# 2024
# Fourth Quarter Progress Report and Third Quarter Groundwater Performance Monitoring Report

SeaPort Seattle Terminal
(Former ARCO/BP Harbor Island Terminal)
Cleanup Site ID 4426
Consent Decree No. 00-2-05714-8SEA

January 2025

**Submitted to:**
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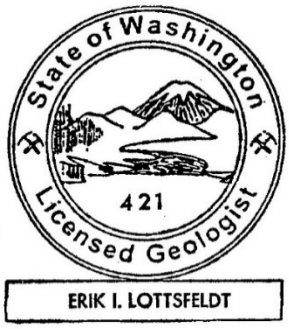



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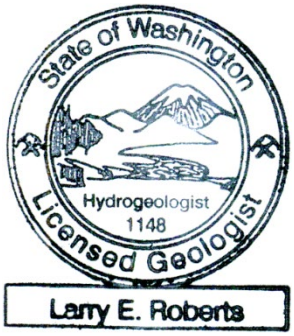


TechSolve Environmental

**TABLE OF CONTENTS**



TABLES



FIGURES

## ACRONYMS AND ABBREVIATIONS

| | |
|---|---|
| AG&M | ARCADIS Geraghty & Miller |
| ARCO | Atlantic Richfield Company |
| BP | British Petroleum West Coast Products Company |
| CAP | Cleanup Action Plan |
| CCR | Construction Completion Report |
| CUL | cleanup level |
| Ecology | Washington State Department of Ecology |
| EDR | Engineering Design Report |
| GPM | gallons per minute |
| GWCMCP | Groundwater Compliance Monitoring and Contingency Program |
| IHS | indicator hazardous substance |
| KCDNRP | King County Department of Natural Resources and Parks |
| LNAPL | light non-aqueous phase liquid |
| MNA | monitored natural attenuation |
| NAVD88 | North American Vertical Datum of 1988 |
| O&M | operation and maintenance |
| POC | point of compliance |
| QA/QC | quality assurance/quality control |
| RI/FS | Remedial Investigation/Feasibility Study |
| SVE | soil vapor extraction |
| TechSolv | TechSolv Consulting Group, Inc. (predecessor of TechSolve Environmental, Inc.) |
| TechSolve | TechSolve Environmental, Inc. |
| 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 |
| WAC | Washington Administrative Code |

## EXECUTIVE SUMMARY

This report summarizes the operation of remediation systems during the fourth quarter of 2024 (October through December) and groundwater monitoring conducted in the third quarter (July through September) at the SeaPort Seattle Terminal (the Site). The Site is located on Harbor Island at 1652 SW Lander Street in Seattle, Washington.

There were no anomalous conditions noted in the remediation systems during the fourth quarter. One monitoring well, GM-14S, showed elevated concentrations of dissolved-phase Indicator Hazardous Substances (IHSs) above cleanup levels (CULs) during the third quarter groundwater performance monitoring. The benzene and TPH-G concentrations detected in Well GM-14S are similar to concentrations previously detected. Concentrations of IHSs in other wells were below the CULs.

In accordance with Washington State Department of Ecology (Ecology) Consent Decree No. 00-2-05714-8SEA (Ecology 2000), the 2023 Annual Site Report will be the next report submitted to Ecology. That report will include further evaluations of data trends. The report will be submitted to Ecology by April 15, 2025.

# 1 INTRODUCTION

TechSolve Environmental, Inc. (TechSolve) is submitting this report on behalf of TLP Management Services LLC to summarize the 2024 operation and maintenance of the waterfront remediation system during the fourth quarter (October through December) and groundwater monitoring conducted in the third quarter (July through September) for the SeaPort Seattle Terminal (the Site) (Figure 1). The Site is located on Harbor Island at 1652 SW Lander Street in Seattle, Washington, and is the location of the former Atlantic Richfield Company (ARCO)/British Petroleum West Coast Products Company (BP) Terminal site. These two summary reports are combined based upon a Washington State Department of Ecology (Ecology) recommendation (Ecology 2004a). This progress report satisfies reporting requirements pursuant to Ecology Consent Decree No. 00-2-05714-8SEA (Ecology 2000).

# 2 REMEDIATION SYSTEM OPERATIONS

Remediation systems were installed and completed at the Site in accordance with specifications of the Engineering Design Report (EDR) prepared by TechSolv Consulting Group, Inc. (TechSolv), predecessor of TechSolve Environmental, Inc., and ARCADIS Geraghty & Miller (AG&M) (TechSolv and AG&M 2000), and the Site Cleanup Action Plan (CAP) (Ecology 1999). A waterfront groundwater/light non-aqueous phase liquid (LNAPL) remediation system (an interim system and the final system) has operated at the Site since 1992 to remove free-phase LNAPL and dissolved petroleum hydrocarbons from groundwater at Plant 1 (Figure 1), as further detailed below.

## 2.1 Waterfront System Operations

Installation, startup, and testing of the final waterfront remediation system was completed in 2002 and 2003. An interim recovery system was installed along the waterfront in 1992 and operated until the installation of the final system. Standard operation of the final system began once testing demonstrated that the system operated as designed. System construction, operation, and maintenance (O&M) are detailed in the Construction Completion Report (CCR) (TechSolv 2003a) and in the Final O&M Manual (TechSolv 2003b), which were approved by Ecology (Ecology 2004b). The O&M Manual is updated as practices or procedures change or as systems are altered. Operation of various portions of the remediation systems have been on-going since startup and have been modified/revised as needed, as discussed in the following sections.

O&M activities are conducted on the recovery systems to ensure they operate as designed and in accordance with applicable operating limits. These activities include, but are not limited to:

- weekly checks of groundwater recovery system pumping rates;
- weekly inspections of system components and waste storage containers for integrity per the requirements of Washington Administrative Code (WAC) 173-303-320;
- monthly sampling of recovered groundwater influent and effluent streams to ensure compliance with King County Department of Natural Resources and Parks (KCDNRP) Discharge Permit 7592-07 for sample site A43262;
- monthly monitoring and calculation of system LNAPL recovery rates; and
- monthly sampling of system flow rates and hydrocarbon concentrations.

Additional maintenance activities are conducted as needed to maintain system operational integrity and to ensure discharges are within permitted ranges.

Operation of waterfront air sparging and soil vapor extraction (SVE) systems were discontinued in May 2008, as the bulk of available hydrocarbons had been recovered (TechSolv 2009). The results of monitoring showed that operation of these portions of the recovery system have achieved their recovery objectives.

Combined LNAPL recovery (free-phase, residual, and dissolved-phase) from final SVE and groundwater/LNAPL recovery systems is approximately 14,560 gallons (October 2002 to December 2024) (Table 1). The interim systems, operated from 1992 through 2002, recovered an additional 15,223 gallons of LNAPL, for a total combined LNAPL recovery of 29,783 gallons. The majority of LNAPL recovered by final remediation systems was from enhanced biodegradation, calculated from carbon dioxide concentrations in SVE vapor.

The data collected from the groundwater/LNAPL recovery system (Table 1) show that influent concentrations of dissolved benzene, diesel, and gasoline in recovered groundwater (i.e., untreated water pumped from recovery wells screened in the shallow groundwater) have decreased over time. During 2024, influent concentrations of dissolved benzene, diesel, and gasoline were all below the surface water cleanup levels (CULs). The data included in Table 1 also show that measurable volumes of recovered free-phase LNAPL have not been generated since 2008, which was the last time sufficient LNAPL was recovered to warrant offsite shipment. These data correlate with the absence of recoverable free-phase LNAPL in the system recovery wells, other than minor amounts of sheen detected in three of the recovery wells (RW-2, RW-4 and RW-9). The monitoring results indicate that the recovery system has captured the available free-phase LNAPL, and that operation of the recovery system should be discontinued and the efforts for continued protection of the waterfront should be focused on monitoring of the waterfront wells (TechSolve 2022d).

Effluent discharges from the groundwater/LNAPL recovery system to the sanitary sewer have been within KCDNRP's permitted ranges in 2024 (Table 1). Average monthly effluent flow rates ranged from 0.34 to 1.35 gallons per minute (GPM) in 2024. These rates are below KCDNRP's maximum permitted flow of 10.4 GPM (15,000 gallons/day) and are consistent with past rates that have decreased over time.

Maintenance and repair of remediation systems and wells are conducted to maintain integrity, effective operation, capture, and hydraulic control along the waterfront. Notable activities conducted in the fourth quarter of 2024 included the following:

- cleanout and service of treatment system process equipment, and
- piping and system back flushing and preventative maintenance to maintain conveyance piping and pumping from the recovery wells.

The data collected indicate that the system continues to operate as designed and in accordance with permit requirements.

### *2.1.1 Recovery Well Monitoring*

Monitoring of the recovery wells for free-phase LNAPL, sheen, and concentrations of dissolved-phase Indicator Hazardous Substances (IHSs) is voluntarily conducted semi-annually and was conducted in the fourth quarter 2024. This monitoring has shown that no recoverable LNAPL remains and that dissolved-phase IHSs in shallow groundwater are not likely to cause exceedances of IHS CULs at the deeper points of compliance (POCs) monitoring wells. These POCs are located along the waterfront and the monitoring wells are screened at depths where the groundwater and surface water exchange is occurring (i.e., below the base of the subsurface waterfront barriers of sheet piling and seawalls), as detailed in the Remedial Investigation/Feasibility Study (RI/FS) completed in 1997 (Geraghty & Miller, 1994, 1996, and 1997). The next round of recovery well sampling is scheduled to be completed in the second quarter of 2025, and the results will be presented in the subsequent quarterly progress report to be submitted in July 2025.

Recovery well monitoring for LNAPL conducted in December 2024 (Table 2) showed no measurable LNAPL (<0.01 feet) in any of the 10 recovery wells (Figure 2). No sheen on groundwater was detectable in 7 of the 10 recovery wells. A medium sheen was detected in Well RW-4 and slight sheens were detected in Wells RW-2 and RW-9. Monitoring of shallow groundwater for dissolved phase IHSs showed concentrations in 7 of the 10 recovery wells were below the IHS CULs for benzene and for total petroleum hydrocarbons (TPH) as gasoline (TPH-G), diesel (TPH-D) and oil (TPH-O) that are applicable at deeper POCs. Shallow groundwater samples from one well (RW-4) exceeded the TPH-D CUL. Groundwater from two wells (RW-4, and GM-11S) exceeded the TPH-G CUL. Groundwater from one well (RW-2) exceeded the benzene CUL. These data have been consistent over the past several years and are also consistent with the results of the Waterfront Probing Investigation (TechSolve, 2020). The investigation showed that no recoverable LNAPL remains present and that dissolved phase IHSs in shallow groundwater are not likely to cause exceedances of IHS CULs at the deeper POCs.

The trends in monitoring results from waterfront recovery wells and compliance monitoring wells support the conclusion that the cleanup objectives for the Site have been achieved, as detailed in the Annual Site Reports since 2019 (TechSolve 2020, 2021, 2022c, and 2023a). The data included in these reports document attainment of the Site cleanup objectives and show that moving to compliance monitoring exclusively is appropriate and consistent with the Consent Decree. Discussions with Ecology to further evaluate this transition are ongoing and additional monitoring of waterfront temporary piezometers is currently being conducted to support this monitoring transition, per Ecology's request (Ecology 2023).

## 2.2 Inland System Operations

An inland SVE system operated from 2008 through 2014 to improve soil and groundwater conditions along the southern boundary of Plant 1. The SVE system was decommissioned in 2018 following completion of the cleanup goals and has been discussed in the Annual Site Reports cited in the previous section. The in-ground SVE piping and control manifold for this system remain onsite as a contingency in case operation of the system is warranted in the future.

Groundwater monitoring data collected along the southern boundary of Plant 1 indicate the system improved groundwater conditions in this area of the Site, as discussed in Section 3.

## 2.3 Containment Boom Monitoring

Oil sorbent booms have been maintained on the West Duwamish Waterway adjacent to Plant 1 to contain oil sheens that have historically appeared on surface water. One boom, the Northern Warehouse Boom, is currently located in the waterway adjacent to the warehouse (Figure 2). Boom locations have been selected to best contain occasional sheens historically observed on the West Duwamish Waterway directly adjacent to the Site. The boom and the waterway are monitored weekly, at a minimum, for boom integrity and for the presence of oil sheens and augmented by checks made by Terminal personnel. Booms are replaced as necessary based on their condition.

No sheens on surface water have been observed within the Northern Warehouse Boom during the fourth quarter 2024. Use of the Southern Warehouse Boom was discontinued in the second quarter of 2022, following notification to Ecology (TechSolve 2022b), as no sheen had been observed in that area since August 2019. The Southern Warehouse Boom will be reinstalled and maintained if sheens attributable to the Seaport site are detected at this location in the future. Sheen observations were also conducted in the Load Rack Area, which includes the Northwest Waterfront Area. No sheens were observed in these areas during the fourth quarter 2024. Waterway sheen monitoring results will continue to be evaluated throughout the remainder of 2024 and into 2025, per Ecology's request (Ecology 2023). Maintenance and boom monitoring will be conducted until Ecology concurs that the performance standard for boom maintenance in the Groundwater Compliance Monitoring and Contingency Program (GWCMCP) (TechSolv 1999) has been met.

# 3 SUMMARY OF GROUNDWATER PERFORMANCE MONITORING PROGRAM

The Third Quarter 2024 Groundwater Monitoring event was conducted in accordance with requirements of the Consent Decree (Ecology 2000), CAP (Ecology 1999), and GWCMCP (TechSolv 1999). The monitoring also includes revisions requested by Ecology that are included in the EDR (TechSolv and AG&M 2000) and detailed below. The current groundwater monitoring schedule is summarized in Table 3. Monitoring well locations for Plant 1 are shown on Figure 2. The third quarter groundwater monitoring was conducted on September 25 and 26, 2024.

Wells monitored on a semi-annual basis are sampled in the first and third quarter, which typically correspond with seasonal groundwater highs and lows, respectively. As such, Wells AR-03, GM-15S, GM-16S, GM-17S, MW-1-T9, MW-2-T9, and MW-3-T9 were sampled in the third quarter of 2024. These wells will next be sampled in the first quarter of 2025.

Well GM-14S was historically used to monitor for sheens on groundwater, as discussed below. As sheens are no longer detected in groundwater at GM-14, quarterly groundwater monitoring for dissolved-phase IHSs was initiated at this well in 2007.

Overall, third quarter 2024 groundwater elevations (Table 4) were lower than elevations measured in the first and second quarter of 2024. These data indicate that the seasonal groundwater high occurred in late 2023 to early 2024, corresponding with historic trends showing groundwater elevations rising to seasonal highs in the winter and spring and falling to seasonal lows in the summer and autumn. Elevations are reported relative to the North American Vertical Datum of 1988 (NAVD88).

The Third Quarter 2024 Groundwater Monitoring event samples were submitted to OnSite Environmental, Inc, Redmond, Washington (Ecology Accreditation #C591) for laboratory analysis of IHSs identified in the CAP. The IHSs include TPH-G, TPH-D, TPH-O, and benzene.

Petroleum hydrocarbon monitoring results for the Third Quarter 2024 Groundwater Monitoring event are included in Table 4 and Figure 2. Groundwater in Well GM-14S had detections of IHSs above CULs for TPH-G and benzene. Concentrations from all other samples analyzed were below associated CULs. The benzene and TPH-G concentrations detected in Well GM-14S are similar to concentrations previously detected and fluctuate over time. Further evaluations of data trends will be presented in the 2024 Annual Site Report, in accordance with Consent Decree requirements.

Three wells (GM-11S, GM-12S, and GM-13S) have been examined monthly for the presence of free-phase LNAPL and sheens (Table 6). Historically, gauging for LNAPL at Plant 1 was conducted at four wells; however, gauging of Well GM-14S was discontinued in 2004, with concurrence from Ecology (Ecology 2004c), and converted to a monitoring well in 2007, as it has been free of LNAPL since 1999.

No sheen or measurable LNAPL were detected in Wells GM-11S, GM-12S, and GM-13S in the fourth quarter 2024. Historic sheen monitoring data and trend analysis were presented in the 2023 Annual Site Report (TechSolve 2024a). Overall, LNAPL and sheen monitoring indicate that these wells meet the GWCMCP LNAPL performance standard of no measurable LNAPL. These three wells will continue to be gauged for sheen and LNAPL for the remainder of 2025, until Ecology concurs that the GWCMCP product performance standard has been met.

# 4 SUMMARY OF DATA VALIDATION

Laboratory analytical results were reported with associated laboratory quality assurance/quality control (QA/QC) data. Analytical reports were reviewed, and the data were validated. During this quarter, limited data were qualified with a J qualifier (the associated result is an estimated value).

A summary of data qualified during validation, qualifiers assigned, and reasons for data qualification, are provided in Table 7. All laboratory reports are retained by TechSolve.

# 5 ADDITIONAL ACTIVITIES

Eleven temporary piezometers that were installed and sampled as part of the Hydraulic Evaluation (TechSolve 2022a) were resampled in July 2024 to monitor the shallow groundwater along the waterfront, as requested by Ecology (Ecology 2023). The monitoring was requested to support continuing evaluation and discussions with Ecology for discontinuing the waterfront active remediation and moving forward towards Site closure with groundwater monitoring (Techsolve 2022d). The piezometers were sampled for dissolved-phase IHSs (benzene, TPH-G, TPH-D, and TPH-O), as well as monitored natural attenuation (MNA) parameters (methane, total sulfate, total nitrate, total chloride, alkalinity, manganese, hardness, and ferrous iron). These results will be presented to Ecology in a forthcoming separate report summarizing the four quarters of completed sampling.

Also sampled in July 2024 were three existing monitoring wells (B-007, HMW-01S, and GM-10S) located in the vicinity of soil staining observed near the waterfront in the northwest corner of the Site. The soil staining and remedial actions that were conducted in this area in the spring of 2023 were detailed in the 2022 Annual Site Report (TechSolve 2023a). The monitoring was requested by Ecology (Ecology 2023) to further evaluate any potential groundwater impacts that could have occurred due to the soil staining. These wells were sampled for benzene, TPH-G, TPH-D, and TPH-O. Four quarters of sampling have been completed and no further action is anticipated.

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# TABLES

**Table 1. Waterfront Groundwater System Petroleum Hydrocarbon Recovery Rates**
**Site: SeaPort Seattle Terminal (Former ARCO/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 |
| 2022 Averages | µg/L | 1.0 | 0.5 | NA | | 378 | NA | 1.0 | 1.0 | NA | 95 | 50 | NA | | 750 | NA | 1.0 | 1.0 | NA | 3.0 | 3.0 | NA |
| 2023 Averages | µg/L | 0.9 | 0.5 | NA | | 482 | NA | 1.0 | 1.0 | NA | 86 | 50 | NA | | 750 | NA | 1.0 | 1.0 | NA | 3.0 | 3.0 | NA |
| 1/31/2024 | µg/L | 0.8 | *0.5* | 35% | | 1,400 | NA | *1.0* | *1.0* | NA | *50* | *50* | NA | | *750* | NA | *1.0* | *1.0* | NA | *3.0* | *3.0* | NA |
| 2/23/2024 | µg/L | 4.1 | *0.5* | 88% | | 1,800 | NA | *1.0* | *1.0* | NA | 160 | *50* | 69% | | 420 | NA | *1.0* | *1.0* | NA | *1.0* | *1.0* | NA |
| 3/21/2024 | µg/L | 4.4 | *0.5* | 89% | | *200* | NA | *1.0* | *1.0* | NA | 79 | *50* | 37% | | *200* | NA | *1.0* | *1.0* | NA | *1.0* | *1.0* | NA |
| 4/18/2024 | µg/L | 2.1 | *0.5* | 76% | | 630 | NA | *1.0* | *1.0* | NA | *50* | *50* | NA | | *750* | NA | *1.0* | *1.0* | NA | *1.0* | *1.0* | NA |
| 5/23/2024 | µg/L | *0.5* | *0.5* | 7% | | 310 | NA | *1.0* | *1.0* | NA | *50* | *50* | 0% | | *750* | NA | *1.0* | *1.0* | NA | *1.0* | *1.0* | NA |
| 6/27/2024 | µg/L | 2.1 | *0.5* | 76% | | *250* | NA | *1.0* | *1.0* | NA | 53 | *50* | 6% | | *750* | NA | *1.0* | *1.0* | NA | *1.0* | *1.0* | NA |
| 7/31/2024 | µg/L | *0.5* | *0.5* | 0% | | *250* | NA | *1.0* | *1.0* | NA | *50* | *50* | NA | | *750* | NA | *1.0* | *1.0* | NA | *1.0* | *1.0* | NA |
| 8/22/2024 | µg/L | *0.5* | *0.5* | 0% | | 260 | NA | *1.0* | *1.0* | NA | *50* | *50* | 0% | | *750* | NA | *1.0* | *1.0* | NA | *1.0* | *1.0* | NA |
| 9/30/2024 | µg/L | *0.5* | *0.5* | 0% | | *250* | NA | *1.0* | *1.0* | NA | *50* | *50* | 0% | | *750* | NA | *1.0* | *1.0* | NA | *1.0* | *1.0* | NA |
| 10/31/2024 | µg/L | *0.5* | *0.5* | 0% | | *250* | NA | *1.0* | *1.0* | NA | *50* | *50* | 0% | | *750* | NA | *1.0* | *1.0* | NA | *1.0* | *1.0* | NA |
| 11/21/2024 | µg/L | *0.5* | *0.5* | 0% | | 770 | NA | *1.0* | *1.0* | NA | *50* | *50* | 0% | | *750* | NA | *1.0* | *1.0* | NA | *1.0* | *1.0* | NA |
| 12/31/2024 | µg/L | 0.8 | *0.5* | 0% | | 6,300 | NA | *1.0* | *1.0* | NA | 200 | *50* | 0% | | 950 | NA | *1.0* | *1.0* | NA | *1.0* | *1.0* | NA |
| 2024 Averages | µg/L | 1.4 | 0.5 | NA | | 1055.8 | NA | 1 | 1 | NA | 74 | 50 | NA | | 693 | NA | 1 | 1 | NA | 1 | 1 | 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 | | | 2,200 µg/L | |

**METRO DISCHARGE DATA**

| Observation Date | Days since last monitoring reading | Average flow (GPM) | Total Flow Between Observation dates (gallons, GW) | 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 (dissolved) |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 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 | 0.022 | 13.87 | 22.12 | 2.06 | 0.004 | 0.03 | 0.03 | **5.70** |
| 2017 Totals and Averages | 364 | 1.65 | 866,030 | 0.014 | 11.96 | 33.39 | 2.62 | 0.004 | 0.01 | 0.01 | **7.07** |
| 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** |
| 2022 Totals and Averages | 375 | 0.90 | 486,520 | 0.004 | 0.37 | 1.64 | 3.04 | 0.004 | 0.004 | 0.012 | **0.69** |
| 2023 Totals and Averages | 371 | 0.91 | 495,900 | 0.005 | 0.42 | 1.87 | 3.10 | 0.004 | 0.004 | 0.012 | **0.74** |
| January-24 | 34 | 1.35 | 66,310 | 0.0003 | 0.03 | 0.35 | 0.41 | 0.0006 | 0.0006 | 0.0017 | **0.11** |
| February-24 | 23 | 0.82 | 27,140 | 0.0002 | 0.04 | 0.26 | 0.17 | 0.0002 | 0.0002 | 0.0007 | **0.06** |
| March-24 | 27 | 1.31 | 50,810 | 0.0010 | 0.04 | 0.68 | 0.25 | 0.0004 | 0.0004 | 0.0008 | **0.14** |
| April-24 | 28 | 0.79 | 31,770 | 0.0001 | 0.04 | 0.18 | 0.20 | 0.0003 | 0.0003 | 0.0008 | **0.06** |
| May-24 | 35 | 0.46 | 23,430 | 0.0001 | 0.03 | 0.11 | 0.15 | 0.0002 | 0.0002 | 0.0004 | **0.04** |
| June-24 | 35 | 0.42 | 20,940 | 0.0001 | 0.01 | 0.04 | 0.13 | 0.0002 | 0.0002 | 0.0002 | **0.02** |
| July-24 | 34 | 0.57 | 28,050 | 0.0003 | 0.01 | 0.06 | 0.18 | 0.0002 | 0.0002 | 0.0002 | **0.03** |
| August-24 | 22 | 0.54 | 17,170 | 0.0001 | 0.01 | 0.04 | 0.11 | 0.0001 | 0.0001 | 0.0001 | **0.02** |
| September-24 | 39 | 0.34 | 19,070 | 0.0001 | 0.01 | 0.04 | 0.12 | 0.0002 | 0.0002 | 0.0002 | **0.02** |
| October-24 | 31 | 0.35 | 15,780 | 0.0001 | 0.01 | 0.03 | 0.10 | 0.0001 | 0.0001 | 0.0001 | **0.02** |
| November-24 | 21 | 0.80 | 24,150 | 0.0001 | 0.01 | 0.10 | 0.15 | 0.0002 | 0.0002 | 0.0002 | **0.04** |
| December-24 | 40 | 0.94 | 54,380 | 0.0003 | 0.06 | 1.60 | 0.39 | 0.0005 | 0.0005 | 0.0005 | **0.29** |
| 2024 Totals and Averages | 369 | 0.72 | 379,000 | 0.003 | 0.292 | 3.490 | 2.347 | 0.003 | 0.003 | 0.006 | **0.86** |
| | | **TOTALS:** | **33,916,115 gal** | **13.4** | **963.1** | **1666.4** | **183.5** | **34.8** | **14.8** | **101.3** | |
| **Maximum permitted GPM:** | | **10.4** | **Gallons Gas, Diesel, & Oil Recovered:** | | **156.6** | **238.7** | **24.1** | | **Total Gallons Recovered:** | | **419.39** |

Oil Water Separator Data

| Observation Date | Monthly free 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 free LNAPL Recovered:** | **395** |

| TOTAL PETROLEUM RECOVERY | |
|---|---|
| Total lbs. Dissolved Gas, Diesel, and Oil Recovered in Groundwater (2002-Present) | 2,813 lbs |
| **Total Gallons Dissolved Gas, Diesel, and Oil Recovered in Groundwater (2002-Present)*** | **419 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)** | **14,560 gal** |
| **Total Gallons Recovered by Interim Recovery Systems (1992-2002)** | **15,223 gal** |
| **Total Gallons of Petroleum Removed (1992-Present)** | **29,783** |

**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
GW - Groundwater

**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 x $10^{-7}$
1.583 x $10^{-7}$ 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. Groundwater/LNAPL Recovery Well Performance Monitoring
December 2024
Site: SeaPort Seattle Terminal (Former ARCO/BP Harbor Island Terminal)

| Well | Date | Measurable LNAPL (>0.01') | Sheen on Groundwater (None, SS, MS, HS) | TPH-G NWTPH-Gx (mg/L) | TPH-D NWTPH-Dx (mg/L) | TPH-O NWTPH-Dx (mg/L) | Benzene EPA 8021 (µg/L) |
|---|---|---|---|---|---|---|---|
| RW-1 | 12/19/2024 | No | None | 0.11 | ND | ND | ND |
| RW-2 | 12/19/2024 | No | **SS** | 0.59 | 3.60 | ND | **81** |
| RW-4 | 12/19/2024 | No | **MS** | **3.70** | **63** | ND | 24 |
| RW-5 | 12/19/2024 | No | None | ND | 0.40 | ND | ND |
| RW-6 | 12/19/2024 | No | None | ND | ND | ND | ND |
| RW-7 | 12/19/2024 | No | None | ND | ND | ND | ND |
| RW-8 | 12/19/2024 | No | None | 0.06 | 0.93 | ND | ND |
| RW-9 | 12/19/2024 | No | **SS** | 0.18 | 1.20 | ND | 0.53 |
| RW-10 | 12/19/2024 | No | None | ND | ND | ND | ND |
| GM-11S | 12/19/2024 | No | None | **1.50** | 0.96 | ND | 0.54 |
| Cleanup Level | | No (<0.01') | No Sheen* | 1* | 10* | 10* | 71* |
| Method Reporting Limit | | | | 0.05 | 0.25 | 0.75 | 0.5 |

Notes:

* Listed cleanup levels and values in **bold** that exceed these levels are applicable at conditional points of compliance (CPoCs).
Recovery wells are not CPoCs for parameters with a " * " and values above listed cleanup levels are not recognized as exceedances.

Definitions:

| | |
|---|---|
| EPA 8021 | EPA method of analysis for volatile organic compounds in water. |
| mg/L | Milligrams per liter. |
| µg/L | Micrograms per liter. |
| ND | Constituent not detected above reporting limit. A less than sign (<) preceeding a value indicates a ND at the listed value. |
| 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. |
| NWTPH-Dx | Northwest TPH method for analysis of diesel in water - extended. |
| NWTPH-Gx | Northwest TPH method for analysis of gasoline in water - extended. |
| SS | Slight sheen observed on groundwater. |
| MS | Meduim sheen obaserved on groundwater. |
| HS | Heavy sheen observed on groundwater. |

Table 3. Groundwater Performance Monitoring Schedule

Site: SeaPort Seattle Terminal (Former ARCO/ BP Harbor Island Terminal)

Analyses Conducted by Quarter

| Well | First Quarter | Second Quarter | Third Quarter | Fourth Quarter |
|---|---|---|---|---|
| **Plant 1** | | | | |
| MW-1-T9 | Benzene, TPH-G, TPH-D, TPH-O | (1) | Benzene, TPH-G, TPH-D, TPH-O | (1) |
| MW-2-T9 | Benzene, TPH-G, TPH-D, TPH-O | (1) | Benzene, TPH-G, TPH-D, TPH-O | (1) |
| MW-3-T9 | Benzene, TPH-G, TPH-D, TPH-O | (1) | Benzene, TPH-G, TPH-D, TPH-O | (1) |
| GM-14S | Benzene, TPH-G, TPH-D, TPH-O | Benzene, TPH-G, TPH-D, TPH-O | Benzene, TPH-G, TPH-D, TPH-O | Benzene, TPH-G, TPH-D, TPH-O |
| GM-15S | Benzene, TPH-G, TPH-D, TPH-O | (1) | Benzene, TPH-G, TPH-D, TPH-O | (1) |
| GM-16S | Benzene, TPH-G, TPH-D, TPH-O | | Benzene, TPH-G, TPH-D, TPH-O | |
| GM-17S | Benzene, TPH-G, TPH-D, TPH-O | | Benzene, TPH-G, TPH-D, TPH-O | |
| **GM-24S** | Benzene, TPH-G, TPH-D, TPH-O | Benzene, TPH-G, TPH-D, TPH-O | Benzene, TPH-G, TPH-D, TPH-O | Benzene, TPH-G, TPH-D, TPH-O |
| AR-03 | Benzene, TPH-G, TPH-D, TPH-O | (1) | Benzene, TPH-G, TPH-D, TPH-O | (1) |
| **AMW-01** | Benzene, TPH-G, TPH-D, TPH-O | Benzene, TPH-G, TPH-D, TPH-O | Benzene, TPH-G, TPH-D, TPH-O | Benzene, TPH-G, TPH-D, TPH-O, cPAHs |
| AMW-02 | Benzene, TPH-G, TPH-D, TPH-O | Benzene, TPH-G, TPH-D, TPH-O | Benzene, TPH-G, TPH-D, TPH-O | Benzene, TPH-G, TPH-D, TPH-O, cPAHs |
| AMW-03 | Benzene, TPH-G, TPH-D, TPH-O | Benzene, TPH-G, TPH-D, TPH-O | Benzene, TPH-G, TPH-D, TPH-O | Benzene, TPH-G, TPH-D, TPH-O, cPAHs |
| AMW-04 | Benzene, TPH-G, TPH-D, TPH-O | Benzene, TPH-G, TPH-D, TPH-O | Benzene, TPH-G, TPH-D, TPH-O | Benzene, TPH-G, TPH-D, TPH-O, cPAHs |
| AMW-05 | Benzene, TPH-G, TPH-D, TPH-O | Benzene, TPH-G, TPH-D, TPH-O | Benzene, TPH-G, TPH-D, TPH-O | Benzene, TPH-G, TPH-D, TPH-O, cPAHs |
| **Plant 2** | | | | |
| All Plant 2 monitoring has been discontinued. | | | | |

Notes: Field Duplicate and QA/QC samples collected from wells highlighted in bold.
TPH-G - Gasoline Range organics utilizing NWTPH-Gx method
TPH-D - Diesel Range Organics utilizing NWTPH-Dx
TPH-O - Extended Range Organics (Motor Oil) utilizing NWTPH-Dx
Benzene is analyzed for utilizing EPA 8021 or 8260B.
cPAHs - Carcinogenic Polycyclic Aromatic Hydrocarbons utilizing EPA 8270SIM
Field Parameters (pH, Temperature, Conductivity, Turbidity, Water Level, & Product Level) are recorded from all wells sampled
(1) - If a groundwater cleanup level exceedance occurs in first or third quarter in any of these highlighted wells, all (1) wells will be sampled the following quarter. Wells exceeding cleanup levels will continue quarterly monitoring until four consecutive quarters below cleanup level are achieved.

Table 4. Groundwater Performance Monitoring Groundwater Elevations
Third Quarter 2024
Site: SeaPort Seattle Terminal (Former ARCO/BP Harbor Island Terminal)

| Well | Date | TOC Elevation (ft NAVD88) | Depth to Water (ft below TOC) | Groundwater Elevation (ft NAVD88) |
|---|---|---|---|---|
| **Plant 1** | | | | |
| GM-14S | 9/26/2024 | 11.77 | 5.26 | 6.51 |
| GM-15S | 9/25/2024 | 12.32 | 5.91 | 6.41 |
| GM-16S | 9/26/2024 | 11.99 | 5.62 | 6.37 |
| GM-17S | 9/26/2024 | 12.56 | 5.81 | 6.75 |
| GM-24S | 9/26/2024 | 11.11 | 4.41 | 6.70 |
| AR-03 | 9/25/2024 | 12.49 | 6.65 | 5.84 |
| AMW-01 | 9/25/2024 | 12.17 | 8.09 | 4.08 |
| AMW-02 | 9/25/2024 | 15.36 | 12.58 | 2.78 |
| AMW-03 | 9/25/2024 | 15.29 | 12.92 | 2.37 |
| AMW-04 | 9/25/2024 | 11.42 | 5.79 | 5.63 |
| AMW-05 | 9/25/2024 | 11.05 | 6.29 | 4.76 |
| MW-1-T9 | 9/26/2024 | 12.21 | 6.46 | 5.75 |
| MW-2-T9 | 9/26/2024 | 12.37 | 6.33 | 6.04 |
| MW-3-T9 | 9/26/2024 | 11.87 | 5.76 | 6.11 |

Definitions:

| | |
|---|---|
| ft | Feet |
| NA | Not available. Well elevations have not been surveyed. |
| NAVD88 | North American Vertical Datum of 1988 |
| TOC | Top of casing |

Table 5. Summary of Analytical Results for Groundwater - TPH-G, TPH-D, TPH-O, and Benzene
Third Quarter 2024
Site: SeaPort Seattle Terminal (Former ARCO/BP Harbor Island Terminal)

| Well | Date | TPH-G NWTPH-Gx (µg/L) | TPH-D NWTPH-Dx (µg/L) | TPH-O NWTPH-Dx (µg/L) | Benzene EPA 8260 (µg/L) |
|---|---|---|---|---|---|
| **Plant 1** | | | | | |
| GM-14S | 9/26/2024 | **2,100** | 1,100 | ND | **1,500** |
| GM-15S | 9/25/2024 | 74 | ND | ND | ND |
| GM-16S | 9/26/2024 | 85 | 550 | ND | ND |
| GM-17S | 9/26/2024 | ND | ND | ND | ND |
| GM-24S | 9/26/2024 | 990 | 710J | ND | ND |
| AR-03 | 9/25/2024 | 530 | 520 | ND | ND |
| AMW-01 | 9/25/2024 | ND | ND | ND | ND |
| AMW-02 | 9/25/2024 | ND | ND | ND | ND |
| AMW-03 | 9/25/2024 | ND | ND | ND | ND |
| AMW-04 | 9/25/2024 | ND | ND | ND | ND |
| AMW-05 | 9/25/2024 | ND | ND | ND | ND |
| MW-1-T9 | 9/26/2024 | 480 | 450 | ND | ND |
| MW-2-T9 | 9/26/2024 | 200 | ND | ND | ND |
| MW-3-T9 | 9/26/2024 | 640 | 330 | ND | ND |
| Cleanup Level | | 1,000 | 10,000 | 10,000 | 71 |
| Method Reporting Limit | | 50 | 250 | 750 | 0.5 |

Notes:

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

Definitions:

| | |
|---|---|
| EPA 8260 | EPA method of analysis for volatile organic compounds in water. |
| µg/L | Micrograms per liter. |
| ND | Constituent not detected above listed method reporting limit. |
| 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. |
| NWTPH-Dx | Northwest TPH method for analysis of diesel in water - extended. |
| NWTPH-Gx | Northwest TPH method for analysis of gasoline in water - extended. |
| J | Estimated value. |
| UJ | Not detected at an estimated value. |

Table 6. Summary of Free Product Measurement Results for Groundwater
2024 Monitoring Data
Site: SeaPort Seattle Terminal (Former ARCO/BP Harbor Island Terminal)

| Well | Date | Free Product (feet) |
|---|---|---|
| **Plant 1** | | |
| GM-11S | 7/31/2024 | None |
| GM-11S | 8/22/2024 | None |
| GM-11S | 9/30/2024 | None |
| GM-11S | 10/31/2024 | None |
| GM-11S | 11/21/2024 | None |
| GM-11S | 12/31/2024 | None |
| GM-12S | 7/31/2024 | None |
| GM-12S | 8/22/2024 | None |
| GM-12S | 9/30/2024 | None |
| GM-12S | 10/31/2024 | None |
| GM-12S | 11/21/2024 | None |
| GM-12S | 12/31/2024 | None |
| GM-13S | 7/31/2024 | None |
| GM-13S | 8/22/2024 | None |
| GM-13S | 9/30/2024 | None |
| GM-13S | 10/31/2024 | None |
| GM-13S | 11/21/2024 | None |
| GM-13S | 12/31/2024 | None |
| Cleanup Level | | No Sheen |

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

Table 7. Summary of Data Validation Results
Groundwater Performance Monitoring
Third Quarter 2024
Site: SeaPort Seattle Terminal (Former ARCO/BP Harbor Island Terminal)

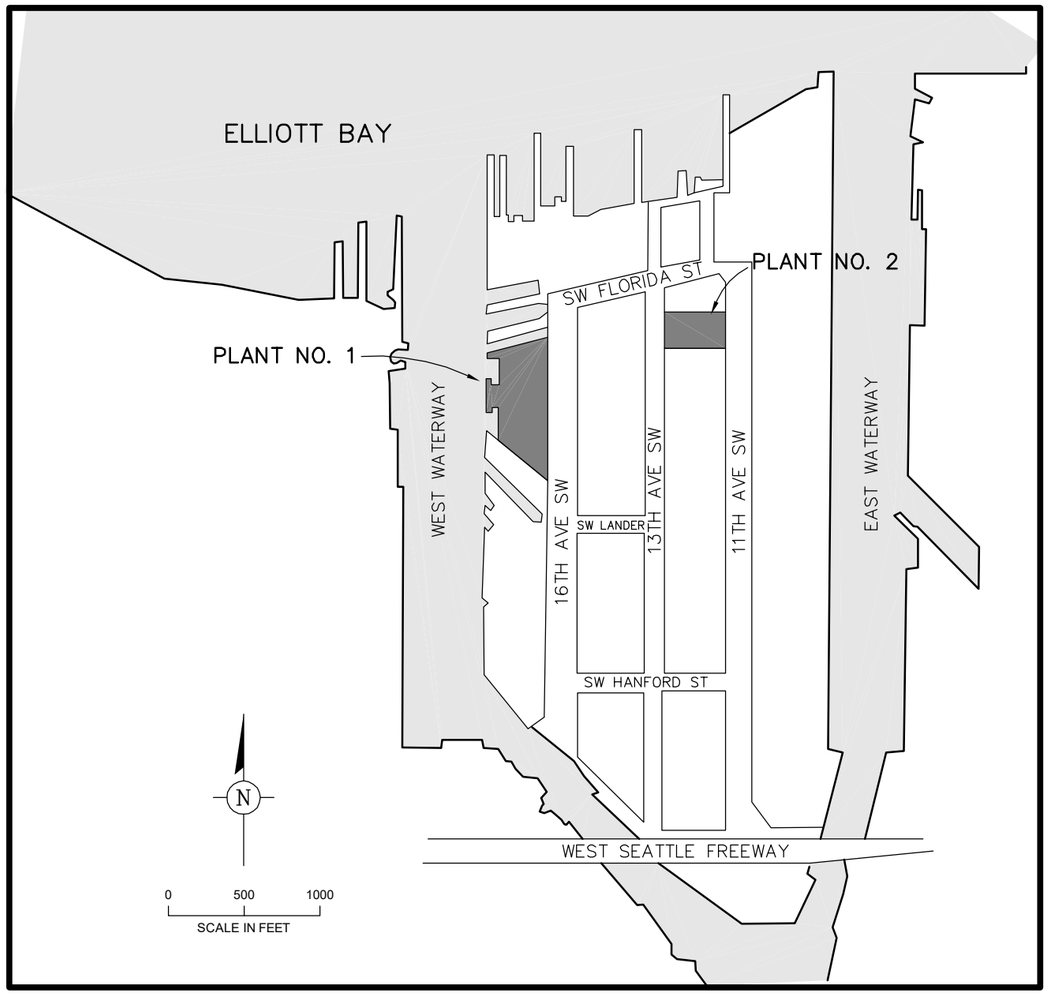
| Sample ID | Constituent | Qualifier | Reason |
|---|---|---|---|
| P1-GWGM-24S-324 | Diesel | J | The percent recoveries of diesel in the matrix spike and matrix spike duplicate prepared from this sample are below the control limit. This result is, therefore, qualified as an estimated value (J). |

Definitions:
J The associated result is qualified as an estimated value.

# FIGURES

1. Site Location Map
2. Plant 1 Third Quarter 2024 Groundwater Monitoring Analytical Results & Contours


AREA PLAN




SITE PLAN

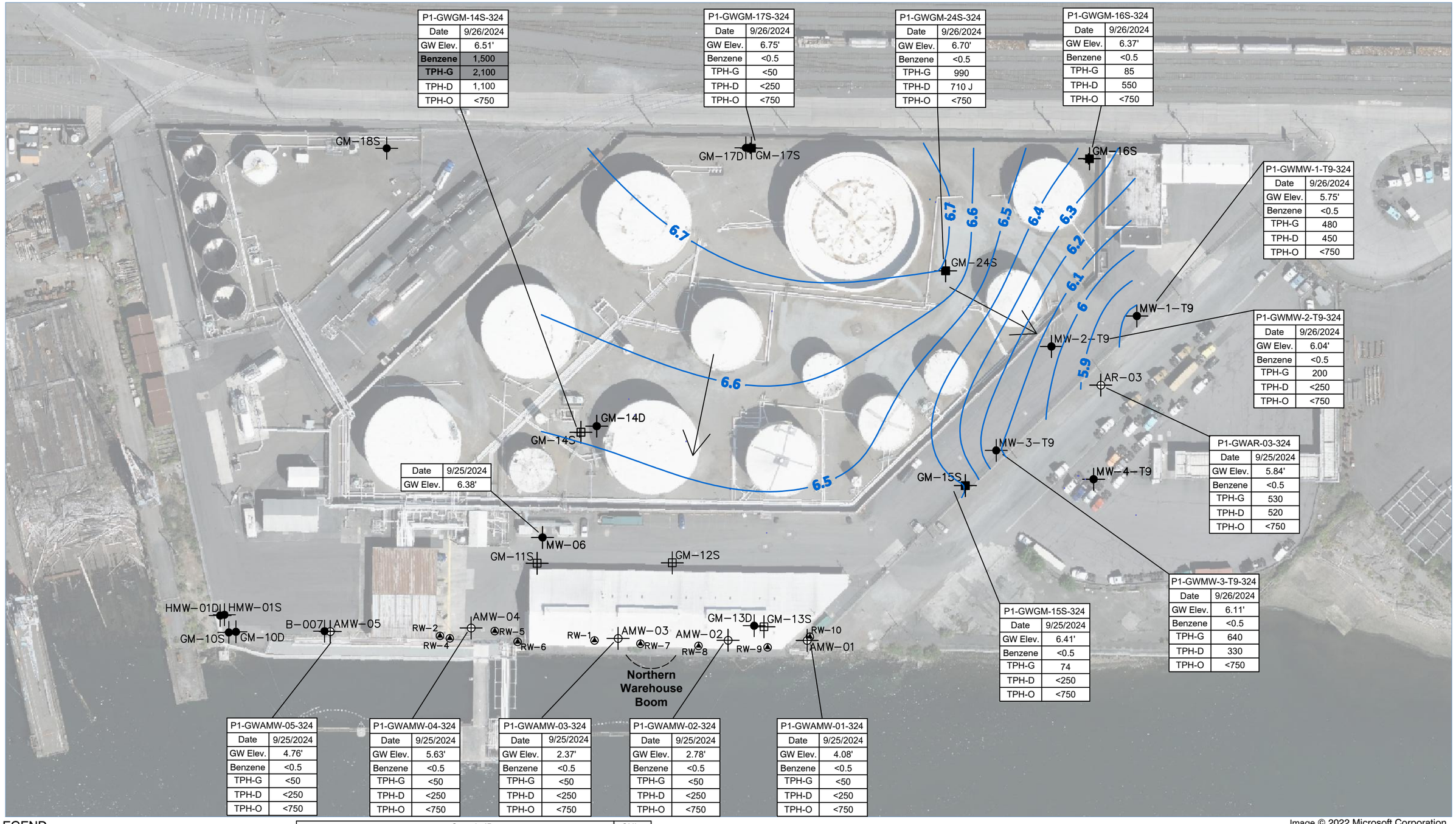
TechSolve Environmental
7518 NE 169th Street,
Kenmore WA 98028

Site Location Map

SeaPort Seattle Terminal (Former ARCO/BP Harbor Island Terminal)
1652 Southwest Lander Street
Seattle, WA 98134

FIGURE
1

C:\DCS_PROJECTS\TechSolve PROJECTS\BP21T\ARCO 21T\dwg\VMAP2.dwg JAN 13 2011 12:26:16




## LEGEND

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

| Sample ID | | CUL |
|---|---|---|
| Date | Date Sample Collected | – |
| GW Elev. | Groundwater Elevation in Feet NAVD88 | – |
| Benzene | Benzene (EPA 8260) in µg/L | 71 |
| TPH-G | Total Petroleum Hydrocarbons as Gasoline (NWTPH-Gx) in µg/L | 1,000 |
| TPH-D | Total Petroleum Hydrocarbons as Diesel (NWTPH-Dx) in µg/L | 10,000 |
| TPH-O | Total Petroleum Hydrocarbons as Oil (NWTPH-Dx) in µg/L | 10,000 |

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 NE 169th Street
Kenmore, WA 98028

# Plant 1 Third Quarter 2024
# GW Monitoring Analytical Results & Contours

SeaPort Seattle Terminal (Former ARCO/BP Harbor Island Terminal)
1652 Southwest Lander Street
Seattle, WA 98134

FIGURE
**2**