg/L)
TPH-D AMW-02
TPH-O AMW-02
TPH-D & TPH-O Cleanup Level (10,000 µg/L)
Benzene AMW-02
Benzene Cleanup Level (71 µg/L)
Oct-00
Apr-01
Oct-01
Apr-02
Oct-02
Apr-03
Oct-03
Mar-04
Sep-04
Mar-05
Sep-05
Mar-06
Sep-06
Mar-07
Sep-07
Mar-08
Sep-08
Mar-09
Sep-09
Mar-10
Sep-10
Mar-11
Sep-11
Mar-12
Sep-12
Mar-13
Sep-13
Mar-14
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Sep-18
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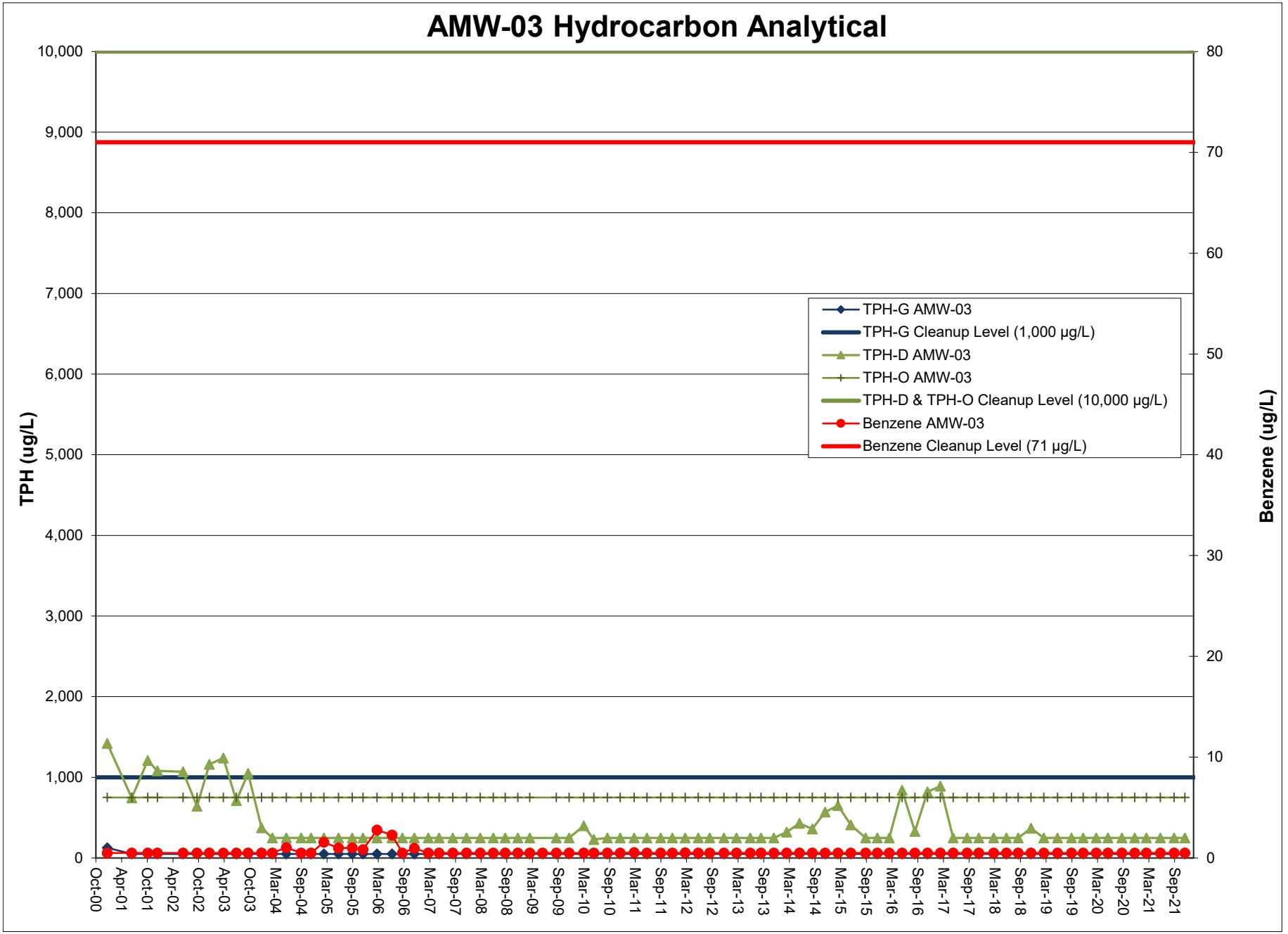
Sep-19
Mar-20
Sep-20
Mar-21
Sep-21


AMW-03 Hydrocarbon Analytical
TPH (ug/L)
Benzene (ug/L)
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
80
70
60
50
40
30
20
10
0
TPH-G AMW-03
TPH-G Cleanup Level (1,000 µg/L)
TPH-D AMW-03
TPH-O AMW-03
TPH-D & TPH-O Cleanup Level (10,000 µg/L)
Benzene AMW-03
Benzene Cleanup Level (71 µg/L)
Oct-00
Apr-01
Oct-01
Apr-02
Oct-02
Apr-03
Oct-03
Mar-04
Sep-04
Mar-05
Sep-05
Mar-06
Sep-06
Mar-07
Sep-07
Mar-08
Sep-08
Mar-09
Sep-09
Mar-10
Sep-10
Mar-11
Sep-11
Mar-12
Sep-12
Mar-13
Sep-13
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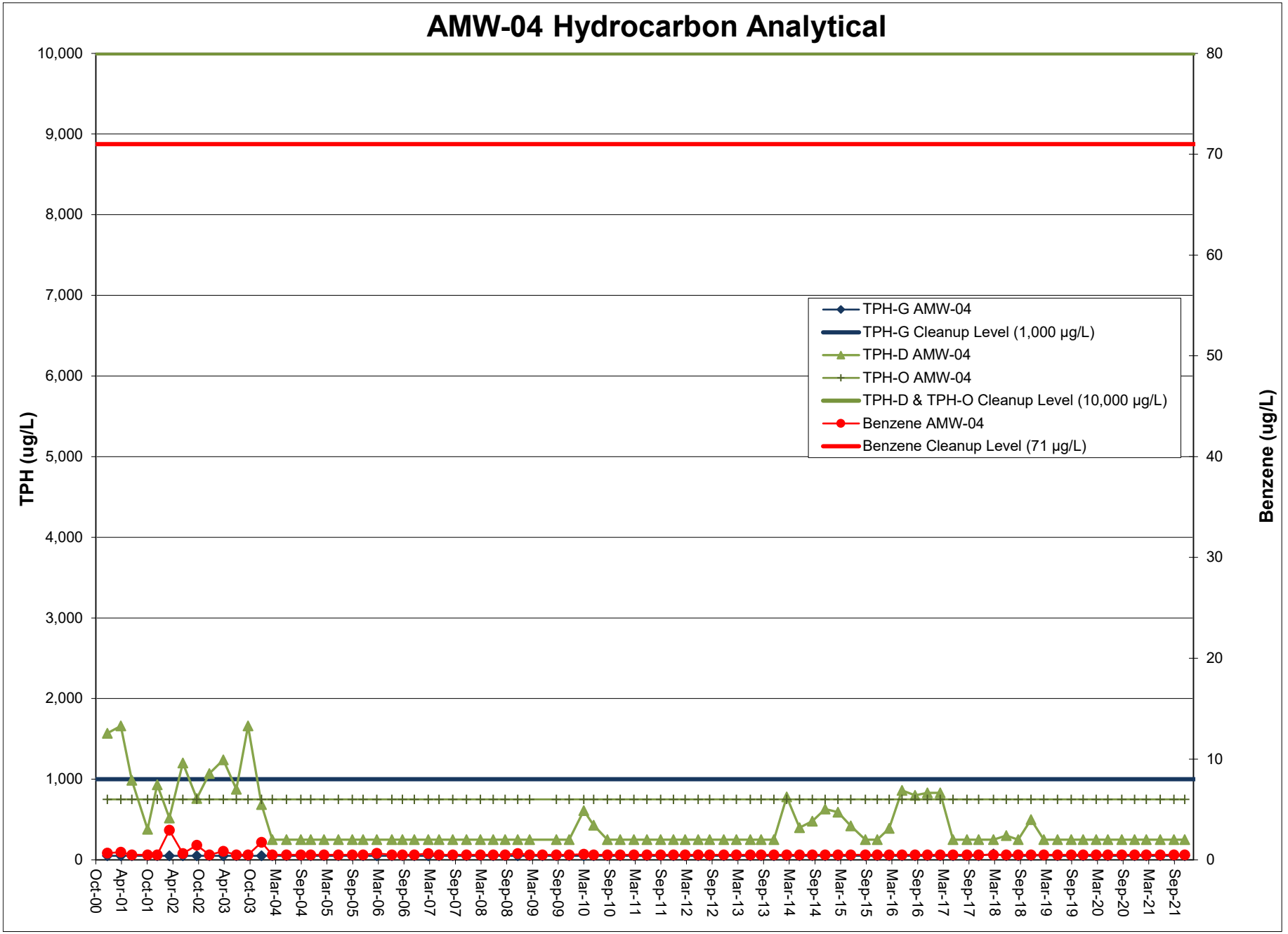
Mar-20
Sep-20
Mar-21
Sep-21


AMW-04 Hydrocarbon Analytical
TPH (ug/L)
Benzene (ug/L)
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
80
70
60
50
40
30
20
10
0
TPH-G AMW-04
TPH-G Cleanup Level (1,000 µg/L)
TPH-D AMW-04
TPH-O AMW-04
TPH-D & TPH-O Cleanup Level (10,000 µg/L)
Benzene AMW-04
Benzene Cleanup Level (71 µg/L)
Oct-00
Apr-01
Oct-01
Apr-02
Oct-02
Apr-03
Oct-03
Mar-04
Sep-04
Mar-05
Sep-05
Mar-06
Sep-06
Mar-07
Sep-07
Mar-08
Sep-08
Mar-09
Sep-09
Mar-10
Sep-10
Mar-11
Sep-11
Mar-12
Sep-12
Mar-13
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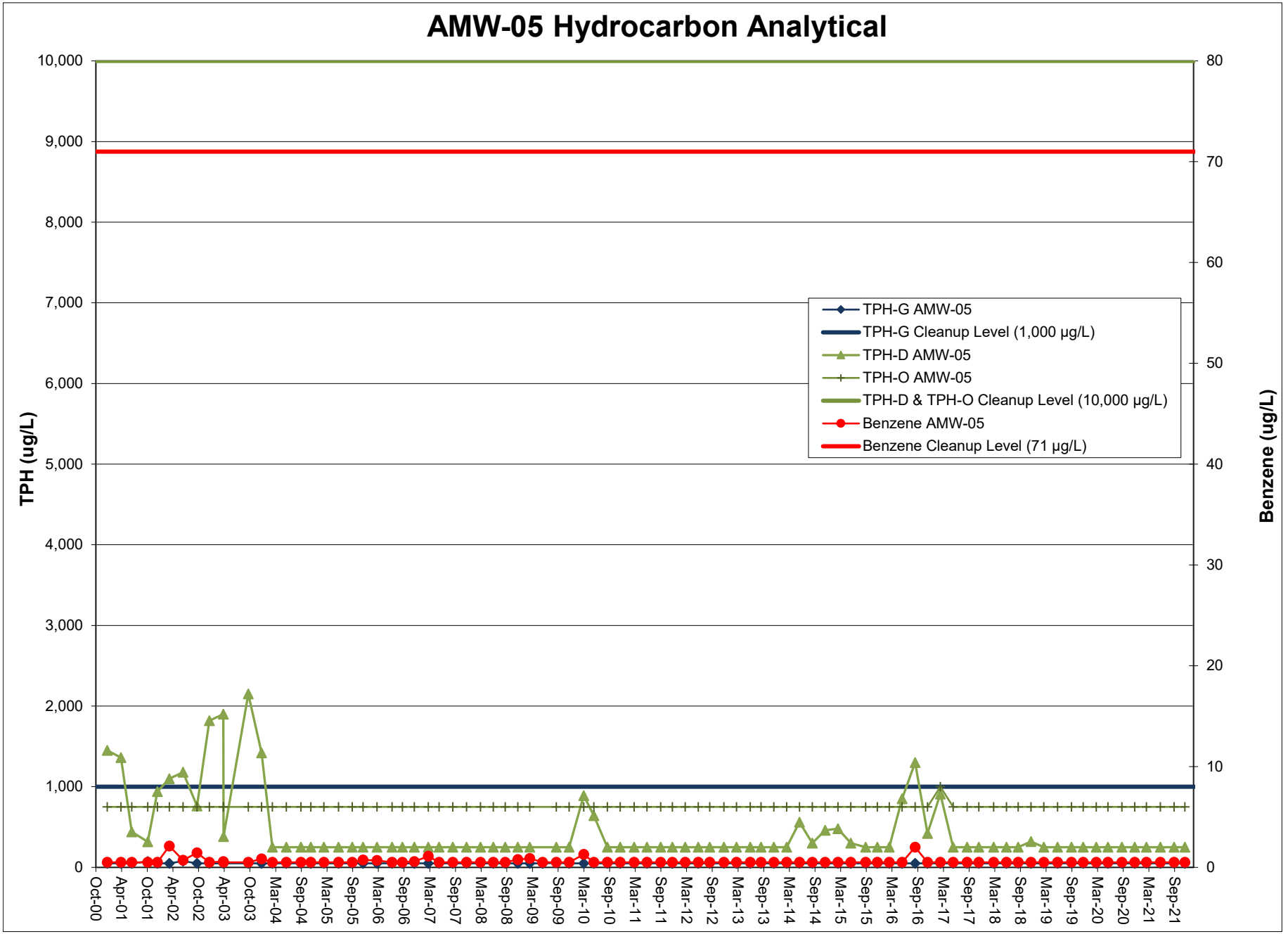
Mar-20
Sep-20
Mar-21
Sep-21


AMW-05 Hydrocarbon Analytical
TPH (ug/L)
Benzene (ug/L)
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
80
70
60
50
40
30
20
10
0
TPH-G AMW-05
TPH-G Cleanup Level (1,000 µg/L)
TPH-D AMW-05
TPH-O AMW-05
TPH-D & TPH-O Cleanup Level (10,000 µg/L)
Benzene AMW-05
Benzene Cleanup Level (71 µg/L)
Oct-00
Apr-01
Oct-01
Apr-02
Oct-02
Apr-03
Oct-03
Mar-04
Sep-04
Mar-05
Sep-05
Mar-06
Sep-06
Mar-07
Sep-07
Mar-08
Sep-08
Mar-09
Sep-09
Mar-10
Sep-10
Mar-11
Sep-11
Mar-12
Sep-12
Mar-13
Sep-13
Mar-14
Sep-14
Mar-15
Sep-15
Mar-16
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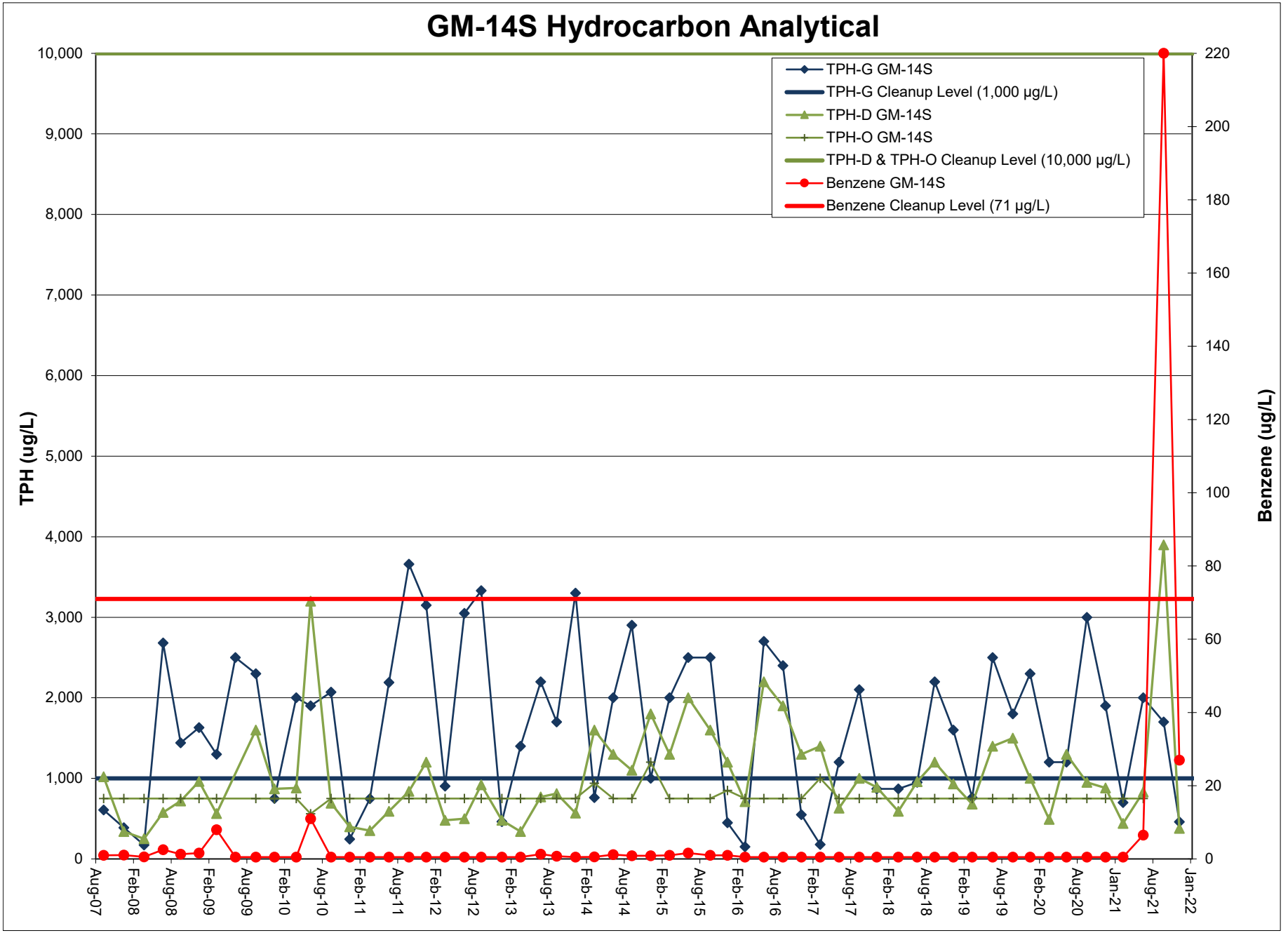
Sep-19
Mar-20
Sep-20
Mar-21
Sep-21


GM-14S Hydrocarbon Analytical
TPH (ug/L)
Benzene (ug/L)
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
220
200
180
160
140
120
100
80
60
40
20
0
TPH-G GM-14S
TPH-G Cleanup Level (1,000 µg/L)
TPH-D GM-14S
TPH-O GM-14S
TPH-D & TPH-O Cleanup Level (10,000 µg/L)
Benzene GM-14S
Benzene Cleanup Level (71 µg/L)
Aug-07
Feb-08
Aug-08
Feb-09
Aug-09
Feb-10
Aug-10
Feb-11
Aug-11
Feb-12
Aug-12
Feb-13
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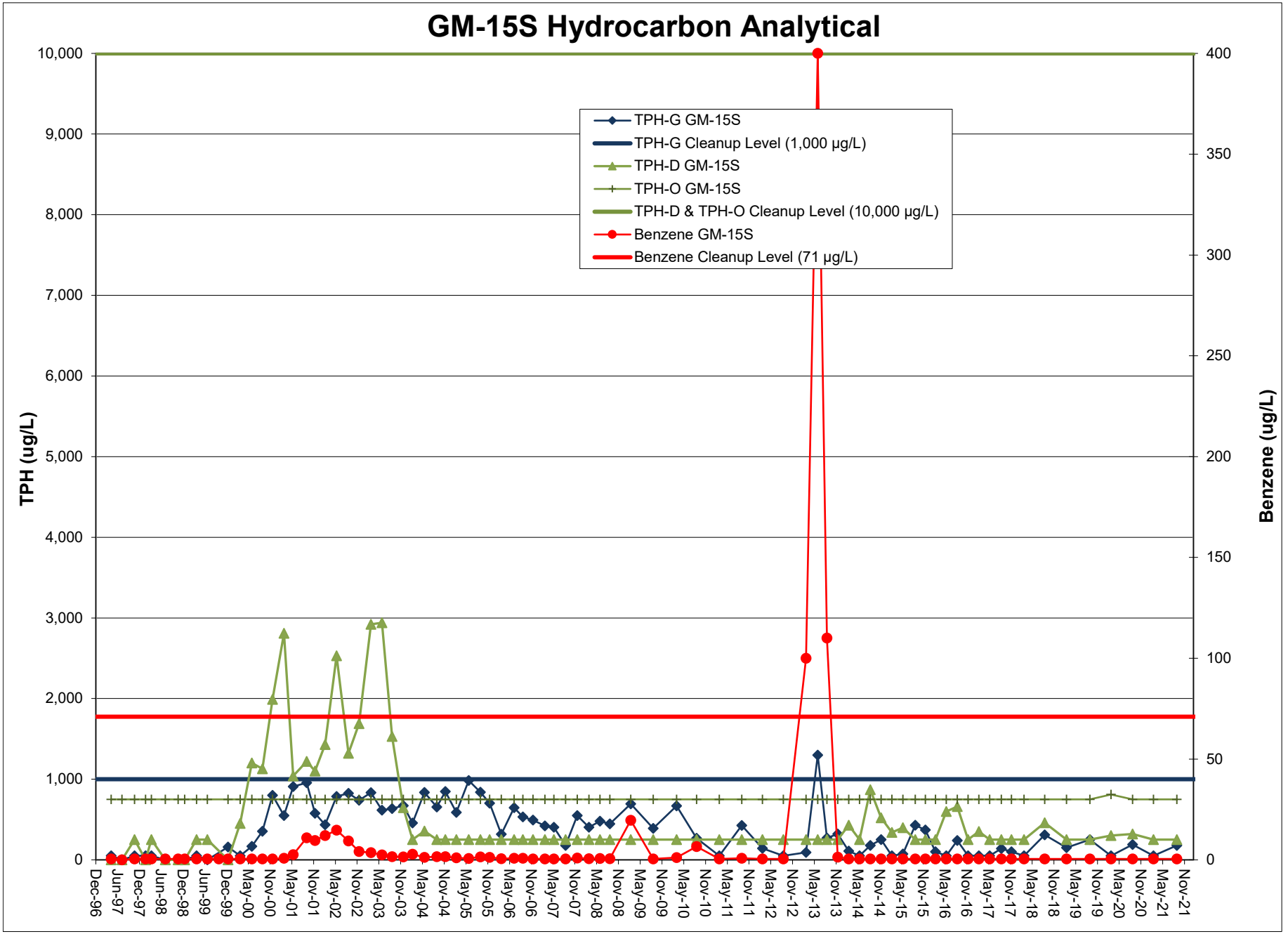
Feb-20
Aug-20
Jan-21
Aug-21
Jan-22


GM-15S Hydrocarbon Analytical
TPH (ug/L)
Benzene (ug/L)
TPH-G GM-15S
TPH-G Cleanup Level (1,000 µg/L)
TPH-D GM-15S
TPH-O GM-15S
TPH-D & TPH-O Cleanup Level (10,000 µg/L)
Benzene GM-15S
Benzene Cleanup Level (71 µg/L)
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
400
350
300
250
200
150
100
50
0
Dec-96
Jun-97
Dec-97
Jun-98
Dec-98
Jun-99
Dec-99
May-00
Nov-00
May-01
Nov-01
May-02
Nov-02
May-03
Nov-03
May-04
Nov-04
May-05
Nov-05
May-06
Nov-06
May-07
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May-09
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May-10
Nov-10
May-11
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May-16
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May-17
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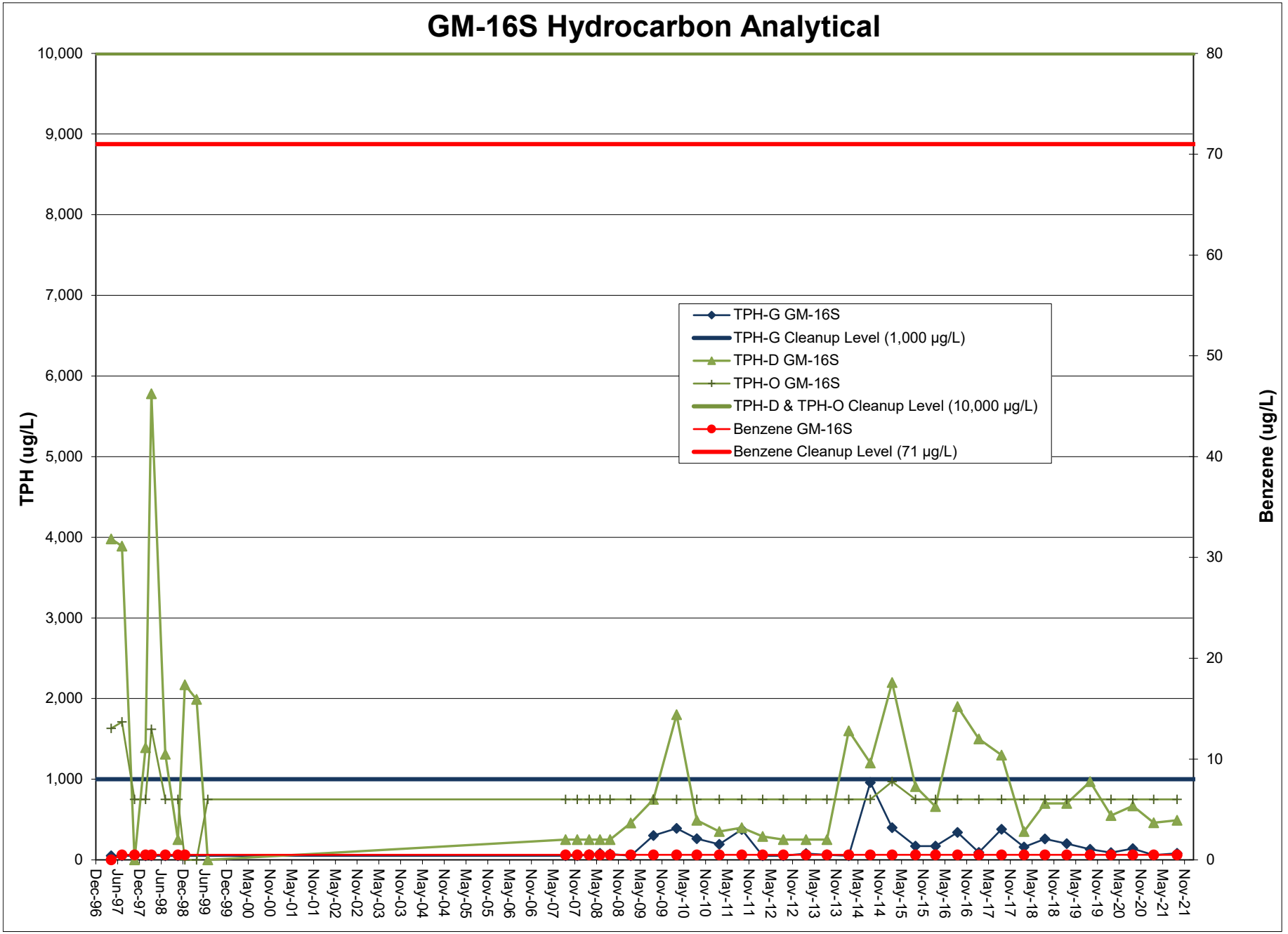
Nov-19
May-20
Nov-20
May-21
Nov-21


GM-16S Hydrocarbon Analytical
TPH (ug/L)
Benzene (ug/L)
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
80
70
60
50
40
30
20
10
0
TPH-G GM-16S
TPH-G Cleanup Level (1,000 µg/L)
TPH-D GM-16S
TPH-O GM-16S
TPH-D & TPH-O Cleanup Level (10,000 µg/L)
Benzene GM-16S
Benzene Cleanup Level (71 µg/L)
Dec-96
Jun-97
Dec-97
Jun-98
Dec-98
Jun-99
Dec-99
May-00
Nov-00
May-01
Nov-01
May-02
Nov-02
May-03
Nov-03
May-04
Nov-04
May-05
Nov-05
May-06
Nov-06
May-07
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May-11
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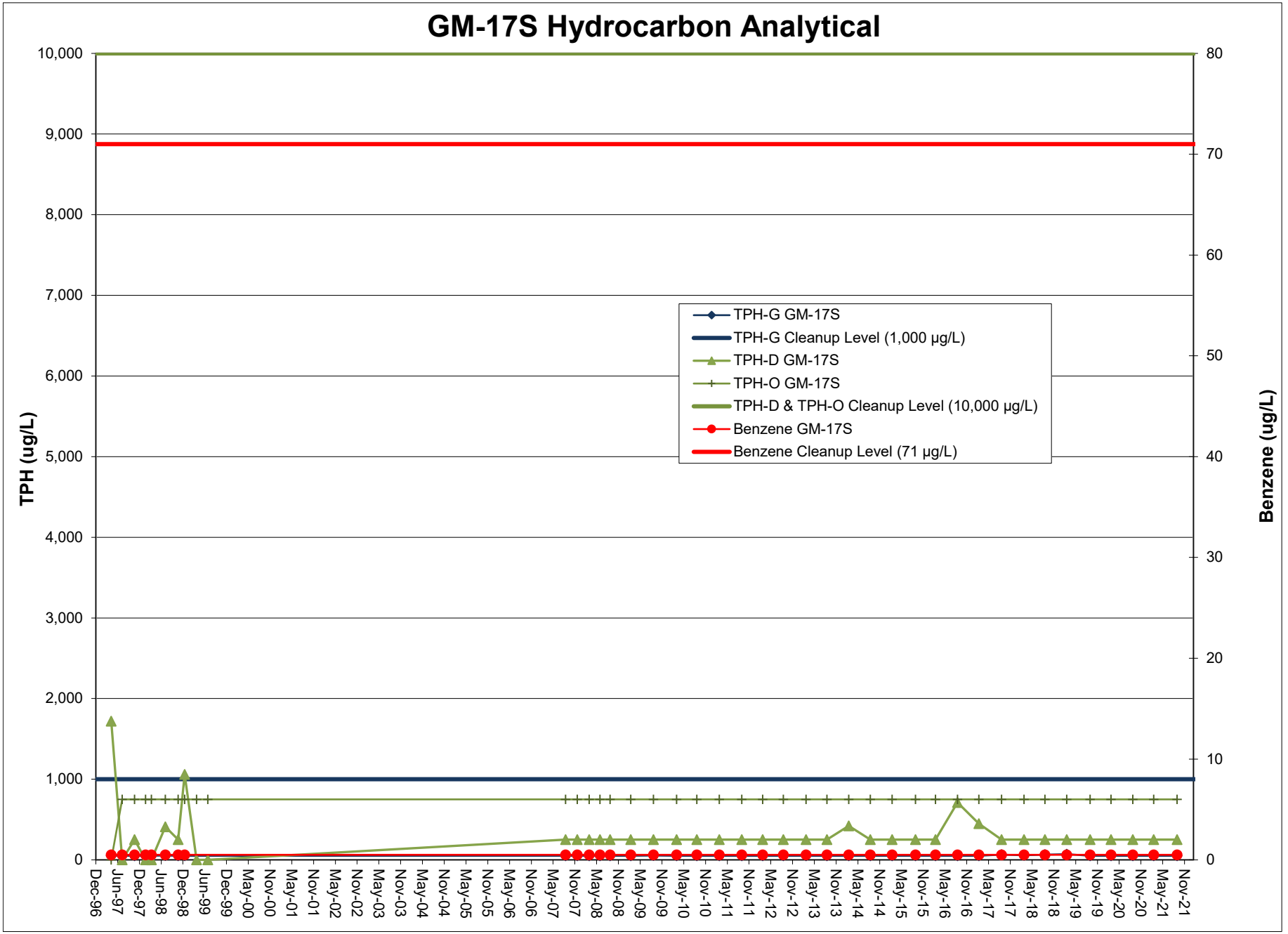
May-20
Nov-20
May-21
Nov-21


GM-17S Hydrocarbon Analytical
TPH (ug/L)
Benzene (ug/L)
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
80
70
60
50
40
30
20
10
0
TPH-G GM-17S
TPH-G Cleanup Level (1,000 µg/L)
TPH-D GM-17S
TPH-O GM-17S
TPH-D & TPH-O Cleanup Level (10,000 µg/L)
Benzene GM-17S
Benzene Cleanup Level (71 µg/L)
Dec-96
Jun-97
Dec-97
Jun-98
Dec-98
Jun-99
Dec-99
May-00
Nov-00
May-01
Nov-01
May-02
Nov-02
May-03
Nov-03
May-04
Nov-04
May-05
Nov-05
May-06
Nov-06
May-07
Nov-07
May-08
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May-10
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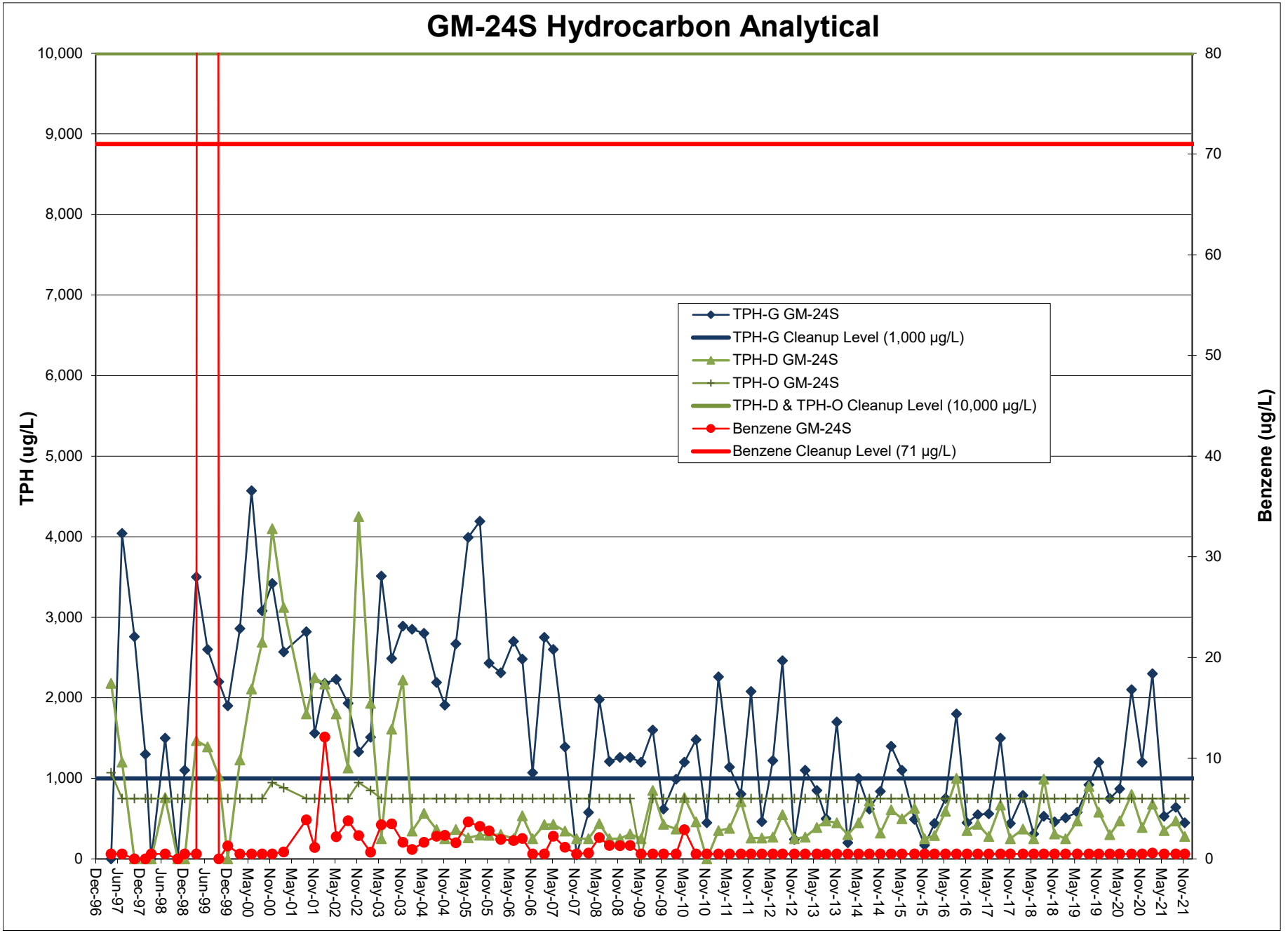
Nov-19
May-20
Nov-20
May-21
Nov-21


GM-24S Hydrocarbon Analytical
TPH (ug/L)
Benzene (ug/L)
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
80
70
60
50
40
30
20
10
0
TPH-G GM-24S
TPH-G Cleanup Level (1,000 µg/L)
TPH-D GM-24S
TPH-O GM-24S
TPH-D & TPH-O Cleanup Level (10,000 µg/L)
Benzene GM-24S
Benzene Cleanup Level (71 µg/L)
Dec-96
Jun-97
Dec-97
Jun-98
Dec-98
Jun-99
Dec-99
May-00
Nov-00
May-01
Nov-01
May-02
Nov-02
May-03
Nov-03
May-04
Nov-04
May-05
Nov-05
May-06
Nov-06
May-07
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May-13
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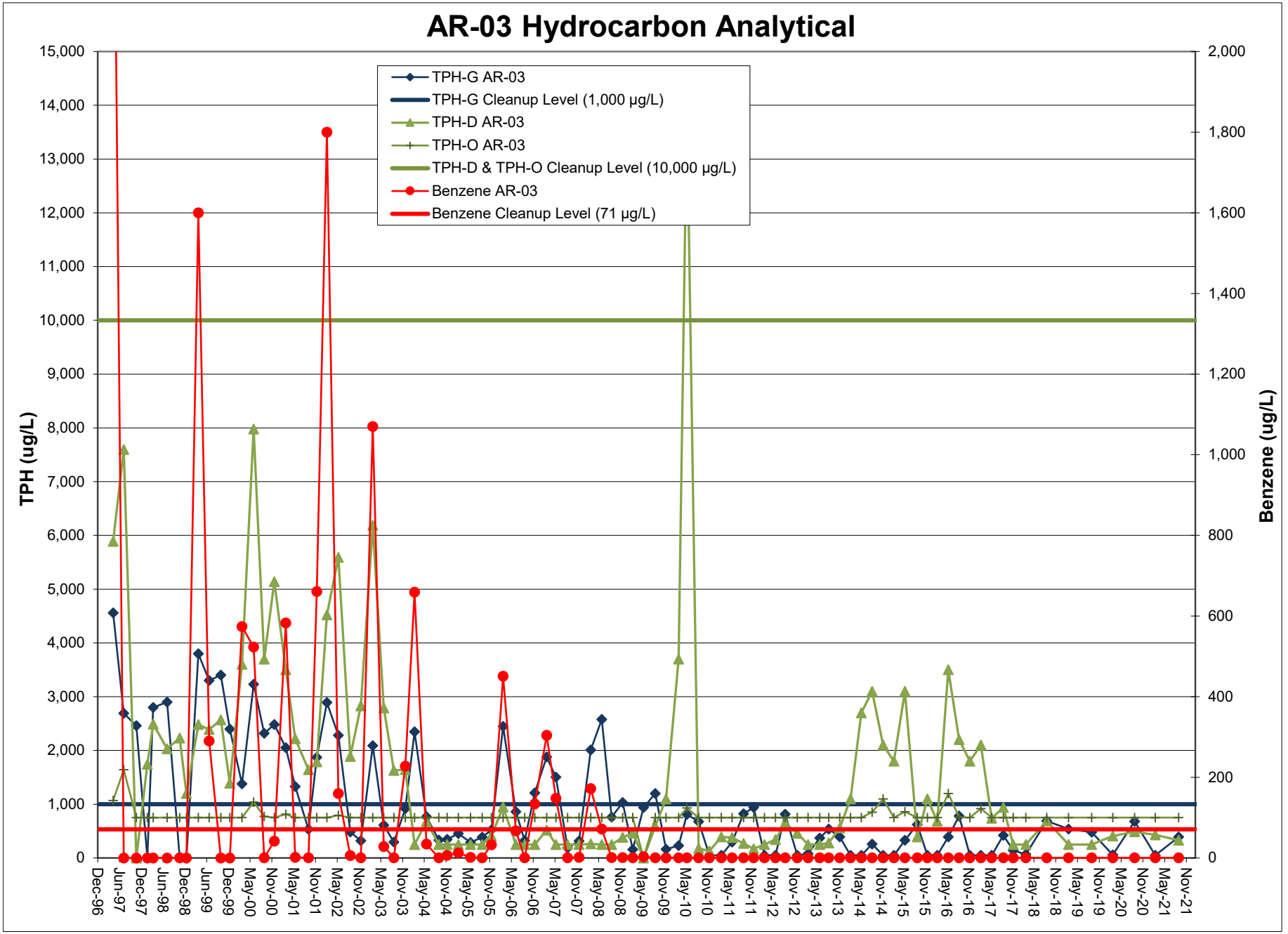
May-20
Nov-20
May-21
Nov-21


AR-03 Hydrocarbon Analytical
TPH-G AR-03
TPH-G Cleanup Level (1,000 µg/L)
TPH-D AR-03
TPH-O AR-03
TPH-D & TPH-O Cleanup Level (10,000 µg/L)
Benzene AR-03
Benzene Cleanup Level (71 µg/L)
TPH (ug/L)
Benzene (ug/L)
15,000
14,000
13,000
12,000
11,000
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
2,000
1,800
1,600
1,400
1,200
1,000
800
600
400
200
0
Dec-96
Jun-97
Dec-97
Jun-98
Dec-98
Jun-99
Dec-99
May-00
Nov-00
May-01
Nov-01
May-02
Nov-02
May-03
Nov-03
May-04
Nov-04
May-05
Nov-05
May-06
Nov-06
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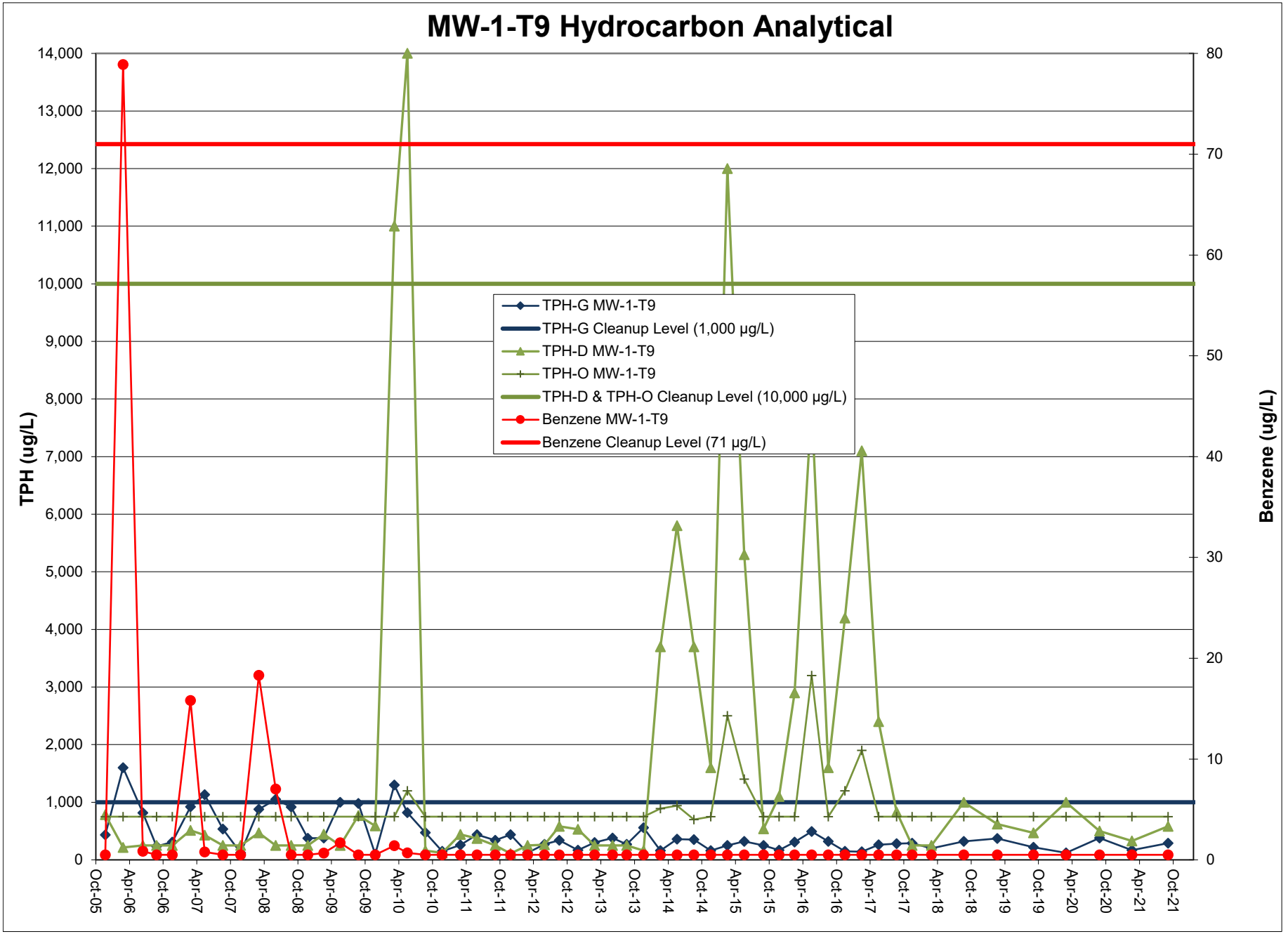
May-20
Nov-20
May-21
Nov-21


MW-1-T9 Hydrocarbon Analytical
TPH (ug/L)
Benzene (ug/L)
TPH-G MW-1-T9
TPH-G Cleanup Level (1,000 µg/L)
TPH-D MW-1-T9
TPH-O MW-1-T9
TPH-D & TPH-O Cleanup Level (10,000 µg/L)
Benzene MW-1-T9
Benzene Cleanup Level (71 µg/L)
14,000
13,000
12,000
11,000
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
80
70
60
50
40
30
20
10
0
Oct-05
Apr-06
Oct-06
Apr-07
Oct-07
Apr-08
Oct-08
Apr-09
Oct-09
Apr-10
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Apr-11
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Apr-12
Oct-12
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Oct-13
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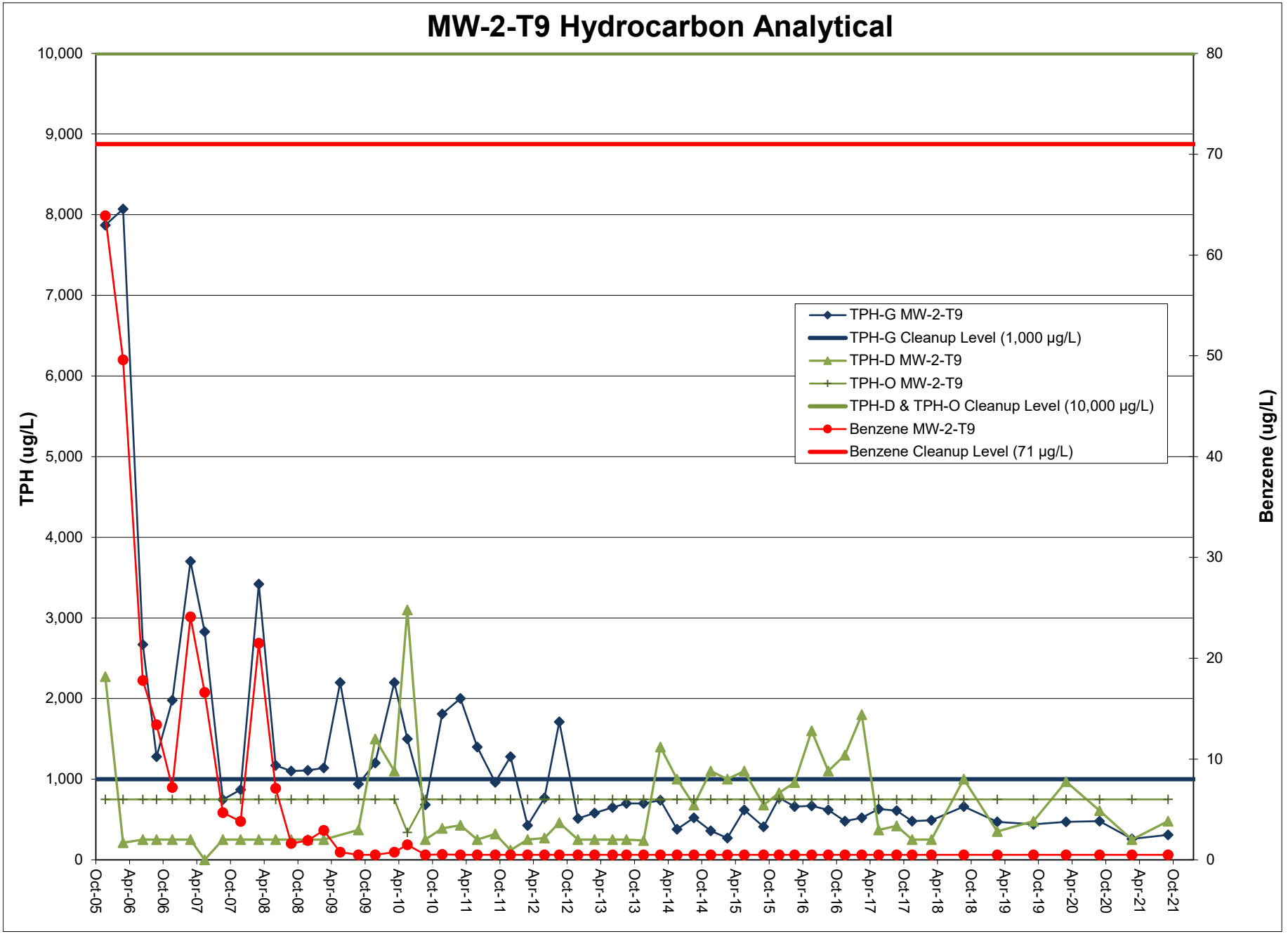
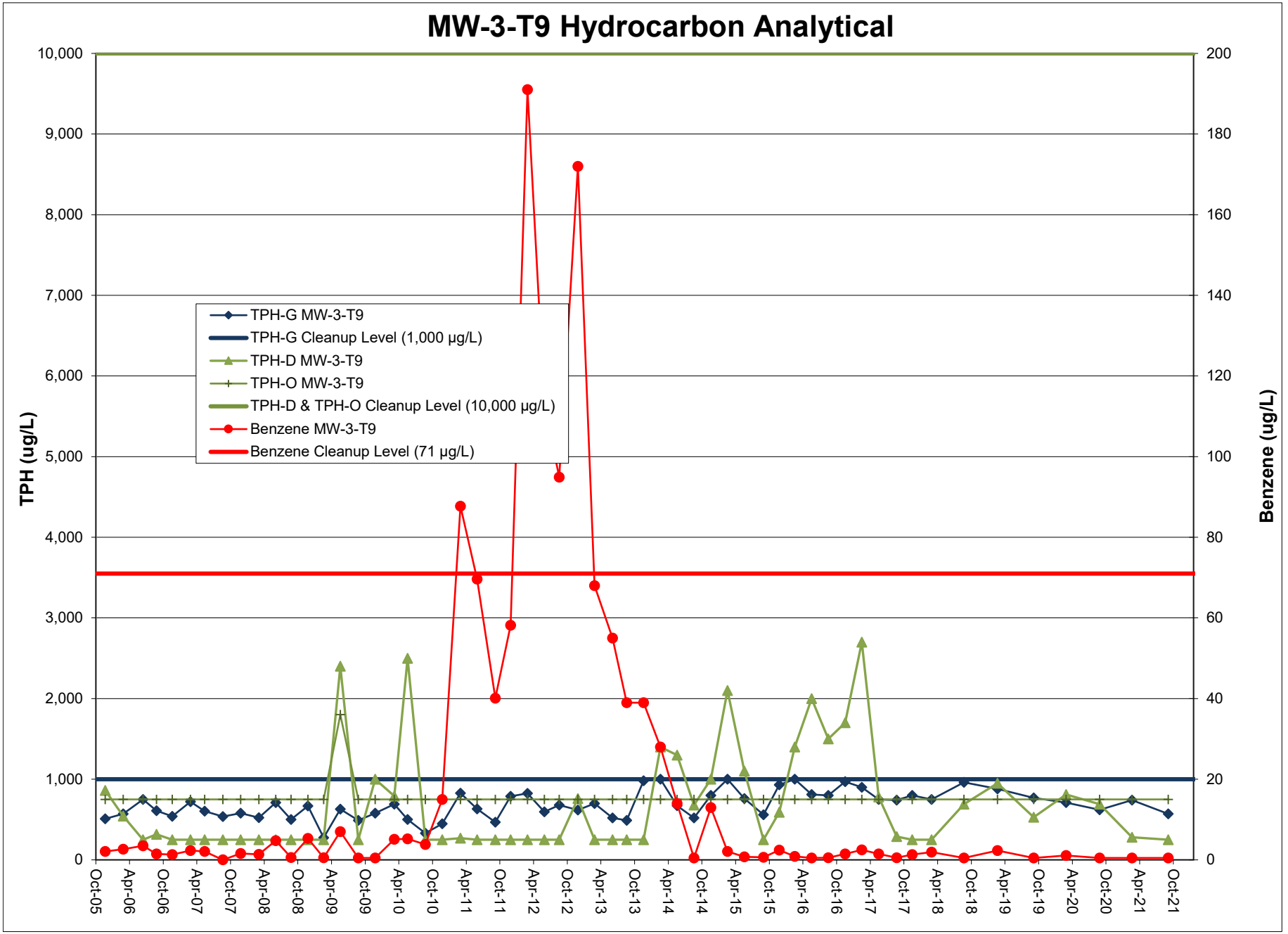
Apr-19
Oct-19
Apr-20
Oct-20
Apr-21
Oct-21


MW-2-T9 Hydrocarbon Analytical
TPH (ug/L)
Benzene (ug/L)
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
80
70
60
50
40
30
20
10
0
Oct-05
Apr-06
Oct-06
Apr-07
Oct-07
Apr-08
Oct-08
Apr-09
Oct-09
Apr-10
Oct-10
Apr-11
Oct-11
Apr-12
Oct-12
Apr-13
Oct-13
Apr-14
Oct-14
Apr-15
Oct-15
Apr-16
Oct-16
Apr-17
Oct-17
Apr-18
Oct-18
Apr-19
Oct-19
Apr-20
Oct-20
Apr-21
Oct-21
TPH-G MW-2-T9
TPH-G Cleanup Level (1,000 µg/L)
TPH-D MW-2-T9
TPH-O MW-2-T9
TPH-D & TPH-O Cleanup Level (10,000 µg/L)
Benzene MW-2-T9
Benzene Cleanup Level (71 µg/L)


MW-3-T9 Hydrocarbon Analytical
TPH (ug/L)
Benzene (ug/L)
10,000
9,000
8,000
7,000
6,000
5,000
4,000
3,000
2,000
1,000
0
200
180
160
140
120
100
80
60
40
20
0
TPH-G MW-3-T9
TPH-G Cleanup Level (1,000 µg/L)
TPH-D MW-3-T9
TPH-O MW-3-T9
TPH-D & TPH-O Cleanup Level (10,000 µg/L)
Benzene MW-3-T9
Benzene Cleanup Level (71 µg/L)
Oct-05
Apr-06
Oct-06
Apr-07
Oct-07
Apr-08
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Oct-09
Apr-10
Oct-10
Apr-11
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