

This State of Oregon

Department of Environmental Quality Memorandum

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To: Daimler Truck North America LLC

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Subject: Daimler Portland Truck Manufacturing Plant - ECSI No. 2366
Proposed Source Control Decision

1.0 Introduction

This memorandum presents the basis for the Oregon Department of Environmental Quality (DEQ) proposed source control decision (SCD) for the Daimler Truck North America LLC (DTNA) Portland Truck Manufacturing Plant (PTMP) site, herein referred to as Daimler PTMP, located at 6936 North Fathom Street in Portland, Oregon. The site has been assigned the Environmental Cleanup Site Information number of 2366 (ECSI No. 2366). Source control activities were completed under the scope of work identified in the Voluntary Agreement (LQVC-NWR-02-02) between Freightliner LLC (Freightliner) and DEQ, effective December 2, 2002. The site is presently owned and operated by DTNA, formerly Freightliner, which assumed responsibilities identified in the Voluntary Agreement.

Based on DEQ's review of the source control evaluation (SCE) report, addenda, supporting documents, and in consideration of National Pollutant Discharge Elimination System (NPDES) 1200Z Industrial Stormwater general permit (1200Z) corrective actions completed, DEQ concludes DTNA has identified and controlled upland sources of contamination from current and past operations such that contaminant transport pathways at the Daimler PTMP site do not pose a significant current or future threat to the Willamette River.

2.0 Site Description and History

A detailed summary of site history, previous environmental investigations, and SCE can be found in the following documents:

- *Overview of Post-2015 Stormwater System Layout and Operations* (Bridgewater Group, Inc. [Bridgewater], 2022)
- Quarterly soil vapor extraction system performance reports, submitted 2012 through 2022 (Bridgewater, 2012 - 2022)
- *Groundwater Source Control Investigation Report* (Groundwater Solutions Inc. [GSI] and S.S. Papadopoulos & Associates, Inc. [SSPA], 2020)

- *Addendum to Source Control Evaluation: 2016 and 2017 Stormwater Monitoring Results* (Bridgewater, 2017)
- *Addendum to Source Control Evaluation Report Regarding Stormwater Pathway: Results of October 2014 Source Control Evaluation Sampling and Analyses for Completion of Source Control Evaluation* (Bridgewater, 2015)
- *Results of Dry Weather Flow Investigation to Fathom Outfall* (Bridgewater, 2014)
- *Addendum to Source Control Evaluation Report Regarding Stormwater Pathway* (Bridgewater, 2013)
- *Source Control Evaluation Report for Stormwater and Groundwater* (Bridgewater, 2011)
- *Draft Remedial Investigation and Risk Assessment for Soil and Groundwater* (Maul Foster and Alongi, Inc. [MFA], 2009)
- *Focused Preliminary Assessment and Freightliner Responses to DEQ Comments on Focused Preliminary Assessment* (Exponent, 2001 and 2002)

2.1 Site Description

The Daimler PTMP site consists of Multnomah County tax lot 200 located in section 17, township 1 north, range 1 east of the Willamette Meridian (Figure 1). The subject property is located at 6936 North Fathom Street within the Swan Island Business District in Portland, Oregon.

The Daimler PTMP is situated on a 24.9-acre triangular-shaped property approximately 1,400 feet northeast of Swan Island Basin (SIB) within the Portland Harbor reach of the Willamette River at river mile (RM) 8.5. Swan Island Basin is currently a lagoon or inlet but was historically the main river channel that flowed northeast of Swan Island adjacent to the marshy lowlands of Mocks Bottom. Swan Island was a natural sand and gravel bar that repeatedly formed in the Willamette River; it was connected to the east bank of the river by placement of fill (“causeway”) in the 1920s when the main navigation channel was relocated west of the island.

The property is relatively flat, between 30 and 35 feet relative to the City of Portland (City) datum. The site is covered with impervious surfaces consisting of pavement and facility structures, except small, vegetated areas along the property boundaries and two infiltrations planters (IPs), that are 6,500 and 10,000 square feet, respectively. Building structures at the site cover approximately 500,000 square feet (e.g., 46 percent) of the property.

Union Pacific Railroad (UPRR) tracks run north-south and form the western boundary of the site; UPRR tracks also run east-west, parallel to the southeastern property boundary. A large employee parking lot (owned by DTNA and not within the scope of the proposed SCD) is located east of the east-west UPRR tracks and abuts North Cutter Circle. A small visitor parking lot (not owned by DTNA and excluded from this proposed SCD) is located southwest of the PTMP. A steep, vegetated hillside (Mocks Crest) is present along the north-northeastern property boundary.

The larger Swan Island industrial area includes a shipyard and associated support facilities, and other industrial and limited commercial properties on the Swan Island peninsula. Land uses closer in the Mocks Bottom area of Swan Island consist primarily of industrial businesses related to transportation, manufacturing, and distribution, and the roads, railroad tracks, and utilities that serve them.

2.2 Site History Summary

Prior to fill activities, the Mocks Bottom area was a low-lying marsh or bottomland that was frequently inundated by the river. In approximately 1962, the United States Army Corps of Engineers (USACE) begin filling the Mocks Bottom area, reportedly using dredged material generated during the deepening and widening of the Willamette River navigation channel between RM 7.5 and the Broadway Bridge (RM 11.7).

The subject property was developed by Freightliner in the late 1960s, including construction of a truck manufacturing plant in 1969. The primary manufacturing operations included Class 8 diesel truck tractor assembly, and other industrial processes included machining, welding, cleaning, metal pre-treatment and wastewater treatment , and painting. In 1981, Freightliner was acquired by Daimler-Benz. In 2000, DTNA purchased Western Star Trucks, and moved production to Portland in 2002 (and continued Freightliner semi-truck assembly until 2007);¹ the plant was referred to as Western Star from 2008 to 2023. In 2023, the TMP was rebranded as the Daimler PTMP for assembly of electric semi-trucks; metal pretreatment and wastewater treatment were discontinued in 2021, and very limited painting occurs.

Regarding chemical storage and usage, prior to the mid-1980s, petroleum products and other chemicals (solvents) were conveyed to various dispensing stations at the Daimler PTMP site using underground piping from eleven underground storage tanks (USTs). The USTs included six diesel fuel and oil tanks (48,825 gallons) and two solvent/thinner tanks (12,000 gallons). During the mid-1980s, an AST farm in secondary containment was constructed immediately north of the main building to replace the use of the USTs. The USTs and associated piping were decommissioned and removed in 1986. In 2003, a new AST farm in secondary containment was constructed immediately east of the previous AST farm. The former AST farm was removed from service in 2003 and decommissioned in 2004. Aboveground overhead piping from the new AST farm, constructed in 2003, currently conveys the petroleum products and other chemicals to the facility.

Hazardous wastes generated at the Daimler PTMP have been stored in different areas of the site over time. In the 1970s, wastes were stored near the manufacturing plant. From 1980 to 1990, wastes were stored at a hazardous waste storage area located near the current propane tanks (Figure 2). During the early 1990s, the EC building was constructed and was subsequently used to store new products in 55-gallon drums or totes, in addition to hazardous waste drums. In June 2007, a new hazardous waste storage building was constructed, and the hazardous waste drums were moved from the EC to the hazardous waste storage building.

2.3 Current Site Use

DTNA manufactures electric Class 8 diesel truck tractors which primarily consists of truck assembly and limited painting. Currently, fiberglass parts, principally truck hoods and some cab parts, are fabricated off site and delivered to the PTMP for painting and assembly. Painted truck cabs are shipped to PTMP for assembly. The steel chassis are painted on site in enclosed paint booths according to truck order specifications. After painting, the truck components are installed on an assembly line that generally flows from southeast to northwest within the building. Most of

¹ Freightliner and Western Star are wholly owned subsidiaries of DTNA. DTNA was formerly known as Freightliner LLC and formerly known as Freightliner Corporation.

the truck assembly is manual, with limited use of robotics or automatic processing. The finished trucks exit the northwest end of the building and are subjected to final performance testing. Truck assembly and limited painting activities occur in the manufacturing building. Additional buildings at the site include an EC (where new products are stored in drums or totes), a hazard waste storage building (where wastes are temporarily stored), a building used to store 12-volt truck batteries and a dynamometer (DYNO) building (where brakes and system checks are conducted).

Operations at the site require use of diesel fuel, natural and synthetic oils, engine and machine coolants, adhesives and glues, solvent-based thinners, primers and paints, inorganic acids and bases, welding gases, lithium batteries and refrigerants. These substances are stored in the EC in totes or drums, or in the ASTs within the AST farm.

Stormwater is contained onsite; it is directed to 43 catch basins, two dry wells, one of three oil-water separators (OWS) (two discharge to the sanitary system) and two IPs (constructed in 2016 and 2020) in two drainage areas (Ensign and Fathom drainage areas); discharges are not expected unless stormwater flows exceed the design capacities of the planters (50% of the two-year, 24-hour event or approximately 1.2 inches). Historically, stormwater discharged to the City's stormwater conveyance system to outfall M-1 in SIB. Current and former Daimler PTMP facility features at the site are depicted on Figure 2.

2.4 Potential Sources of Contamination

Research conducted for the *Draft Remedial Investigation and Risk Assessment [RI/RA] for Soil and Groundwater* (MFA, 2009) and supplemental preliminary assessment (Exponent, 2001) identified past activities and features that may be areas of potential concern for contamination. Potential historical sources of contamination identified in the reports included:

- Incidental spills of process chemicals or waste
- Releases from former USTs, ASTs, and associated product lines
- Incidental spills or releases from a former wheel paint booth
- General light industrial use

2.5 Chemicals of Interest

The following chemicals were carried forward as site-specific chemicals of interest (COIs) for the stormwater and/or groundwater pathway evaluations based on their presence in products and materials used or stored at the site, or previous detections in storm line solids and stormwater above the Portland Harbor Superfund Site (PHSS) cleanup levels (CULs) or Portland Harbor Joint Source Control Strategy (JSCS) screening level values (SLVs):

- Polyaromatic hydrocarbons (PAHs) (stormwater and groundwater)
- Phthalates (stormwater only)
- Polychlorinated biphenyls (PCBs) (stormwater only)
- Cadmium (stormwater only)
- Copper (stormwater only)
- Chromium (stormwater only)

- Lead (stormwater only)
- Volatile Organic Compounds (VOCs) (groundwater only)
- Zinc (stormwater and groundwater)

Although the following chemicals were not identified as initial COIs for sediments near City Outfall M-1, they were retained for analysis as site-specific COIs at DEQ's request:

- Cadmium
- Copper
- Phthalates
- PAHs

2.6 Potentially Complete Pathways

Potential contaminant transport pathways evaluated include releases during overwater activities, stormwater, stormwater conveyance as a preferential groundwater migration pathway, riverbank erosion, and groundwater migration.

Overwater Activities. The site is located approximately 1,400 feet from the river and SIB. Therefore, this is not a complete pathway.

Stormwater Pathway. The stormwater system at the site conveys stormwater runoff to the City's stormwater system which collects stormwater from other facilities as well as roads in Drainage Basin M-1. The commingled stormwater is conveyed to and discharges from City Outfall M-1. This pathway was carried forward for further evaluation.

Preferential Groundwater Migration Pathway. Based on reconnaissance water levels measured in 2003, the groundwater level appeared to be at or above the stormwater lines across the site. Therefore, this pathway was carried forward for further evaluation.

Riverbank Erosion Pathway. The site is not adjacent to the river and has no riverbank. Therefore, this is not a complete pathway.

Groundwater Pathway. Groundwater investigations performed as part of site reconnaissance determined that groundwater beneath the site flows to the Willamette River. Constituents present in groundwater have the potential to migrate to the river. This pathway was carried forward for further evaluation.

3.0 Regulatory History

In 1999, DEQ requested that Freightliner perform a focused preliminary assessment to identify historical and current operations, site related COIs, and possible releases to onsite soil, groundwater, and stormwater. The assessment was submitted to DEQ in 2001 with additional information provided in 2002 (Exponent, 2001 and 2002).

In 2002, Freightliner/DTNA entered into a Voluntary Agreement (LQVC-NWR-02-02) with DEQ to perform a remedial investigation/feasibility study and implement any needed source control measures to prevent releases to Portland Harbor. Between 2002 and 2005, DTNA investigated soil

and groundwater to assess the nature and extent of any chemical impacts and potential risks to human or ecological receptors. A draft RI/RA was submitted in 2009 (MFA, 2009).

Between 2011 and 2017, DTNA conducted multiple stormwater and groundwater investigations, and submitted the results of these investigations to DEQ (Bridgewater, 2011, 2013, 2014, 2015, and 2017). As discussed in further detail below, the stormwater investigations conducted resulted in the implementation of multiple best manage practices (BMPs) and source control measures (SCMs) addressing the stormwater pathway.

An additional groundwater source control investigation was conducted in 2019 and included the collection of groundwater samples from five new shallow groundwater wells (four installed at the site perimeter and one in the former UST area) and two temporary deeper wells located downgradient of the manufacturing plant (GSI and SSPA, 2020). Figure 3 shows temporary and permanent groundwater well locations.

Potential upland risks that are not subject to transport to the river have not been fully evaluated. DEQ provided comments on the 2009 *Draft Remedial Investigation and Risk Assessment for Soil and Groundwater* in a letter dated February 22, 2013. DTNA is currently updating the RI/RA pursuant to these comments and additional site investigations since 2009.

3.1 Stormwater Permits

The Daimler PTMP site has maintained coverage under the NPDES 1200Z Industrial Stormwater general permit (1200Z) since 1992. A summary of compliance history is presented in the 2011 *Source Control Evaluation Report for Stormwater and Groundwater*. The permit required regular monitoring of concentrations of industrial pollutants in permitted discharges (pH, total suspended solids, oil & grease, copper, lead, and zinc) and corrective actions, as needed, in response to the results. Between 2012 and 2020, monitoring at the Daimler PTMP also included pollutants for which the receiving water is impaired (aldrin, chlordane, dissolved copper, cyanide, DDT, DDE, dieldrin, hexachlorobenzene, iron, dissolved lead, mercury, PCBs, and PAHs). Many of the additional contaminants coincide with sediment contaminants identified for the PHSS.

Construction of the two IPs, in 2016 and 2020, have effectively eliminated stormwater discharge from entering the City's system, excepting overflow during precipitation events that exceed the design storm of 1.2 inches in 24 hours or a pump failure. The successful performance to contain and infiltrate stormwater onsite qualified the planters as a mass reduction measure in 2022 under the 1200Z permit. As a result, the permit no longer requires analytical testing during an overflow event, which are infrequent (last occurrence in January 2023); however, DTNA is required to continue tracking and inspecting potential stormwater overflows (via high flow alarms and visual inspections).

3.2 Hazardous Waste Generator

The Daimler PTMP is a hazardous waste generator. The 2011 *Source Control Evaluation Report for Stormwater and Groundwater* provides a detailed description of historical and current chemical usage and waste generation as of that date. Waste generated in the process operations included waste paint (chips, solids, and sludge and paint filters), used solvent (and, historically, lacquer thinner), chrome sludge (historical), treated wastewater from the pretreatment process before 2021, used oil and oil filters, waste rags and absorbent, used antifreeze, cardboard, wood pallets, scrap metal, punctured aerosol cans, and general refuse. The volume of waste generated varies based on the truck production schedule. Hazardous wastes are collected in 55-gallon drums at designated satellite accumulation areas and transferred to the Hazardous Waste Storage Area.

3.3 Air Quality Permits

DEQ issued the plant's first air contaminant discharge permit in 1978. An air contaminant discharge permit with a synthetic minor condition was issued to the plant in 1995. A synthetic minor source generates 10 or more tons of VOCs per year, but less than 100 tons per year, and cannot generate more than 10 tons per year of any one hazardous air pollutant or exceed 25 tons per year of combined hazardous air pollutant emissions. Reporting requirements include submitting semiannual reports with compliance certifications and annual calculated air emission summary reports. PTMP was issued a Title V permit in November 2002 and has maintained the Permit (26-2197-TV-01), and the effective date of the current permit is May 17, 2021. DTNA will need to apply to renew the permit in 2026.

4.0 Hazardous Substance Releases

Several site investigations and removal actions, including an interim remedial measure, have been implemented at the site and documented on DEQ's Your DEQ Online (YDO) Public Records Portal (formerly maintained on DEQ's ECSI database) and the project administrative file (i.e., ECSI No. 2366). Early investigations focused on identifying sources and subsequent removal activities, if encountered. The project progressed to identifying data gaps to complete a remedial investigation and risk assessment.

4.1 Site Investigations

In 2001, a preliminary assessment was conducted to evaluate potential upland contaminant sources and past waste management practices at the site to determine whether they had contributed to elevated chemical concentrations detected in sediments near City Outfall M-1 in SIB (Exponent, 2001). The assessment identified chromium, copper, nickel, zinc, butylbenzylphthalate and PAHs as contaminants of interest. The assessment concluded contaminant concentrations observed near City Outfall M-1 did not suggest a significant threat to the environment; however, it did recommend further investigation into reports that drums of paint solids may have been disposed of onsite and an investigation of two blind catch basins.

In December 2002, Freightliner and DEQ entered into a Voluntary Agreement to perform a RI, RA, and SCE (LQVC-NWR-02-02). The first phase of the remedial investigation involved a subsurface boring investigation and soil removal action in 2002 to 2003. The investigation assessed soil and groundwater quality adjacent to geophysical anomalies, other features of interest

and near the property boundaries. The soil removal action and supplemental investigations were performed to remove possible buried waste and to investigate areas of suspected historical contamination. In most cases, contamination was not found in suspected areas. Figure 4 shows excavation locations. The reported drums of paint solids were not observed, and it is now assumed that if solid wastes had been disposed of onsite, it appears that they were subsequently excavated and removed. Detected chemicals in soil included total petroleum hydrocarbons, VOCs, and SVOCs. Contaminated soil in the northeast part of the site, near former USTs, and under and near a former wheel paint booth were excavated and disposed of offsite.

From December 2003 to January 2004, twenty-one additional borings, shown on Figure 5, were advanced to evaluate soil and groundwater quality near select facility features, including former and current paint booths, former USTs, former product lines, a former forklift battery-charging area, a former WWTP pit near the current maintenance area, and possibly disturbed soil east of the EC.

In 2008, sub-slab soil vapor sampling near a former wheel paint booth was conducted to assess whether VOCs were present below the building foundation. Detected concentrations of several petroleum compounds and chlorinated VOCs, including tetrachloroethene (PCE) and trichloroethene (TCE), in sub-slab soil vapor exceeded one or more DEQ risk-based concentrations (RBCs). Soil, groundwater, and soil vapor results are presented and evaluated in the 2009 *Draft Remedial Investigation and Risk Assessment for Soil and Groundwater*.

4.2 Removal Actions

A soil vapor extraction (SVE) system was installed in 2009-2010 to address sub-slab soil vapor containing elevated concentrations of petroleum compounds and chlorinated VOCs detected under and near a former wheel paint booth and underground piping. The SVE system consists of one vertical and one horizontal extraction well and a monitoring network of five wells and eleven sub-slab soil vapor probes. The location of the former wheel paint booth including SVE system wells and related sub-slab soil vapor locations are shown on Figure 5 and a detailed description of the SVE system is provided in the operation, maintenance, and monitoring plan (MFA, 2012). Based on positive results from a 2010 pilot study, in 2011 DEQ recommended that the existing SVE system be used as an interim remedial action measure: 1) to prevent migration of VOC vapors into indoor air; 2) to reduce sub-slab soil vapor VOC concentrations below RBCs for sub-slab soil vapor in an occupational setting; and 3) to remove VOC mass in soil and possibly groundwater within the area of the system's influence.

The SVE system resumed operations as an interim action in February 2012. Sub-slab soil vapor concentrations in the vicinity of the former wheel paint booth and underground piping area have decreased by one to two orders of magnitude since system operations began in 2012. Regular performance monitoring indicated remedial action objectives for the interim measure were being achieved. After mass removal rates from the existing system approached asymptotic conditions, in 2015 DEQ approved "pulsed venting" in six-week intervals to remove additional mass and to assess if VOC concentrations would increase or rebound during shutdown periods. Progressively, DEQ approved longer shutdown periods based on post-shutdown results below concentrations of concern and observations of limited mass removal during operational periods. Following one year of the shutdown of the SVE system in 2020, soil vapor sampling results remained below applicable

screening levels in 2021. As a result, DEQ approved DTNA's request to decommission the SVE system in 2022. SVE performance monitoring reports submitted from 2012 to 2022 and the *Updated Distribution of Volatile Organic Compounds in Sub-Slab Soil Gas, 2012-2017* (Bridgewater, 2018) provide more detailed analyses. It is estimated that approximately 1,500 pounds of VOCs were removed by operation of the SVE system.

5.0 Source Control Evaluation

The site is situated within the uplands draining to the PHSS and accordingly upland source control investigations were guided by the 2005 U.S. Environmental Protection Agency (EPA)/DEQ JSCS. The objective of a SCE is to identify potential sources of contamination and determine if additional characterization or source control measures are needed to prevent impacts to the Willamette River through stormwater, groundwater, bank erosion, or overwater activities contaminant transport pathways.

Given that the site is not located adjacent to the Willamette River, DEQ determined that erosion of contaminants from riverbanks and overwater discharges are not complete pathways. DEQ determined groundwater and stormwater are potentially complete contaminant transport pathways; as a result, the remainder of this SCD document presents DEQ's findings regarding these two pathways.

5.1 Groundwater Source Control Evaluation

This section summarizes data collected and evaluated to determine if the groundwater transport pathway to the Willamette River is complete. Groundwater is encountered approximately 9 to 15 feet below the subject property and flows generally southeast toward SIB, approximately 1,400 feet downgradient of the subject property. A potentiometric map illustrates the direction of groundwater flow within the shallow fill unit (Figure 6). The groundwater table generally lies below storm lines and, based on additional evaluations and site improvements described in Section 5.1.3, storm lines do not act as preferential flow pathways for groundwater intrusion and migration.

5.1.1 Groundwater Pathway Investigation and Evaluation

Multiple investigations and monitoring events have been conducted to identify the presence of contaminants, evaluate the extent of groundwater impacts, and assess the effectiveness of the interim remedial action measure (i.e., operation of a soil vapor extraction system). Initial investigations focused on historical activities and features that may have been contaminant sources at Daimler PTMP. Recent investigations have evaluated whether contaminants are migrating offsite and, if occurring, are reaching the river above PHSS CULs.

Soil Samples. Contaminants present in soil could leach to groundwater. Multiple surface and subsurface soil samples have been collected at the site as part of the RI. Sample locations and constituent concentrations in soil samples are presented in Appendix E of the 2009 *Draft Remedial Investigation and Risk Assessment for Soil and Groundwater*. The following metals were detected above background levels and the following organics were detected:

- Metals: arsenic, cadmium, chromium, copper, lead, mercury, zinc
- Petroleum Hydrocarbons: gasoline-range hydrocarbons, diesel-range hydrocarbons, heavy-oil range hydrocarbons
- VOCs: 1,1,1-trichloroethane, 1,1-dichloroethane, 1,2,4-trimethylbenzene, 1,2-dichloroethane, 1,3,5-trimethylbenzene, 1,4-dichlorobenzene, 2-butanone, methyl isobutylketone, acetone, cis-1,2-dichloroethene, benzene, chloroethane, methylene chloride, ethyl-benzene, isopropyl-benzene, methyl tert-butyl ether, methylene chloride, naphthalene, n-propyl-benzene, m,p-xylene, toluene, TCE, o-xylene, total xylene, PCE, vinyl chloride,
- Semivolatile Organic Compounds (SVOCs): 2-methyl-naphthalene, 2-methylphenol, 3&4-methylphenol, acenaphthene, acenaphthylene, benzo(a)anthracene, benzo(a)pyrene, benzo(b+k)-fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, benzoic acid, bis(2-ethylhexyl)phthalate (BEHP), chrysene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, phenanthrene, pyrene.
- PCBs: Aroclor 1254

Earlier 2002-2004 and 2009 Groundwater Investigations. The reconnaissance groundwater sampling conducted in 2002 included ten geoprobe borings along the property boundaries to evaluate this potential migration pathway to the river. These temporary borings were limited to a depth of 19 feet. In December 2003 and January 2004, twenty-one additional borings were advanced to evaluate soil and groundwater quality near features of interest (e.g., the EC, the former UST area, geophysical anomalies). Additional borings were completed in 2009 near the former wheel paint booth to delineate the vertical extent of VOCs where a release was discovered, and subsequent action was performed to address elevated concentrations in soil vapor (see Section 4.2). Figure 3 identifies groundwater sampling locations, and soil vapor extraction and monitoring wells near the former wheel paint booth.

During these investigations, groundwater samples were generally analyzed for dissolved metals, SVOCs, and VOCs. The results of the ten site perimeter reconnaissance groundwater samples are provided in Table 1. SVOCs and VOCs were detected at concentrations exceeding CULs/SLVs on the Daimler PTMP property but were localized and limited at the site. SVOCs and VOCs were not detected above respective CULs/SLVs in groundwater samples collected from the most downgradient locations, except for two PAHs (acenaphthene and phenanthrene) that were detected in downgradient boring WF-6. These findings did not suggest a groundwater plume containing these chemicals was migrating offsite.

Dissolved metals including arsenic, chromium, nickel, and zinc were detected at concentrations exceeding CULs/SLVs by factors of two to three times. Specifically, arsenic was detected in most samples at levels elevated above CULs/SLVs and typical background concentrations, and similar to those detected in other areas of the site during early investigations. DEQ considered this a groundwater data gap and requested further evaluation to support whether concentrations are related to naturally occurring conditions and/or increased by organic contaminant degradation from historical operational related releases. There is no documentation that a specific release of arsenic or arsenic-containing products occurred at the site.

2019 Focused Groundwater Source Control Investigation. In July and September of 2019, DTNA conducted groundwater sampling activities and related assessments to address groundwater characterization data gaps identified by DEQ (GSI and SSPA, 2020). This groundwater investigation included the following evaluations:

- Collection of shallow groundwater samples for analyses of site-related COIs, including arsenic, chromium, manganese, zinc, total petroleum hydrocarbons (TPH), PAHs, and VOCs, and other geochemical parameters, and deeper groundwater for VOCs.
- Observations regarding the presence or absence of fill.
- Evaluation of arsenic concentration trends to determine whether concentration gradients suggest site-related impacts.
- Evaluation of geochemical conditions in groundwater at each shallow well location to determine whether these conditions explain the arsenic concentrations in the absence of known organic sources.

DTNA installed permanent, shallow groundwater monitoring wells (MW-1 through MW-5) in the fill material and deeper temporary monitoring wells (DP-1 and DP-2) in the underlying native materials (see Figure 3). Based on field results, separate deeper borings were required adjacent to MW-1 and MW-3 to provide adequate vertical separation between deeper grab samples and the overlying shallow well screen intervals to prevent any potential cross contamination between the units. As a result, separate borings (MW-1D and MW-3D) were advanced into the deeper native alluvium adjacent to the MW-1 and MW-3 well locations.

Groundwater samples were collected from the temporary deep borings in July 2019 and the newly installed shallow wells in September (following well development). Groundwater levels were collected prior to sampling and a potentiometric map was prepared showing the direction of groundwater flow within the shallow fill unit (Figure 6). Groundwater samples from the shallow wells were analyzed for VOCs, PAHs, gasoline-range petroleum hydrocarbons (TPH-Gx) and diesel-range petroleum hydrocarbons (TPH-Dx), total and dissolved metals, including arsenic species (As[III] and As[V]), hexavalent chromium (Cr[VI]), and iron species (Fe[II], Fe[III], and Fe[Reduc]). Groundwater samples from the temporary deep borings were analyzed for VOCs or metals. The analytical data is summarized in Tables 2 through 5.

5.1.2 Groundwater Pathway Screening

The 2019 groundwater data were screened to evaluate the potential for chemicals to discharge to the river at concentrations that could cause adverse effects. Not all chemicals that are groundwater contaminants of concern for the PHSS were analyzed; rather, as summarized above, analyses were conducted based on the potential for site-related sources of contamination. Chemicals not analyzed, but listed in Table 17 of the PHSS Record of Decision (ROD) as groundwater chemicals of concern (COCs) with CULs, include insecticides, herbicides, cadmium, copper, cyanide, lead, pentachlorophenol, perchlorate, PCBs, aliphatic hydrocarbons C10-C12, and vanadium. With the exception of aliphatic hydrocarbons C10-C12, there are no known or suspected sources of these chemicals on the Daimler PTMP site and given the limited detections of TPH as diesel and distance to the river, sampling for aliphatic hydrocarbons C10-C12 was considered unnecessary.

The groundwater pathway screening involved comparing site concentrations to CULs listed in Table 17 of the PHSS ROD. For all detected chemicals without CULs in Table 17, results were screened against the lowest value from SLVs listed in either of the following documents:

1. Portland Harbor Joint Source Control Strategy (JSCS) SLVs listed in Table 3-1 of the Portland Harbor JSCS. Note that EPA revised the National Recommended Water Quality Criteria (NRWQC) values in 2015 and DEQ revised the Ambient Water Quality Criteria (AWQC) values in 2014. The most current values were taken into account.
2. Toxicity Reference Values (TRVs) and surface water contaminants of potential concern (COPCs) from Table 6-43 and 6-65 of the Portland Harbor Baseline Ecological Risk Assessment (BERA) were used as SLVs when lower than the JSCS Table 3-1 values.

A summary of the 2019 shallow monitoring well and deep temporary boring groundwater sampling results include:

- One sample collected adjacent to the former UST petroleum storage area (MW-2) contained a detectable concentration of TPH-Dx (0.113 milligrams per liter [mg/L]). No CUL or SLV is available for TPH-Dx.
- PAHs were detected at concentrations near the detection limits in samples collected from shallow wells MW-2, MW-3, and MW-5. Concentrations of all PAHs were less than their respective CULs, or SLVs where CULs were not available.
- Only one sample (MW-2) contained any detectable VOCs. Methyl-tert-butyl-ether (MTBE) was detected at a concentration of 23.5 micrograms per liter (µg/L), which is less than the JSCS SLV of 37 µg/L. No CUL is available for MTBE.
- Dissolved arsenic in all samples exceeded the arsenic CUL with concentrations ranging from 4.1 to 28.4 ug/L.
- Chromium was not detected above laboratory practical quantitation limits (PQLs) for either species in any of the samples analyzed and the PQLs were less than the CUL.
- None of the samples analyzed (MW-2, MW-3, MW-4, or MW-5) contained dissolved zinc at concentrations above its respective laboratory PQL, which was less than the CUL.

With respect to the distribution of site-related potential COIs (e.g., VOCs), data supported the finding that there is no migration of COIs into the deeper water bearing zone. Chromium and zinc concentrations were either below laboratory PQLs, or less than their respective screening levels. Of the potential organic COIs evaluated, only phenanthrene was present in any of the groundwater samples at concentrations exceeding either the CUL or the JSCS SLV. Because the phenanthrene concentrations are low and within an order of magnitude of the JSCS SLV (no CUL was available for phenanthrene), further investigation is not warranted.

Arsenic. Due to the elevated arsenic concentrations, additional geochemical assessment and transport modeling was conducted and presented in the *Groundwater Source Control Investigation Report* (GSI and SSPA, 2020). The assessment found no arsenic concentration gradient present in groundwater at the site and that arsenic concentrations are similar to concentrations from other environments containing saturated Willamette River sediments and/or fill. Therefore, the elevated arsenic concentrations can be explained by the natural generation of reducing conditions in groundwater which promote the dissolution of iron oxyhydroxide minerals containing arsenic.

Finally, geochemical transport modeling showed that there would have been little arsenic migration in groundwater from any potential source area since the placement of fill in the 1960s. Based on the results of the assessment, the elevated arsenic concentrations were determined to be naturally occurring and a result of existing geochemical conditions in shallow groundwater.

5.1.3 Preferential Groundwater Migration Pathway

As part of the SCE, DTNA assessed potential sources of dry weather flow, including groundwater infiltration, in stormwater lines. DTNA observed and investigated dry weather flows within the Fathom and Ensign stormwater basins. Dry weather flow was observed in the Fathom system, which is now routed to an IP, and was identified as potable water sources associated with a humidification system for dry filter paint booths and an older WLT area. Potable water used for the paint booth humidification system does not come into contact with contaminants. Potable water is used to test finished truck cabs for leaks; the previous WLT routed water to an OWS prior to discharge to the stormwater system. Currently, potable water is recirculated in the new WLT. During a cleanout of the Fathom Vault, DTNA determined that approximately 0.5 to 1 gallon per minute of groundwater was entering from a small hole near the base of the vault. The hole in the vault was subsequently sealed (Bridgewater, 2014).

In the Ensign basin, intermittent dry weather flow had also been observed, reportedly caused by groundwater infiltration into old lateral connections under the manufacturing plant's WWTP (Figure 2). At the time, observed groundwater infiltration did not appear to impact stormwater quality based on stormwater sampling results. In 2021, as part of the construction activities related to a new Logistics Center warehouse and new receiving unloading docks, a downstream manhole near the former 2002 WWTP, where groundwater infiltration was observed, was removed and infiltration is no longer observed. Specifically, this area was excavated and then backfilled to support the new warehouse, and a new freight dock was constructed where the 2002 WWTP used to be located.

As described above in Section 3.1, discharges from both the Fathom and Ensign drainage basins have been diverted to IPs, and no longer discharge to the City stormwater system (except overflow during precipitation events that exceed the design storm of 1.2 inches in 24 hours or a pump failure). In conclusion, this preferential pathway is not complete.

5.1.4 Groundwater Pathway Lines of Evidence Evaluation

In alignment with Section 5.2 of the JSCS, which describes factors that need to be considered in evaluating groundwater, a lines of evidence (LOE) evaluation is needed in consideration of the following site-specific factors:

1. Nature and extent of groundwater COPCs in each affected water-bearing zone. Localized impacts to shallow groundwater (less than 40 feet below ground surface) had been encountered below former USTs and underground product and waste solvent lines, and a wheel paint booth in earlier groundwater investigations. A SVE system was operated to mitigate VOCs in soil vapor in the wheel paint booth area and near former underground lines, which reduced levels to below the DEQ RBCs. The recent groundwater source control investigation conducted in 2019-2020 did not detect COIs above CULs, and arsenic concentrations were consistent with naturally occurring conditions.

2. Potential presence of non-aqueous phase liquid (NAPL) or sheen. While releases from historical USTs and underground lines did occur, NAPL was never observed in groundwater samples and impacts have been treated or degraded. Groundwater investigation results did not encounter sheen (or NAPL).
3. Presence of bioaccumulative chemicals. Potential bioaccumulative chemicals detected above CULs in monitoring well data are limited to arsenic. Arsenic concentrations in groundwater are consistent with naturally occurring levels.
4. Magnitude of groundwater quality exceedance. Groundwater contains arsenic levels above CULs; however, additional assessment, including transport modeling and geochemical evaluation, supports that arsenic levels are naturally occurring.
5. Regional background concentrations for naturally occurring chemicals. An evaluation of arsenic levels was performed, and the 2020 groundwater SCE study supports the conclusion that concentrations of arsenic detected are representative of background conditions and not likely to impact groundwater concentrations in river porewater.
6. Estimate of potential contaminant loading. Groundwater transport for arsenic was assessed and it was concluded arsenic concentrations are naturally occurring.
7. Potential hydraulic connection between site groundwater and surface water/sediments. There are no groundwater plumes migrating offsite and the site is located approximately 1,400 feet from the SIB.
8. Potential for groundwater discharge to result in an accumulation in sediment above protective concentrations. The site does not border the river. Contaminants detected in groundwater at Daimler PTMP were below CULs, except arsenic, and were not detected at concentrations of concern. Any residual contamination migrating offsite would be subject to attenuation before reaching the river located approximately 1,400 feet from the site. The potential for groundwater to discharge contamination that would result in accumulation in sediment above protective levels in sediment is considerably low.

Based on these sampling results DEQ concludes no further source control actions are required to address the groundwater pathway.

5.2 Stormwater Source Control Evaluation

When stormwater presents as a potential pathway to mobilize contamination from a site to the river, source control determinations generally rest upon demonstrating that site-related information provides sufficient support to make the following findings:

1. Existing and potential facility-related contaminant sources have been identified and characterized.
2. Contaminant sources were removed or are being controlled to the extent feasible.
3. Performance monitoring conducted after source control measures were implemented supports the conclusion that the measures are effective.
4. Adequate measures are in place to ensure source control and good stormwater management measures occur in the future (DEQ, 2010).

As detailed in supporting reports, investigation of the stormwater collection and conveyance system was undertaken at the site, in accordance with DEQ's 2009 Guidance for Evaluating the Stormwater Pathway at Upland Sites (Stormwater Guidance).

5.2.1 Stormwater System Configuration

Consistent with Section 4.1 of the Stormwater Guidance, DTNA has investigated, modified, and documented the condition of the onsite stormwater system. The current system configuration is depicted on Figure 7. The site has had two permitted stormwater discharge locations since 1992, near North Fathom Street and North Ensign Street, designated as the Fathom Outfall and Ensign Outfall, respectively. Both drainage basins consist mainly of impervious surfaces (building rooftops and asphalt), except the 6,500-square-foot IP in the Fathom drainage area, the 10,000-square-foot IP in the Ensign drainage area, and small vegetated areas along the property boundaries.

In 2016, DTNA rerouted runoff from fifteen catch basins in the Fathom drainage area to a wet well, which is pumped to an enlarged infiltration facility, to manage all runoff from the Fathom drainage basin on site. The Fathom Drainage Area 002 (DA002) no longer discharges to the City's storm sewer system at the DA002 discharge point (Fathom Outfall), unless a precipitation event exceeds the design storm for the Fathom IP (1.2 inches in 24 hours) or because of a pump failure or other type of system failure. A discharge alarm for the Fathom IP is located at the North Fathom Street guard shack (shown on the Facility Map, Figure 2).

As of May 2020, the Ensign Drainage Area (DA001) no longer discharges to the City's storm sewer system at the DA001 discharge point (Ensign Outfall) unless a precipitation event exceeds the design storm for the IP (1.2 inches in 24 hours) or because of a pump failure or other type of system failure. A discharge alarm for the infiltration planter is located at the control panel for the pumps situated along the fence.

Possible releases inside the new DYNO building drain to a blind sump located inside the building. The new WLT associated with the new DYNO building discharges to a recirculating water system that periodically gets pumped out and disposed of offsite. Runoff generated from the new DYNO and WLT building roofs are routed to the Fathom IP (Figure 7).

The Ensign Outfall formerly discharged stormwater runoff from approximately 732,015 square feet of impervious area in the eastern and southern part of the property, and the Fathom Outfall formerly discharged the portion of stormwater runoff generated from approximately 395,801 square feet of impervious area in the north and western part of the property. As a result, all stormwater runoff for the site is now infiltrated onsite unless a precipitation event exceeds the design storm (1.2 inches in 24 hours) or because of a pump failure or other type of system failure.

5.2.2 Stormwater Pathway Investigation and Evaluation

A stormwater SCE began in 2006. In alignment with Section 5.3 of the Stormwater Guidance, data were collected to evaluate multiple lines of evidence related to the stormwater pathway. The Stormwater Guidance requires the identification of potential sources of contaminants in stormwater and stormwater solids. Initial evaluations involved assessment of stormwater solids in lines and catch basins, cleaning the accessible storm lines and collecting multiple stormwater

samples during JSCS qualifying stormwater events. The approach and methods for the sampling were presented in a 2006 work plan and revisions (MFA, 2006 a and b). A SCE report for stormwater was submitted to DEQ in 2011 (Bridgewater and MFA, 2011), and subsequent addenda to supplement the stormwater pathway evaluation were provided in 2013, 2015, and 2017 (Bridgewater, 2013, 2015, 2017). The addenda document the results of 2012 catch basin and in-line solids sampling and analysis; storm line cleaning in 2006-2007, 2010, 2013, and 2017, and various stormwater sampling and analytical events.

To assess the magnitude of stormwater and stormwater solids screening level exceedances, stormwater and stormwater solids data were compared to surface water and riverbank soil/sediment CULs, respectively, from Table 17 of EPA's 2017 Portland Harbor ROD, or for contaminants without CULs, compared to water and upland soil/stormwater sediment SLVs from Table 3-1 of the 2005 EPA/DEQ JSCS. As another line of evidence, when contaminants were detected in stormwater and stormwater solids at concentrations exceeding applicable CULs/SLVs, concentrations were compared to DEQ charts from *Appendix E: Tools for Evaluating Stormwater Data* found in *Guidance for Evaluating the Stormwater Pathway at Upland Sites* (DEQ 2010, updated 2015) for contaminants for which charts are available. This tool was created by compiling contaminant concentration data from many of the stormwater and stormwater solids samples collected at Portland Harbor-area heavy industrial sites. This data was used to create a series of charts that plot rank-order samples against contaminant concentrations and are used to identify contaminant concentrations in samples that are atypically elevated. Concentrations falling within the upper/steeper portion of the curve are an indication that uncontrolled contaminant sources may be present at the site and that additional evaluation or source control measures may be needed. Concentrations that fall on the lower/flatter portion of the curve suggest that stormwater is not being unusually impacted by contaminants at the site, and while concentrations may exceed the risk-based SLVs, they are within the range found in stormwater from active industrial sites in Portland Harbor. Also, solids results were compared to regional background concentrations for naturally occurring chemicals in the Portland Basin (DEQ, 2013).

Stormwater Solids Sampling. To identify potential sources and types of contaminants in stormwater solids, four stormwater solid sampling events were conducted within the Fathom system between 2003 and 2014, with two events incorporating the collection of multiple samples along the Fathom discharge line to the City's system. In addition, at least four solid samples were collected from City Manhole AAJ831 immediately downgradient of the Fathom Outfall in the N Fathom Street cul-de-sac during this time. In 2012, in-line sediment samplers were deployed within the Ensign and Fathom systems and accumulated solids analyzed; in addition, up-pipe catch basin solids samples were collected and analyzed to locate potential onsite sources. Also, multiple camera surveys (pre- and post-cleanout) and cleaning of portions of the Fathom line were implemented. To a lesser extent, the Ensign storm system was surveyed and portions cleaned, as needed, where solids were observed.

Stormwater solids sampling was conducted at the Ensign Outfall on three occasions: December 12, 2006; January 27, 2007; and February 3, 2007. As shown on Figure 8, portions of the Ensign and Fathom stormwater systems were cleaned in December 2006, and January and February 2007. Additional cleanouts of sections of the Fathom system were completed in 2010, 2013, and 2016. Pre- and post-cleanout samples collected from the Ensign Outfall in 2006 and 2007 contained cadmium, chromium, copper, lead, zinc, BEHP, di-n-butylphthalate (di-n-BP) and PCB Aroclor

1254 at concentrations above of their respective JSCS SLVs; some cadmium, chromium, copper, lead and zinc concentrations exceeded background concentrations. Stormwater solids results from the Fathom system were generally more elevated than concentrations detected in the Ensign system, as summarized in Table 6.

A considerable portion of the Fathom system was cleaned again on September 25, 2010, and stormwater solids sampled after the cleanout. Contaminant concentrations in a Fathom Offline-1 sample (representative of solids removed from the main storm line under the offline portion of the building) were significantly lower. While lower than pre-cleanout levels, contaminants detected in a Fathom Offline-2 sample (representative of solids removed from a smaller lateral storm line under the offline portion of the building) continued to exceed the JSCS SLVs.

Stormwater solids were collected in 2011 and 2012 from several catch basins located in the Ensign and Fathom drainage areas for source tracing purposes. For the 2011 event (Bridgeport, 2011), six samples of solids were collected from six catch basins where vehicle traffic and other operational uses and activities take place. PCBs were not detected in the samples. Cadmium, zinc, lead, and BEHP were detected above JSCS SLVs in the catch basins. Additional catch basin sampling was conducted in 2012 to identify discrete operational areas that may require further SCE (Bridgeport, 2013). Catch basin solid samples from both the Fathom and Ensign drainage areas exceeded the SLVs for cadmium, copper, lead, zinc, BEHP, di-n-BP, and certain PAHs. In the catch basins in the Fathom drainage area, BEHP, cadmium and some zinc concentrations also plotted above the flat part of their respective rank-order curves indicating a source onsite that required additional investigation and source control (Figures 9a through 9h). The results are summarized in Table 7.

In-line solids samplers were deployed at locations within the Ensign and Fathom systems for source tracing in 2012. These samples were retrieved after sufficient sediment had accumulated and was subsequently tested. Cadmium, lead, BEHP, and di-n-BP concentrations exceeded the JSCS SLVs. Consistent with catch basin solids results, the Ensign drainage area inline sediment results plotted below the flat portion of the rank-order curves. In the Fathom drainage system, cadmium results were elevated and plotted above the flat portion of the rank-order curve, indicating a source onsite that required additional investigation and source control. The Fathom system required additional evaluation including additional cleanouts, sediment sampling and control measures. The results are summarized in Table 8.

As part of source tracing, the City collected solids from the storm line between the Fathom Outfall and City manhole AAJ831 in N Fathom Street in 2003, 2009 and 2013; concentrations exceeded SLVs. DTNA collected pre-cleanout solids from this same pipe section in October 2013 and detected concentrations of cadmium, chromium, copper, lead, zinc, indeno(1,2,3-cd)pyrene, benzo(g,h,i)perylene, BEHP, di-n-BP and PCBs exceeded the JSCS SLVs.

On November 11, 2013, DTNA performed a storm line cleanout between the Fathom Outfall and City manhole AAJ832 (down pipe from manhole AAJ831 in N Fathom Street) and conducted a post-cleanout camera survey to verify that the line had been completely cleaned. Previously, the storm line between the Fathom Outfall and City manhole AAJ831 was cleaned three times between 1995 and 2008. DTNA cleaned the Fathom storm lines including catch basins in 2007, with additional line cleanouts in 2008 and 2010. In addition, as part of DTNA's best management practices (BMPs) for its NPDES 1200Z Permit, the PTMP's catch basins are cleaned and inserts are replaced on a quarterly basis.

DTNA collected six solids samples from the same pipe section again in October 2014. PCBs were not detected in any of the 2014 solids samples, which was an improvement from historical detections. Detected concentrations of copper, lead and zinc exceeded the JSCS SLVs but were generally lower than those measured before the 2013 cleanout and plotted in the flat parts of the curves. No PAH concentrations exceeded the SLVs. Cadmium concentrations in 2014 were lower than those measured in the storm lines before the 2013 cleanout and much lower than those measured in solids removed from storm lines in the Fathom drainage area in 2007 and 2010 (see Table 9). This is consistent with the observed decreases in cadmium concentrations in stormwater. BEHP and di-n-BP concentrations exceeded the JSCS SLVs. Between 2007 and 2014, DTNA effectively reduced the total amount of solids getting into its stormwater system.

Based on the 2014 results, solids concentrations in the Fathom system were still elevated for: i) cadmium - detected above the SLV and plotting on the steep portion of the DEQ rank-order curve; ii) chromium - detected above the SLV and plotting in the knee or middle portion of the DEQ rank-order curve; and, iii) di-n-BP - detected above the SLV and no curve developed.

At DEQ's request, a video camera survey of the storm line between the Fathom Vault near the Fathom Outfall and City manhole AAJ-831 was conducted on October 17, 2016, to determine if any solids had re-accumulated since the October 2014 storm line cleaning, with removal of solids, if present. Solids were removed from the Fathom Vault to the City's manhole AAJ-831 on December 29, 2016. A subsequent video camera survey was performed to confirm that solids had been removed.

Stormwater Sampling. In addition to the required NPDES 1200Z monitoring, stormwater samples were collected from the Ensign and Fathom outfalls on eleven occasions between 2006 and 2014 as part of the SCE and analyzed for metals, PAHs, phthalates, PCBs, and total suspended solids (TSS). Three events in 2014 also included analysis for dieldrin, phenol, and tributyltin (TBT). Following the elimination of the discharge from the Fathom drainage basin in June 2016, additional stormwater sampling events were conducted at the Ensign outfall for cadmium, zinc, and PAHs. Stormwater sampling results at the Ensign and Fathom outfalls are summarized in Table 10.

PCBs were not detected in any October 2014 samples, consistent with previous stormwater samples. Copper, lead, and zinc concentrations in these additional sampling events remained below the knee of the curve, plotting in the horizontal portions of the charts (Figure 10a to 10c). Individual and total PAH concentrations in these samples remained below the knee of the curve (Figure 10d). The range of total cadmium in stormwater was below the range of prior sampling events and below the knee of the curve indicating a positive impact of DTNA's enhanced BMP program (Figure 10e). Dissolved cadmium concentrations showed the same trend but remained generally above the JSCS SLV. While BEHP results trended lower than previous events, a high concentration was detected in a sample from the Ensign Outfall (with higher TSS). Results plotted at the low end of the knee of the curve, three of six results were above the JSCS SLV (Figure 10f). To address NPDES 1200Z benchmark and JSCS SLV exceedances, DTNA proposed to install an infiltration facility in the Fathom drainage area in 2014.

After July 2016 and the IP's installation, stormwater no longer discharged from the Fathom drainage basin. As a result, DEQ requested additional stormwater sampling events at the Ensign Outfall which is documented in the 2017 SCE Addendum (Bridgewater, 2017). The BEHP and

PAH concentrations were below the JSCS SLVs, but above PHSS CULs for BEHP and carcinogenic PAHs (cPAHs), where available. The lowest routine achievable laboratory method detection limits for the cPAHs were one to two orders of magnitude higher than the PHSS CULs. Di-n-BP was not detected at or above the method detection limits which were below the JSCS SLV. Detected dimethylphthalate concentrations did not exceed the JSCS SLV. No PHSS CULs are available for Di-n-BP or dimethylphthalate. Detected cadmium concentrations slightly exceeded the JSCS SLV; no PHSS CUL for cadmium is available for surface water. Dissolved zinc was detected above the JSCS SLV and PHSS CUL, but total zinc concentrations plotted in the lower, flatter portion of the rank-order curve.

In general, recent cadmium, zinc, BEHP, and total PAH concentrations plot in the lower portions of the rank-order curves indicating that sources have been controlled for the Ensign Outfall. To address NPDES 1200Z benchmark and JSCS SLV exceedances, DTNA proposed to install an infiltration facility in the Ensign drainage area in 2019 with installation in 2020. .

In addition, the Site has a SWPCP in place to ensure compliance with the NPDES 1200Z Permit. BMPs will continue to be implemented to ensure compliance with the NPDES 1200Z statewide benchmark for zinc.

5.2.3 Stormwater Source Control Measures

In addition to multiple cleanout events that removed accumulated solids and associated contaminants from the storm lines, DTNA implemented a series of operational and structural BMPs and SCMs. These actions compliment or enhance measures required under the NPDES 1200Z permit. Operational practices include an employee education program on the stormwater pollution control plan (SWPCP), spill response procedures, good housekeeping practices (regular sweeping, weekly inspections, etc.), and preventive maintenance (equipment and vehicles, storage tanks, dispensing and filling, OWSs, and catch basin inserts). Routine inspections are performed to detect leaks or damage, with their repair or replacement in a timely manner.

Structural control measures include the 2016 and 2020 IPs that manage all runoff from the Fathom and Ensign drainage basins, OWSs, catch basins equipped with metal grates and oil-absorbent pillows suspended in TSS inserts, StormFilter system at the Ensign Outfall between 2002 and 2020, coating the galvanized roof with a Neogard cover, bioswale and associated OWS for a new truck parking area in the Offline yard, bioswale and water recirculating system at the new DYN0 and new WLT areas, containment of hazardous substances, covered temporary truck containment area for leaking trucks, labeled catch basins and inserts, and emergency cut-off valves at each outfall prevent accidental spills from leaving the property via the stormwater system.

Multiple measures were implemented in response to source tracing efforts and evaluation of the results of sampling events. Effectiveness monitoring was performed following implementation of these measures. Ongoing monitoring for most of the contaminants relevant to Portland Harbor and corrective actions responsive to the results will continue to be required under the NPDES 1200Z permit.

5.2.4 Stormwater Pathway Lines of Evidence Evaluation

In alignment with Section 5.3 of the JSCS, which describes appropriate approaches for screening of direct discharges, a lines of evidence evaluation was undertaken in consideration of the following site-specific factors:

1. Identification and characterization of potential sources of contaminants. Existing and potential facility-related stormwater contaminant sources were identified and characterized as summarized in the previous sections.
2. Magnitude of stormwater and stormwater solids exceedances at each sampling point and proximity of sampling points to the river. After July 2016, stormwater is no longer discharged from the Fathom drainage basin, unless a precipitation event exceeds the IP's design storm. After 2020, stormwater is no longer discharged from the Ensign drainage basin, unless a precipitation event exceeds the IP's design storm. Additional BMPs will continue to be implemented to ensure compliance with the NPDES 1200Z permit.
3. Regional background soil concentrations of naturally occurring chemicals for evaluating stormwater solids. Concentrations of naturally occurring chemicals were not elevated in catch basin and in-line solids or stormwater system cleanout solids.
4. Presence of bioaccumulative chemicals. Following the installation of an IP and elimination of the discharge from the Fathom drainage basin in June 2016, additional stormwater sampling events were conducted at the Ensign outfall for cadmium, zinc, and PAHs. Detected cadmium concentrations slightly exceeded the SLV. No PHSS CUL for cadmium is available for surface water. Dissolved zinc was detected above the JSCS SLV and PHSS CUL, but total zinc concentrations are in the lower, flatter portion of the rank-order curve. An IP was constructed in the Ensign drainage basin in 2020, and discharges were eliminated from this drainage basin, unless a precipitation event exceeds the IP's design storm.
5. Site hydrology including site conditions, size of drainage and location, and estimated size of discharge. Site runoff is divided into two stormwater drainage areas, Fathom and Ensign. Both drainage basins consist mainly of impervious surfaces (asphalt and roof), with a small portion of vegetated areas along the property boundaries and a 6,500-square-foot IP in the Fathom drainage area and a 10,000-square-foot IP planter in the Ensign drainage area.

As of July 2016, the Fathom drainage basin (DA002) no longer discharges to the City's storm sewer system at the DA002 discharge point (Fathom Outfall), unless a precipitation event exceeds the design storm for the Fathom IP. The enlarged facility design storm is 50% of the two-year, 24-hour event or approximately 1.2 inches. Rain events that exceed the design storm trigger bypass to the Fathom vault, which eventually discharges to the river through City Outfall M-1.

The Ensign drainage basin contains 732,015 square feet of impervious area and receives runoff from the eastern and southern parts of the facility and the roof. After April 30, 2020, this discharge area (DA001) was rerouted to the IP and no longer discharges to the City's storm sewer system unless a precipitation event exceeds the design storm for the Ensign infiltration planter (i.e., 50% of the two-year, 24-hour event or 1.2 inches in 24 hours).

6. Stormwater system design and management. After the installation of the Fathom IP in 2016 and the Ensign IP in 2020, the volume of runoff and the detected contaminant concentrations in stormwater have significantly decreased. All sample results collected since IP installation have been below the 1200Z permit benchmark concentrations. In 2022, the City approved a mass reduction measures certification request for the IPs, that allows the discontinuation of discharge monitoring for the remainder of the NPDES 1200Z permit term.

From 2016 (when installed) through 2021 only twenty-four discharges occurred from the Fathom IP. Five of these discharges occurred during business hours and were sampled in accordance with the site's 1200-Z Permit. Sampling results show low levels of detected contaminants. In 2017, the discharges to the Fathom outfall exceeded the 1200-Z benchmark for zinc (twice) and copper (once). These exceedances were the result of precipitation in excess of the design storm. In response to these benchmark exceedances, DTNA completed Tier I corrective action and confirmed that infiltration of the design storm reduced the mass of pollutants discharged annually to below the mass equivalent benchmark. Since 2017, all samples collected from the Fathom outfall have been below the 1200-Z benchmark concentrations. Detected concentrations in the 2020 and 2021 discharges did not exceed the benchmarks.

Since the Ensign IP was installed in 2020, eight discharges have occurred. Three of these discharges occurred during business hours and were sampled in accordance with the 1200-Z Permit. All sample results collected have been below the 1200-Z Permit benchmark concentrations.

7. Estimate of potential contaminant loading to the river. The limited volumes and low concentrations of contaminants in stormwater discharged from the site present a minimal potential load to the river.

Based on the information provided in supplemental reports, DEQ concludes no further source control actions are required to address the stormwater pathway.

6.0 Summary of Source Control Decision

The Daimler PTMP site has been adequately characterized. The sources, nature, and extent of contamination are understood. The source control decision review of migration pathways to the Willamette River identified the groundwater migration pathway and the stormwater migration pathway as the only potentially complete pathways to the river for contamination at the site. DEQ's source control decision is that these contaminant transport pathways do not pose a significant current or likely future threat to the Willamette River.

References

City of Portland Bureau of Environmental Services (BES), 2015. Review of Source Control Addendum. December 9, 2015.

BES, 2013a. Completion Summary for City of Portland Outfall Basin M-1. City of Portland, Bureau of Environmental Services. December 2013.

BES, 2013b. Subject: Basin M-1 Inline Solids Results. E-mail to C. Harman and A. Liverman (DEQ) from L. Scheffler (BES). July 15, 2013.

BES, 2013c. Review of SCE Report (December 5, 2011) and Addendum (March 22, 2013). June 19, 2013.

BES, 2010. Outfall Basin M-1 Inline Solids Investigation, Technical Memorandum No. OF M1-3. City of Portland, Bureau of Environmental Services. January 14, 2010.

BES, 2006. City Outfall Basin M-1 Dry-Weather Flow Sampling Technical Memorandum No. OF M1-1. City of Portland, Bureau of Environmental Services. April 3, 2006.

Bridgewater Group, Inc. (Bridgewater), 2022. First and Second Quarter 2021 Soil Vapor Extraction System Performance Report, Western Star Truck Manufacturing Plant. Prepared for Daimler Trucks North America LLC. Prepared by Bridgewater Group, Inc. January 3, 2022.

Bridgewater, 2018. Updated Distribution of Volatile Organic Compounds in Sub-Slab Soil Gas, 2012-2017, Western Star Truck Manufacturing Plant. Prepared for Daimler Trucks North America LLC. Prepared by Bridgewater Group, Inc. July 16, 2018.

Bridgewater, 2017a. Addendum to Source Control Evaluation: 2016 and 2017 Stormwater Monitoring Results, Western Star Truck Manufacturing Plant. Prepared for Daimler Trucks North America LLC. Prepared by Bridgewater Group, Inc. April 24, 2017.

Bridgewater, 2017b. December 2016 Stormwater Line Cleaning. February 24, 2017.

Bridgewater, 2017c. Addendum to Source Control Evaluation: 2016 Stormwater Monitoring Results. February 2, 2017.

Bridgewater, 2016. Responses to January 12, 2016 DEQ Comments on Addendum to SCE. March 7, 2016.

Bridgewater, 2015. Addendum to Source Control Evaluation Report Regarding Stormwater Pathway: Results of October 2014 Source Control Evaluation Sampling and Analyses for Completion of Source Control Evaluation, Western Star Truck Manufacturing Plant. Prepared for Daimler Trucks North America LLC. Prepared by Bridgewater Group, Inc. March 12, 2015.

Bridgewater, 2014a. Results of Fathom Line Solids Sampling and Analyses and Storm Line Cleanout Activities, Western Star Truck Manufacturing Plant. Prepared for Daimler Trucks North America LLC. Prepared by Bridgewater Group, Inc. March 18, 2014.

Bridgewater, 2014b. Results of Dry Weather Flow Investigation to Fathom Outfall, Western Star Truck Manufacturing Plant. Prepared by Bridgewater Group, Inc. January 20, 2014.

Bridgewater, 2013a. Draft Response to DEQ July 2013 Review Notes on SCE Reports. August 28, 2013.

Bridgewater, 2013b. Addendum to Source Control Evaluation Report Regarding Stormwater Pathway, Including Results of 2012 Catch Basin and Sediment Trap Solids Sampling and Analyses, Western Star Truck Manufacturing Plant. Prepared for Daimler Trucks North America LLC. Prepared by Bridgewater Group, Inc. March 22, 2013.

Bridgewater, 2012a. Onsite Stormwater Line Hydraulic Monitoring – October 2011 through March 2012, Western Star Truck Manufacturing Plant. Prepared for Daimler Trucks North America LLC. Prepared by Bridgewater Group in association with Maul Foster & Alongi, Inc. July 9, 2012.

Bridgewater, 2011a. Results of Catch Basin Solids Sampling and Analyses, Western Star Truck Manufacturing Plant. Prepared for Daimler Trucks North America, LLC. Prepared by Bridgewater Group in association with Maul Foster & Alongi, Inc. December 5, 2011.

Bridgewater, 2011b. Source Control Evaluation Report for Stormwater and Groundwater, Western Star Truck Manufacturing Plant. Prepared for Daimler Trucks North America, LLC. Prepared by Bridgewater Group in association with Maul Foster & Alongi, Inc. December 5, 2011.

Oregon Department of Environmental Quality (DEQ), 2016a. Portland Harbor Upland Source Control Summary Report. DEQ. November 21, 2014 - Updated March 25, 2016.

DEQ, 2016b. DEQ Comments on Addendum to SCE Report Regarding Stormwater Pathway. January 12, 2016.

DEQ, 2014. DEQ Update on Stormwater SCE and DEQ Notes: Daimler Trucks North America – Source Control Evaluation following DTNA October 2013 response to DEQ July 17, 2013 letter and other actions implemented. June 27, 2014.

DEQ, 2013a. DEQ Review Notes for SCE Report for Stormwater and Groundwater”, December 5, 2011, and Addendum to SCE Report, March 22, 2013. July 17, 2013.

DEQ, 2013b. Development of Oregon Background Metals Concentrations in Soil. March 2013. <http://www.deq.state.or.us/lq/pubs/docs/cu/DebORbackgroundMetal.pdf>

DEQ, 2012. DEQ Review Notes for “DRAFT Remedial Investigation and Risk Assessment for Soil and Groundwater,” December 18, 2009. February 22, 2017.

DEQ, 2010. Guidance for Evaluating the Stormwater Pathway at Upland Sites. October 2010. <http://www.deq.state.or.us/lq/cu/stmwtrguidance.htm>

DEQ, 2006a. DEQ comment to Freightliner’s July 14 [2006] response to DEQ’s comments on the Stormwater Evaluation Work Plan. September 25, 2006.

DEQ, 2006b. DEQ Comments on Stormwater Evaluation Work Plan. June 15, 2006.

DEQ and U.S. Environmental Protection Agency (EPA), 2005. Portland Harbor Joint Source Control Strategy. December 2005. <http://www.deq.state.or.us/lq/cu/stmwtrguidance.htm>

EPA, 2014. Draft Sediment Decision Units GIS layer as of December 2013. Provided by CDM-Smith on behalf of EPA. January 2014.

Exponent, 2001. Focused Preliminary Assessment for Freightliner Truck Manufacturing Plant, Portland, Oregon. November 27, 2001.

Exponent, 2002. Letter (re: Freightliner Responses to DEQ Comments on Focused Preliminary Assessment), to A. Voss, Oregon DEQ NW Region, from R. Axelrod, Exponent. July 9, 2002

Groundwater Solutions, Inc. and S.S Papadopolus, 2020. Groundwater Source Control Investigation Report, Western Star Truck Manufacturing Plant. Prepared for Daimler Trucks North America, LLC. Prepared by Groundwater Solutions, Inc. March 20, 2020.

Maul Foster & Alongi, Inc. (MFA), 2012. Soil Vapor Extraction System Operation, Maintenance and Monitoring Plan, Western Star Truck Manufacturing Plant. Prepared by Maul Foster & Alongi, Inc. in associated with Bridgewater Group, Inc. May 14, 2012.

MFA, 2009. Results of May 2009 Stormwater Performance Monitoring, Western Star Truck Plant Portland LLC (formerly Freightliner LLC Truck Manufacturing Plant), Prepared by Maul Foster & Alongi, Inc. June 30, 2009.

MFA, 2009. Draft Remedial Investigation and Risk Assessment For Soil and Groundwater. Prepared by Maul Foster & Alongi, Inc. December 18, 2009.

MFA, 2007. Memo Results of Pre- and Post Cleanout SW and Storm Line Solids Sampling and Analysis. Prepared by Maul Foster & Alongi, Inc. May 17, 2007.

MFA, 2006a. Stormwater Evaluation Work Plan. Prepared by Maul Foster & Alongi, Inc. April 21, 2006.

MFA, 2006b. Stormwater Evaluation Work Plan. Prepared by Maul Foster & Alongi, Inc. February 28, 2006.

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Figure 2 – Facility Map

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Figure 6 – Potentiometric Map

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Table 6 – Storm Line Solids Data

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Table 9 – Fathom Storm Line Solids Data

Table 10 – Stormwater SCE Result

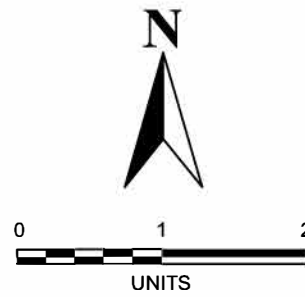


Figure 1
Site Location

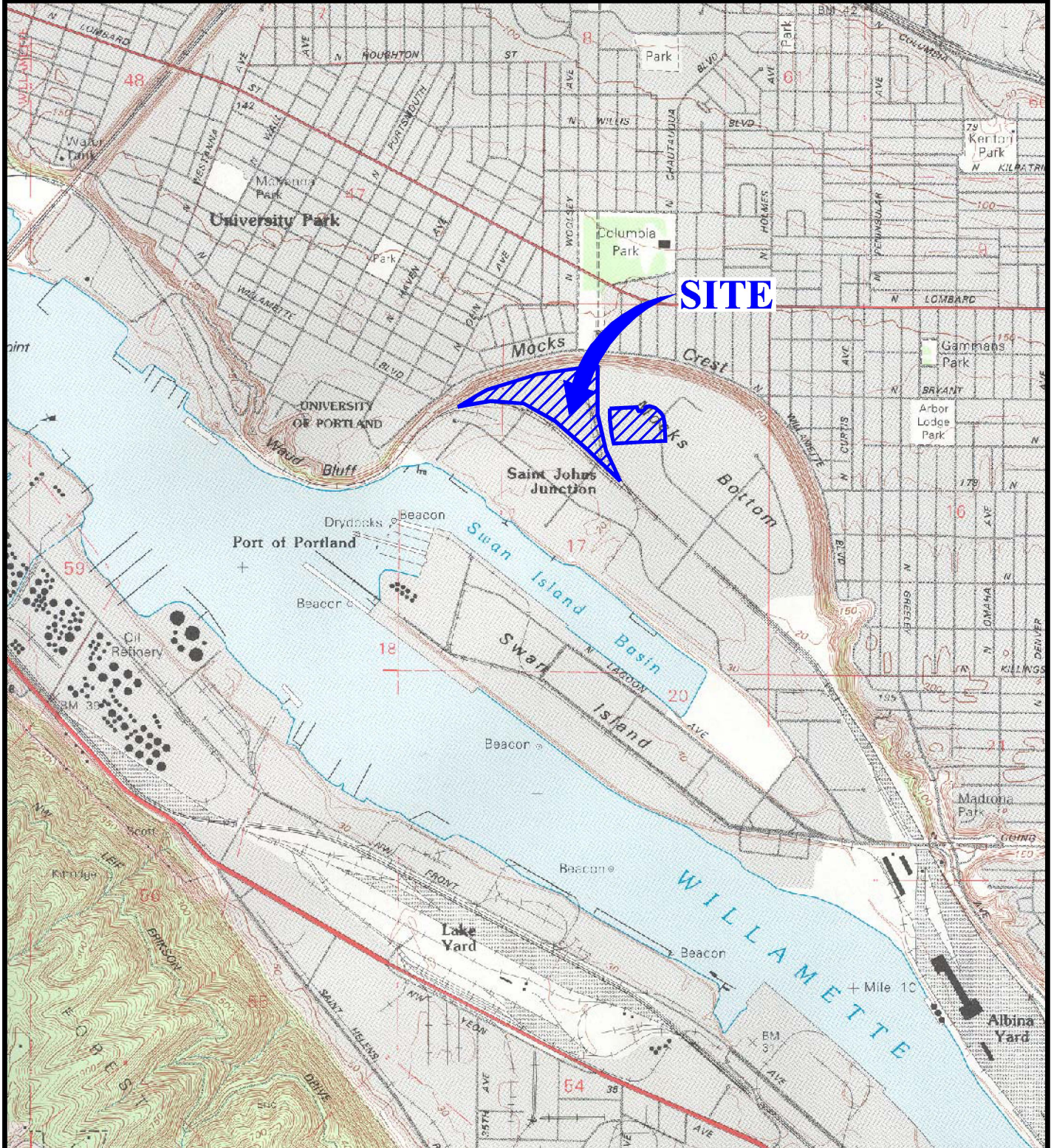
Daimler Truck Manufacturing Plant Portland, OR

Source: Base Map Prepared From DeLorme 3-D TopoQuads (1999).
Site Address: 6936 N. Fathom Street, Portland, OR
Section: 17 Township: 1N Range: 1E of Willamette Meridian

Legend:



Site (Property Owned by Daimler Trucks
North America LLC)



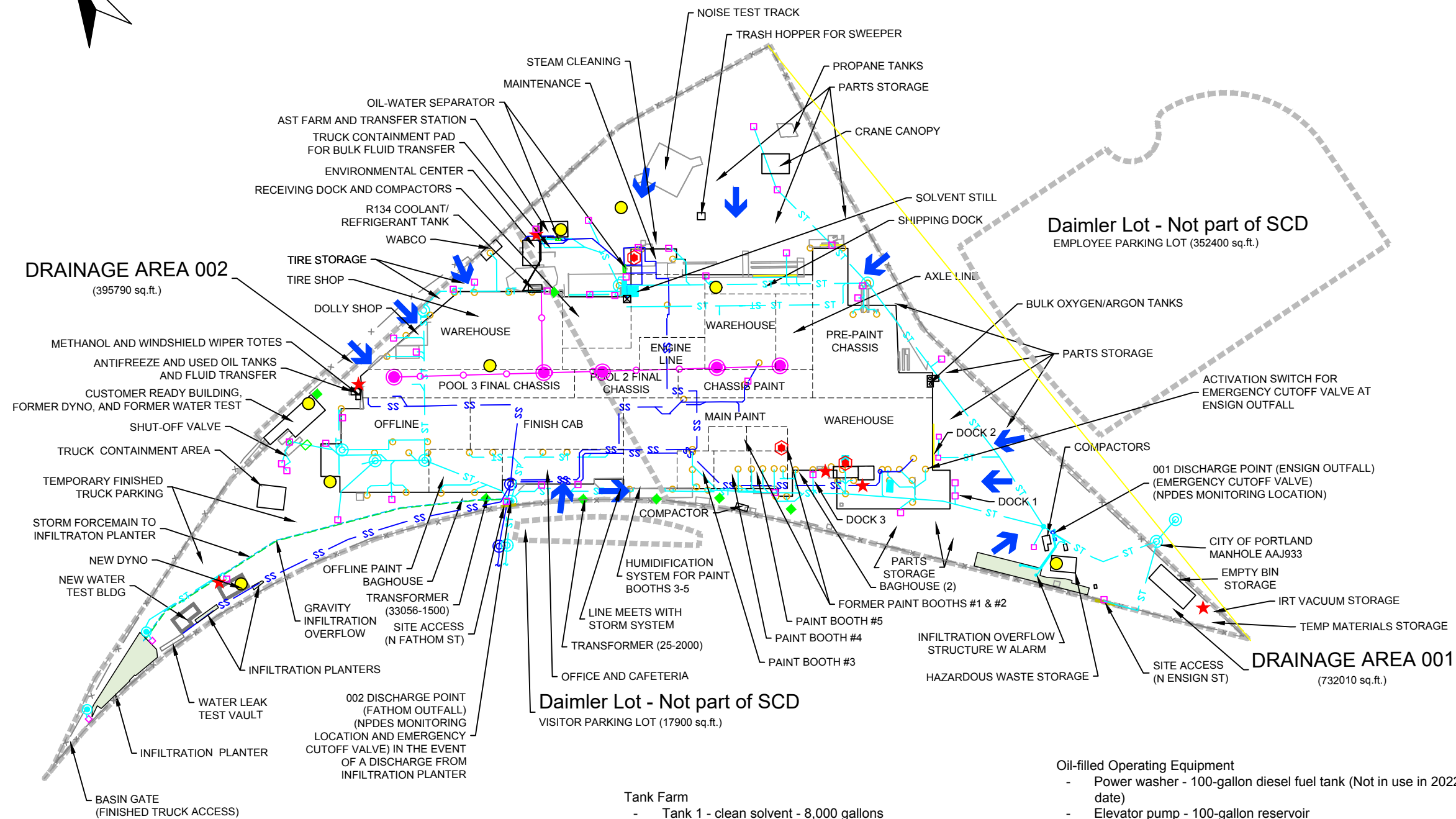


Figure 2

Facility Map

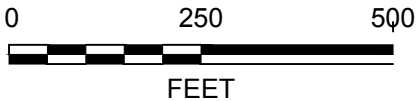
Portland Truck Manufacturing
Plant (PTMP) Portland LLC
Portland, Oregon

Legend:

- Property Boundary
- Fence Line
- Drainage Area Boundary
- ST Storm Sewer Line
- SS Sanitary Sewer Line
- Aboveground Piping
- Product Dispenser
- Catch Basin
- Manhole
- Dry Well
- Roof Drain (not accessible)
- Spill Kit (universal)
- Spill Kit (absorbent)
- Transformer
- Sump
- Oil/Water Separator (OWS)
- Cooling Tower
- Oil-Filled Electrical Equipment
- Stormwater Flow Direction

Notes:

- 1) Storm and sanitary sewer systems from PTMP LLC.
- 2) Survey by Chase Jones & Associates, 11/16/02, updated 01/24/03.
- 3) The entire facility surface is paved or covered with buildings except for scattered areas along the perimeter and the bioswale at the west end of the facility.



DAIMLER TRUCK
Portland Plant

Tank Farm

- Tank 1 - clean solvent - 8,000 gallons
- Tank 2 - used solvent - 8,000 gallons
- Tank 3 - 80-90 weight gear oil - 4,000 gallons
- Tank 4 - diesel fuel - 20,000 gallons
- Tank 5 - synthetic 75-90 weight gear lubricant - 3,000 gallons
- Tank 6 - antifreeze - 3,000 gallons
- Tank 7 - synthetic 75-90 weight gear oil - 8,000 gallons
- Tank 8 - synthetic 50 weight motor oil - 8,000 gallons
- Tank 9 - 15-40 weight motor oil 0 8,000 gallons

Other Tanks

- Used oil storage tank - 1,000 gallons
- Used oil collection basin - 100 gallons
- Antifreeze tank - 3,000 gallons
- Final Chasis Antifreeze tank- 300 gallons

Oil-filled Operating Equipment

- Power washer - 100-gallon diesel fuel tank (Not in use in 2022 to date)
- Elevator pump - 100-gallon reservoir
- Solvent Still - 150 gallons
- Transformers (7) - maximum 512 gallons

Drums and Totes (max capacity)

- EC800 - (200) 55-gallon drums, (15) totes
- Hazardous Waste Storage Area - (120) 55-gallon drums +(2) 300-gallon totes
- Hyster Maintenance - (5) 55-gallon drums of automatic transmission fluid, lubricants, used oil
- Methanol Tote - (1) 350-gallon tote
- Final Chassis Line - up to (4) drums, (4) 330-gallon totes of various oils, lubricants, diesel exhaust fluid
- Offline - up to (4) drums of various oils and lubricants
- Used Oil Accumulation - (4) 55-gallon drums

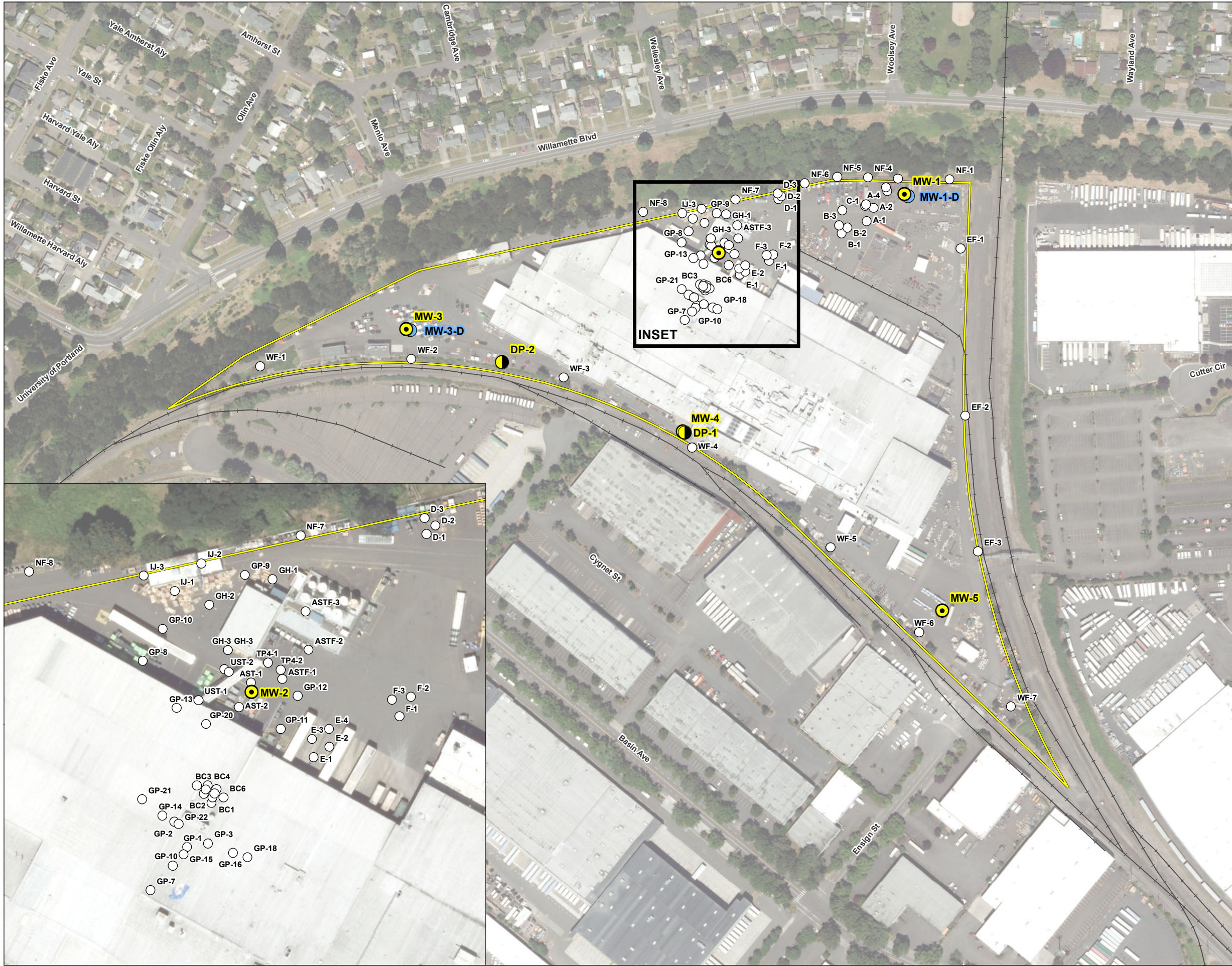
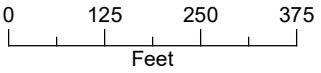
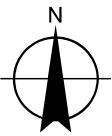


FIGURE 3
Well Location Map
Daimler Trucks of North America

LEGEND

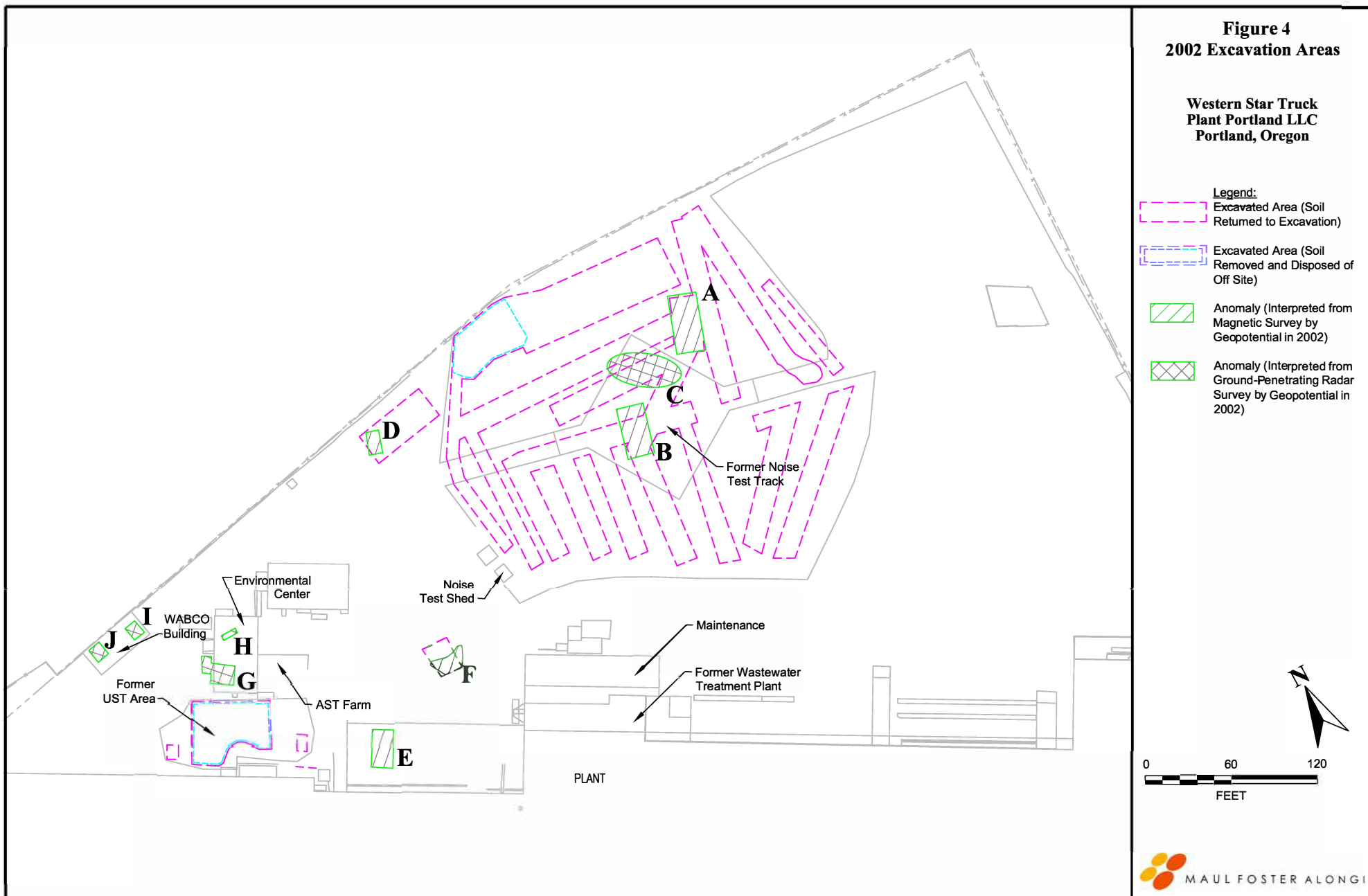
- Temporary Monitoring Well Location - Deeper Aquifer
- Monitoring Well Location
- Grab Groundwater Sample Location
- Former Boring
- Property Boundary
- Railroad



Date: January 30, 2020
Data Sources: ESRI, METRO, COP 2017



G:\8006.10 Western Star (TMP)\101_RL_SCE_RAIFig2-10_Excavations_Anomalies.dwg, Layout1, 12/17/2009 9:18:07 AM



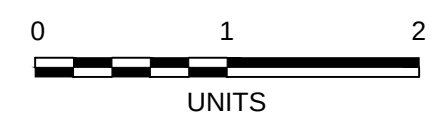
SEE ENLARGEMENT

Figure 5
Pre-2010 Sampling Locations

Daimler Truck
Manufacturing Plant
Portland, OR

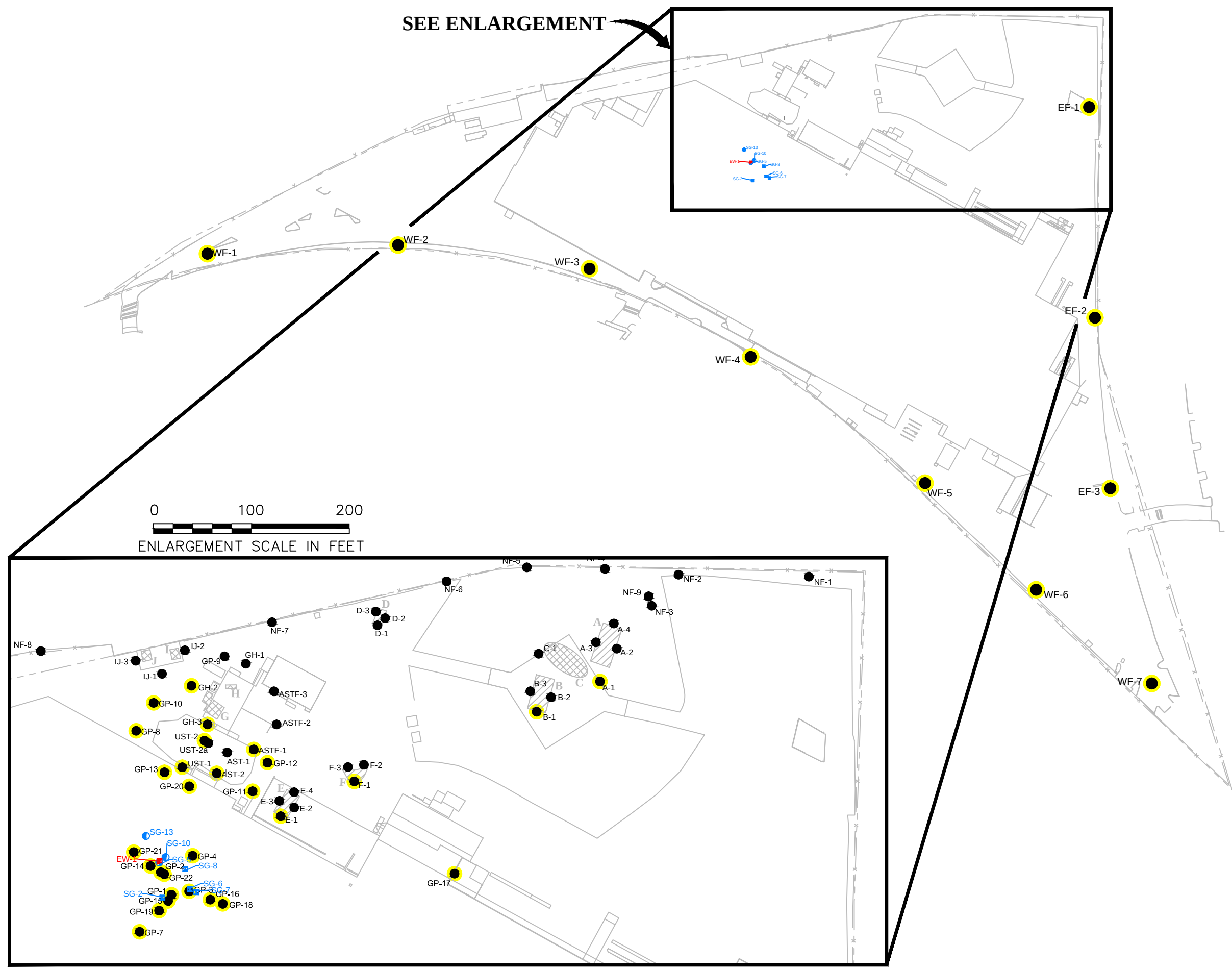
Legend:

- Property Boundary
- Fence Line
- Boring Locations
- Groundwater Sample Locations
- Sub-Slab Soil Gas Sample Location
- SVE Extraction Well
- SVE Monitoring Well
- Anomaly (Interpreted from Magnetic Survey by Geopotential in 2002)
- Anomaly (Interpreted from Ground-Penetrating Radar Survey by Geopotential in 2002)



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 BRIDGEWATER GROUP, INC.



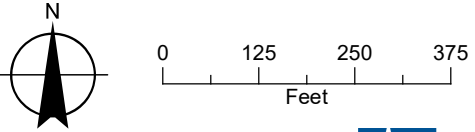
G:\8006.10 Western Star (TMP)\01_Source Control Evaluation 2011\Fig5-1_Groundwater Samples.dwg



FIGURE 6
Shallow Groundwater
Potentiometric Map
(September 4, 2019)
Daimler Trucks of North America

- LEGEND**
- Temporary Monitoring Well Location-
Deeper Aquifer
GW Elevation (ft)
 - Monitoring Well Location
GW Elevation (ft)
 - Water Table Elevation Contour (ft)
(dashed where inferred)
 - Excavation Area
 - Property Boundary
 - Railroad

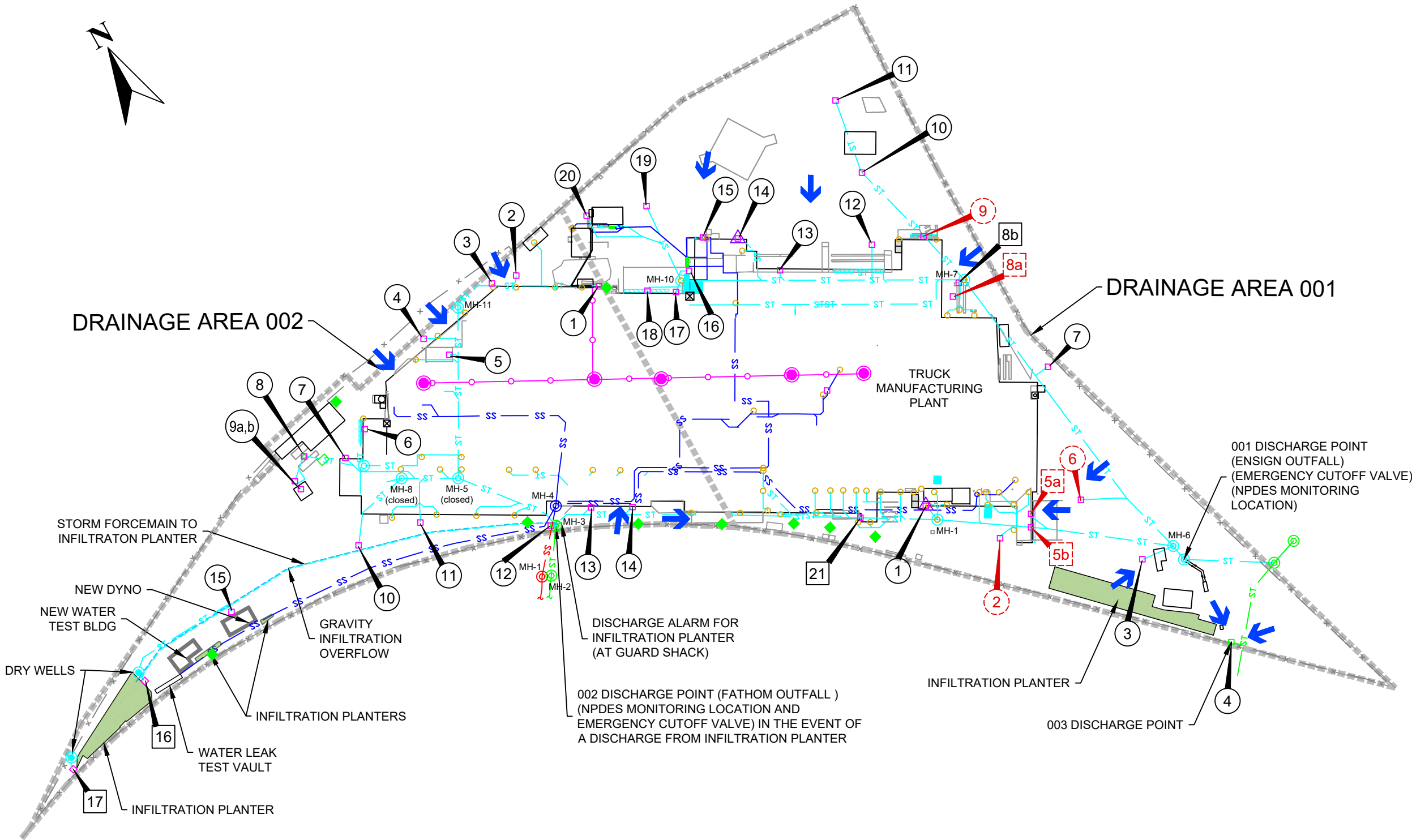
NOTES:
*MW-2 not used in contouring.
DP-1 and DP-2 measurements are approximate.
Collected 07/23/19 from lower aquifer unit.
1. Locations MW-1-D and MW-3-D were
grab samples and not used to develop this map.



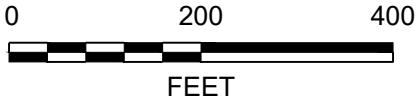
Date: February 4, 2020
Data Sources: ESRI, METRO, COP 2017

Figure 7
Stormwater System

**Western Star
Truck Plant Portland LLC
Portland, Oregon**



- Legend:**
- Property Boundary
 - x- Fence Line
 - Drainage Area Boundary
 - ST Storm Sewer Line
 - ST Storm Sewer Line - City of Portland (COP)
 - SS Sanitary Sewer Line
 - SS Sanitary Sewer Line - COP
 - o- Aboveground Piping
 - Product Dispenser
 - Catch Basin with Biochar Treatment Tote
 - Catch Basin - COP
 - Manhole
 - Dry Well
 - Roof Drain (not accessible)
 - Trench Drain
 - ◆ Transformer
 - ☒ Sump
 - ☐ Vault (no discharge)
 - Oil/Water Separator (OWS)
 - ➔ Stormwater Flow Direction
 - # Catch Basin Designation
 - # Updated Catch Basin Designation
 - Catch Basin Removed (or To Be Removed)



BRIDGEWATER GROUP

- Notes:**
- 1) Storm and sanitary sewer systems from Western Star Truck Plant Portland LLC.
 - 2) Survey by Chase Jones & Associates, 11/16/02, updated 01/24/03.
 - 3) The entire facility surface is paved or covered with buildings except for scattered areas along the perimeter and the bioswale at the west end of the facility.

Figure 8
Stormwater System Cleanout
Solids Sample Location

**Daimler Truck
Manufacturing Plant
Portland, OR**

- Legend:
- Property Boundary
 - Fence Line
 - Retaining Wall
 - ST Storm Sewer Line
 - SS Sanitary Sewer Line
 - Catch Basin
 - Manhole
 - Dec. 9, 2006 and Feb. 03, 2007 Cleanouts
 - Feb. 10, 2007 Cleanout
 - Jan. 27, 2007 Cleanout
 - Sept. 25, 2010 Cleanout

Notes:

1) Survey by Chase Jones & Associates, 11/16/02, updated 01/24/03.

2) Ensign area catch basin and stormwater line solids cleaned out on Dec. 10, 2006, Jan. 27, 2007 and Feb. 3, 2007

3) Fathom area catch basin and stormwater line solids cleaned out on Feb. 10, 2007.

4) Additional cleanout of Fathom system completed in 2013 and 2016 not shown.



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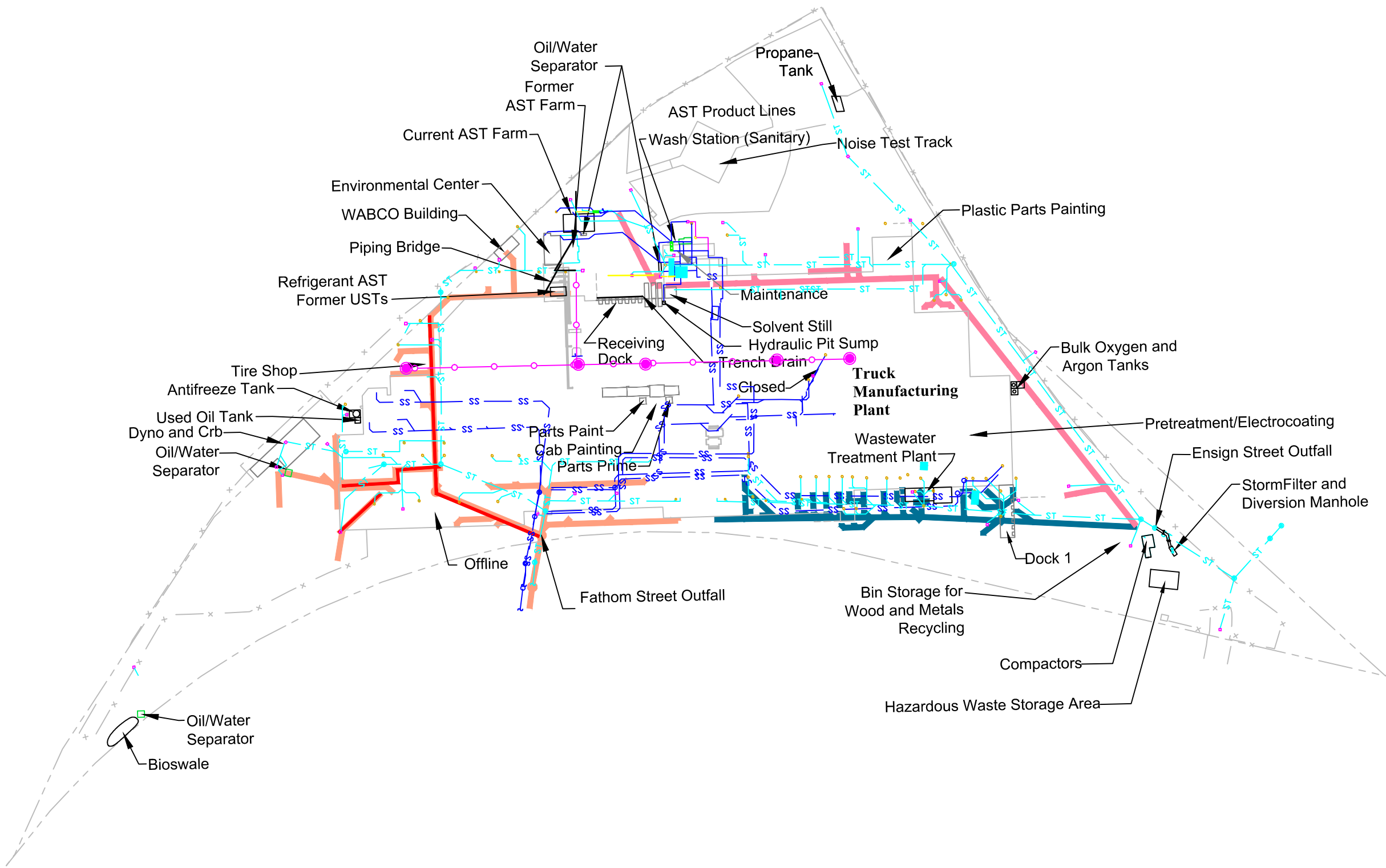


Figure 9a

Arsenic (ug/L) in Stormwater at Portland Harbor Heavy Industrial Sites

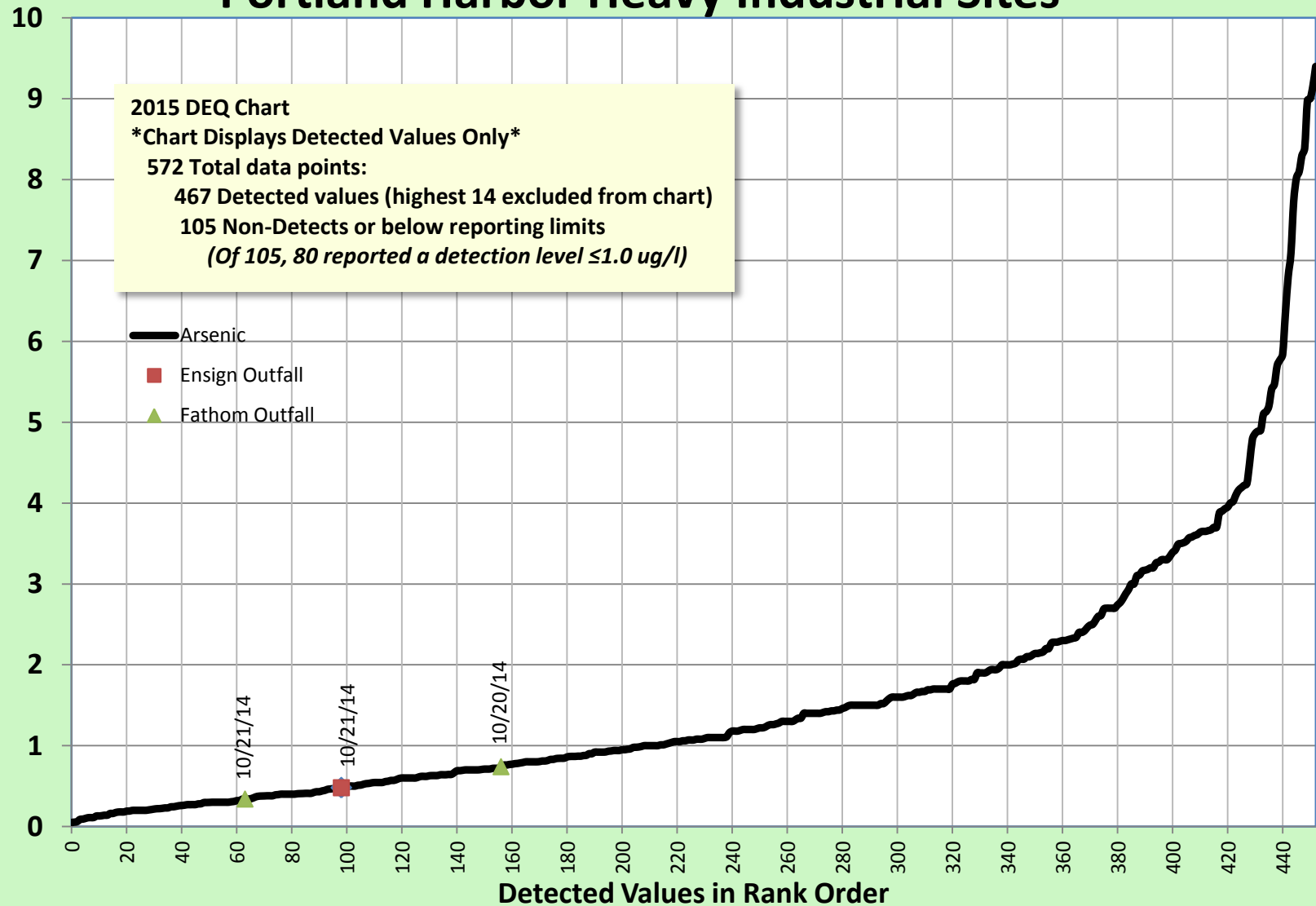


Figure 9b

Cadmium (ug/L) in Stormwater at Portland Harbor Heavy Industrial Sites

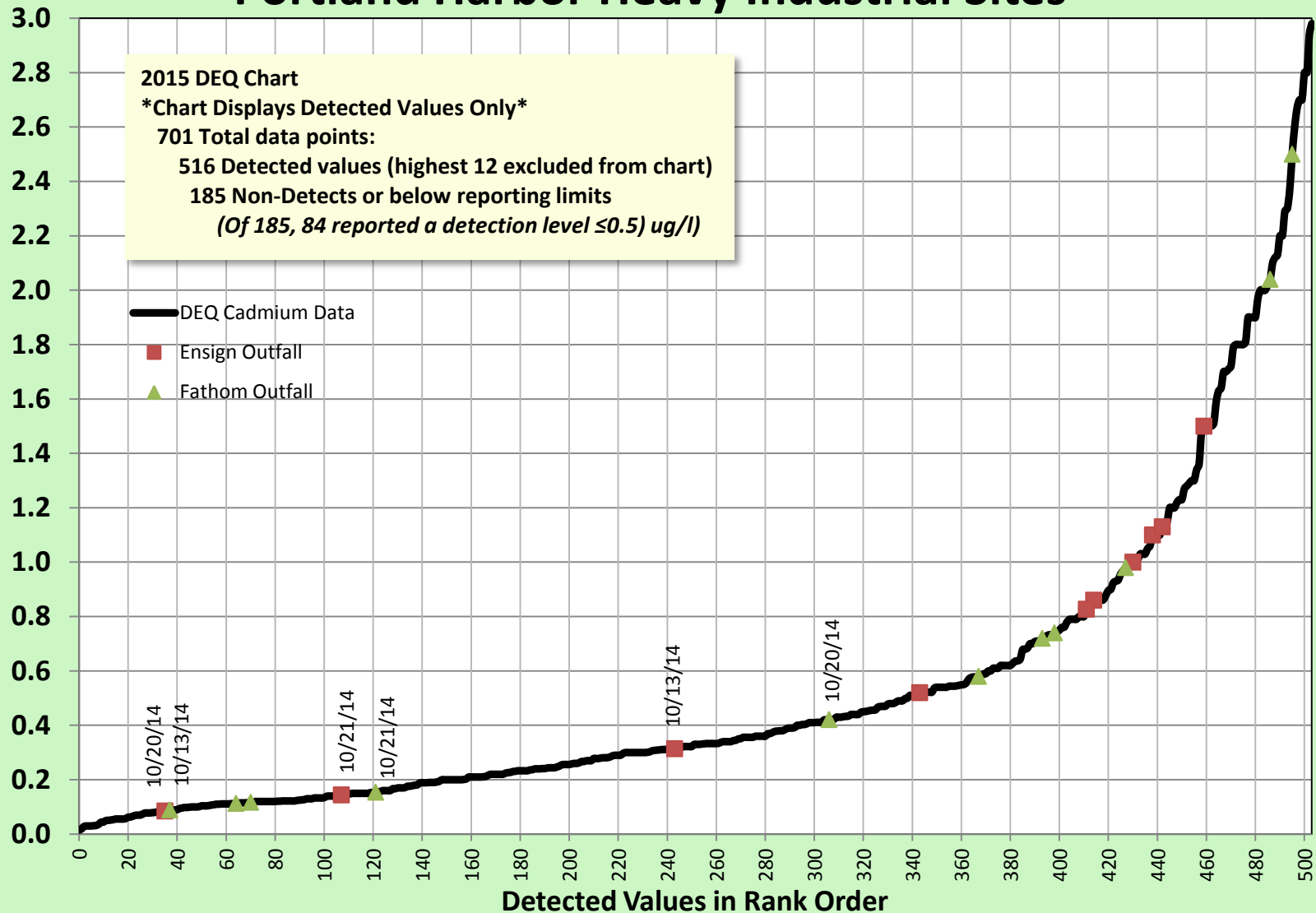


Figure 9c

Copper (ug/L) in Stormwater at Portland Harbor Heavy Industrial Sites

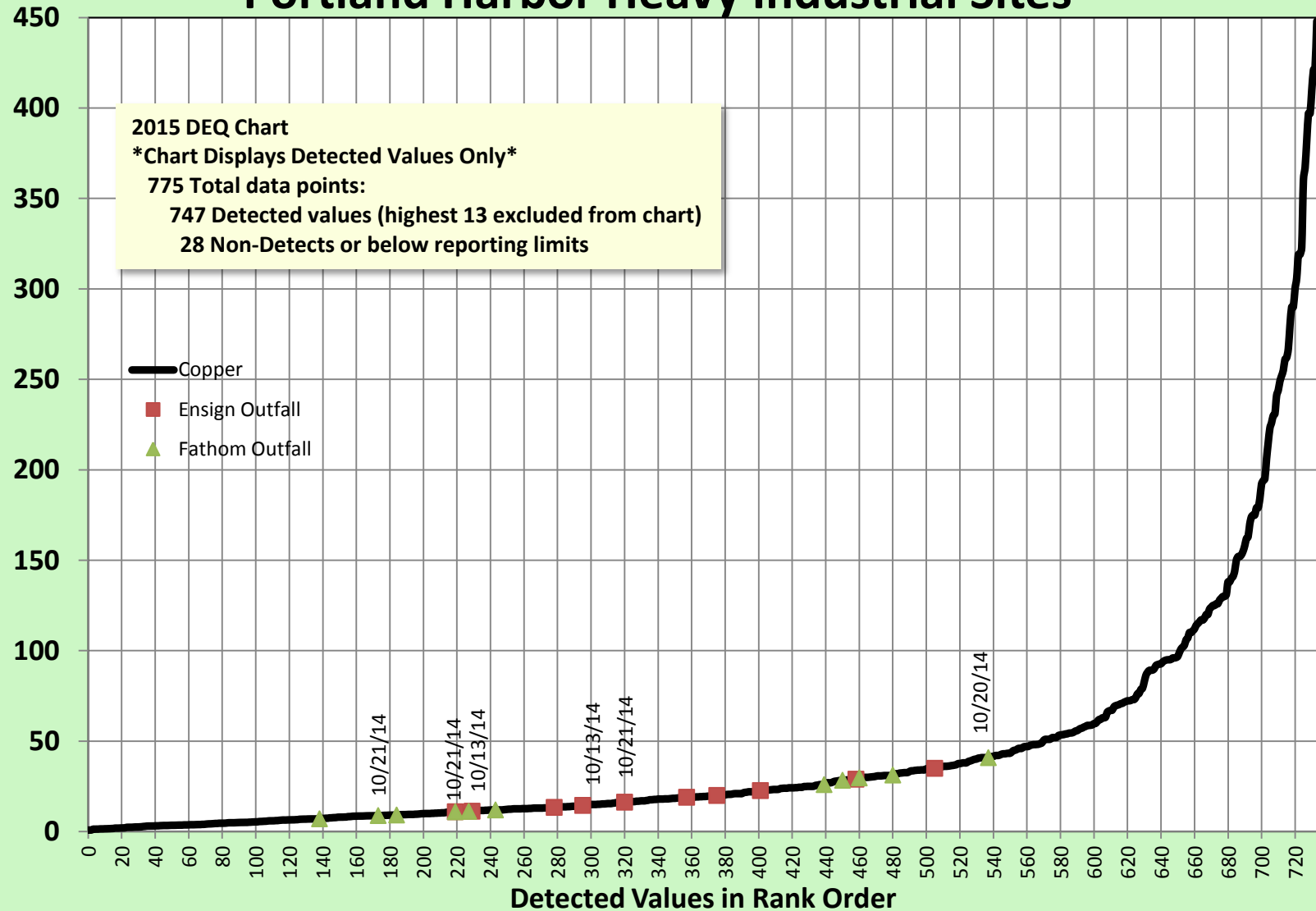


Figure 9d

Lead (ug/L) in Stormwater at Portland Harbor Heavy Industrial Sites

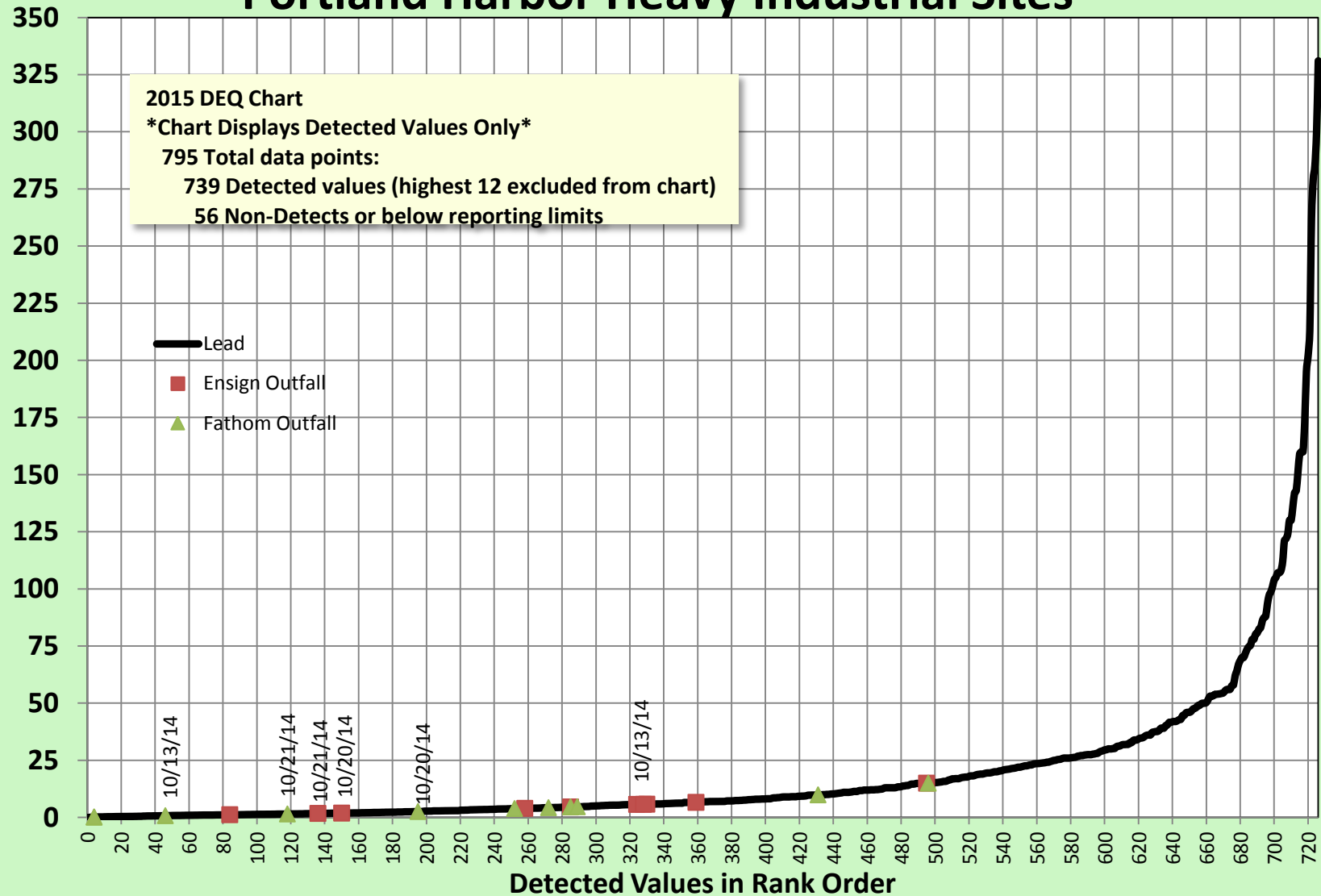


Figure 9e

Zinc (ug/L) in Stormwater at Portland Harbor Heavy Industrial Sites

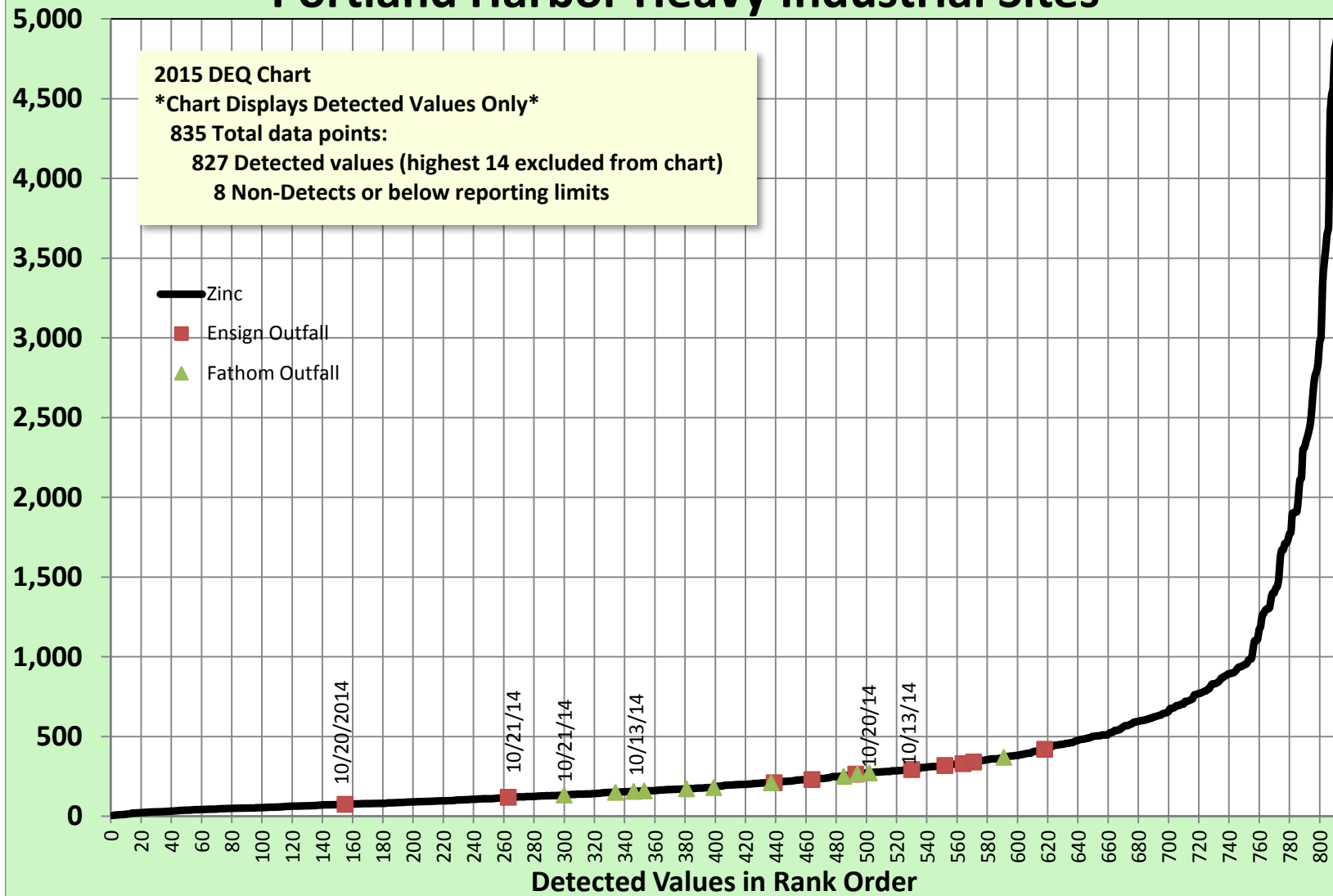


Figure 9f

Total PAHs (ug/L) in Stormwater at Portland Harbor Heavy Industrial Sites

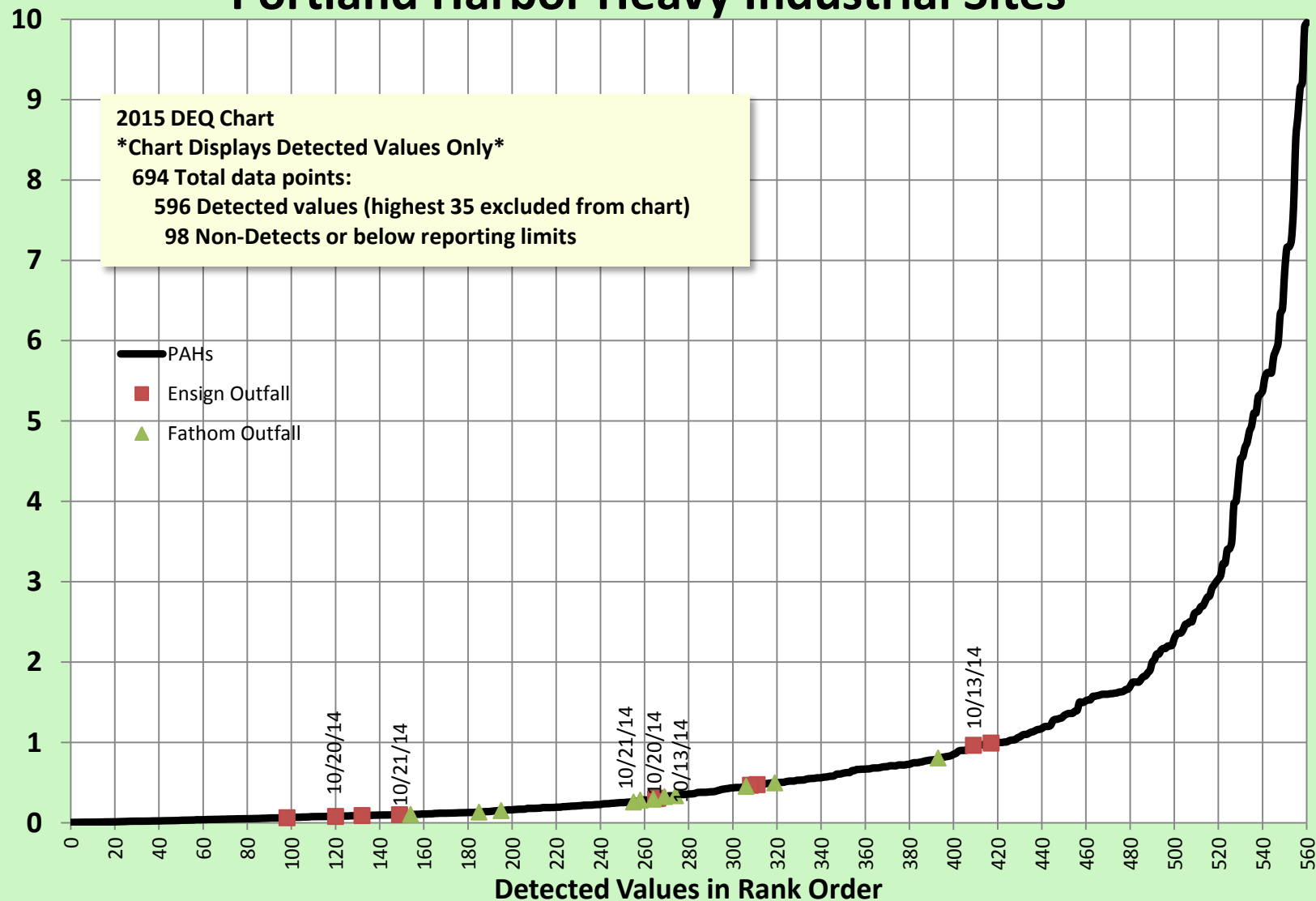


Figure 9g

Bis(2-Ethylhexyl)phthalate in Stormwater at Portland Harbor Heavy Industrial Sites (ug/L)

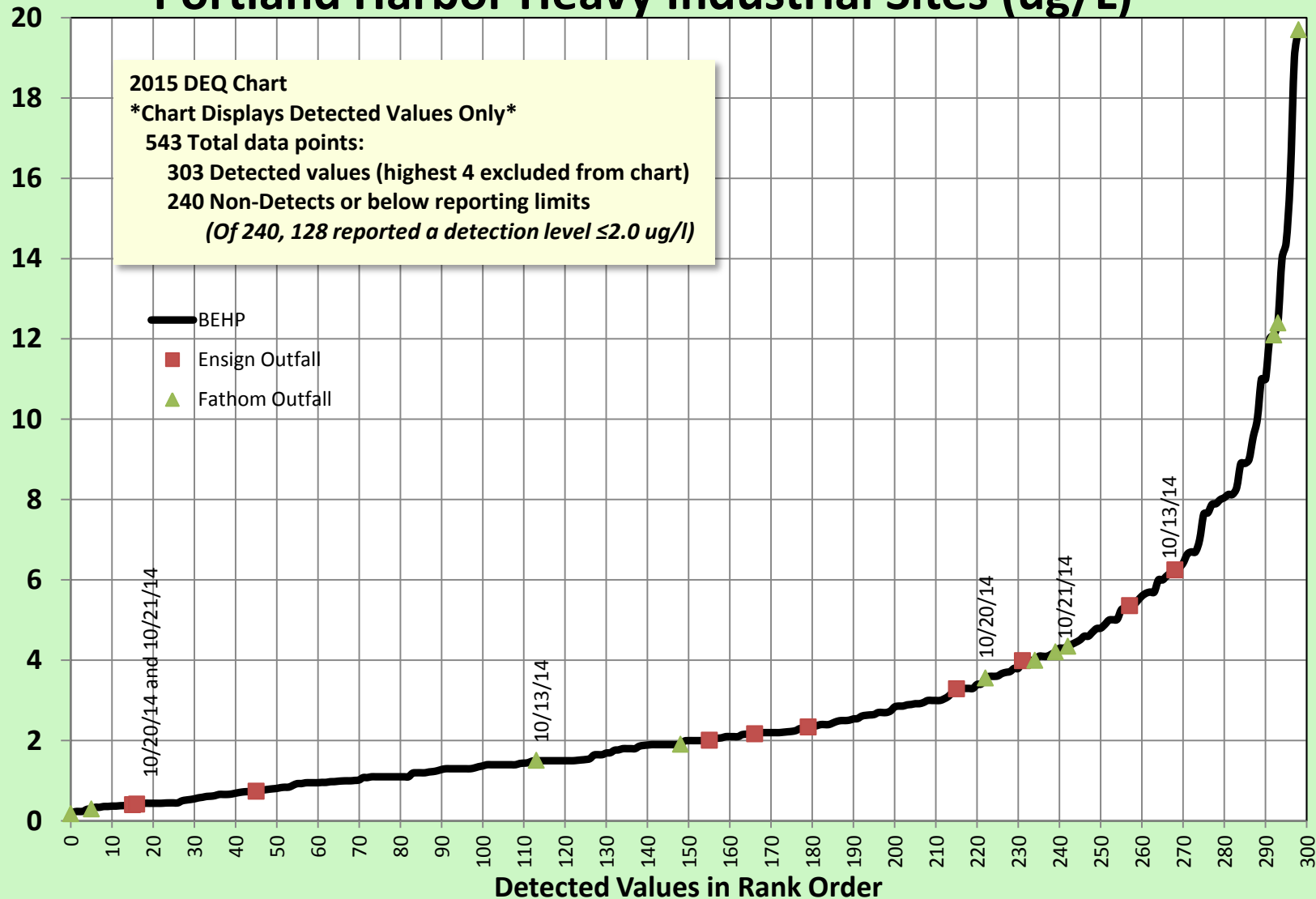


Figure 10a
Copper (ug/l) in Stormwater at
Portland Harbor Heavy Industrial Sites

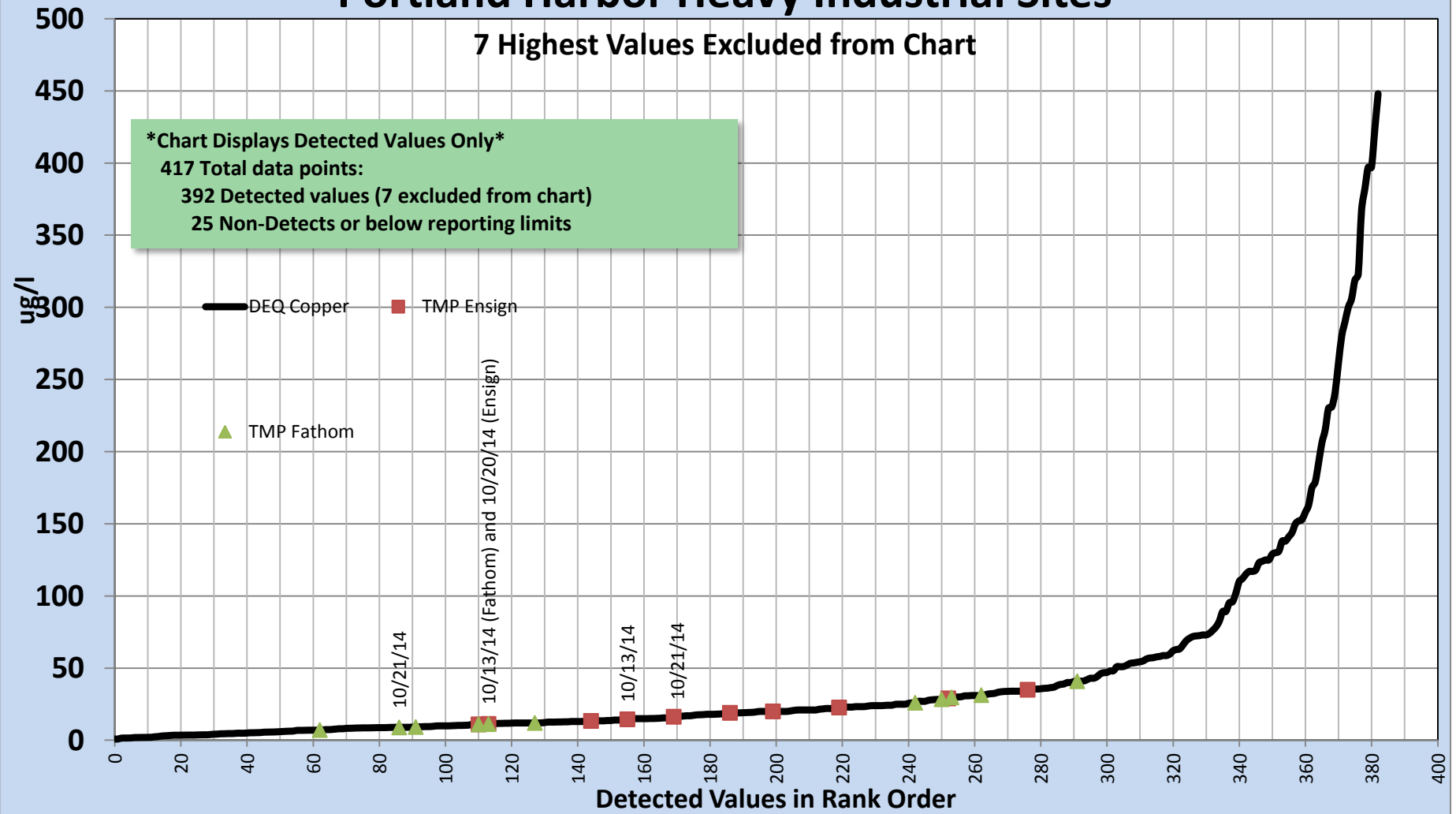


Figure 10b

Lead (ug/l) in Stormwater at Portland Harbor Heavy Industrial Sites

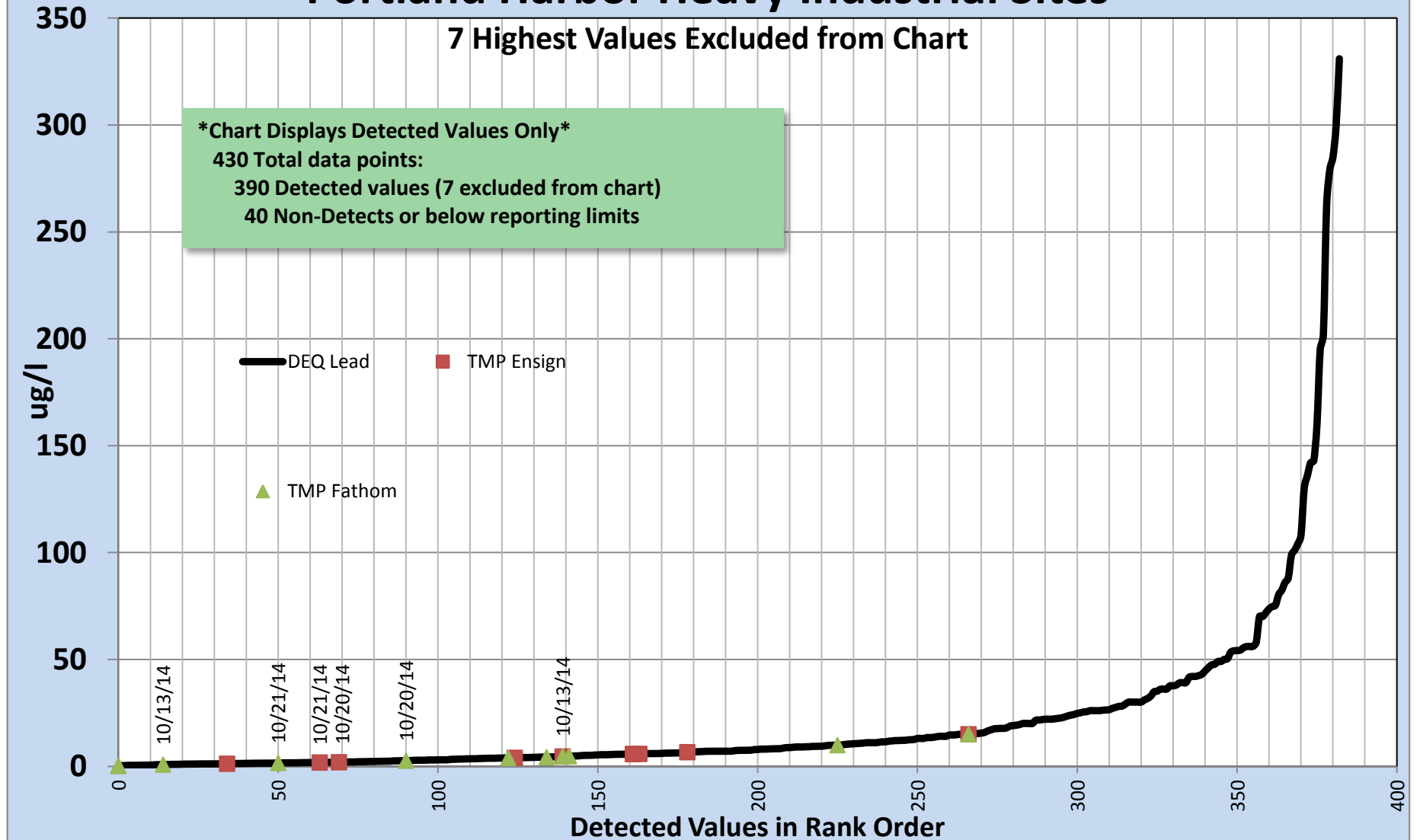


Figure 10c
Zinc (ug/l) in Stormwater at
Portland Harbor Heavy Industrial Sites

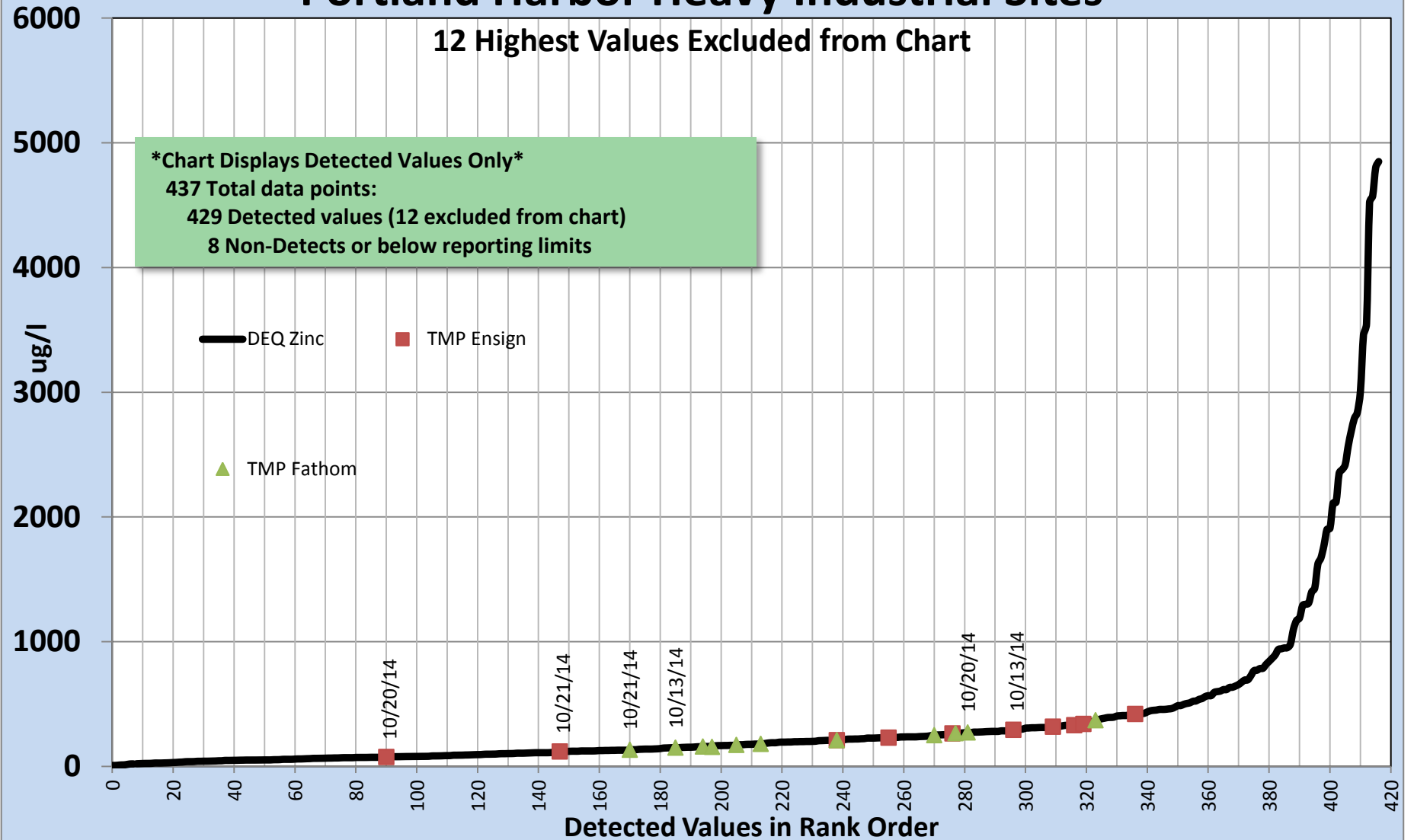


Figure 10d

Total PAHs (ug/l) in Stormwater at Portland Harbor Heavy Industrial Sites

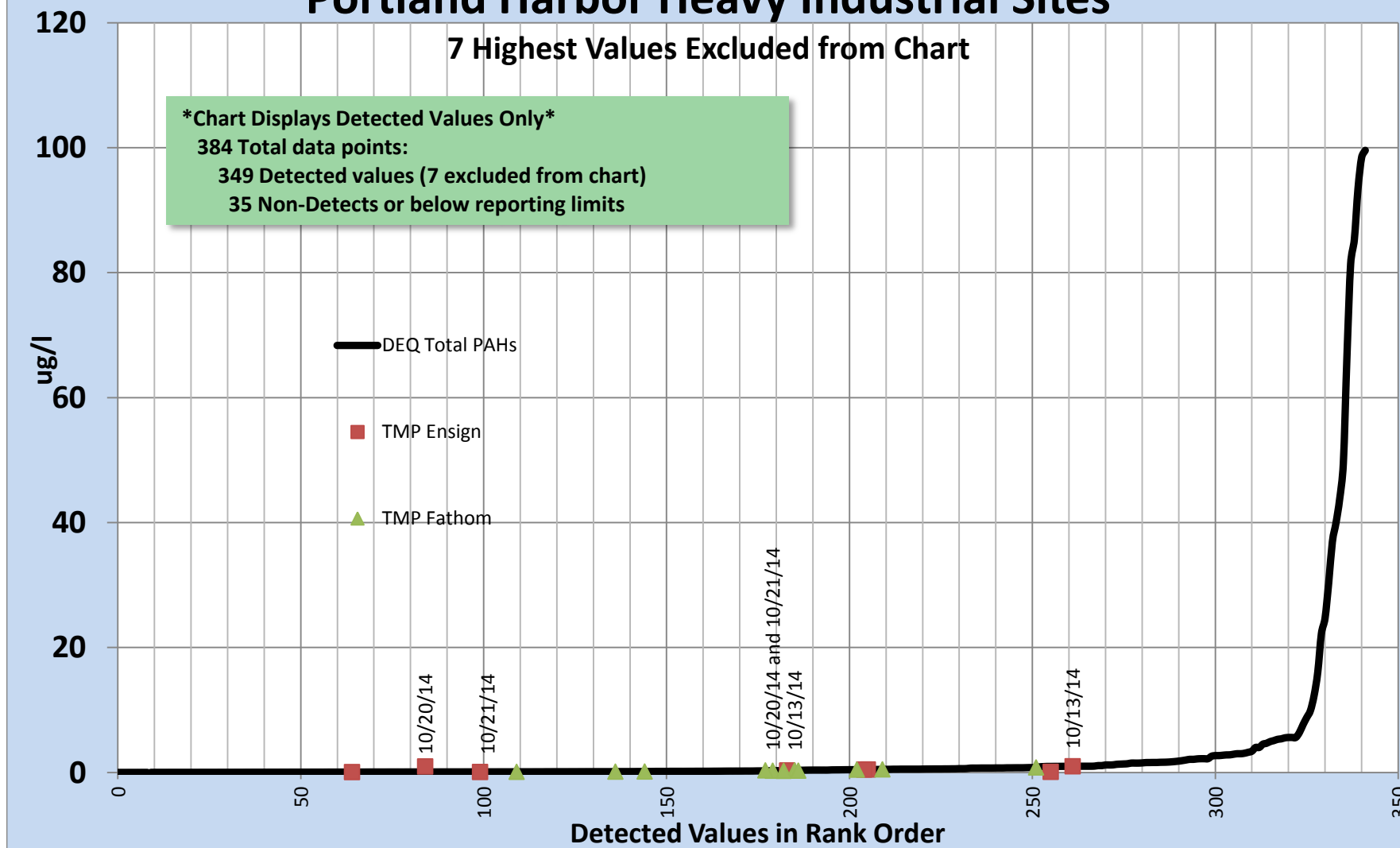


Figure 10e
Cadmium (ug/l) in Stormwater at
Portland Harbor Heavy Industrial Sites

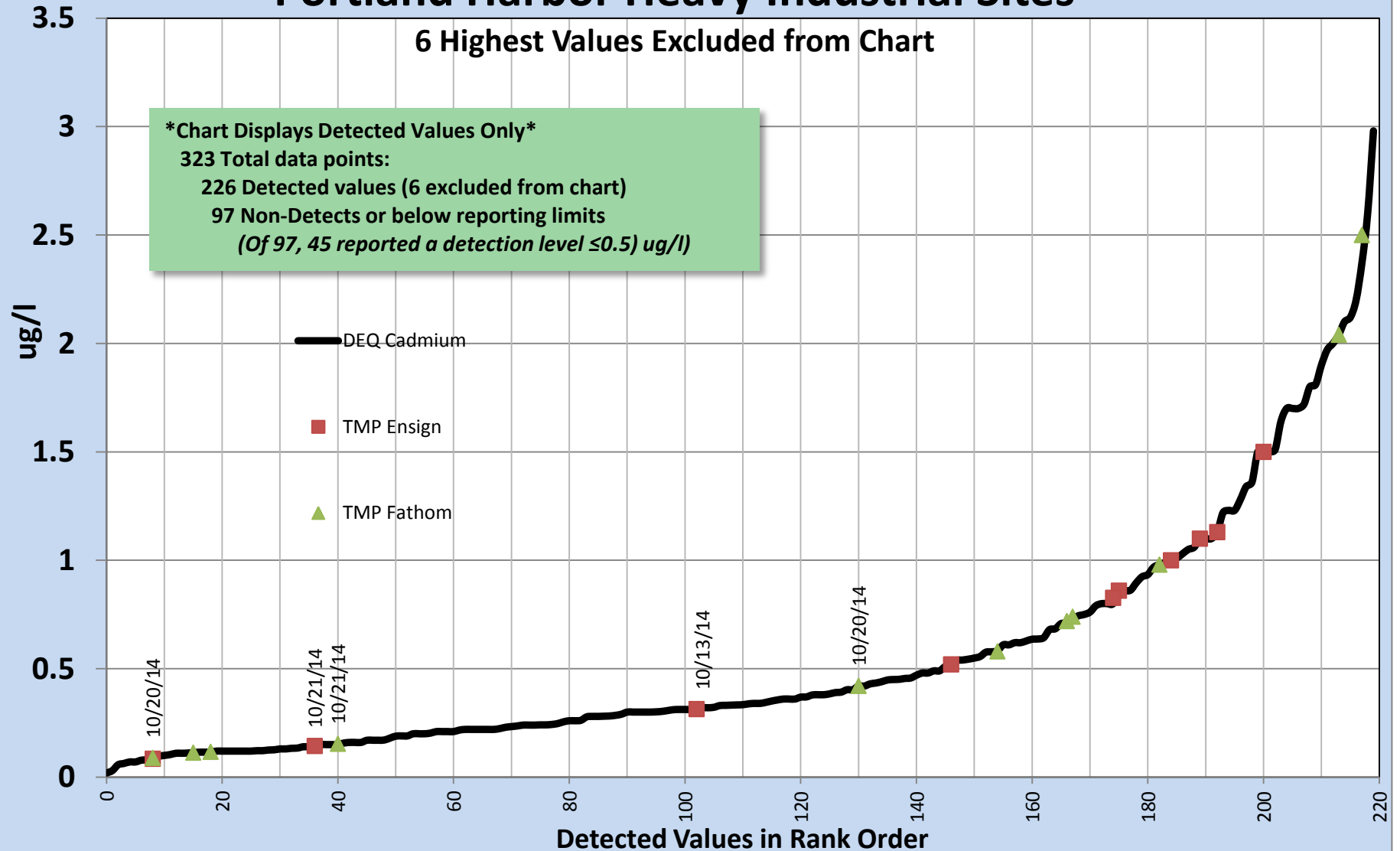


Figure 10f

Bis(2-Ethylhexyl)phthalate in Stormwater at Portland Harbor Heavy Industrial Sites

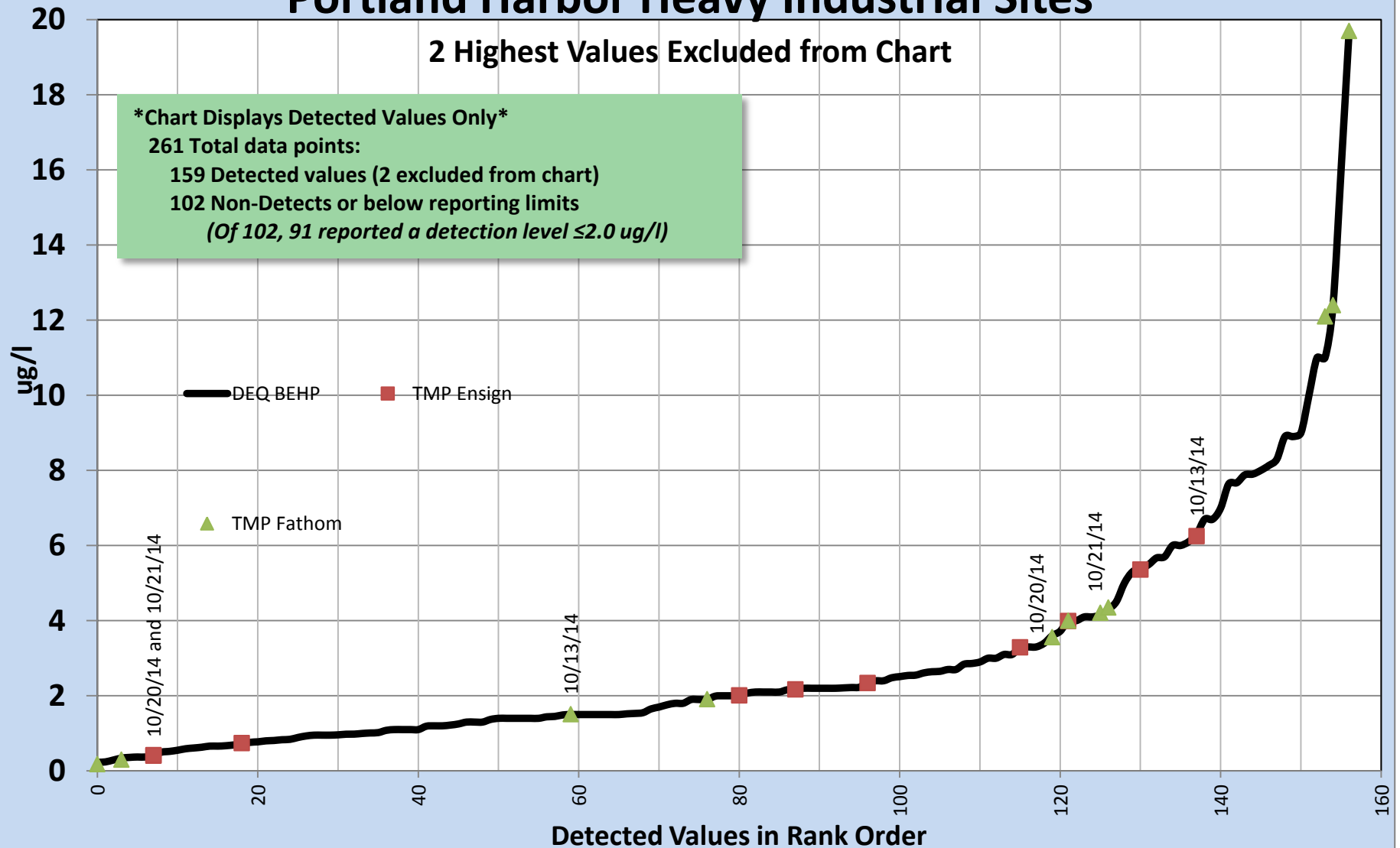


Figure 10g
TSS (mg/l) in Stormwater at
Portland Harbor Heavy Industrial Sites

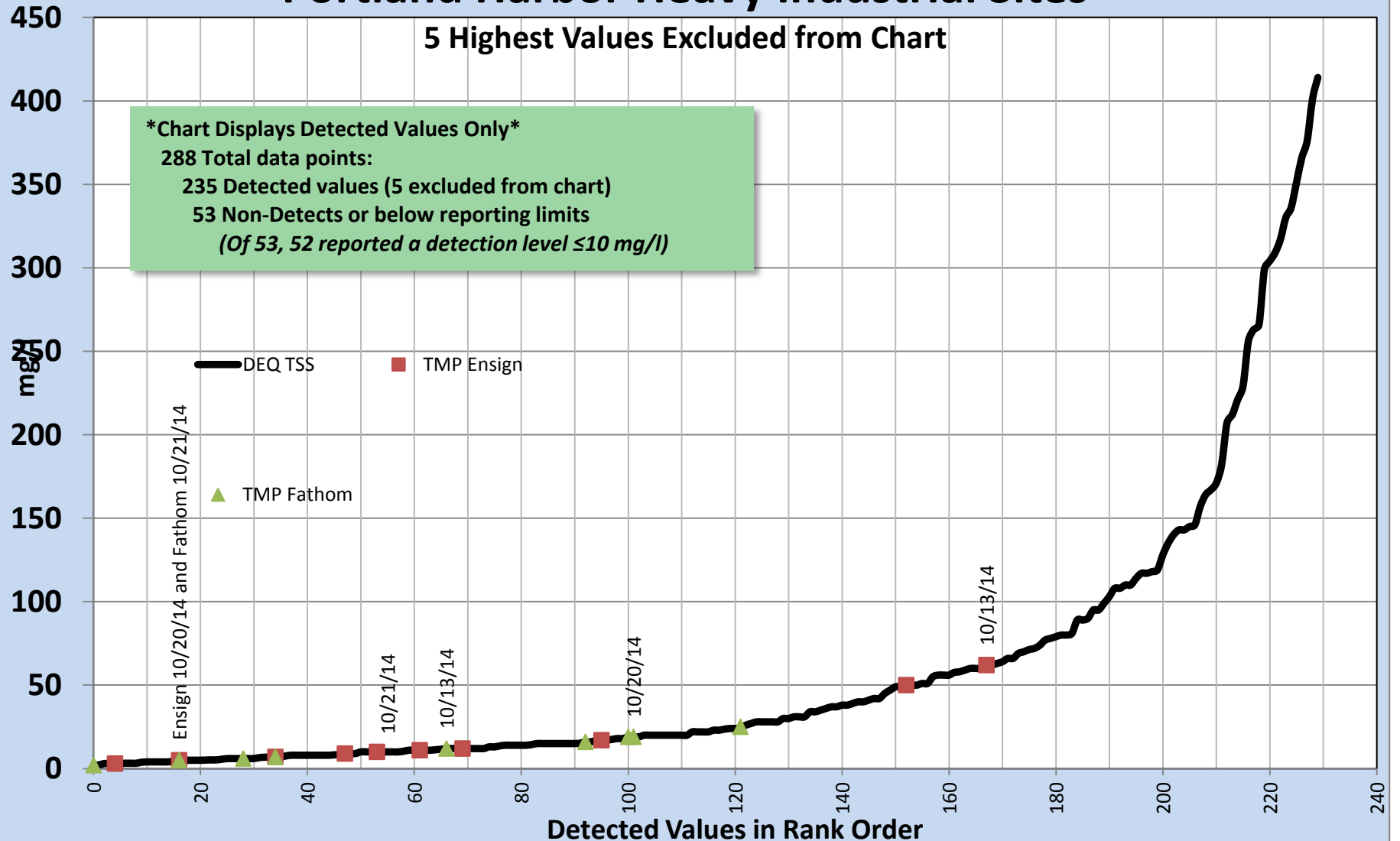


Figure 10h

Arsenic (ug/l) in Stormwater at Portland Harbor Heavy Industrial Sites

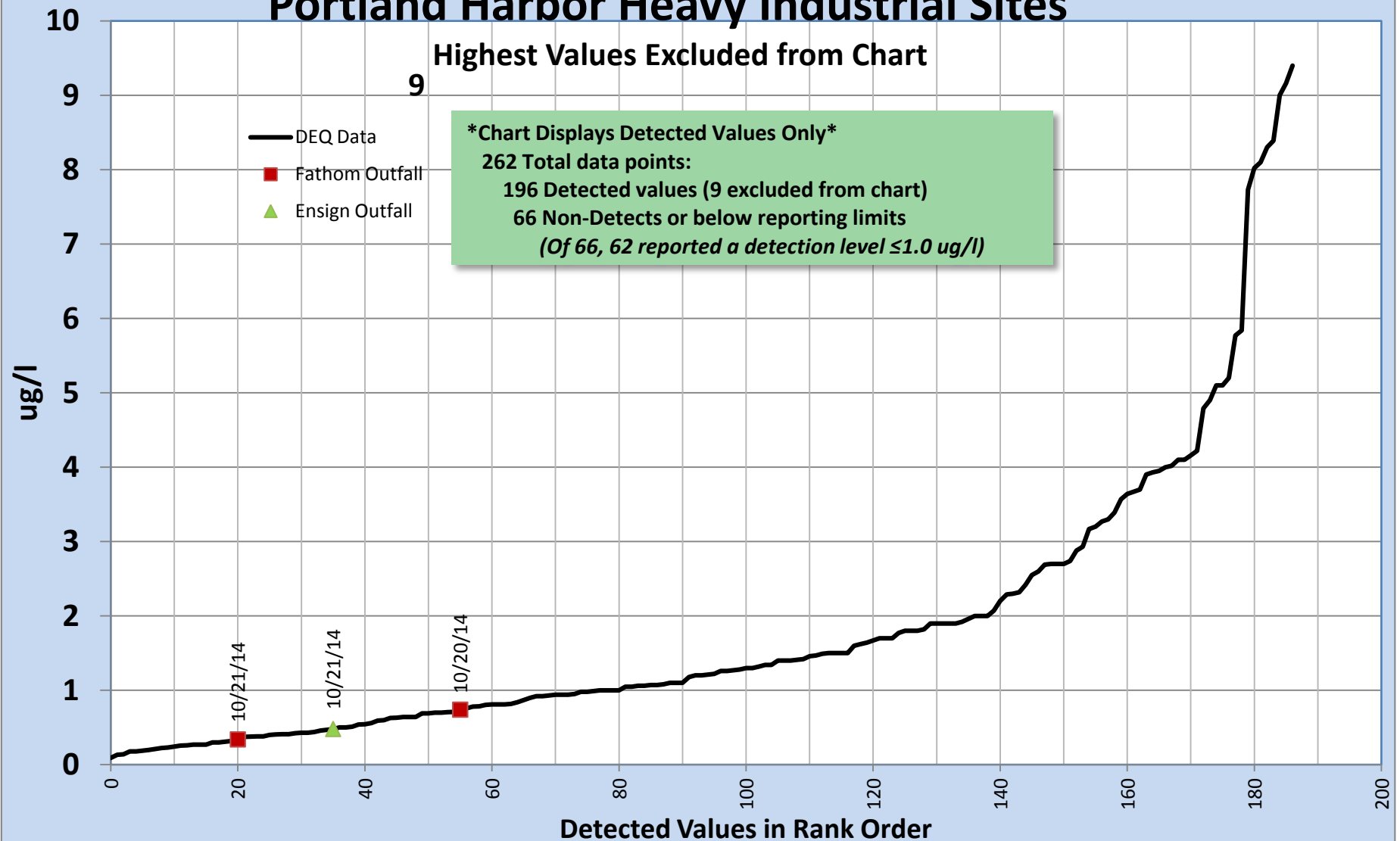


Table 1
Reconnaissance Groundwater Sampling at Site Perimeter
Daimler Truck Manufacturing Plant

Groundwater Reconnaissance at Site Perimeter (µg/L)		Portland Harbor (RAOs 4 & 8)		WF-1	WF-2	WF-3	WF-4	WF-5	WF-5 DUP	WF-6	WF-7	EF-1	EF-2	EF-3	Maximum Concentration
GROUP	CHEMICAL	CLEANUP LEVEL Table 17 ROD ¹	SLV Table 3-1 JSCS ²	10/18/02	10/18/02	10/18/02	10/18/02	10/18/02	10/18/02	10/18/02	10/18/02	10/18/02	10/18/02	10/18/02	
Dissolved Metals	Antimony	^	6	3 U	3 U	3 U	3 U	3.23	3 U	3 U	3 U	3 U	3 U	3 U	3.23
	Arsenic	0.018	^	47.8	13.4	14.7	9.25	13.2	14	24.7	1.25	24.7	14	14.4	47.8
	Chromium (Total)	11	^	19.6	6.2	15.7	13.8	21	24.5	30.2	11.5	9.68	11	15.8	30.2
	Lead	0.54	^	0.31	0.11	0.06	0.13	0.09	0.05 U	0.05	0.13	0.09	0.05 U	0.11	0.31
	Mercury	^	0.77	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
	Nickel	^	16	6.91	2	2.41	3.61	42.1	58.9	16.7	2.84	3.07	1.29	9.2	58.9
	Zinc	36.5	^	13.1	5.41	10.1	6.03	18	87.7	6.13	7.58	14	3 U	17.7	87.7
Polycyclic Aromatic Hydrocarbons	Naphthalene	^	0.2	0.054 U	--	0.0479 U	0.0489 U	0.0494 U	--	0.0485 U	0.0477 U	0.0489 U	0.0472 U	0.0476 U	0.054 U
	2-Methylnaphthalene	^	0.2	0.054 U	--	0.0479 U	0.0489 U	0.0494 U	--	0.0485 U	0.0477 U	0.0489 U	0.0472 U	0.0476 U	0.054 U
	Acenaphthylene	^	0.2	0.0216 U	--	0.0192 U	0.0196 U	0.0197 U	--	0.0194 U	0.0191 U	0.0196 U	0.0189 U	0.019 U	0.0216 U
	Acenaphthene	23	^	0.12	--	0.0192 U	0.0196 U	0.0197 U	--	1.44	0.0191 U	0.0196 U	0.0189 U	0.05	1.44
	Fluorene	^	0.2	0.0216 U	--	0.0192 U	0.0196 U	0.0197 U	--	0.0194 U	0.0191 U	0.0196 U	0.0189 U	0.019 U	0.0216 U
	Phenanthrene	^	0.2	0.0381	--	0.0416	0.0196 U	0.0523	--	0.713	0.0191 U	0.0196 U	0.0189 U	0.0389	0.713
	Anthracene	0.73	^	0.0216 U	--	0.0192 U	0.0196 U	0.0197 U	--	0.0194 U	0.0204	0.0196 U	0.0189 U	0.019 U	0.0216
	Fluoranthene	^	0.2	0.0216 U	--	0.0192 U	0.0196 U	0.0197 U	--	0.0382	0.0191 U	0.0196 U	0.0189 U	0.019 U	0.0382
	Pyrene	^	0.2	0.0547	--	0.0476	0.0196 U	0.0277	--	0.141	0.128	0.0922	0.0457	0.0323	0.141
	Chrysene	0.0013	^	0.0216 U	--	0.0192 U	0.0196 U	0.0197 U	--	0.0194 U	0.0191 U	0.0196 U	0.0189 U	0.019 U	0.0216 U
	Benzo(a)pyrene	0.00012	^	0.0216 U	--	0.0192 U	0.0196 U	0.0197 U	--	0.0194 U	0.0191 U	0.0196 U	0.0189 U	0.019 U	0.0216 U
Volatile Organic Compounds	1,1,1 - Trichloroethane (TCA)	^	11	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	1 U	1 U	1 U
	1,1, - Dichloroethane	7	^	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	1 U	1 U	1 U
	1,1 - Dichloropropene	^	^	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,4 - Trimethylbenzene	^	^	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	1 U	1 U	1 U
	1,2 - Dichloroethane (EDC)	^	0.73	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	1 U	1 U	1 U
	cis-1,2 - Dichloroethylene	9.9	^	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	1 U	1 U	1 U
	1,2 - Dichloropropane	^	0.97	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	1 U	1 U	1 U
	1,3,5 - Trimethylbenzene	^	^	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	1 U	1 U	1 U
	4 - Isopropyltoluene	^	^	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	1 U	1 U	1 U
	Bromobenzene	^	^	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	1 U	1 U	1 U
	Bromomethane	^	8.7	2 U	2 U	2 U	2 U	2 U	--	2 U	2 U	2 U	2 U	2 U	2 U
	Chloroethane	^	23	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	1 U	1 U	1 U
	Chloroform	^	0.17	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	1 U	1 U	1 U
	Chloromethane	^	2.1	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	1 U	1 U	1 U
	Isopropylbenzene	^	660	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	1 U	1 U	1 U
	Naphthalene	^	0.2	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	1 U	1 U	1 U
	Styrene	^	100	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	1 U	1 U	1 U
	Benzene	0.44	^	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	1 U	1 U	1 U
	n-Butyl Benzene	^	^	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	1 U	1 U	1 U
	sec-Butyl Benzene	^	^	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	1 U	1 U	1 U
	tert-Butyl Benzene	^	^	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	1 U	1 U	1 U
	Ethyl Benzene	7.3	^	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	1 U	1 U	1 U
	n-Propyl Benzene	^	^	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	1 U	1 U	1 U
	m,p-Xylene	^	1.8	2 U	2 U	2 U	2 U	2 U	--	2 U	2 U	2 U	2 U	2 U	2 U
	o-Xylene	^	13	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	1 U	1 U	1 U
	Tetrachloroethane (PCE)	0.24	^	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	1 U	1 U	1 U
	Toluene	9.8	^	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	1 U	1 U	1 U
	Trichloroethene (TCE)	0.6	^	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	1 U	1 U	1 U
	Vinyl Chloride	0.022	^	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	1 U	1 U	1 U
Other	1,2-Dichlorobenzene	^	49	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	1 U	1 U	1 U
	1,4-Dichlorobenzene	^	2.8	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	1 U	1 U	1 U
	1,2,4-Trichlorobenzene	^	8.2	1 U	1 U	1 U	1 U	1 U	--	1 U	1 U	1 U	1 U	1 U	1 U
	Phenol	^	2560	0.582	--	0.0192 U	0.0196 U	0.0197 U	--	0.0194 U	0.0191 U	0.0196 U	0.0189 U	0.019 U	0.582

Notes:

¹ Portland Harbor Record of Decision Table 17: Summary of Cleanup Levels or Targets by Media

² Joint Source Control Strategy Table 13-1: Screening Level Values for Soil/Stormwater Sediment, Stormwater, Groundwater, and Surface Water

U = Analyte not detected at or above the reported sample quantification limit

µg/L = micrograms per liter

"--" = not analyzed or not available

^ denotes no value or unused value

Table 2. Groundwater Analytical Results - Volatile Organic Compounds

Western Star Truck Manufacturing Plant
Groundwater Source Control Investigation Report

Location	PH ROD Table 17 Cleanup Level (µg/L)	Portland Harbor Joint Source Control Strategy SLVs (µg/L)	DEQ Risk-Based Concentration - Industrial Worker (µg/L)	MW-2	MW-3	MW-4	MW-5	DP-1	DP-2
Sample Name				MW-02-0919	MW-03-0919	MW-04-0919	MW-05-0919	DP-1	DP-2
Date Collected				9/4/2019	9/4/2019	9/4/2019	9/4/2019	7/23/2019	7/23/2019
Volatile Organic Compounds (µg/L) - EPA Method 8260C									
1,1,1,2-Tetrachloroethane	--	0.43	--	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
1,1,1-Trichloroethane	--	200	1,100,000	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
1,1,2,2-Tetrachloroethane	--	0.055	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1,2-Trichloroethane	--	0.2	49	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,1-Dichloroethane	--	47	10,000	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
1,1-Dichloroethene	7		44,000	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
1,1-Dichloropropene	--		--	1 U	1 U	1 U	1 U	1 U	1 U
1,2,3-Trichlorobenzene	--		--	2 U	2 U	2 U	2 U	2 U	2 U
1,2,3-Trichloropropane	--	0.0056	--	1 U	1 U	1 U	1 U	1 U	1 U
1,2,4-Trichlorobenzene	--		--	2 U	2 U	2 U	2 U	2 U	2 U
1,2,4-Trimethylbenzene	--		6,300	1 U	1 U	1 U	1 U	1 U	1 U
1,2-Dibromo-3-chloropropane	--		--	5 U	5 U	5 U	5 U	5 U	5 U
1,2-Dibromoethane (EDB)	--	0.0056	27	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichlorobenzene	--		37,000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,2-Dichloroethane (EDC)	--	0.12	630	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
1,2-Dichloropropane	--	0.16	--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3,5-Trimethylbenzene	--		7,500	1 U	1 U	1 U	1 U	1 U	1 U
1,3-Dichlorobenzene	--		--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
1,3-Dichloropropane	--		--	1 U	1 U	1 U	1 U	1 U	1 U
1,4-Dichlorobenzene	--		--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
2,2-Dichloropropane	--		--	1 U	1 U	1 U	1 U	1 U	1 U
2-Butanone (MEK)	--	7000	--	10 U	10 U	10 U	10 U	10 U	10 U
2-Chlorotoluene	--		--	1 U	1 U	1 U	1 U	1 U	1 U
2-Hexanone	--	99	--	10 U	10 U	10 U	10 U	10 U	10 U
4-Chlorotoluene	--		--	1 U	1 U	1 U	1 U	1 U	1 U
4-Isopropyltoluene	--		--	1 U	1 U	1 U	1 U	1 U	1 U
4-Methyl-2-pentanone (MIBK)	--	170	--	10 U	10 U	10 U	10 U	10 U	10 U
Acetone	--	1500	--	20 U	20 U	20 U	20 U	20 U	20 U
Acrylonitrile	--	0.039	250	2 U	2 U	2 U	2 U	2 U	2 U
Benzene	0.44	0.35	1,800	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U	0.2 U
Bromobenzene	--		--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Bromochloromethane	--		--	1 U	1 U	1 U	1 U	1 U	1 U
Bromodichloromethane	--	0.18	450	1 U	1 U	1 U	1 U	1 U	1 U
Bromoform	--	8.5	14,000	1 U	1 U	1 U	1 U	1 U	1 U
Bromomethane	--	8.7	1,200	5 U	5 U	5 U	5 U	5 U	5 U
Carbon disulfide	--	0.92	--	10 U	10 U	10 U	10 U	10 U	10 U
Carbon tetrachloride	--	0.17	1,800	1 U	1 U	1 U	1 U	1 U	1 U
Chlorobenzene	64	50	10,000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Chloroethane	--	4.6	--	5 U	5 U	5 U	5 U	5 U	5 U
Chloroform	--	0.17	720	1 U	1 U	1 U	1 U	1 U	1 U
Chloromethane	--	160	22,000	5 U	5 U	5 U	5 U	5 U	5 U
cis-1,2-Dichloroethene	9.9		--	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
cis-1,3-Dichloropropene	--		--	1 U	1 U	1 U	1 U	1 U	1 U
Dibromochloromethane	--		610	1 U	1 U	1 U	1 U	1 U	1 U
Dibromomethane	--		--	1 U	1 U	1 U	1 U	1 U	1 U
Dichlorodifluoromethane	--	390	--	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	7.3	7.39	4,500	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
Hexachlorobutadiene	--		--	5 U	5 U	5 U	5 U	5 U	5 U
Isopropylbenzene	--		51,000	1 U	1 U	1 U	1 U	1 U	1 U
m,p-Xylene	13	1.8	23,000	1 U	1 U	1 U	1 U	1 U	1 U
Methyl tert-butyl ether (MTBE)	--	37	63,000	23.5	1 U	1 U	1 U	1 U	1 U
Methylene chloride	--	4.3	--	5 U	5 U	5 U	5 U	3 U	3 U
Naphthalene	12		500	2 U	2 U	2 U	2 U	2 U	2 U
n-Butylbenzene	--		--	1 U	1 U	1 U	1 U	1 U	1 U
n-Propylbenzene	--		--	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
o-Xylene	13	13	23,000	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U	0.5 U
sec-Butylbenzene	--		--	1 U	1 U	1 U	1 U	1 U	1 U
Styrene	--		170,000	1 U	1 U	1 U	1 U	1 U	1 U
tert-Butylbenzene	--		--	1 U	1 U	1 U	1 U	1 U	1 U
Tetrachloroethene (PCE)	0.24	0.1	5,600	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Toluene	9.8	9.8	220,000	1 U	1 U	1 U	1 U	1 U	1 U
trans-1,2-Dichloroethene	--	0.12	--	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
trans-1,3-Dichloropropene	--	0.055	--	1 U	1 U	1 U	1 U	1 U	1 U
Trichloroethene (TCE)	0.6	0.028	430	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U
Trichlorofluoromethane	--	1,300	160,000	2 U	2 U	2 U	2 U	2 U	2 U
Vinyl chloride	0.022	0.02	960	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U	0.4 U

Notes

GW = groundwater

µg/L = microgram per liter

SLV = Screening Level Value

PH ROD = Portland Harbor Superfund Site Record of Decision (EPA, 2017)

U = not detected

MW = monitoring well

Table 3. Groundwater Analytical Results - Polynuclear Aromatic Hydrocarbons and Petroleum Hydrocarbons

Location	PH ROD Table 17 Cleanup Level (µg/L) ¹	Portland Harbor Joint Source Control Strategy SLVs (µg/L) ²	DEQ Risk-Based Concentration - Industrial Worker (µg/L)	DEQ Human Health Water Quality Criteria Water+Organism (Table 40)	DEQ Human Health Water Quality Criteria Organism Only (Table 40)	B(a)P Potency Equivalence Factor (PEF) ³	MW-2	MW-3	MW-4	MW-5
Sample Name							MW-02-0919	MW-03-0919	MW-04-0919	MW-05-0919
Date Collected							9/4/2019	9/4/2019	9/4/2019	9/4/2019
Polynuclear Aromatic Compounds (µg/L) - EPA Method 8270 SIM										
1-Methylnaphthalene	--	--	--	--	--	--	0.086 U	0.088 U	0.0842 U	0.0833 U
2-Methylnaphthalene	--	0.2	--	--	--	--	0.086 U	0.0879 U	0.0842 U	0.0833 U
Acenaphthene	23	0.2	--	95	99	--	0.0579	0.3	0.0421 U	0.307
Acenaphthylene	--	0.2	--	--	--	--	0.043 U	0.044 U	0.0421 U	0.042 U
Anthracene	0.73	0.2	--	2,900	4,000	--	0.043 U	0.044 U	0.0421 U	0.042 U
Benz(a)anthracene	0.0012	0.018	--	0.0013	0.0018	0.1	0.043 U	0.044 U	0.0421 U	0.042 U
Benzo(a)pyrene	0.00012	0.018	--	0.0013	0.0018	1	0.043 U	0.044 U	0.0421 U	0.042 U
Benzo(b)fluoranthene	0.0012	0.018	--	0.0013	0.0018	0.1	0.043 U	0.044 U	0.0421 U	0.042 U
Benzo(g,h,i)perylene	--	0.2	--	--	--	--	0.043 U	0.044 U	0.0421 U	0.042 U
Benzo(k)fluoranthene	0.0013	0.018	--	0.0013	0.0018	0.01	0.043 U	0.044 U	0.0421 U	0.042 U
Chrysene	0.0013	0.018	--	0.0013	0.0018	0.001	0.043 U	0.044 U	0.0421 U	0.042 U
Dibenz(a,h)anthracene	0.00012	0.018	--	0.0013	0.0018	1	0.043 U	0.044 U	0.0421 U	0.042 U
Dibenzofuran	--	3.7	--	--	--	--	0.043 U	0.044 U	0.0421 U	0.042 U
Fluoranthene	--	0.2	--	14	14	--	0.043 U	0.044 U	0.0421 U	0.0445
Fluorene	--	0.2	--	390	530	--	0.043 U	0.124	0.0421 U	0.0417 U
Indeno(1,2,3-cd)pyrene	0.0012	0.018	--	0.0013	0.0018	0.1	0.043 U	0.044 U	0.0421 U	0.0417 U
Naphthalene	--	0.2	--	--	--	--	0.086 U	0.088 U	0.0842 U	0.083 U
Phenanthrene	--	0.2	--	--	--	--	0.0496	0.044 U	0.0421 U	0.307
Pyrene	--	0.2	--	290	400	--	0.043 U	0.0586	0.0421 U	0.0866
cPAHs (BaP eq) ³	0.00012	--	--	--	--	--	0.043	0.044	0.0421	0.042
Total Petroleum Hydrocarbons (mg/L) - EPA Method 5030 - NWTPH										
Gasoline Range Hydrocarbons	--	--	--	--	--	--	0.1 U	0.1 U	0.1 U	0.1 U
Diesel Range Hydrocarbons	--	--	--	--	--	--	0.113	0.083 U	0.079 U	0.080 U
Lube Oil Range Hydrocarbons	--	--	--	--	--	--	0.15 U	0.17 U	0.16 U	0.16 U

Notes

- 1 Table 17 Cleanup Levels (CULs) were established in the U.S. Environmental Protection Agency Portland Harbor Record of Decision (EPA 2018).
- 2 Portland Harbor Joint Source Control Strategy Screening Level Values (SLVs) were established in the Oregon Department of Environmental Quality Joint Source Control Strategy (JSCS) (DEQ 2005). The SLVs for PAHs in groundwater are adopted from the State of Oregon's Maximum Contaminant Levels (MCLs) for drinking water and are based on benzo(a)pyrene.
- 3 Total cPAH is the sum of benzo(a)pyrene equivalent concentrations, calculated by multiplying the cPAHs by their respective potency factors as presented in the Portland Harbor Remedial Investigation (RI) (EPA 2016). cPAHs include benzo(a)anthracene, chrysene, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-c,d)pyrene, and dibenzo(a,h)anthracene. If all analytes for a total are not detected the highest detection limit is used to represent the summation.

cPAH = carcinogenic polycyclic aromatic hydrocarbon

CUL = Portland Harbor ROD Cleanup Levels

DEQ = Oregon Department of Environmental Quality

EPA = U.S. Environmental Protection Agency

GW = groundwater

mg/L = milligram per liter

µg/L = microgram per liter

MCL = Maximum Contaminant Level

MW = monitoring well

SIM = Selected ion monitoring

PAH = polycyclic aromatic hydrocarbon

PEF = Potency Equivalent Factor

PH ROD = Portland Harbor Superfund Site Record of Decision (EPA, 2017)

RI = remedial investigation

SLV = Screening Level Value

U = not detected

Results in shaded cells exceed a regulatory limit shown

Table 4. Groundwater Analytical Results - Metals

Location	PH ROD Table 17 Cleanup Level (µg/L)	Portland Harbor Joint Source Control Strategy SLV (µg/L)	DEQ Risk-Based Concentration - Industrial Worker (µg/L)	MW-2	MW-3		MW-4	MW-5
Sample Name				MW-02-0919	MW-03-0919	MW-03-D	MW-04-0919	MW-05-0919
Date Collected				9/4/2019	9/4/2019	7/24/2019	9/4/2019	9/4/2019
Dissolved Metals (ug/L)								
Arsenic	0.018	0.045	6,300	4.1	7.3	19	28.4	12.5
Arsenic (III)	--	--	--	1.2	4.2	8.0	5.0	3.6
Arsenic (V)	--	--	--	3.0	4.0	11.0	26.0	10.3
Calcium	--	--	--	154,000	28,800	141,000	99,500	97,000
Chromium	11	100	--	1.44 U	1.44 U	1.44 U	1.44 U	1.44 U
Chromium (VI)	--	11	9,400	0.031 U	0.031 U	0.031 U	0.031 U	0.031 U
Iron	--	--	--	63,800	17700	80,200	82,000	69,400
Iron (II)	--	--	--	52000	13700	90,700	66,800	59,400
Iron (III)	--	--	--	8,910	2600	1,300	13,900	5,44
Manganese	430	50*	3,200,000	1,670	1130	1,760	3,640	3,680
Magnesium	--	--	--	57,700	9400	48000	31,000	34,600
Potassium	--	--	--	10,500	3700	7,690	8,300	6,450
Sodium	--	--	--	33,900	6640.00	18,100	15,400	17,800
Zinc	36.5	36	--	10.1 U	10.1 U	3.79 E	10.1 U	10.1 U
Total Metals (µg/L)								
Arsenic	--	--	--	4.4	6.93	19.9	27.2	13.4
Chromium	--	--	--	1.44 U	1.44 U	8.44	1.44 U	1.44 U
Iron	--	--	--	76,600	17,600	86,600	79,700	72,800
Manganese	--	--	--	1,720	1,160	1,880	3,570	3,690
Zinc	--	--	--	13.100	10.1 U	28.7 E	10.1 U	10.1 U

Notes

Values in shaded cells exceed respective standard.

* Based on national secondary drinking water standard.

DEQ = Oregon Department of Environmental Quality

E = result estimated

GW = groundwater

µg/L = microgram per liter

MW = monitoring well

PH ROD = Portland Harbor Superfund Site Record of Decision (EPA, 2017)

SLV = Screening Level Value

U = not detected

Table 5. Groundwater Analytical Results - Inorganic Constituents

Location	MW-2	MW-3		MW-4	MW-5
Sample Name	MW-02-0919	MW-03-0919	MW-03-D	MW-04-0919	MW-05-0919
Date Collected	9/4/2019	9/4/2019	7/24/2019	9/4/2019	9/4/2019
Alkalinity (mg/L as CaCO₃)					
Alkalinity	856	86.5	659	409	407
Bicarbonate	856	86.5	659	409	407
Carbonate	20 U	20 U	20 U	20 U	20 U
Hydroxide Alkalinity	20 U	20 U	20 U	20 U	20 U
Anion/Cations (mg/L)					
Bromide	1 U	1 U	1 U	1 U	1 U
Chloride	8	35.3	6.75	17.1	19.2
Fluoride	1 U	1 U	1 U	1 U	1 U
Nitrate-Nitrogen	0.25 U	0.25 U	0.25 U	0.25 U	0.25 U
Sulfate	1 U	1 U	1 U	1 U	1 U
Sulfide	0.1 U	0.1 U	0.1 U	0.1 U	0.1 U
Orthophosphate (mg/L)					
Orthophosphate	0.02 U	0.02 U		0.02 U	0.02 U
Conventional (mg/L)					
Total Organic Carbon	42.8	1.56		4.9	6.61
Total Suspended Solids			456		
Dissolved Organic Carbon	42.5	1.48	22.2	4.91	6.44

Notes

Shaded cells - sample not analyzed for this constituent

mg/L = milligram per liter

U = not detected

GW = groundwater

MW = monitoring well

Table 6
Storm Line Solids Data
Daimler Truck Manufacturing Plant

Storm Line Solids µg/kg	Screening Value ¹	Ensign St.	Ensign St.	Ensign St.	Fathom St.	Fathom Offline-1	Fathom Offline-2
		12/10/06	01/27/07	02/03/07	02/10/07	09/29/10	09/29/10
Metals							
Cadmium	1,000	9,230	4,690	23,200	45,000	3,570	53,300
Chromium, total	111,000	328,000	184,000	263,000	296,000	8,540	92,800
Copper	149,000	303,000	297,000	304,000	209,000	--	--
Lead	17,000	143,000 J	61,400	52,800	587,000	6,690	151,000
Zinc	459,000	935,000	2,280,000	2,070,000	957,000	29,600	638,000
PCBs Aroclors							
Aroclor 1016	530	<13.6	<36	<21.9	<70.6	< 0.345	< 0.345
Aroclor 1221	--	<13.6	<36	<21.9	<70.6	< 0.345	< 0.345
Aroclor 1232	--	<13.6	<36	<21.9	<70.6	< 0.345	< 0.345
Aroclor 1242	--	<13.6	<36	<21.9	<70.6	< 0.345	< 0.345
Aroclor 1248	1,500	<13.6	<36	<21.9	<70.6	< 0.345	< 0.345
Aroclor 1254	300	482	<36	<21.9	1,840	< 0.345	< 0.345
Aroclor 1260	200	<13.6	<36	<21.9	<70.6	33.3	77.3
Aroclor 1262	--	NA	NA	NA	NA	< 0.345	< 0.345
Aroclor 1268	--	NA	NA	NA	NA	< 0.345	< 0.345
Total PCBs	0.39	482	<36	<21.9	1,840	33.3	77.3
Semivolatile Organic Compounds							
Dimethylphthalate	--	--	--	--	--	< 20	< 20
Diethylphthalate	600	--	--	--	--	< 21	< 21
Di-n-butylphthalate	60	240	1,440	1,370	532	< 48	65
Butylbenzylphthalate	--	--	--	--	--	150	280
Di-n-octylphthalate	--	--	--	--	--	24	59
bis(2-Ethylhexyl)phthalate	330	8,900	40,700	62,700	18,000	680	1,600
Polycyclic Aromatic Hydrocarbons							
Naphthalene	561	105	240	205	169	--	--
2-Methylnaphthalene	200	NA	NA	NA	NA	--	--
Acenaphthylene	200	<45.5	<120	<73.1	62.1	--	--
Acenaphthene	300	<45.5	<120	<73.1	92.3	--	--
Fluorene	536	81.9	<120	87.7	288	--	--
Phenanthrene	1,170	332	180	519	1,430	--	--
Anthracene	845	<45.5	<120	<73.1	128	--	--
Fluoranthene	2,230	177	204	446	510	--	--
Pyrene	1,520	236	276	1,530	702	--	--
Benzo(a)anthracene	1,050	68.2	<120	190	<18.8	--	--
Chrysene	1,290	100	300	387	179	--	--
Benzo(b)fluoranthene	--	359	<120	329	234	--	--
Benzo(k)fluoranthene	13,000	232	<120	102	156	--	--
Benzo(a)pyrene	1,450	109	<120	132	173	--	--
Indeno(1,2,3-cd)pyrene	100	<45.5	<120	<73.1	<18.8	--	--
Dibenz(a,h)anthracene	1,300	<45.5	180	<73.1	32	--	--
Benzo(g,h,i)perylene	300	91	<120	175	156	--	--

Notes

¹The source of each SLV is documented in Table 3.1 of the Portland Harbor Joint Source Control Strategy, which can be viewed at http://www.oregon.gov/deq/FilterDocs/ph-JSCSFinalTable03_1.pdf

Highlighted cell represents result exceed the screening value

< = Analyte not detected at or above the reported sample quantification limit

µg/kg = micrograms per kilogram (parts per billion)

"--" = not analyzed or no value

Detections are in **bold**

Table 7
2011 amd 2012 Catch Basin Solids Analyses
Daimler Truck Manufacturing Plant
Portland, Oregon

	USEPA-DEQ JSCS SLV	USEPA PHSS ROD CUL	Regional Background	Aproximate "Knee" of DEQ Rank Order Curve for Stormwater Solids	E-1 6/25/2012	E-2 9/22/2011	E-2 Dup 6/25/2012	E-2 6/25/2012	E-3 6/25/2012	E-4 6/25/2012	E-5 6/25/2012	E-6 6/25/2012	E-7 9/22/2011	E-7 6/25/2012
Units	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Metals/Inorganics														
Cadmium	1,000	510	630	2,000 - 4,500	2,660	1,670 J	2,880	2,910		2,890	3,360		5,410	7,980
Chromium, total	111,000	--	76,000	100,000 - 160,000	36,400	15,100 J	40,700	36,500		35,400	32,600		18,600	49,300
Copper	149,000	359,000	34,000	500,000 - 1,500,000	117,000	43,300 J	141,000	140,000		85,600	71,800		48,500	148,000
Lead	17,000	196,000	79,000	200,000 - 500,000	21,300	13,700 J	53,800	55,300		63,500	65,800		10,500	68,100
Nickel	48,600	--	47,000	--	18,600	13,300 J	29,800	24,300		56,900	19,400		11,600	63,600
Zinc	459,000	459,000	180,000	1,000,000 - 25,000,000	1,380,000	708,000 J	2,020,000	1,790,000		871,000	1,220,000		558,000	2,080,000
PCBs Aroclors														
Aroclor 1016	530	--	--	--	< 21	< 0.333	< 35	< 32	< 23	< 98	< 23	< 32	< 0.333	< 220
Aroclor 1221	--	--	--	--	< 190	< 0.333	< 480	< 320	< 200	< 200	< 120	< 220	< 0.333	< 970
Aroclor 1232	--	--	--	--	< 110	< 0.333	< 140	< 160	< 120	< 19	< 120	< 130	< 0.333	< 230
Aroclor 1242	--	--	--	--	< 20	< 0.333	< 27	< 160	< 41	< 19	< 23	< 30	< 0.333	< 230
Aroclor 1248	1,500	--	--	--	< 20	< 0.333	< 33	< 37	< 46	< 19	< 23	< 24	< 0.333	< 43
Aroclor 1254	300	--	--	--	< 20	< 0.333	< 35	< 39	< 34	< 19	< 34	< 31	< 0.333	< 43
Aroclor 1260	200	--	--	--	< 21	< 0.333	< 33	< 41	< 59	< 19	< 28	< 24	< 0.333	< 43
Aroclor 1262	--	--	--	--	< 23	< 0.333	< 30	< 48	< 38	< 98	< 120	< 24	< 0.333	< 57
Aroclor 1268	--	--	--	--	< 20	< 0.333	< 27	< 30	< 32	< 98	< 23	< 28	< 0.333	< 43
Total PCBs	0.39	9	--	100 - 850	< 190	< 0.333	< 480	< 320	< 200	< 200	< 120	< 220	< 0.333	< 970
Semivolatile Organic Compounds														
Dimethylphthalate	--	--	--	--	3,100 J	< 666 J	4,300 J	3,600 J		< 1600	< 1900			< 3600
Diethylphthalate	600	--	--	--	< 1600	< 666 J	< 2100	< 2300		< 1500	< 1800			< 3300
Di-n-butylphthalate	60	--	--	--	< 2000	< 666 J	< 2700	< 3000		< 1900	< 2300			< 4300
Butylbenzylphthalate	--	--	--	--	7,300 J	5,240 J	18,000 J	17,000 J		< 1500	5,100 J			3,900 J
Di-n-octylphthalate	--	--	--	--	< 1400	< 666 J	6,100	5,000 J		5,100	2,300 J			< 2900
bis(2-Ethylhexyl)phthalate	330	135	--	20,000 - 40,000	23,000 J	20,500 J	90,000	93,000		32,000 J	46,000 J			97,000
Polycyclic Aromatic Hydrocarbons														
Naphthalene	561	--	--	--	< 1200	140 J	< 1700	< 1800		< 1200	< 1400			< 2600
2-Methylnaphthalene	200	--	--	--	< 1200	NA	< 1600	< 1800		< 1100	< 1300			< 2500
Acenaphthylene	200	--	--	--	< 1100	< 33.3 J	< 1500	< 1700		< 1100	< 1300			< 2400
Acenaphthene	300	--	--	--	< 1400	6.67 J	< 1800	< 2000		< 1300	< 1500			< 2900
Fluorene	536	--	--	--	< 1400	16.7 J	< 1900	< 2100		< 1300	< 1600			< 3000
Phenanthrene	1,170	--	--	--	< 1500	137 J	< 2100	< 2300		< 1400	< 1700			< 3300
Anthracene	845	--	--	--	< 1400	10 J	< 1800	< 2000		< 1300	< 1500			< 2900
Fluoranthene	2,230	--	--	--	< 1600	90 J	< 2100	< 2300		< 1500	< 1800			< 3300
Pyrene	1,520	--	--	--	< 1600	240 J	3,000 J	2,400 J		< 1500	< 1800			4,000 J
Benzo(a)anthracene	1,050	--	--	--	< 1500	73.3 J	< 2100	< 2300		< 1400	< 1700			< 3300
Chrysene	1,290	--	--	--	< 1700	170 J	< 2400	< 2600		< 1600	< 1900			< 3700
Benzo(b)fluoranthene	--	--	--	--	< 1400	40 J	< 2000	< 2200		< 1400	< 1600			< 3100
Benzo(k)fluoranthene	13,000	--	--	--	< 1700	16.7 J	< 2300	< 2500		< 1600	< 1900			< 3600
Benzo(a)pyrene	1,450	--	--	--	< 1500	56.7 J	< 2100	< 2300		< 1400	< 1700			< 3300
Indeno(1,2,3-cd)pyrene	100	--	--	--	< 1400	< 33.3 J	< 1800	< 2000		< 1300	< 1500			< 2900
Dibenz(a,h)anthracene	1,300	--	--	--	< 1300	< 33.3 J	< 1700	< 1900		< 1200	< 1400			< 2700
Benzo(g,h,i)perylene	300	--	--	--	< 1600	107 J	< 2100	< 2300		< 1500	< 1800			< 3300
Other Analytes														
Total Organic Carbon %	--	--	--	--		7.2								
Total Solids %	--	--	--	--	48.3		35.4	32.2	54.4	51.3	42.4	40.3		22.1

Notes:

	Value is less than "knee of DEQ rank order curve" (or no value) and/or greater than the DEQ/EPA JSCS SLV and/or PHSS CUL.
	Value is in the "knee of DEQ rank order curve" (or no value) and greater than the DEQ/EPA JSCS SLV and/or PHSS CUL.
	Value is greater than the "knee of DEQ rank order curve" (or no value) and greater than the DEQ/EPA JSCS SLV and/or PHSS CUL.

The source of each screening level value (SLV) is documented in Table 3.1 of the Portland Harbor Joint Source Control Strategy (JSCS), which can be viewed at http://www.deq.state.or.us/lq/cu/nwr/PortlandHarbor/docs/JSCSFinalTable03_1.pdf

DEQ 08-LQ-076.

The source of each cleanup level (CUL) is Table 17 in 2019 Explanation of Significant Differences, Portland Harbor Superfund Site (PHSS), Portland, Oregon

DEQ rank-order charts can be found in Appendix E: Tools for Evaluating Stormwater Data in Guidance for Evaluating the Stormwater Pathway at Upland Sites (DEQ 2010, updated 2015)

-- = No value.

J = Estimated concentration.

mg/kg = milligrams per kilogram (parts per million).

NA = Not analyzed.

ug/kg = micrograms per kilogram (parts per billion).

Detections are in **bold**.

Table 7
2011 amd 2012 Catch Basin Solids Analyses
Daimler Truck Manufacturing Plant
Portland, Oregon

	USEPA-DEQ JSCS SLV	E-8a 6/25/2012	E-8b 6/25/2012	E-9 6/25/2012	E-10 6/25/2012	E-11 6/25/2012	E-12 6/25/2012	E-13 6/25/2012	E-14 9/22/2011	E-14 6/25/2012	E-17 6/26/2012	E-18 6/25/2012	E-19 6/25/2012	E-20 6/25/2012	E-21 6/26/2012
Units	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Metals/Inorganics															
Cadmium	1,000			6,400			4,240	4,500	2,490	3,150	10,600	5,260	4,190	4,510	1,640
Chromium, total	111,000			164,000			59,500	60,400	47,300	58,000	74,700	42,600	45,500	35,600	26,900
Copper	149,000			236,000			222,000	159,000	78,300	172,000	262,000	148,000	137,000	128,000	140,000
Lead	17,000			75,600			74,800	86,800	26,700	55,900	103,000	57,900	48,400	63,700	31,400
Nickel	48,600			57,500			41,200	32,800	26,400	37,200	45,100	25,800	23,000	25,400	17,600
Zinc	459,000			2,360,000			1,480,000	1,200,000	493,000	861,000	1,920,000	1,770,000	1,260,000	1,500,000	1,150,000
PCBs Aroclors															
Aroclor 1016	530	< 110	< 19	< 43	< 130	< 33	< 69	< 150	< 0.333	< 24	< 150	< 36	< 39	< 42	< 97
Aroclor 1221	--	< 400	< 86	< 210	< 680	< 340	< 280	< 600	< 0.333	< 200	< 290	< 290	< 310	< 230	< 200
Aroclor 1232	--	< 110	< 94	< 170	< 560	< 170	< 120	< 220	< 0.333	< 91	< 150	< 120	< 160	< 210	< 170
Aroclor 1242	--	< 40	< 28	< 43	< 220	< 52	< 63	< 63	< 0.333	< 20	< 110	< 37	< 59	< 61	< 73
Aroclor 1248	1,500	< 32	< 19	< 33	< 94	< 31	< 41	< 180	< 0.333	< 29	< 82	< 47	< 35	< 81	< 22
Aroclor 1254	300	< 21	< 19	< 48	< 35	< 31	< 51	< 85	< 0.333	< 24	< 45	< 39	< 29	< 40	< 19
Aroclor 1260	200	< 51	< 19	< 39	< 24	< 31	< 60	< 87	< 0.333	< 29	< 76	< 27	< 53	< 63	< 21
Aroclor 1262	--	< 28	< 32	< 32	< 19	< 31	< 60	< 47	< 0.333	< 19	< 150	< 22	< 34	< 42	< 40
Aroclor 1268	--	< 46	< 19	< 38	< 48	< 31	< 33	< 28	< 0.333	< 19	< 60	< 22	< 29	< 50	< 33
Total PCBs	0.39	< 400	< 86	< 210	< 680	< 340	< 280	< 600	< 0.333	< 200	< 290	< 290	< 310	< 230	< 200
Semivolatile Organic Compounds															
Dimethylphthalate	--			< 1300			< 2300	< 2300	< 66.6	< 1500	< 2400	< 1900	< 2500	< 3400	2,700 J
Diethylphthalate	600			< 1200			< 2100	< 2200	< 66.6	< 1400	< 2200	< 1700	< 2300	< 3200	< 1500
Di-n-butylphthalate	60			< 1600			< 2800	< 2800	< 66.6	< 1800	2,900 J	< 2200	< 3000	< 4100	2,700 J
Butylbenzylphthalate	--			2,200 J			7,000	4,600 J	< 66.6	2,100 J	4,500 J	2,600 J	4,000 J	< 3200	5,300
Di-n-octylphthalate	--			2,700 J			< 1900	3,700 J	< 66.6	< 1200	< 1900	< 1500	2,600 J	< 2700	< 1300
bis(2-Ethylhexyl)phthalate	330			70,000			82,000	89,000	25,100	32,000 J	76,000	37,000 J	55,000 J	78,000 J	19,000 J
Polycyclic Aromatic Hydrocarbons															
Naphthalene	561			< 930			< 1700	< 1700	36.7	< 1100	< 1700	< 1400	< 1800	< 2500	< 1200
2-Methylnaphthalene	200			< 900			< 1600	< 1700	NA	< 1100	< 1700	< 1300	< 1800	< 2400	< 1100
Acenaphthylene	200			< 840			< 1500	< 1500	< 33.3	< 950	< 1600	< 1200	< 1700	< 2200	< 1100
Acenaphthene	300			< 1100			< 1900	< 1900	6.67 J	< 1200	< 1900	< 1500	< 2000	< 2700	< 1300
Fluorene	536			< 1100			< 1900	< 1900	23.3 J	< 1200	< 2000	< 1500	< 2100	< 2800	< 1300
Phenanthrene	1,170			< 1200			< 2100	< 2100	163	< 1400	< 2200	< 1700	< 2300	< 3100	< 1400
Anthracene	845			< 1100			< 1900	< 1900	23.3 J	< 1200	< 1900	< 1500	< 2000	< 2700	< 1300
Fluoranthene	2,230			< 1200			< 2100	< 2200	107	< 1400	< 2200	< 1700	< 2300	< 3200	< 1500
Pyrene	1,520			2,300 J			2,700 J	3,000 J	263	< 1400	3,900 J	2,800 J	2,800 J	< 3200	< 1500
Benzo(a)anthracene	1,050			< 1200			< 2100	< 2100	56.7	< 1400	< 2200	< 1700	< 2300	< 3100	< 1400
Chrysene	1,290			< 1400			< 2400	< 2400	203	< 1500	< 2500	< 1900	< 2600	< 3500	< 1600
Benzo(b)fluoranthene	--			< 1100			< 2000	< 2000	63.3 J	< 1300	< 2000	< 1600	< 2100	< 2900	< 1400
Benzo(k)fluoranthene	13,000			< 1300			< 2300	< 2300	30	< 1500	< 2400	< 1900	< 2500	< 3400	< 1600
Benzo(a)pyrene	1,450			< 1200			< 2100	< 2100	53.3	< 1400	< 2200	< 1700	< 2300	< 3100	< 1400
Indeno(1,2,3-cd)pyrene	100			< 1100			< 1900	< 1900	20 J	< 1200	< 1900	< 1500	< 2000	< 2700	< 1300
Dibenz(a,h)anthracene	1,300			< 960			< 1700	< 1800	< 33.3	< 1100	< 1800	< 1400	< 1900	< 2600	< 1200
Benzo(g,h,i)perylene	300			< 1200			< 2100	< 2200	110	< 1400	< 2200	< 1700	< 2300	< 3200	< 1500
Other Analytes															
Total Organic Carbon %	--								9.48						
Total Solids %	--	44.8	53.1	30.9	52.9	30.5	35.3	34.9		55	33.4	43.2	32.3	23.7	51.3

Notes:

	Value is less than "
	Value is in the "kne
	Value is greater tha

The source of each screening level value (SLV) is documented in Table 1:
<http://www.deq.state.or.us/la/cu/nwr/PortlandHarbor/docs/JSCSFinalTat>
DEQ 08-LQ-076.

The source of each cleanup level (CUL) is Table 17 in 2019 Exp
DEQ rank-order charts can be found in Appendix E: Tools for E:

-- = No value.
J = Estimated concentration.
mg/kg = milligrams per kilogram (parts per million).
NA = Not analyzed.
ug/kg = micrograms per kilogram (parts per billion).
Detections are in **bold**.

Table 7
2011 amd 2012 Catch Basin Solids Analyses
Daimler Truck Manufacturing Plant
Portland, Oregon

	USEPA-DEQ JSCS SLV	E-3, E-6 Composite 6/25/2012	E-7 through E- 21 Composite 6/26/2012	E-8a, E-8b Composite 6/25/2012	E-10, E-11 Composite 6/25/2012	F-1 6/25/2012	F-2 6/26/2012	F-3 6/26/2012	F-4 9/22/2011	F-4 6/26/2012	F-5 6/26/2012	F-6 9/22/2011	F-6 6/26/2012	F-7 6/26/2012
Units	µg/kg	µg/kg	ug/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Metals/Inorganics														
Cadmium	1,000	2,610		9,120	3,330	8,110			7,090	5,560	7,360	5,520 J	14,000	18,300
Chromium, total	111,000	34,000		45,500	34,100	48,800			30,000	40,300	74,200 J	25,900 J	55,800	66,600
Copper	149,000	105,000		111,000	99,100	172,000			91,200	121,000	280,000	54,800 J	223,000	444,000
Lead	17,000	70,500		71,400	60,100	87,900			29,600	49,100	87,200	37,300 J	116,000	126,000
Nickel	48,600	24,400		31,000	35,600	32,800			17,600	31,300	70,400 J	11,200 J	42,100	42,800
Zinc	459,000	1,630,000		1,310,000	1,190,000	1,960,000			773,000	2,100,000	1,730,000	633,000 J	2,650,000	2,690,000
PCBs Aroclors														
Aroclor 1016	530					< 120	< 46	< 60	< 0.333	< 34	< 25	< 0.333	< 60	< 79
Aroclor 1221	--					< 2700	< 320	< 700	< 0.333	< 480	< 170	< 0.333	< 740	< 420
Aroclor 1232	--					< 390	< 39	< 320	< 0.333	< 180	< 120	< 0.333	< 740	< 320
Aroclor 1242	--					< 160	< 54	< 87	< 0.333	< 130	< 32	< 0.333	< 260	< 230
Aroclor 1248	1,500					< 120	< 39	< 60	< 0.333	< 34	< 27	< 0.333	< 60	< 60
Aroclor 1254	300					< 110	< 39	< 67	< 0.333	< 34	< 31	< 0.333	< 60	< 60
Aroclor 1260	200					< 130	< 41	< 88	< 0.333	< 54	< 34	< 0.333	< 160	< 71
Aroclor 1262	--					< 65	< 39	< 67	< 0.333	< 34	< 32	< 0.333	< 320	< 60
Aroclor 1268	--					< 56	< 39	< 60	< 0.333	< 34	< 39	< 0.333	< 60	< 60
Total PCBs	0.39					< 2700	< 320	< 700	< 0.333	< 480	< 170	< 0.333	< 740	< 420
Semivolatile Organic Compounds														
Dimethylphthalate	--	< 2400		< 1800	< 2000	< 4700			< 66.6	5,300	4,200	< 666 J	< 5100	< 2500
Diethylphthalate	600	< 2200		< 1700	< 1800	< 4400			< 66.6	< 1400	< 870	< 66.6 J	< 4700	< 2400
Di-n-butylphthalate	60	< 2900		< 2100	< 2300	< 5700			< 66.6	2,100 J	1,500 J	< 666 J	< 6100	< 3000
Butylbenzylphthalate	--	3,200 J		1,800 J	2,400 J	14,000			10,200	15,000	14,000	< 666 J	10,000 J	4,500 J
Di-n-octylphthalate	--	2,800 J		< 1400	< 1600	41,000			6,160	< 1200	< 750	< 666 J	< 4100	< 2000
bis(2-Ethylhexyl)phthalate	330	75,000 J		77,000 J	27,000 J	160,000			22,000	59,000 J	43,000 J	47,000 J	210,000 J	77,000 J
Polycyclic Aromatic Hydrocarbons														
Naphthalene	561	< 1700		< 1300	< 1400	< 3400			117	4,400	< 680	47 J	< 3700	< 1900
2-Methylnaphthalene	200	< 1700		< 1300	< 1400	< 3300			NA	< 1000	< 660	NA	< 3600	< 1800
Acenaphthylene	200	< 1600		< 1200	< 1300	< 3100			< 33.3	< 920	< 610	37 J	< 3300	< 1700
Acenaphthene	300	< 1900		< 1400	< 1600	< 3800			< 33.3	< 1200	< 750	20 J	< 4100	< 2000
Fluorene	536	< 2000		< 1500	< 1600	< 3900			47	< 1200	< 770	23 J	< 4200	< 2100
Phenanthrene	1,170	< 2200		< 1600	< 1800	< 4300			253	1,800 J	< 840	220 J	< 4600	< 2300
Anthracene	845	< 1900		< 1400	< 1600	< 3800			43	< 1200	< 750	50 J	< 4100	< 2000
Fluoranthene	2,230	< 2200		< 1700	< 1800	< 4400			157	< 1400	< 870	277 J	< 4700	< 2400
Pyrene	1,520	< 2200		1,800 J	< 1800	6,600 J			397	3,700	1,100 J	523 J	6,500 J	2,500 J
Benzo(a)anthracene	1,050	< 2200		< 1600	< 1800	< 4300			97	< 1300	< 840	223 J	< 4600	< 2300
Chrysene	1,290	< 2400		< 1800	< 2000	< 4900			353	< 1500	< 960	43 J	< 5200	< 2600
Benzo(b)fluoranthene	--	< 2000		< 1500	< 1700	< 4000			23 J	< 1300	< 800	10 J	< 4300	< 2200
Benzo(k)fluoranthene	13,000	< 2400		< 1800	< 2000	< 4700			16.7 J	< 1500	< 930	6.67 J	< 5100	< 2500
Benzo(a)pyrene	1,450	< 2200		< 1600	< 1800	< 4300			60	< 1300	< 840	3.33 J	< 4600	< 2300
Indeno(1,2,3-cd)pyrene	100	< 1900		< 1400	< 1600	< 3800			< 33.3	< 1200	< 750	< 33.3 J	< 4100	< 2000
Dibenz(a,h)anthracene	1,300	< 1800		< 1400	< 1500	< 3600			< 33.3	< 1100	< 700	< 33.3 J	< 3800	< 1900
Benzo(g,h,i)perylene	300	< 2200		< 1700	< 1800	< 4400			< 33.3	< 1400	< 870	< 33.3 J	< 4700	< 2400
Other Analytes														
Total Organic Carbon %	--		17.9						21.3			15.5		
Total Solids %	--	34.1	40.3	44.8	41.1	17	24	15.9	28.1	28.1	42.1		31.7	31.4

Notes:

	Value is less than "
	Value is in the "kne
	Value is greater tha

The source of each screening level value (SLV) is documented in Table :
<http://www.deq.state.or.us/lq/cu/nwr/PortlandHarbor/docs/JSCSFinalTai>
DEQ 08-LQ-076.

The source of each cleanup level (CUL) is Table 17 in 2019 Exp
DEQ rank-order charts can be found in Appendix E: Tools for E

-- = No value.
J = Estimated concentration.
mg/kg = milligrams per kilogram (parts per million).
NA = Not analyzed.
ug/kg = micrograms per kilogram (parts per billion).
Detections are in **bold**.

Table 7
2011 amd 2012 Catch Basin Solids Analyses
Daimler Truck Manufacturing Plant
Portland, Oregon

	USEPA-DEQ JSCS SLV	F-8 6/26/2012	F-9a 6/26/2012	F-10 6/26/2012	F-11 6/26/2012	F-12 9/22/2011	F-12 6/26/2012	F-13 6/26/2012	F-14 6/26/2012	F-1 through F- 12 Composite 6/26/2012	F-2, F-3 Composite 6/26/2012	F-10, F-11 Composite 6/26/2012	F-13, F-14 Composite 6/26/2012
Units	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Metals/Inorganics													
Cadmium	1,000	70,800	18,500			3,780 J	9,110				8,380	14,300	9,960
Chromium, total	111,000	105,000	66,200			11,600 J	41,400				36,400	50,600	42,500
Copper	149,000	523,000	181,000			31,000 J	174,000				144,000	169,000	162,000
Lead	17,000	76,200	172,000			11,700 J	69,900				60,900	104,000	83,900
Nickel	48,600	107,000	32,900			7,130 J	38,600				34,700	41,900	36,100
Zinc	459,000	4,610,000	1,850,000			424,000 J	2,150,000				2,060,000	2,560,000	1,690,000
PCBs Aroclors													
Aroclor 1016	530	< 110	< 84	< 40	< 310	< 0.333	< 270	< 67	< 130				
Aroclor 1221	--	< 440	< 510	< 190	< 87	< 0.333	< 540	< 240	< 180				
Aroclor 1232	--	< 800	< 84	< 88	< 330	< 0.333	< 700	< 110	< 920				
Aroclor 1242	--	< 140	< 84	< 170	< 380	< 0.333	< 360	< 150	< 240				
Aroclor 1248	1,500	< 180	< 84	< 40	< 59	< 0.333	< 52	< 67	< 100				
Aroclor 1254	300	< 38	< 84	< 40	< 64	< 0.333	< 52	< 67	< 100				
Aroclor 1260	200	< 34	< 84	< 49	< 59	< 0.333	< 52	< 67	< 100				
Aroclor 1262	--	< 34	< 84	< 40	< 310	< 0.333	< 52	< 67	< 100				
Aroclor 1268	--	< 34	< 84	< 40	< 58	< 0.333	< 52	< 67	< 100				
Total PCBs	0.39	< 440	< 510	< 190	< 87	< 0.333	< 540	< 240	< 180				
Semivolatile Organic Compounds													
Dimethylphthalate	--	1,700 J	< 7000			< 666 J	12,000				4,700	4,300 J	8,400 J
Diethylphthalate	600	< 1300	< 6500			< 666 J	< 2100				< 1600	< 3000	< 4600
Di-n-butylphthalate	60	< 1700	< 8400			< 666 J	4,300 J				< 2100	< 3800	< 5900
Butylbenzylphthalate	--	3,100 J	< 6500			< 666 J	12,000				9,700	6,800 J	13,000 J
Di-n-octylphthalate	--	< 1100	< 5600			< 666 J	3,100 J				< 1400	< 2600	4,500 J
bis(2-Ethylhexyl)phthalate	330	42,000 J	66,000 J			24,500 J	140,000 J				97,000 J	85,000 J	260,000 J
Polycyclic Aromatic Hydrocarbons													
Naphthalene	561	< 980	< 5100			37 J	< 1600				3,600 J	< 2300	< 3600
2-Methylnaphthalene	200	< 950	< 4900			NA	< 1600				< 1300	< 2300	< 3500
Acenaphthylene	200	< 880	< 4600			< 33.3 J	< 1500				< 1200	< 2100	< 3200
Acenaphthene	300	< 1100	< 5600			< 33.3 J	< 1800				< 1400	< 2600	< 3900
Fluorene	536	< 1200	< 5800			20 J	< 1800				< 1500	< 2700	< 4100
Phenanthrene	1,170	< 1300	< 6300			133 J	2,000 J				< 1600	< 2900	< 4400
Anthracene	845	< 1100	< 5600			20 J	< 1800				< 1400	< 2600	< 3900
Fluoranthene	2,230	< 1300	< 6500			123 J	< 2100				< 1600	< 3000	< 4600
Pyrene	1,520	< 1300	< 6500			240 J	6,300				4,300 J	4,400 J	< 4600
Benzo(a)anthracene	1,050	< 1300	< 6300			53 J	< 2000				< 1600	< 2900	< 4400
Chrysene	1,290	< 1400	< 7200			117 J	2,500 J				< 1800	< 3300	< 5000
Benzo(b)fluoranthene	--	< 1200	< 6000			60 J	< 1900				< 1500	< 2700	< 4200
Benzo(k)fluoranthene	13,000	< 1400	< 7000			20 J	< 2200				< 1800	< 3200	< 4900
Benzo(a)pyrene	1,450	< 1300	< 6300			60 J	< 2000				< 1600	< 2900	< 4400
Indeno(1,2,3-cd)pyrene	100	< 1100	< 5600			26.7 J	< 1800				< 1400	< 2600	< 3900
Dibenz(a,h)anthracene	1,300	< 1100	< 5300			16.7 J	< 1700				< 1300	< 2400	< 3700
Benzo(g,h,i)perylene	300	< 1300	< 6500			63.3 J	< 2100				< 1600	< 3000	< 4600
Other Analytes													
Total Organic Carbon %	--					8.9				26			
Total Solids %	--	58.5	22.5	47.7	32.6	36.7	36.7	14.2	18.8	33.6	23.1	25	16.3

Notes:

	Value is less than "l
	Value is in the "kne
	Value is greater tha

The source of each screening level value (SLV) is documented in Table :
<http://www.deq.state.or.us/lq/cu/nwr/PortlandHarbor/docs/JSCSFinalTal>
DEQ 08-LQ-076.

The source of each cleanup level (CUL) is Table 17 in 2019 Exp
DEQ rank-order charts can be found in Appendix E: Tools for E

-- = No value.
J = Estimated concentration.
mg/kg = milligrams per kilogram (parts per million).
NA = Not analyzed.
ug/kg = micrograms per kilogram (parts per billion).
Detections are in **bold**.

Table 8
In Line Sediment Solids Data
Daimler Truck Manufacturing Plant
Portland, Oregon

	USEPA-DEQ JSCS SLV	USEPA PHSS ROD CUL	Regional Background	Aproximate "Knee" of DEQ Rank Order Curve for Stormwater Solids	Ensign St. 7/18/12	Ensign St. CON FRONT 7/18/12	Ensign St. CON REAR 7/18/12	Sediment Trap - Ensign Geometric Mean	Fathom St. 7/18/12	Fathom St. E LAT 7/18/12	Fathom St. N LAT 7/18/12	Fathom St. Downgradient 7/18/12	Sediment Trap - Fathom Geometric Mean
Units	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg		µg/kg	µg/kg	µg/kg	µg/kg	
Metals/Inorganics													
Cadmium	1,000	510	630	2,000 - 4,500	1460	785	1320	1148	4090	2340	2820	3380	3090
Chromium, total	111,000	--	76,000	100,000 - 160,000	20800	12800	18200	16922	19600	54200	27800	21200	28129
Copper	149,000	359,000	34,000	500,000 - 1,500,000	48800	39100	41200	42838	47400	91700	55100	49000	58529
Lead	17,000	196,000	79,000	200,000 - 500,000	21600	11900	20900	17514	18600	22200	22700	21100	21088
Zinc	459,000	459,000	180,000	1,000,000 - 25,000,000	410000	421000	449000	426354	374000	364000	391000	424000	387596
Semivolatle Organic Compounds													
Dimethylphthalate	--	--	--	--	146 J	201 J	68.7 J	126	397 J	300 J	297 J	396 J	344
Diethylphthalate	600	--	--	--	< 20.5 J	< 20.5 J	< 20.5 J		< 20.5 J	< 51.3 J	< 51.3 J	< 20.5 J	
Di-n-butylphthalate	60	--	--	--	98 J	80.7 J	100 J	92	< 47.9 J	< 120 J	< 120 J	< 47.9 J	
Butylbenzylphthalate	--	--	--	--	842 J	647 J	< 16.3 J	738	944 J	< 40.7 J	773 J	951 J	885
Di-n-octylphthalate	--	--	--	--	4610 J	3960 J	3800 J	4109	10200 J	6320 J	5220 J	12100 J	7988
bis(2-Ethylhexyl)phthalate	330	135	--	20,000 - 40,000	6700 J	4560 J	5290 J	5447	10100 J	8220 J	5110 J	8210 J	7682

Notes:

Value is less than "knee of DEQ rank order curve" (or no value) and/or greater than the DEQ/EPA JSCS SLV and/or PHSS CUL.

Value is in the "knee of DEQ rank order curve" (or no value) and greater than the DEQ/EPA JSCS SLV and/or PHSS CUL

Value is greater than the "knee of DEQ rank order curve" (or no value) and greater than the DEQ/EPA JSCS SLV and/or PHSS CUL

The source of each screening level value (SLV) is documented in Table 3.1 of the Portland Harbor Joint Source Control Strategy, which can be viewed at http://www.deq.state.or.us/lq/cu/nwr/PortlandHarbor/docs/JSCSFinalTable03_1.pdf

DEQ 08-LQ-076.

The source of each cleanup level (CUL) is Table 17 in 2019 Explanation of Significant Differences, Portland Harbor Superfund Site (PHSS), Portland, Oregon

DEQ rank-order charts can be found in Appendix E: Tools for Evaluating Stormwater Data in Guidance for Evaluating the Stormwater Pathway at Upland Sites (DEQ 2010, updated 2015)

-- = No value.

J = Estimated concentration.

NA = Not analyzed.

ug/kg = micrograms per kilogram (parts per billion).

Detections are in **bold**.

Table 9
Fathom Storm Line Solids Data
Daimler Truck Manufacturing Plant Portland, Oregon

	USEPA- DEQ JSCS SLV	USEPA PHSS ROD CUL	Regional Background	Aproximate "Knee" of DEQ Rank Order Curve for Stormwater Solids	City Manhole AAJ831 8/12/2003	Fathom Line 2/10/2007	City Manhole AAJ831 10/06/2009	City Manhole AAJ831 11/10/2009	City Manhole AAJ831 (Upstream) 6/13/2013	City Manhole AAJ831 (Downstream) 6/13/2013	Fathom Pipe_4.5 10/24/2013	Fathom Pipe_23.5 10/24/2013	Fathom Pipe_33.2 10/24/2013	Fathom Pipe_45.5 10/24/2013	Fathom Pipe_60 10/24/2013	Fathom Pipe_65 10/24/2013	Fathom Pipe_70 10/24/2013	Fathom Pipe_75 10/24/2013	Fathom Pipe_75 (#2) 10/24/2013
Date					8/12/2003	2/10/2007	10/6/2009	11/10/2009	6/13/2013	6/13/2013	10/24/2013	10/24/2013	10/24/2013	10/24/2013	10/24/2013	10/24/2013	10/24/2013	10/24/2013	10/24/2013
Units	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Metals/Inorganics																			
Cadmium	1,000	510	630	2,000 - 4,500	28,000	45,000	20,000	33,400	52,300	33,700	3,330	16,900	21,200	26,400	15,900	15,600	20,100	21,900	17,400
Chromium, total	111,000	--	76,000	100,000 - 160,000	280,000	296,000	179,000	165,000	272,000	339,000	219,000	118,000	124,000	66,600	55,500	68,800	73,500	72,900	78,800
Copper	149,000	359,000	34,000	500,000 - 1,500,000	176,000	209,000	127,000	181,000	283,000	624,000	456,000	325,000	479,000	202,000	97,600	120,000	124,000	300,000	249,000
Lead	17,000	196,000	79,000	200,000 - 500,000	645,000	587,000	260,000	324,000	359,000	363,000	111,000	85,000	150,000	105,000	99,500	125,000	162,000	81,300	104,000
Zinc	459,000	459,000	180,000	1,000,000 - 25,000,000	902,000	957,000	588,000	813,000	1,530,000	1,080,000	2,220,000	1,890,000	1,460,000	873,000	593,000	715,000	917,000	1,190,000	1,470,000
PCBs Aroclors																			
Aroclor 1016	530	--	--	--	<13	<70.6	<10	<100	<35	<10	< 130	< 17	< 16	< 16	< 17	< 17	< 16	< 33	< 28
Aroclor 1221	--	--	--	--	<26	<70.6	<20	<200	<69.9	<20	< 140	< 34	130	< 31	44	< 33	240	< 39	< 43
Aroclor 1232	--	--	--	--	<13	<70.6	<10	<100	<35	<10	< 110	< 17	< 16	< 16	< 17	< 17	< 16	< 31	< 22
Aroclor 1242	--	--	--	--	<13	<70.6	<10	<100	NA	NA	< 22	< 17	31	15 J	17	130	68	< 20	< 22
Aroclor 1248	1,500	--	--	--	<13	<70.6	<10	<100	<35	<10	< 22	< 17	< 16	< 16	< 17	< 17	< 16	< 26	< 22
Aroclor 1254	300	--	--	--	276	1,840	166	963	519	81.8	< 22	4.9 J	370	230	140	1,200	510	45 J	38 J
Aroclor 1260	200	--	--	--	129	<70.6	121	<100	<35	<10	< 87	4.0 J	<96	< 38	< 24	< 180	130	24	26
Aroclor 1262	--	--	--	--	NA	NA	<10	<100	<35	<10	< 22	< 17	< 16	< 16	< 17	< 17	< 16	< 20	< 22
Aroclor 1268	--	--	--	--	NA	NA	<10	<100	<35	<10	< 27	< 17	< 16	< 16	< 17	< 17	< 16	< 20	< 22
Total PCBs	0.39	9	--	100 - 850	405	1,840	287	963	519	82	<22	8.9 J	531	245	201	1,330	948	69	64 J
Semivolatile Organic Compounds																			
Dimethylphthalate	--	--	--	--	<345	NA	<842	<1930	2,400	1,600	110 J	< 270	130 J	110 J	55 J	200	200	1700	1100
Diethylphthalate	600	--	--	--	<345	NA	<842	<1930	< 350	< 200	< 220	< 270	< 180	< 180	< 73	< 190	< 180	< 450	< 490
Di-n-butylphthalate	60	--	--	--	<345	532	<842	<1930	860	460	290 J	< 530	190 J	< 360	69 J	< 370	< 360	330 J	430 J
Butylbenzylphthalate	--	--	--	--	<431	NA	<842	<1930	2,200	1,800	1,100	330	520	210	120	260	< 180	1000	1700
Di-n-octylphthalate	--	--	--	--	<345	NA	7,980	13,700	1,600	910	< 220	< 270	< 180	< 180	90	160 J	210	< 450	780
bis(2-Ethylhexyl)phthalate	330	135	--	20,000 - 40,000	14,800	18,000	11,300	31,700	49,000	27,000	4,100	5,900	8,800	5,900	4,100	11,000	10,000	28,000	39,000
Polycyclic Aromatic Hydrocarbons																			
Naphthalene	561	--	--	--	368	169	169	235	2,200	210	120	26	47	30	25	51	48	110	130
2-Methylnaphthalene	200	--	--	--	2,380	NA	NA	NA	1,300	240	18	11	280	42	48	90	150	52	69
Acenaphthylene	200	--	--	--	<86	62.1	<84.7	<193	120	< 40	16	23	< 16	7.1 J	7.9 J	9.4 J	28 J	13	21
Acenaphthene	300	--	--	--	<86	92.3	<84.7	<193	98	47	12	5.9	52	9.3	11	15	27	16	20
Fluorene	536	--	--	--	<86	288	198	360	400	160	25	21	160	40	36	53	89	53	75
Phenanthrene	1,170	--	--	--	1,290	1,430	840	1,490	2,200	810	280	270	980	230	210	320	580	450	620
Anthracene	845	--	--	--	<86	128	89.1	<193	470	470	23	210	62	25	23	30	57	31	47
Fluoranthene	2,230	--	--	--	292	510	266	775	2,100	800	390	1000	650	190	180	290	420	600	860
Pyrene	1,520	--	--	--	602	702	266	605	2,600	1,100	400	900	720	280	220	350	510	880	1300
Benzo(a)anthracene	1,050	--	--	--	<86	<18.8	<84.7	198	500	260	120	480	320	59	57	89	150	200	260
Chrysene	1,290	--	--	--	<86	179	149	369	770	350	240 J	560	470	120 J	110 J	170 J	280 J	400	570
Benzo(b)fluoranthene	--	--	--	--	<86	234	109	329	770	370	260	650	440	90	92	140	280	310	440
Benzo(k)fluoranthene	13,000	--	--	--	<86	156	<84.7	<193	210	120	81	220	150 J	28	32	42	100 J	98 J	130 J
Benzo(a)pyrene	1,450	--	--	--	<86	173	<84.7	209	440	250	160	500	350	63	65	92	190	200	280
Indeno(1,2,3-cd)pyrene	100	--	--	--	<86	<18.8	<84.7	<193	350	220	150	350	250 J	57	61	80	160	200 J	280 J
Dibenz(a,h)anthracene	1,300	--	--	--	<86	32	<84.7	<193	92	59	34	96	66	13	15	22	34	45	58
Dibenzofuran	--	--	--	--	--	--	--	--	--	--	21	9.8 J	< 58	< 20	< 14	< 24	< 37	30 J	37 J
Benzo(g,h,i)perylene	300				<86	156	<84.7	196	500	320	210	360	270	79	71	110	190	290	420

Notes:

	Value is less than "knee of DEQ rank order curve" (or no value) and/or greater than the DEQ/EPA JSCS SLV and/or PHSS CUL.
	Value is in the "knee of DEQ rank order curve" (or no value) and greater than the DEQ/EPA JSCS SLV and/or PHSS CUL.
	Value is greater than the "knee of DEQ rank order curve" (or no value) and greater than the DEQ/EPA JSCS SLV and/or PHSS CUL.

[†]The source of each screening level value (SLV) is documented in Table 3.1 of the Portland Harbor Joint Source Control Strategy, which can be viewed at http://www.deq.state.or.us/lq/cu/nwr/PortlandHarbor/docs/JSCSFinalTable03_1.pdf
DEQ 08-LQ-076.

The source of each cleanup level (CUL) is Table 17 in 2019 Explanation of Significant Differences, Portland Harbor Superfund Site (PHSS), Portland, Oregon

DEQ rank-order charts can be found in Appendix E: Tools for Evaluating Stormwater Data in Guidance for Evaluating the Stormwater Pathway at Upland Sites (DEQ 2010, updated 2015)

Total polychlorinated biphenyls (PCBs) is the sum of the Aroclor detections or the value of the lowest detection limit

-- = No value

J = Estimated concentration

Q - Detection levels elevated due to sample matrix

mg/kg = milligrams per kilogram (parts per million)

NA = Not analyzed

SLV = screening level value

ug/kg = micrograms per kilogram (parts per billion)

Detections are in **bold**

Table 9
Fathom Storm Line Solids Data
Daimler Truck Manufacturing Plant Portland, Oregon

	USEPA- DEQ JSCS SLV	Fathom Cutoff Valve Vault 10/10/2014	Fathom 0-16 10/10/2014	Fathom 35-45 10/10/2014	Fathom 45-65 10/10/2014	Fathom 63-75 10/10/2014	Fathom 75-90 10/10/2014
Date		10/10/2014	10/10/2014	10/10/2014	10/10/2014	10/10/2014	10/10/2014
Units	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg	µg/kg
Metals/Inorganics							
Cadmium	1,000	14,200	2,690	8,380	8,940	2,590	9,710
Chromium, total	111,000	1,330,000	243,000	193,000	316,000	70,300	128,000
Copper	149,000	292,000	109,000	209,000	262,000	108,000	143,000
Lead	17,000	145,000	54,900	88,100	98,900	24,100	42,000
Zinc	459,000	1,230,000	673,000	795,000	983,000	419,000	502,000
PCBs Aroclors							
Aroclor 1016	530	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33
Aroclor 1221	--	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33
Aroclor 1232	--	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33
Aroclor 1242	--	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33
Aroclor 1248	1,500	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33
Aroclor 1254	300	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33
Aroclor 1260	200	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33
Aroclor 1262	--	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33
Aroclor 1268	--	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33
Total PCBs	0.39	<0.33	<0.33	<0.33	<0.33	<0.33	<0.33
Semivolatile Organic Compounds							
Dimethylphthalate	--	183	3080	891	860	877	779
Diethylphthalate	600	<33.3	<166	<33.3	<33.3	<166 Q	<33.3
Di-n-butylphthalate	60	79.3	197	126	114	212	220
Butylbenzylphthalate	--	264	1040	811	1050	1060	488
Di-n-octylphthalate	--	<33.3	<166	<33.3	<33.3	<166 Q	<33.3
bis(2-Ethylhexyl)phthalate	330	2,120	9,580	9,830	7,570	8,060	14,400
Polycyclic Aromatic Hydrocarbons							
Naphthalene	561	35.2	NA	27.2	53.3	93.8	52.1
2-Methylnaphthalene	200	NA	NA	NA	NA	NA	NA
Acenaphthylene	200	<13.2	NA	<13.2	<13.2	<13.2	<13.2
Acenaphthene	300	<13.2	NA	<13.2	<13.2	<13.2	<13.2
Fluorene	536	15.3	NA	16.1	22.8	22.3	25.8
Phenanthrene	1,170	73.2	NA	166	138	170	140
Anthracene	845	17.5	NA	22.6	26.1	24.6	23.3
Fluoranthene	2,230	72.5	NA	210	121	140	201
Pyrene	1,520	119	NA	284	235	353	326
Benzo(a)anthracene	1,050	20.4	NA	76.2	47.6	79.2	82.6
Chrysene	1,290	72.3	NA	153	120	202	165
Benzo(b)fluoranthene	--	59.2	NA	151	94.4	93.7	156
Benzo(k)fluoranthene	13,000	<13.2	NA	46.5	30.5	27.6	48.7
Benzo(a)pyrene	1,450	29.1	NA	46.5	55.3	55.8	115
Indeno(1,2,3-cd)pyrene	100	21.3	NA	66.1	37	46.4	86.6
Dibenz(a,h)anthracene	1,300	<13.2	NA	19.9	17.3	22.4	22
Dibenzofuran	--	NA	NA	NA	NA	NA	NA
Benzo(g,h,i)perylene	300	46.6	NA	92.2	76.8	83.7	128

Notes:

	Value is less than
	Value is in the "kr
	Value is greater th

¹The source of each screening level value (SLV) is <http://www.deq.state.or.us/lq/cu/nwr/PortlandHart> DEQ 08-LQ-076.

The source of each cleanup level (CUL) is Table 1 DEQ rank-order charts can be found in Appendix I

Total polychlorinated biphenyls (PCBs) is the sum -- = No value

J = Estimated concentration

Q - Detection levels elevated due to sample matrix mg/kg = milligrams per kilogram (parts per million)

NA = Not analyzed

SLV = screening level value

ug/kg = micrograms per kilogram (parts per billion)

Detections are in **bold**

Table 10
Source Control Evaluation Stormwater Results for Ensign and Fathom Outfalls
Daimler Truck Manufacturing Plant

GROUP	CHEMICAL	STORMWATER (µg/L)			Ensign Street Outfall												Standard
							First Flush and Standard					Standard	First Flush and Standard	First Flush and Standard	Standard	First Flush and Standard	
		CLEANUP LEVEL Table 17 PH ROD	SLV Table 3-1 JSCS	Approximate "knee" of DEQ rank-order curve	04/16/07	08/20/08	11/20/08	02/23/09	05/04/09	09/30/09	03/09/11	10/13/14	10/20/14	10/21/14	10/13/16	12/02/16	
Metals/Inorganics/Butyltins	Antimony	--	6	--	--	--	--	--	--	--	--	--	--	--	--	--	
	Arsenic, dissolved	0.018	--	--	--	--	--	--	--	--	--	0.41 J	0.33 J	--	--	--	
	Arsenic	0.018	--	2 - 5	--	--	--	--	--	--	<0.273	<0.273	0.48 J	--	--	--	
	Cadmium, dissolved	--	0.094	--	0.69	0.55	0.31	0.32	0.30	0.35	--	0.151	<0.0518	<0.518	<0.100	0.122 J	
	Cadmium	--	0.094	0.5 - 1.5	1.13	1.1	0.86	1.5	0.52	1.0	0.827	0.314	0.085 J	0.114	0.100 J	0.121 J	
	Chromium, dissolved	100	--	--	--	1.4	1.3	2.3	1.5	0.31 J	--	0.19 J	0.36 J	0.340 J	--	--	
	Chromium, total	100	--	10 - 15	--	3.2	3.5	5.9	1.5	2.0	1.87	2.53	0.679	0.945	--	--	
	Chromium, hexavalent	--	11	--	6.1	3.6 J	2.0 J	2.0 J	2.0 J	4.4	--	--	--	--	--	--	
	Copper, dissolved	2.74	--	--	17	11	5.3	4.8	22	17	--	5.75	7.77	10.6	--	--	
	Copper	2.74	--	50 - 150	22.7	19	11	20	29	35	13.4	14.5	11.3	16.3	--	--	
	Lead, dissolved	--	0.54	--	5.2	0.10	0.48	0.92	0.25	0.85	--	0.175	0.284	0.284	--	--	
	Lead	--	0.54	25 - 100	3.97	5.8	6.6	15	1.2	5.7	4.60	5.74	1.90	1.77	--	--	
	Mercury, dissolved	--	0.77	--	--	--	--	--	--	--	--	< 0.0160	< 0.0160	<0.0160	--	--	
	Mercury	--	0.77	0.175 - 1.0	--	--	--	--	--	--	--	< 0.0160	< 0.0160	<0.0160	--	--	
	Silver, dissolved	--	0.12	--	--	--	--	--	--	--	--	0.011 J	<0.007	<0.007	--	--	
	Silver	--	0.12	0.075 - 0.25	--	--	--	--	--	--	--	<0.00680	0.010 J	0.012 J	--	--	
	Zinc, dissolved	36.5	--	--	220	250	150	190	300	120	--	168	64.8	70.4	133	185	
Zinc	36.5	--	500 - 1500	264	330	230	420	340	210	318	293	75	119	163	200		
Tributyltin	0.063	--	--	--	--	--	--	--	--	--	<0.005	<0.005	<0.005	--	--		
Polychlorinated Biphenyls	PCBs (total)	0.0000064	--	0.175 - 0.8	<0.00986	<0.0211	<0.0222	<0.0226	--	<0.00296	< 0.00380	<0.00451	<0.00372	< 0.00396	--	--	
	Aroclor 1016	--	0.96	--	<0.00986	<0.0211	<0.0222	<0.0226	--	<0.00296	< 0.00380	<0.00451	<0.00372	< 0.00396	--	--	
	Aroclor 1221	--	0.034	--	<0.00986	<0.0211	<0.0222	<0.0226	--	<0.00296	< 0.00380	<0.00451	<0.00372	< 0.00396	--	--	
	Aroclor 1232	--	0.034	--	<0.00986	<0.0211	<0.0222	<0.0226	--	<0.00296	< 0.00380	<0.00451	<0.00372	< 0.00396	--	--	
	Aroclor 1242	--	0.034	--	<0.00986	<0.0211	<0.0222	<0.0226	--	<0.00296	< 0.00380	<0.00451	<0.00372	< 0.00396	--	--	
	Aroclor 1248	--	0.034	--	<0.00986	<0.0211	<0.0222	<0.0226	--	<0.00296	< 0.00380	<0.00451	<0.00372	< 0.00396	--	--	
	Aroclor 1254	--	0.033	--	<0.00986	<0.0211	<0.0222	<0.0226	--	<0.00296	< 0.00380	<0.00451	<0.00372	< 0.00396	--	--	
	Aroclor 1260	--	0.034	--	<0.00986	<0.0211	<0.0222	<0.0226	--	<0.00296	< 0.00380	<0.00451	<0.00372	< 0.00396	--	--	
	Aroclor 1262	--	--	--	--	--	<0.0222	<0.0226	--	<0.00296	< 0.00380	<0.00451	<0.00372	< 0.00396	--	--	
	Aroclor 1268	--	--	--	--	--	<0.0222	<0.0226	--	<0.00296	< 0.00380	<0.00451	<0.00372	< 0.00396	--	--	
Phthalate Esters	Dimethylphthalate	--	3	--	--	--	--	--	--	--	0.143 J	7.44	0.642 J	0.219 J	0.388	0.497	
	Diethylphthalate	--	3	--	--	--	--	--	--	--	< 0.954	0.176 J	< 0.188	< 0.120	<0.192	<0.190	
	Di-n-butylphthalate	--	3	--	<0.978	<0.412	<0.382	0.613 J	<0.375	<0.367	0.134 J	<0.103	0.188 J	0.279 J	<0.192	<0.190	
	Butylbenzylphthalate	--	3	--	--	--	--	--	--	--	0.382 J	0.352 J	< 0.155	< 0.157	0.210 J	<0.190	
	Di-n-octylphthalate	--	3	--	--	--	--	--	--	--	0.267 J	0.508 J	< 0.0582	6.00	<0.192	<0.190	
	Bis(2-ethylhexyl) phthalate	0.2	--	4 - 10	3.29	2.01	2.17	5.36	0.74 J	3.99	2.34	6.25	0.405 J	0.419 J	0.744	0.337 J	
Polycyclic Aromatic Hydrocarbons	PAHs (total)	--	--	2 - 4	0.476	0.307	0.468	0.993	0.064	0.091	0.302	0.965	0.080	0.101	0.133 J	0.0222 J	
	Naphthalene	12	--	--	<0.0476	0.0288 J	0.0200 J	<0.00374	<0.00369	0.0591	0.017 J	<0.048	<0.0063	<0.0068	<0.0192	<0.0190	
	2-Methylnaphthalene	--	0.2	--	--	--	--	--	--	--	--	--	--	--	<0.0192	<0.0190	
	Acenaphthylene	--	0.2	--	<0.0476	<0.048	<0.0031	<0.00313	<0.00308	<0.00305	< 0.00510	<0.048	<0.0050	<0.0054	<0.0476	<0.00952	
	Acenaphthene	--	0.2	--	<0.0476	0.00961 J	<0.00431	<0.00436	<0.00430	<0.00425	0.0053 J	<0.048	0.0042 J	0.0045 J	<0.0476	<0.00952	
	Fluorene	--	0.2	--	<0.0476	0.0192 J	0.0200 J	<0.00364	<0.00359	<0.00355	0.0044 J	<0.048	< 0.0020	0.0024 J	<0.00952	<0.00952	
	Phenanthrene	--	0.2	--	<0.0476	0.0384 J	0.0400 J	0.111	0.010 J	<0.00654	0.0414	0.12	0.0085 J	0.0090 J	<0.0476	0.00953 J	
	Anthracene	--	0.2	--	<0.0476	0.00961 J	0.0200 J	<0.00515	<0.00507	<0.00502	0.0037 J	<0.048	0.0031 J	0.0035 J	<0.0476	<0.00952	
	Fluoranthene	--	0.2	--	<0.0476	0.0192 J	0.0300 J	0.0908	0.010 J	<0.0035	0.0240	0.076	<0.0028	0.0078 J	0.0169 J	<0.00952	
	Pyrene	--	0.2	--	0.0952	0.0384 J	0.130	0.262	0.010 J	<0.00371	0.0908	0.21	0.0090 J	0.013 J	<0.0476	0.0127 J	
	Benzo(a)anthracene	0.0012	--	--	<0.0476	0.0192 J	0.0300 J	0.101	<0.00252	<0.00249	0.0239	0.056	0.020 J	0.019 J	0.0120 J	<0.00952	
	Chrysene	0.0013	0.018	--	<0.0476	0.0192 J	0.0300 J	0.111	<0.00385	<0.00381	0.0331	0.088	0.0054 J	0.0069 J	0.0223	<0.00952	
	Benzo(b)fluoranthene	0.0012	--	--	<0.0476	0.00961 J	0.0300 J	0.0706	<0.00710	<0.00702	0.017 J	0.067	0.0053 J	0.0079 J	0.0284	<0.0143	
	Benzo(k)fluoranthene	0.0013	--	--	<0.0476	0.00961 J	<0.00568	0.0505 J	<0.00566	<0.0056	0.0037 J	0.025 J	< 0.0014	0.0059 J	0.0152 J	<0.0143	
	Benzo(a)pyrene	0.00012	--	--	<0.0476	0.00961 J	0.0400 J	<0.00608	0.010 J	<0.00593	0.015 J	0.031 J	0.0042 J	0.0070 J	<0.0190	<0.0143	
	Ideno(1,2,3-cd)pyrene	0.0012	--	--	<0.0476	0.00961 J	0.0300 J	0.0605	<0.00305	<0.00302	0.0031 J	0.031 J	0.0042 J	0.0025 J	0.0158 J	<0.00952	
	Dibenz(a,h)anthracene	0.00012	--	--	<0.0476	<0.048	<0.00309	<0.00312	<0.00308	<0.00304	0.0020 J	0.031 J	0.0050 J	0.0024 J	< 0.00952	<0.00952	
Benzo(g,h,i)perylene	--	0.2	--	<0.0476	0.0192 J	0.0400 J	0.121	<0.00309	<0.00306	0.015 J	0.11	0.010 J	<0.0055	0.0219	<0.00952		
Other	Dieldrin	--	0.000054	--	--	--	--	--	--	--	--	< 0.00240	<0.00198	< 0.01782	--	--	
	Phenol	--	2560	--	--	--	--	--	--	--	--	0.606 J	< 0.192	< 0.193	--	--	
	TSS	--	--	50,000 - 150,000	11,000	10,000	17,000	50,000	3,000 J	12,000	7,000	62,000	5,000	9,000	6,000	<5,000	

Notes:

- Value is less than "knee of DEQ rank order curve" (or no value) and/or greater than the DEQ/EPA JSCS SLV and/or PHSS CUL.
- Value is in the "knee of DEQ rank order curve" (or no value) and greater than the DEQ/EPA JSCS SLV and/or PHSS CUL.
- Value is greater than the "knee of DEQ rank order curve" (or no value) and greater than the DEQ/EPA JSCS SLV and/or PHSS CUL.

The source of each cleanup level (CUL) is Table 17 in the 2019 Explanation of Significant Differences, Portland Harbor Superfund Site (PHSS), Portland, Oregon

The source of each screening level value (SLV) is documented in Table 3.1 of the Portland Harbor Joint Source Control Strategy (JSCS), which can be viewed at http://www.deq.state.or.us/lq/cu/nwr/PortlandHarbor/docs/JSCSFinalTable03_1.pdf

DEQ 08-LQ-076.

DEQ rank-order charts can be found in Appendix E: Tools for Evaluating Stormwater Data in Guidance for Evaluating the Stormwater Pathway at Upland Sites (DEQ 2010, updated 2015)

Total polychlorinated biphenyls (PCBs) is the sum of the Aroclor detections or the value of the lowest detection limit

µg/L = micrograms per liter

-- = No value or not available

< = Analyte not detected at or above the reported sample quantification limit

J = Estimated result, analyte detected below the lowest point of the calibration curve but above the method detection limit (MDL)

Table 10
Source Control Evaluation Stormwater Results for Ensign and Fathom Outfalls
Daimler Truck Manufacturing Plant

GROUP	CHEMICAL	STORMWATER (µg/L)		Fathom Street Outfall										Standard	First Flush and Standard	First Flush and Standard
						First Flush and Standard										
		CLEANUP LEVEL Table 17 PH ROD	SLV Table 3-1 JSCS	04/16/07	08/20/08	11/20/08	02/23/09	05/04/09	09/30/09	03/09/11	03/09/11	10/13/14	10/20/14	10/21/14		
Metals/Inorganics/Butyltins	Antimony	--	6	--	--	--	--	--	--	--	--	--	--	--	--	--
	Arsenic, dissolved	0.018	--	--	--	--	--	--	--	--	--	<0.281	0.645	<0.281		
	Arsenic	0.018	--	--	--	--	--	--	--	--	--	<0.273	0.740	0.34 J		
	Cadmium, dissolved	--	0.094	0.94	0.35	0.23	0.12	0.09 J	0.97	--	--	0.142	0.283	<0.0518		
	Cadmium	--	0.094	2.04	0.98	0.74	0.72	0.58	2.5	0.117	0.113	0.0890 J	0.421	0.154		
	Chromium, dissolved	100	--	--	<1.3	0.2 J	<0.13	<0.13	0.49 J	--	--	0.33 J	0.666	0.703		
	Chromium, total	100	--	--	1.3	1.5	2.9	1.4	4.6	0.073 J	0.086 J	0.497	2.64	2.07		
	Chromium, hexavalent	--	11	7.7	<1.8	4.4 J	<1.8	<1.8	3.6	--	--	--	--	--		
	Copper, dissolved	2.74	--	18	8.7	5.4	3.4	5.6	16	--	--	0.142	0.283	<0.0518		
	Copper	2.74	--	28.4	11	7.1	12	9.2	26	29.7	31.3	11.2	40.9	8.89		
	Lead, dissolved	--	0.54	0.69	1.4	0.13	0.29	0.08 J	1.0	--	--	0.484	0.783	0.396		
	Lead	--	0.54	4.68	3.9	4.6	9.9	4.3	15	0.178	0.179	0.774	2.59	1.53		
	Mercury, dissolved	--	0.77	--	--	--	--	--	--	--	--	<0.0160	<0.0160	<0.0160		
	Mercury	--	0.77	--	--	--	--	--	--	--	--	<0.0160	<0.0160	<0.0160		
	Silver, dissolved	--	0.12	--	--	--	--	--	--	--	--	0.011 J	0.017 J	<0.00700		
	Silver	--	0.12	--	--	--	--	--	--	--	--	<0.00680	0.037 J	0.040 J		
	Zinc, dissolved	36.5	--	160	130	130	170	130	240	--	--	137	302	36.5		
	Zinc	36.5	--	266	210	180	250	150	370	172	159	156	272	133		
	Tributyltin	0.063	--	--	--	--	--	--	--	--	--	<0.005	<0.005	<0.005		
	PCBs (total)	0.0000064	--	--	--	--	--	--	--	--	--	--	--	--		
Polychlorinated Biphenyls	Aroclor 1016	--	0.96	<0.00965	<0.0238	<0.0211	<0.0226	--	<0.00288	<0.00403	<0.00372	<0.00405	<0.00396	<0.00368		
	Aroclor 1221	--	0.034	<0.00965	<0.0238	<0.0211	<0.0226	--	<0.00288	<0.00403	<0.00372	<0.00405	<0.00396	<0.00368		
	Aroclor 1232	--	0.034	<0.00965	<0.0238	<0.0211	<0.0226	--	<0.00288	<0.00403	<0.00372	<0.00405	<0.00396	<0.00368		
	Aroclor 1242	--	0.034	<0.00965	<0.0238	<0.0211	<0.0226	--	<0.00288	<0.00403	<0.00372	<0.00405	<0.00396	<0.00368		
	Aroclor 1248	--	0.034	<0.00965	<0.0238	<0.0211	<0.0226	--	<0.00288	<0.00403	<0.00372	<0.00405	<0.00396	<0.00368		
	Aroclor 1254	--	0.033	<0.00965	<0.0238	<0.0211	<0.0226	--	<0.00288	<0.00403	<0.00372	<0.00405	<0.00396	<0.00368		
	Aroclor 1260	--	0.034	<0.00965	<0.0238	<0.0211	<0.0226	--	<0.00288	<0.00403	<0.00372	<0.00405	<0.00396	<0.00368		
	Aroclor 1262	--	--	--	--	<0.0211	<0.0226	--	<0.00288	<0.00403	<0.00372	<0.00405	<0.00396	<0.00368		
	Aroclor 1268	--	--	--	--	<0.0211	<0.0226	--	<0.00288	<0.00403	<0.00372	<0.00405	<0.00396	<0.00368		
	Diethylphthalate	--	3	--	--	--	--	--	--	<0.955	<0.960	<0.946	0.406 J	0.258 J		
Phthalate Esters	Diethylphthalate	--	3	--	--	--	--	--	--	<0.955	<0.960	<0.946	<0.128	<0.115		
	Di-n-butylphthalate	--	3	<0.967	0.735 J	<0.358	<0.405	<0.390	<0.374	<0.955	<0.960	<0.946	0.246 J	0.249 J		
	Butylbenzylphthalate	--	3	--	--	--	--	--	--	0.497 J	0.797 J	<0.946	<0.168	0.497 J		
	Di-n-octylphthalate	--	3	--	--	--	--	--	--	0.191 J	0.240 J	<0.946	0.203 J	0.115 J		
	Bis(2-ethylhexyl) phthalate	0.2	--	12.4	19.7	4	1.91	12.1	4.21	0.181 J	0.298 J	1.51	3.56	4.35		
	PAHs (total)	--	--	--	--	--	--	--	--	--	--	--	--	--		
Polycyclic Aromatic Hydrocarbons	Naphthalene	12	--	<0.0488	0.0298 J	0.0286 J	0.0208 J	0.020 J	0.0294 J	0.014 J	<0.00639	<0.050	0.0088 J	0.041 J		
	2-Methylnaphthalene	--	0.2	--	--	--	--	--	--	--	--	--	--	--		
	Acenaphthylene	--	0.2	<0.0488	0.00993 J	<0.00295	<0.00322	<0.00310	<0.00304	<0.00511	<0.00508	<0.050	<0.0055	<0.048		
	Acenaphthene	--	0.2	<0.0488	0.0199 J	<0.00411	<0.00448	<0.00432	<0.00423	0.0047 J	0.0044 J	<0.050	0.011 J	0.014 J		
	Fluorene	--	0.2	<0.0488	0.00993 J	0.0190 J	<0.00375	0.010 J	<0.00354	0.0041 J	0.0058 J	<0.050	0.0043 J	0.018 J		
	Phenanthrene	--	0.2	0.0683	0.0397 J	0.0381 J	0.0623	0.040 J	0.0392 J	0.0219	0.021	<0.050	0.035 J	0.074		
	Anthracene	--	0.2	<0.0488	0.00993 J	<0.00486	<0.0053	0.010 J	<0.00499	0.0022 J	<0.00208	<0.050	<0.0022	0.0089 J		
	Fluoranthene	--	0.2	<0.0488	0.0298 J	0.0286 J	0.0623	0.030 J	<0.00348	0.011 J	<0.00284	<0.050	0.018 J	0.022 J		
	Pyrene	--	0.2	0.0878	0.00993 J	0.0762	0.125	0.060	<0.00369	0.0059 J	0.0058 J	<0.050	0.058 J	0.028 J		
	Benzo(a)anthracene	0.0012	--	<0.0488	0.00993 J	0.0286 J	0.0415 J	0.030 J	<0.00248	0.016 J	0.014 J	0.019 J	0.025 J	0.018 J		
	Chrysene	0.0013	0.018	<0.0488	0.00993 J	0.0381 J	0.0831	0.030 J	<0.00379	0.014 J	0.013 J	0.017 J	0.022 J	0.0092 J		
	Benzo(b)fluoranthene	0.0012	--	<0.0488	<0.0497	0.0381 J	0.0623	0.020 J	<0.00699	0.019 J	0.016 J	0.020 J	0.017 J	0.0040 J		
	Benzo(k)fluoranthene	0.0013	--	<0.0488	0.00993 J	0.0190 J	0.0415 J	0.020 J	<0.00557	0.0036 J	0.016 J	0.0057 J	0.011 J	0.0032 J		
	Benzo(a)pyrene	0.00012	--	<0.0488	0.00993 J	0.0381 J	0.0415 J	0.010 J	<0.0059	0.0094 J	0.0080 J	0.019 J	0.0037 J	0.010 J		
	Ideno(1,2,3-cd)pyrene	0.0012	--	<0.0488	<0.0497	0.0381 J	0.0831	<0.00306	0.00979 J	0.0051 J	0.0098 J	0.015 J	<0.0017	0.0053 J		
	Dibenz(a,h)anthracene	0.00012	--	<0.0488	<0.0497	0.0381 J	0.0623	<0.00309	<0.00303	0.0087 J	0.0023 J	0.017 J	0.0019 J	0.0077 J		
	Benzo(g,h,i)perylene	--	0.2	<0.0488	0.00993 J	0.0190 J	0.114	0.040 J	<0.00305	0.011 J	0.0099 J	<0.050	0.033 J	0.0073 J		
Other	Dieldrin	--	0.000054	--	--	--	--	--	--	--	--	<0.00216	<0.00211	<0.00196		
	Phenol	--	2560	--	--	--	--	--	--	--	--	2.72	9.65	<0.185		
	TSS	--	--	19,000	6,000	7,000	25,000	2000 J	16,000	<1100	<1100	12,000	19,000	5,000		

Notes:

Value is less than "knee of DEQ rank order curve" (or no value) and/or greater than the DE and/or PHSS CUL.

Value is in the "knee of DEQ rank order curve" (or no value) and greater than the DEQ/EP/ PHSS CUL.

Value is greater than the "knee of DEQ rank order curve" (or no value) and greater than the and/or PHSS CUL.

The source of each cleanup level (CUL) is Table 17 in the 2019 Explanation of Significant Diff Harbor Superfund Site (PHSS), Portland, Oregon

The source of each screening level value (SLV) is documented in Table 3.1 of the Portland Har Control Strategy (JSCS), which can be viewed at http://www.deq.state.or.us/lq/cu/nwr/PortlandHarbor/docs/JSCSFinalTable03_1.pdf

DEQ 08-LQ-076.

DEQ rank-order charts can be found in Appendix E: Tools for Evaluating Stormwater Data in Evaluating the Stormwater Pathway at Upland Sites (DEQ 2010, updated 2015)

Total polychlorinated biphenyls (PCBs) is the sum of the Aroclor detections or the value of the limit

ug/L = micrograms per liter

-- = No value or not available

< = Analyte not detected at or above the reported sample quantification limit

J = Estimated result, analyte detected below the lowest point of the calibration curve but above limit (MDL)