State of Oregon
Department of Environmental Quality **Memorandum**

Date: **April 26, 2024**

To: **Laura Hanna, US EPA**

Through: **Kevin Parrett, DEQ Cleanup Section Manager**

From: **Rob Hood, Cleanup Project Manager** *RAH*

Subject: **Final Source Control Decision**
BSS Albina
ECSI #6287

1.0 Introduction

This memorandum presents the basis for the Oregon Department of Environmental Quality (DEQ) source control decision for the BSS Albina site, located at 2100 N. Albina Avenue in Portland, Oregon 97227. BSS Albina conducted a Source Control Evaluation (SCE) for the stormwater and groundwater pathways at the site in accordance with the 2005 *EPA/DEQ Portland Harbor Joint Source Control Strategy,* also known as the JSCS, under a September 2017, Consent Judgement between BSS Albina and DEQ.

DEQ concludes from review of the Revised Source Control Evaluation Report (NV5, 2022) and other supporting documents, that upland sources of contamination from current and past operations do not pose a significant current or future threat to the Willamette River.

2.0 Site Description and History

2.1 Site Description

The property is located southeast of I-405 in North Portland, just northeast of the Willamette River, and southwest of N. Interstate Avenue. (Figure 1). The site is underlain by sedimentary deposits consisting predominantly of fill, silts/sands, and alluvium, overlaying Troutdale Gravel.

The site is currently owned and operated by BSS Albina Development, LLC. The subject property includes Tax Lots 6500 and 6501 on Multnomah County Tax Map 1N1E27CA. The Tax Lots are separated by the N. Tillamook Street over pass Right-of-Way (ROW). Tax Lot 6501, on the south side of the property, was redeveloped with a four-story self-storage facility. Tax Lot 6500 is used as a paved storage area (Figures 2 and 3).

2.2 Site History and Use

In 1889, the extreme west portion of the subject property included several small buildings and a majority of the subject property was described as “low marshy ground.” By 1924, a building was constructed in the southeast portion of the subject property near the location of the warehouse that formerly occupied the subject property. This indicates that the “low marshy ground” had been filled by this time.

In 1948, part of the former warehouse building in the southeast portion of the subject property was constructed. The north portion of the subject property was occupied by a lumber facility from at least 1950 to sometime after 1969. The development remained relatively unchanged until 1990 when a cluster

of buildings on the southwest portion of the subject property was removed and a smaller building was constructed in its place. By 2002, the existing N. Tillamook Street overpass was constructed and the former office building in the southwest corner of the subject property was constructed. The approximately 24,000-square-foot warehouse building and a modular office building were demolished in 2019. Redevelopment with the current self-storage facility began in 2019. Tax Lot 6500 consisted of paved parking that was used for equipment storage until 2019, at which time it was used as a construction laydown area.

Tax Lot 6501
The portion of the subject property encompassed within Tax Lot 6501 was recently redeveloped as a four-story self-storage facility with an approximately 41,000-square-foot footprint. The general layout of the redevelopment is shown on Figure 3.

Several former utilities located on Tax Lot 6501 of the subject property were abandoned during redevelopment and new utilities were installed, including a stormwater collection and conveyance system.

Tax Lot 6500
The portion of the subject property encompassed within Tax Lot 6500 has and will continue to serve as an outdoor storage area.

One stormwater catch basin and associated conveyance line were maintained on Tax Lot 6500, which tie into the new stormwater system on Tax Lot 6501.

2.3 Potential Sources of Contamination
Identified sources of potential contamination are fill material historically placed throughout site, former underground storage tanks (USTs), and former paint shop. A black silty sand layer located on the south portion of the subject property appeared to be fill likely consisting of former sand blasting material. The black, silty sand layer was removed from the site during redevelopment.

An additional potential contamination source to groundwater at the site identified during the source control evaluation is off-site/upgradient sources.

2.3 Chemicals of Interest
Based on the results of previous investigations, petroleum hydrocarbons, volatile organic compounds (VOCs), Semi-VOCs (SVOCS), and metals have been detected is soil and/or groundwater and the primary contaminants of interest (COIs) associated with potential on-site risk are arsenic and lead.

Additionally, the following COIs for the Portland Harbor were evaluated in stormwater samples evaluated as part of the source control evaluation (SCE), due to their presence in sediment around City Outfall-Basin 43:

- Total petroleum hydrocarbons (TPH, gasoline-range, diesel-range, and oil-range hydrocarbons)
- Polynuclear aromatic hydrocarbons (PAHs)/SVOCs
- Phthalates
- Polychlorinated biphenyls (PCBs)
- Metals (arsenic, cadmium, chromium, copper, lead, mercury, silver, and zinc)
- VOCs (chlorinated)

- Phenols and substituted Phenols.

2.4 Potentially Complete Pathways

Potential contaminant transport pathways evaluated at the BSS Albina site include releases during stormwater and groundwater migration.

Overwater Activities – The facility is not adjacent to the river and has no overwater activities. Therefore, this pathway is not complete at the site.

Storm water – One current and one former storm sewer outflow exists at the facility, Figure 4. The current stormwater line has a direct connection from the property to the Willamette River and outlets at outfall 43. This is a complete pathway.

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

Groundwater Pathway- Groundwater impacted from the site may discharge to the Willamette River which is downgradient of the site. This pathway was carried forward for further evaluation.

3.0 Regulatory History

The subject property was enrolled in the DEQ Voluntary Cleanup Program to help facilitate the receipt of a Prospective Purchaser's Agreement (PPA). The subject property was assigned DEQ ECSI No. 6287 and a Consent Judgement PPA was executed between BSS Albina, LLC, DEQ, and the Oregon Department of Justice on October 31, 2018.

The PPA required the following work to be completed by the prospective purchaser:

- Delineate the black, silty sand layer containing hazardous concentrations of lead.
- During redevelopment, excavate and properly dispose of the black, silty sand layer at a permitted offsite facility.
- Cap the subject property with hardscape (asphalt, concrete and/or building footprint) or 2 feet of clean fill to prevent direct contact with underlying soil.
- Prepare a site-specific contaminated media management plan (CMMP).
- Conduct a source control evaluation for the subject property in accordance with the joint source control strategy (JSCS) guidance.

3.1 PPA Investigations

A Phase I Environmental Site Assessment (ESA) was completed in December 2017. Identified historical uses of the subject property included a machine shop, fabrication shop, boat engine repair facility, and lumber yard. At the time of the Phase I, the property was occupied by a heavy haul trail repair and fabrication shop. The Phase I ESA also reported that in 1993 three USTs were decommissioned in- place (K&S, 2017).

A Phase II ESA was completed in April 2018, which included a geophysical survey, advancing nine direct-push borings (DP-1 through DP-9) for the collection of soil and/or groundwater samples, and the collection of sub-slab vapor samples from beneath the property structure. The soil and groundwater samples were analyzed for TPH, VOCs, SVOCs, and metals. Boring locations and sample results are presented in Phase II Environmental Site Assessment; 2100 N. Albian Development (GeoDesign, 2018a).

Based on results of the Phase II ESA supplemental soil evaluation was completed in June 2018, that consisted of advancing eight direct-push borings (DP-10 through DP-17) in the former paint shop to further delineate the extent of soil that would require excavation and disposal per the PPA requirements. Boring locations and sample results are presented in Supplemental Soil Evaluation; 2100 N. Albina Development (GeoDesign, 2018b).

In December 2018, a groundwater assessment was conducted to further evaluate if concentrations of contaminants at the property pose a risk to the Willamette River via the groundwater-to-surface water migration pathway. Three direct-push borings (DP-18 through DP-20) were advanced on the southwest portion of the property to evaluate groundwater conditions at the down-gradient boundaries of the site. The groundwater samples were analyzed for diesel- and oil-range hydrocarbons, aliphatic and aromatic hydrocarbons, VOCs, metals, and PAHs. Boring locations and sample results are presented in Revised Source Control Evaluation Report; 2100 N. Albian Development (NV5, 2022) and are included in Figure 3.

3.2 Redevelopment

3.2.1 Soil Removal

In October 2019, the black, silty sand layer located beneath the paint shop was excavated in accordance with the DEQ approved CMMP (GeoDesign, 2019). The lateral extent of the excavation is shown on Figure 7 of the Revised Source Control Evaluation Report. The excavation depth ranged from 10.5 to 13 feet below ground surface (bgs). Upon completion of the remedial excavation sixteen 5-point composite confirmation soil samples (Comp-1 through Comp-16) from the limits of the excavation were collected. The excavation location and sample results are presented in Revised SCE Report; 2100 N. Albina Development (NV5, 2022) and are included in Attachment 1.

3.2.2 Capping

Tax Lot 6501

The protective cap comprising final cover on Tax Lot 6501 consists of approximately 80 percent hardscape areas (building slab, asphalt parking, and concrete walkways) and approximately 20 percent landscape areas. Hardscapes (including imported gravel subgrade) were placed directly on subject property fill material. Softscape areas on Tax Lot 6501 were over-excavated to accommodate the 2-foot clean fill cap. A demarcation consisting of a geotextile fabric was placed upon fill material, below the clean fill cap. The land scaped areas were backfilled with approximately 1-foot to 1.5 feet for recycled concrete material. Imported soil for use as topsoil was analyzed in accordance with the CMMP and was placed at the site in August 2021, which completed the (at least) 2-foot-thick cap of clean fill in the landscaped areas. The topsoil soil sample analytical results are summarized in the Construction Completion Report (CCR, NV5, July 14, 2022).

Tax Lot 6500

The fill material characteristic of Tax Lot 6501 was not detected beneath Tax Lot 6500, therefore, in accordance with the PPA a protective cap was not required on Tax Lot 6500 which was not improved during redevelopment. Tax Lot 6500 consists of approximately 95 percent asphalt, two percent landscaped area, and three percent gravel. The current/redeveloped conditions on Tax Lot 6500 (considered a protective cap from a conservative standpoint) will be maintained to prevent exposure with underlying soil. During redevelopment activities, the existing pavement and gravel surface in this area was retained and additional clean fill cap material was placed in the central portion and western margins of this tax lot.

3.3 Underground Storage Tanks

In 1993, three USTs were decommissioned in-place (one gasoline, one diesel beneath the overpass and one heating oil on the southeastern portion of the property).

In 2019, as part of site redevelopment, the three USTs were removed. Confirmation samples were collected from soil beneath USTs. The former UST locations and associated soil sample locations and results are presented in Revised SCE Report; 2100 N. Albina Development (NV5, 2022) and are included in Attachment 1.

3.4 Stormwater Permit

The current site use (self-storage facility) does not require a NPDES 1200Z permit.

3.5 Hazardous Waste

Currently the site is not a generator of hazardous waste.

4.0 Hazardous Substance Releases

Prior to the PPA investigation, there were no reported releases of hazardous substances. As part of the PPA investigations, areas of potential releases were investigated. In soil, TPH, SVOCS, and VOCS, and total metals have been detected in the following areas: former UST and former paint shop. It also appears that much of the fill contains these contaminants. A black silty sand layer was located on the southern portion of the property where sandblasting occurred. This black silty soil layer was removed as part of redevelopment.

5.0 Source Control Evaluation

Because the site is located within the uplands, draining to the Portland Harbor Superfund study area an evaluation of source control was necessary for the site. The upland source control investigation was conducted in accordance with the 2005 EPA/DEQ JSCS.

The objective of a source control evaluation is to determine whether potential sources of contamination at the site have been identified and if additional characterization or source control measures are needed to prevent impacts to the Willamette River through the stormwater, groundwater, bank erosion, or overwater activities contaminant transport pathways.

Due to the lack of frontage on the Willamette River, DEQ determined that erosion of contaminants from riverbanks or overwater discharges are not complete pathways. DEQ determined groundwater and stormwater are potentially complete contaminant transport pathways and the remainder of this decision document presents DEQ’s findings regarding these two pathways.

5.1 Stormwater Source Control Evaluation

When stormwater presents as a potential pathway to mobilize contamination from the site to the river, these 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.

As detailed in the 2022 Revised SCE Report, 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.

5.1.1 Contaminants of Potential Concern
Site stormwater was analyzed for the following list of contaminants:

- TPH (gasoline-, diesel-, and oil-range hydrocarbons)
- Total Metals (arsenic, cadmium, chromium, copper, lead, mercury, silver, and zinc)
- PAHs/SVOCs
- PCBs
- VOCs (halogenated)
- Total suspended solids (TSS)

Analysis of other Table 17 compounds, including pesticides, herbicides, cyanide, manganese, vanadium, dioxins/furans, and tributyltin, were not performed as part of the upland investigations because these compounds were not identified as COIs based on the lack of known agricultural activity, and the site has not been occupied by businesses that use, store or manufacture equipment or chemicals there would contain these compounds.

5.1.2 Stormwater Configuration
As shown in Figure 4, the majority of the site consists of self-storage facility with an asphalt driveway on the southern portion of the property and storage on the north portion of the property.

The stormwater on the northern portion of the site percolates into gravel or flows to a single catch basin located at the southeast end of the parcel. On the remainder of the property, water flows over the asphalt to storm drains on the southern portion of the property.

Several former utilities located on tax lot 6501 of the subject property were abandoned during redevelopment and new utilities were installed, including a stormwater collection and conveyance system that consists of eight catch basins (two in the newly asphalted area and six in the newly landscaped areas) and eight roof drains. The catch basins and roof drains are routed to the City of Portland stormwater conveyance line located west of the subject property beneath N. Albina Avenue, which discharges to the Willamette River at City Outfall 43.

5.1.3 Site Redevelopment/Source Control Measures
Recent redevelopment of the subject property incorporated several source control measures including the following:

- Complete removal of the former stormwater collection and conveyance system on Tax Lot 6501, and replacement with a new collection and conveyance system. This activity removed any legacy solids in the original system that may have been exposed to contaminants in shallow fill material prior to capping.

- Demolition of the former building, concrete slab and removal of surface soil prior to placement of clean fill and hardscapes throughout Tax Lot 6501.
- Maintaining the hardscape cap and placement of additional clean fill on Tax Lot 6500 to prevent stormwater contact with underlying soil.
- Professional sweeping and removal of miscellaneous debris on Tox Lot 6500 in May 2022.
- Cleaning of the catch basin on Tax Lot 6500, including jetting/cleaning the original section of stormwater conveyance line connecting Tax Lot 6500 with the new infrastructure on Tax Lot 6501.

5.1.4 Best Management Practices

Source control Best Management Practices identified in the Revised SCE Report intended to provide ongoing stormwater source control measures include the following:

- Routine cleaning of stormwater catch basins to prevent buildup of silt, leaves, and other debris.
- Routine inspection and replacement of catch basin filters.
- Empty containers stored outside are tightly closed, upended, or covered with a drum lid to prevent contact with stormwater. Recyclers and vendors remove empty containers routinely for off-site recycling.
- Maintain the elements of protective caps as required in the PPA and in accordance with the Cap Inspection and Monitoring Plan.
- Placement of solid waste in a closed-lid dumpster and implementation of good housekeeping procedures.
- Routine sweeping of paved areas.

5.1.5 Stormwater Sample Evaluation

In support of this SCD, a stormwater sample [SW-1(052822)] was collected on May 28, 2022, at the location shown on Figure 4. This sampling location was selected to reflect overall subject property stormwater prior to discharging to public/offsite infrastructure. Specifically, this stormwater sample represents effluent conditions from (1) the new stormwater collection/conveyance infrastructure constructed on Tax Lot 6501, and (2) the component of original stormwater infrastructure on Tax Lot 6500 following sweeping and jetting/cleaning. JSCS guidance specifies stormwater sampling should include four separate storm events. There is inherent variability in stormwater samples and the results of a single storm event should typically be evaluated as part of a larger dataset. However, based on the significant site redevelopment and given the adjacent in-water project area, Rever Mile 11 East, has not identified this facility as a stormwater recontamination concern, DEQ has accepted the more limited data as sufficient for this site.

Chemical analytical results from the stormwater sampling event are summarized in Table 1 and are discussed below.

<u>Metals</u>

The detected concentration of arsenic [0.156 micrograms/Liter (ug/L)] exceeded the EPA surface water cleanup level (CUL) of 0.018 ug/L. Remaining metals were not detected above laboratory method detection limits (MDL)s or were detected at concentrations less then respective EPA surface water CULs and/or DEQ JSCS SLVs. The detected concentration of arsenic falls on the lower/flatter portion of the curve and the detection limits for other metals are consistent with typical levels and also plot on the lower/flatter portion of the curve.

SVOCs
The detected concentration of pentachlorophenol (0.166 ug/L) exceeded the EPA surface water CUL of 0.030 ug/L. DEQ has not developed a stormwater concentration curve for pentachlorophenol and the Portland Harbor ROD did not include a sediment CUL. Based on the close proximity of the railroad along the north/east margin of the site, the Revised SCE Report surmised that the low- level detection could be associated with treated rail timbers. Given the low-level detection, lack of sediment CUL, site redevelopment, and relatively small stormwater volume associated with the site, DEQ does not consider the detected value an actionable source control concern.

TSS
TSS was detected at a concentration of 6.00 mg/L, which falls on the lower/flatter portion the curve.

Phthalates, cVOCs, and PCBs were not detected above the laboratory MDLs, which were constant with levels typically achieved by commercial laboratories.

5.1.6 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 weight-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 contaminant sources have been identified and characterized. The extensive site redevelopment and current use limit the potential source of contamination at this site. Potential identified sources to stormwater include a very limited potential impact from the adjacent railroad. BSS Albina characterized stormwater by sampling the new storm system at the site. Stormwater was evaluated for contaminants reasonably expected to be found on the site due to past releases and on-going site operations. As discussed above, only one storm event was sampled and that arsenic and pentachlorophenol were detected at concentrations above the Portland Harbor surface water CUL, however given the low-level detections, lack of pentachlorophenol sediment CUL, site redevelopment, and relatively small stormwater volume associated with the site, DEQ considers the sampling sufficient.

2. Magnitude of stormwater exceedances at each sampling point and proximity of sampling point to the river – Stormwater sampling results that exceeded the EPA surface water CULs or JSCS water screening level values were compared to DEQ charts from *Appendix E: Tools for Evaluating Stormwater Data*, which was updated in 2015. This tool was created by using contaminant concentration data from many of the stormwater and stormwater solids samples collected at Portland Harbor-area heavy industrial sites. These data were used to create a series of charts that plot rank-order samples against contaminant concentrations and are used to identify contaminant concentrations on 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 CULs, they are within the range found in stormwater from active industrial sites in Portland Harbor.

   Stormwater sampling modestly exceeded Portland Harbor surface water CULs for arsenic and pentachlorophenol. As shown in the figures presented in Attachment 1, the arsenic detection falls on

the flat portion of the rank-order curve, indicating that concentrations are not atypically elevated. A rank-order curve is not available for pentachlorophenol, however while the detected concentration of 0.166 ug/L is above the Portland Harbor surface water CUL, it is considered by DEQ to be low. Additionally, pentachlorophenol was not identified as COC in sediments and hence a sediment CUL was not established. Given the low concentrations of these contaminants and total suspended solids in stormwater discharged from the site, sediment impacts are not anticipated in the sediment management area receiving stormwater discharged from the site. These factors indicate that no additional source control measures are warranted for stormwater from the site.

3. Regional background soil concentrations of naturally occurring chemicals for evaluating stormwater solids –It was not necessary to evaluate background concentrations for any contaminants analyzed in the site stormwater system, due to low detected concentrations and site redevelopment.

4. Presence of bioaccumulative chemicals –Arsenic and pentachlorophenol are potentially bioaccumulative chemicals and were detected above surface water CULs in stormwater. However, given the low concentrations of these contaminants and total suspended solids in stormwater discharged from the site, sediment impacts are not anticipated.

5. Site hydrology including site conditions, size of drainage and location and estimated size of discharge Stormwater is generated from the pavement and the new building roof on the 1.78-acre site, which eventually drains to City outfall 43. A small percentage water infiltrates on the norther tax lot 6500.

   Annual runoff volumes of this size site discharged to the Willamette River are estimated to be low to moderate in comparison to other industrialize sites discharging to the Portland Harbor.

6. Stormwater system design and management – Precipitation falling on the 41,000 square-foot site is primarily managed by a new stormwater system. The Owner is doing appropriate best management practices (BMPs), which includes sweeping the tax lots, cleaning the catch basins and jetting/cleaning the original section of the stormwater conveyance line that connects the two tax lots.

7. Estimate of potential contaminant loading to the river —Supported by low concentrations of detected contaminants and TSS in stormwater and low to moderate volumes of annual stormwater discharge from the site, pollutant loads in stormwater from the site are not significant and will continue to be minimized with continued use of BMPs.

It is anticipated the current owner/tenant will continue to use BMPs including sweeping efforts, use of catch basin inserts, routine maintenance of stormwater conveyance features to prevent the buildup or discharge of stormwater constituents, and maintaining caps as prescribed in the cap inspection maintenance plan (CIMP).

In summary, these lines of evidence indicate that the stormwater pathway from the site to Portland Harbor is not significant and no additional controls are warranted.

5.2 Groundwater Source Control Evaluation

As noted in the Revised SCE Report, groundwater was encountered between 15 and 30 feet bgs in the temporary well points in the boring at the property and the inferred direction of groundwater flow is toward the southwest. Subsurface investigations completed at the subject property have not included the installation of monitoring wells; therefore, onsite groundwater elevation data is not available. In

assessing groundwater flow direction and gradient, the owner relied on studies completed by others (GSI, 2018 and Shannon and Wilson, 2017) for the adjacent former Westinghouse site (ECSI No. 4497). Because the shallow stormwater conveyance system is located well above the groundwater level, there is no potential for preferential transport of groundwater in or along underground utilities leading to the river.

5.2.1 Groundwater Source Control Investigations

GeoDesign, Inc. (now NV5) conducted a Phase II ESA at the subject property in April 2018, which included a geophysical survey, advancing nine direct-push borings (DP-1 through DP-9) for the collection of soil and/or groundwater samples, and the collection of sub-slab vapor samples from beneath the subject property structure. The March 2018 boring locations are shown on Figure 2.

Site soil and groundwater has been monitored through boring sampling. Nine borings were installed around the existing structure and three borings were installed inside the structure prior to reconstruction. Figure 5 shows on-property groundwater analytical results. Monitoring wells from nearby sites were also evaluated as shown on Figure 6.

Under the PPA work plan, nine borings were advanced to the 10-40 feet bgs. Soil and groundwater were collected. A second investigation of three more borings on the presumed downgradient side of the site to evaluate potential groundwater contamination.

Soil Samples

Soil samples were collected from nine borings and from the black lead contaminated soil area near the former paint shop. Analysis of soil samples included TPH, Total Phenols, VOCs, Total Metals, TCLP for chromium, lead, and mercury, PAHs, Semi-VOCs, and PCBs. Analysis of soil results are summarized in Tables 2 through 6. The following metals were detected above background levels and the following organics were detected:

- Metals (arsenic, barium, cadmium, chromium, copper, lead, and mercury)
- Petroleum Hydrocarbons- (Gasoline, Diesel, and Heavy Oil)
- VOCs (acetone benzene, 2-butanone, 1,2-dichlorobenzene, 1,1-dichloroethene, 1,2-dichloropropane, naphthalene, PCE, toluene, TCE, and total xylenes)
- PAHs (acenaphthene, benzo(a)anthracene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, pyrene, 1-methylnaphthalene, and 2- methylnaphthalene).

Groundwater Samples

Groundwater samples were collected from the nine temporary borings (DP-1 through DP-9) as part of the initial PPA work plan in April 2018 and analyzed for metals, PCBs, petroleum hydrocarbons, VOCs, and PAHs. To support the source control evaluation groundwater samples were collected from three additional borings (DP-18 through DP-20) in December 2018 on the presumed downgradient side of the site and analyzed for metals, petroleum hydrocarbons, VOCs, PAHs, and aliphatic/aromatic hydrocarbons.

A summary of the groundwater monitoring from the borings is presented in Tables 7 through 14.

The following were detected in the site groundwater samples:

- Petroleum Hydrocarbons - diesel and heavy oil
- VOCs-tetrachloroethylene (PCE)
- Metals - arsenic, barium, beryllium, cadmium, chromium, copper, lead, nickel, thallium, and zinc.

- PAHs-acenaphthene, acenaphthylene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, carbazole, chrysene, dibenzofuran, fluoranthene, fluorene, 1-methylenapphthalene, 2-methylnapthalene, naphthalene, phenanthrene, pyrene, and pentachlorophenol.

5.2.3 Groundwater Pathway Screening

Groundwater data were screened to evaluate the potential for chemicals in groundwater to discharge to the river at concentrations that could cause adverse effects. Chemical testing included, metals, petroleum hydrocarbons, VOCs, PCBs, PAHs, and aliphatic/aromatic hydrocarbons. Not all chemicals that are groundwater contaminants of concern for the Portland Harbor Superfund Site were analyzed; rather, as summarized above, select analyses were conducted based on the potential sources of contamination on site. Chemicals not analyzed on the BSS Albina site, but on the Portland Harbor Record of Decision (ROD) Table 17 list of groundwater contaminants of concern (COCs) include pesticides, herbicides, manganese, vanadium, cyanide, and perchlorate. There are no known or suspected sources of these chemicals on the BSS Albina Site. Therefore, source control contaminants of interest at the BSS Albina site are limited to the contaminants that were analyzed to investigate known or suspected sources of contamination.

The groundwater pathway screening involved evaluating site concentrations relative to PH CULs listed in Table 17 of the Portland Harbor ROD. For all detected chemicals not identified in Table 17, results were screened against the lowest value from SLVs listed in either:

1. Portland Harbor Joint Source Control Screening Level Values (SLVs) listed in Table 3-1 of the Portland Harbor JSCS (Note: 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 Table 3-1 value.

The screening of the grab groundwater samples identified the following contaminants as COPCs.

- Metals-arsenic, cadmium, chromium, copper, lead, nickel, silver, and zinc,

- PAHs-benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and chrysene,

These chemicals are further evaluated by chemical ground below using weight-of-evidence approach to determine the potential for discharge to the Willamette River at concentrations that could cause adverse effects or represent a recontamination concern.

<u>PAHs</u>

Benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, and chrysene were detected above their respective Portland Harbor CULs in DP-5. Detected concentrations were all very low and ranged from 0.057 to 0.676 ug/L. These PAHs have not been detected in any other on-site groundwater samples, therefore the impacts appear to be localized to this location, which is at the far upgradient end of the site. In addition, these PAHs have not been detected in down-gradient monitoring wells located offsite (e.g.

MW001, MW022a, MW003d, MW004, MW005, MULT 1007 and MUTL 89881) and monitored for the River Mile 11 East study Area (ECSI No. 5866) (refer to Figure 8).

Based on this information, it does not appear that groundwater migrating from the subject property is a source of PAH impacts to the Willamette River and does not represent an unacceptable risk to the River or represent a recontamination concern to Portland Harbor sediment.

Metals

Groundwater samples were analyzed for total metals in the three downgradient borings (DP-18, DP-19, and DP-20) and for dissolved in all 12 borings.

Total arsenic, cadmium, chromium, copper, lead, nickel, silver, and zinc exceeded the Portland Harbor groundwater CUL or JSCS SLV in one or more of the downgradient borings (DP-18 through DP-20), however, dissolved arsenic and lead were the only metals that exceeded their Portland Harbor groundwater CUL or JSCS SLV in the twelve borings suggesting elevated total metal concentrations are likely associated with increased turbidity typical of samples collected for temporary well points which are not fully developed.

Dissolved arsenic concentrations ranged from 0.844 ug/L to 44.3 ug/L. The maximum detected concentration of 44.3 ug/L was collected beneath the black, silty sand layer formerly located on the on the south portion of the subject property. The black, silty sand layer contained elevated levels of lead and potentially arsenic, but arsenic was not analyzed soil samples from this this area. As presented above the black, silty sand layer was removed in 2018. The remaining detections and non-detect results at (<10 ug/L) are indicative to DEQ of background, although DEQ notes the detection limits are slightly elevated compared to typical detection levels.

Dissolved lead was detected in the groundwater sample collected from boring DP-6 at a concentration greater than the Portland Harbor groundwater CUL. Dissolved lead was only detected in this location, which was collected beneath the black, silty sand layer formerly located on the on the south portion of the subject property. The black silty sand layer contained leachable lead, but it has since been removed from the site.

To further evaluate arsenic and lead concentrations in groundwater, an evaluation of data reported for the River Mile 11E Study Area (ESCI No. 5860) and former Westinghouse site (ECSI No. 4497) was presented in the Revised SCE Report. Dissolved arsenic was detected in groundwater samples collected from the riverbank wells at concentrations ranging from 0.2 to 2.6 ug/L. The SCE prepared for the Westinghouse site demonstrates that the arsenic concentration detected in the riverbank wells are greater than the Portland Harbor screening levels but are within the low range of concentrations detected in the Portland Habor porewater/transition zone water (GSI 2018). Total lead was not detected in the most recent samples collected from offsite downgradient wells (MW001, MW002s, MW003d, MW004, or MW005) at concentrations exceeding the Porland Harbor groundwater CUL. A summary of up-gradient and down-gradient groundwater data for total and dissolved metals was provided in the Revised SCE Report and is included on Figures 7, 8, and 9.

5.2.4 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 evaluation was undertaken in consideration of the following site-specific factors:

1. Nature and extent of groundwater COPCs in each affected water-bearing zone – The nature and extent of site-related groundwater contamination were defined. There were detections of diesel and oil-range petroleum hydrocarbons, PCE, PAHs, and metals in groundwater beneath the site. Contamination does not extend a significant distance off-site, as shown by down gradient wells which are non-detect or at very low concentrations.

2. Potential presence of non-aqueous phase liquid or sheen – No presence of non-aqueous phase liquid or sheen was observed in sampling nor are contaminant concentrations suggestive of separate-phase contamination.

~~3.~~ Presence of bioaccumulative chemicals – Chemicals of concern for bioaccumulation were detected in groundwater at concentrations above the relevant Portland Harbor groundwater CULs. Select bioaccummulative metals including arsenic, cadmium, and lead were present above screening levels in groundwater at the borings. The data do not indicate the presence of a plume that is likely to re-contaminate future sediment remedial measures or impact the protectiveness of the remedy.

4. Magnitude of groundwater quality exceedance –Groundwater exceedances of PH CULs and JSCS screening levels include PAHs and metals. Exceedances detected in the borings were generally low and/or do not indicate the presence of a plume that is likely to re-contaminate future sediment remedial measures or impact the protectiveness of the remedy.

5. Regional background concentrations for naturally occurring chemicals – Regional background concentrations have not been determined for groundwater constituents. However, DEQ notes groundwater concentrations of arsenic, cadmium, chromium, copper, lead, nickel, silver, and zinc do not appear to be elevated to levels of concern and are predominantly similar to concentrations observed at other sites in the area in the wells located downgradient of the site.

6. Estimate of potential contaminant loading – Potential contaminant loading to the Willamette River is anticipated to be minimal given the limited extent of elevated contaminant concentrations observed at the stie and anticipated attenuation between the site and the River.

7. Potential hydraulic connection between site groundwater and surface water/sediments – While groundwater presents a potentially complete pathway to the river from the site, the limited extent of elevated contaminants observed in site groundwater, the distance to the River and anticipated natural attenuation indicate minimal potential for discharge of contaminants at levels of concern

8. Consideration of available in-water data –Arsenic, lead, and PAHs, and are detected in groundwater and exceed sediment CULs in sediment downgradient of the site. However, due to the approximate 500-foot distance to the river and downgradient monitoring wells showing groundwater contaminants to be low, the potential for groundwater to contaminate sediments in the river is low.

9. Potential for groundwater discharge to results in an accumulation in sediment above protective concentrations – To the extent that groundwater contaminants are present above CULs in site groundwater, they are not expected to reach or accumulate in sediment.

6.0 Source Control Decision

Based on all available site information, DEQ concludes the following:

- Sources of potential contamination including former site structures/operations, former USTs, and lead-impacted soil beneath the former paint shop have been characterized and removed.
- Previously exposed fill material has been capped with protective cover and/or hardscapes to minimize migration of potential COI in fill material into stormwater conveyances and underlying groundwater. In addition, institutional controls including implementation of the CIMP and CMMP are intended to provide long-term protection at the subject property.
- The prior stormwater collection and conveyance system was removed and replaced with new infrastructure on Tax Lot 6501 during redevelopment activities. Remnant portions of the stormwater system servicing Tax Lot 6500 have been cleaned to remove potential legacy sediments.
- For the reasons stated above, groundwater leaving the subject property is not expected to contribute to unacceptable risk in the Portland Harbor.
- The results of stormwater sampling intended to represent the updated/cleaned stormwater collection and conveyance system indicates that stormwater leaving the subject property is not expected to contain contaminants that represents unacceptable risk to the Portland Harbor.
- Industrial activities will not take place at the subject property. The nature of the redeveloped subject property and associated operations as a self-storage facility are not expected to result in the generation or mobilization of COI at concentrations exceeding Portland Harbor screening criterion.

DEQ concludes that this upland site is adequately characterized to support a source control decision and additional source control measures are not warranted. The property does not appear to be a current or reasonably likely future source of contamination to the Willamette River.

7.0 References

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DEQ/EPA, 2005. Portland Harbor Joint Source Control Strategy. Final December 2005, as Amended July 2007. Oregon Department of Environmental Quality and U.S. Environmental Protection Agency, July 2007.

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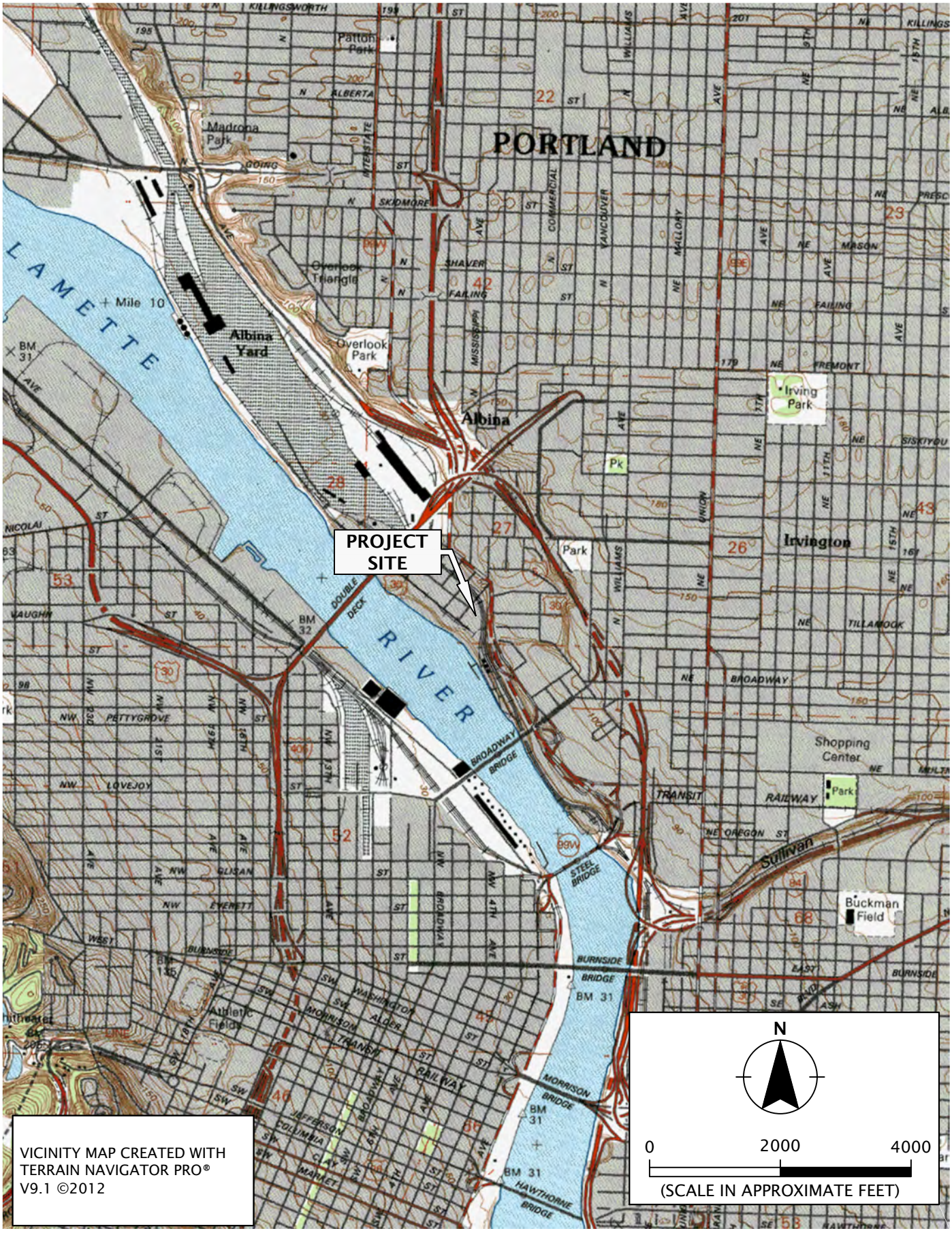
K&S, 2017. Phase I Environmental Site Assessment; Project Site (project #5932): Industrial Property; 2100 N. Albina Avenue, Portland Oregon 97227, prepared by K&S Environmental Inc., dated December 19, 2017.

NV5, 2022. Revised Source Control Evaluation Report, 2100 N Albina Development, NV5. June 23, 2022.

NV5, 2022. Revised CAP Inspection and Maintenance Plan; 2100 N Albina Development, NV5, July 18, 2022.

NV5, 2022. Construction Completion Report; 2100 N Albina Development, NV5, July 14, 2022.

Tables and Figures



NIV5	NORTHPOINT-1-02-06	**VICINITY MAP**	
	JUNE 2022	2100 N ALBINA DEVELOPMENT PORTLAND, OR	**FIGURE 1**

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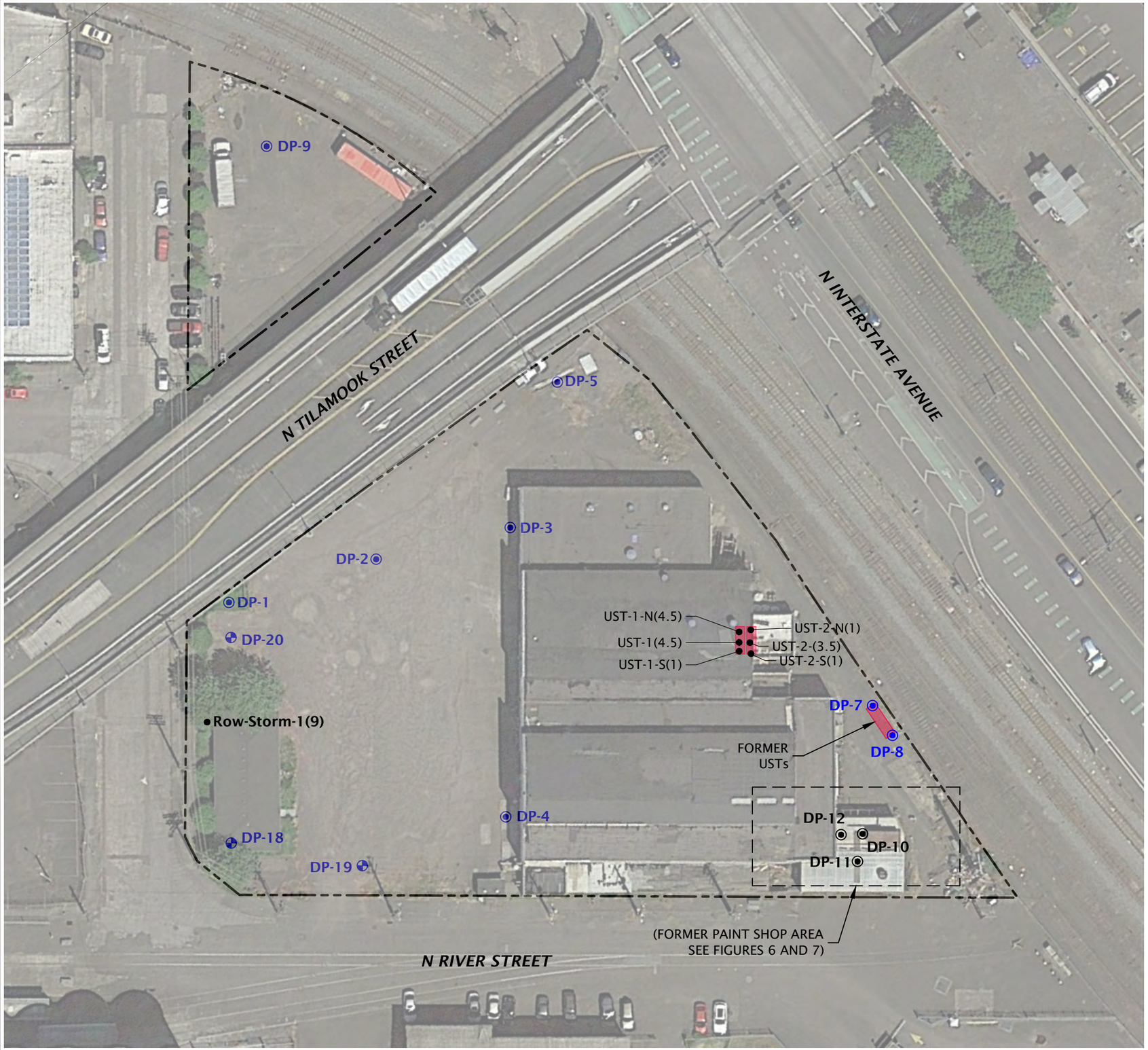
File Name: J:\M-R\northpoint\northpoint-1\northpoint-1-02\northpoint-1-02-06-sce\Figures\CAD\Revised SCE Report\NorthPoint-1-02-06-VM01.dwg | Layout: FIGURE 1



LEGEND:

- SUBJECT PROPERTY BOUNDARY
- DP-1 DIRECT-PUSH BORING (APRIL 2018)
- DP-18 DIRECT-PUSH BORING (DECEMBER 2018)
- UST-1-N(4.5) SAMPLE
- FORMER UST LOCATION (REMOVED OR DECOMMISSIONED IN PLACE)

GROUNDWATER SAMPLE ANALYTICAL RESULTS WITH CONSTITUENT CONCENTRATIONS EXCEEDING EPA CULS AND/OR DEQ JSCS SLVS ARE SHOWN

N

0 50 100

(SCALE IN FEET)

SITE PLAN BASED ON AERIAL PHOTOGRAPH OBTAINED FROM GOOGLE EARTH PRO®, JUNE 9, 2022

SITE PLAN - ORIGINAL SITE LAYOUT

2100 N ALBINA DEVELOPMENT
PORTLAND, OR

FIGURE 2

NORTHPOINT-1-02-06

JUNE 2022

NV5

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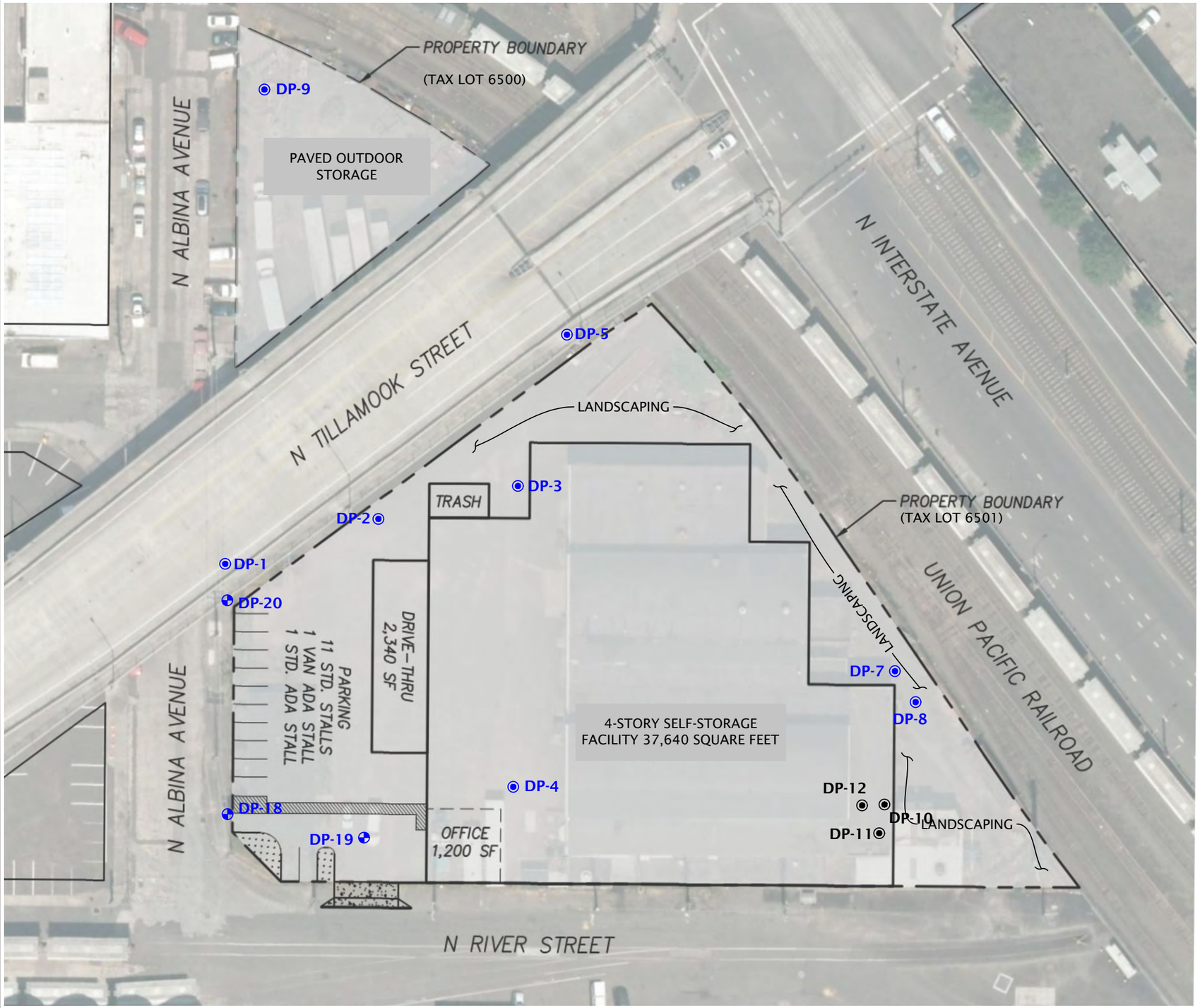

LEGEND:

DP-1 ◉ DIRECT-PUSH BORING (APRIL 2018)

DP-18 ◓ DIRECT-PUSH BORING (DECEMBER 2018)

N

0 50 100

(SCALE IN FEET)

SITE PLAN BASED ON IMAGE OF SHEET 1 PRELIMINARY LAYOUT EXHIBIT DATED FEBRUARY 2018 PREPARED BY HARPER HOUF PETERSON RIGHELLIS, INC.

SITE PLAN - REDEVELOPED SITE LAYOUT

2100 N ALBINA DEVELOPMENT
PORTLAND, OR

FIGURE 3

NORTHPOINT-1-02-06

JUNE 2022

NV5

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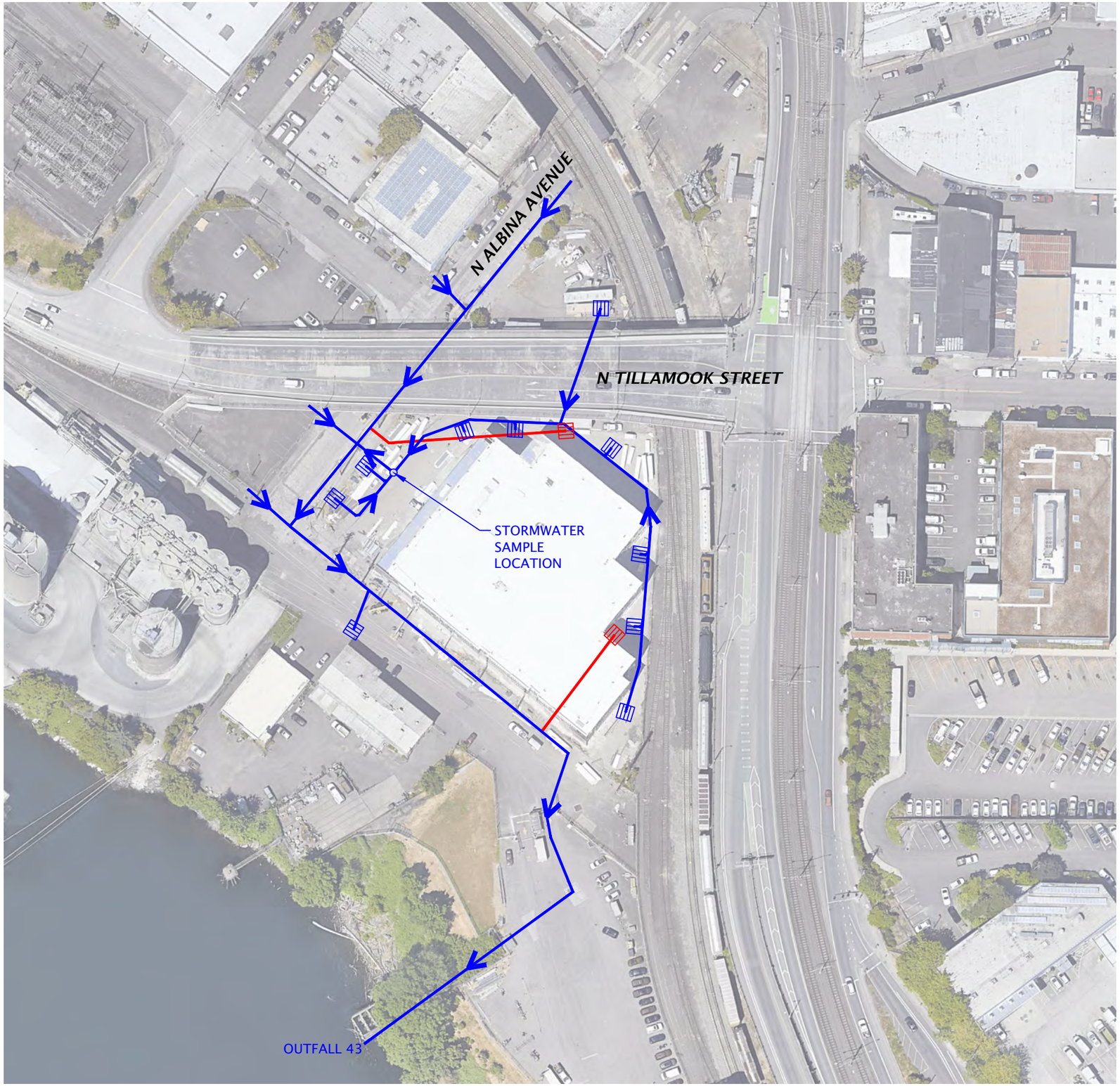

LEGEND:

STORM UTILITY (NEW/CURRENT)

STORM UTILITY (FORMER/REMOVED)

N

0 100 200

(SCALE IN FEET)

SITE PLAN BASED ON AERIAL PHOTOGRAPH
IMAGE DATE MAY 10, 2021 OBTAINED
FROM GOOGLE EARTH PRO.

UTILITY PLAN

2100 N ALBINA DEVELOPMENT
PORTLAND, OR

FIGURE 4

NORTHPOINT-1-02-06

JUNE 2022

NV5

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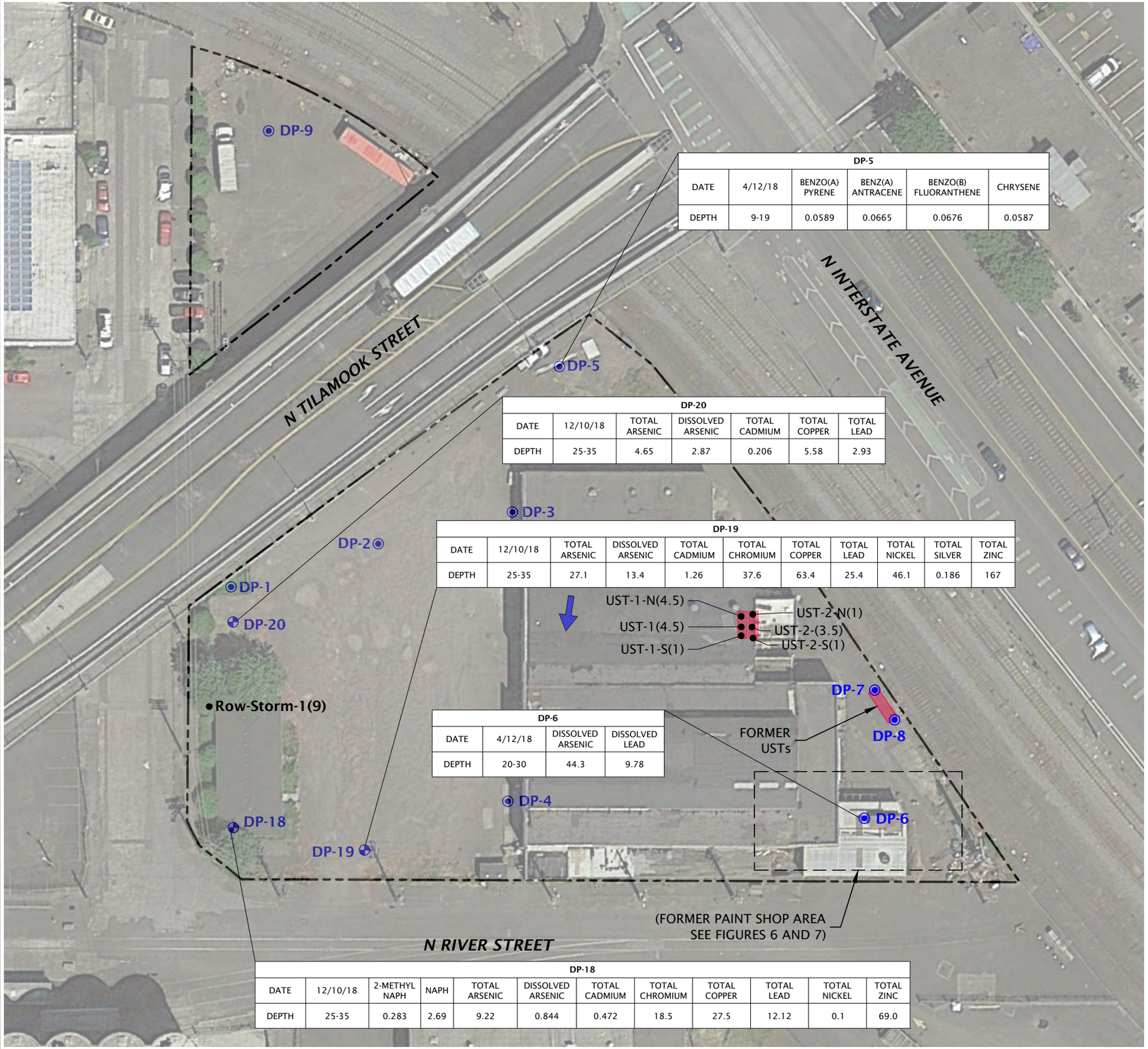

DP-5					
DATE	4/12/18	BENZO(A) PYRENE	BENZ(A) ANTRACENE	BENZO(B) FLUORANTHENE	CHRYSENE
DEPTH	9-19	0.0589	0.0665	0.0676	0.0587

DP-20						
DATE	12/10/18	TOTAL ARSENIC	DISSOLVED ARSENIC	TOTAL CADMIUM	TOTAL COPPER	TOTAL LEAD
DEPTH	25-35	4.65	2.87	0.206	5.58	2.93

DP-19										
DATE	12/10/18	TOTAL ARSENIC	DISSOLVED ARSENIC	TOTAL CADMIUM	TOTAL CHROMIUM	TOTAL COPPER	TOTAL LEAD	TOTAL NICKEL	TOTAL SILVER	TOTAL ZINC
DEPTH	25-35	27.1	13.4	1.26	37.6	63.4	25.4	46.1	0.186	167

DP-6			
DATE	4/12/18	DISSOLVED ARSENIC	DISSOLVED LEAD
DEPTH	20-30	44.3	9.78

DP-18											
DATE	12/10/18	2-METHYL NAPH	NAPH	TOTAL ARSENIC	DISSOLVED ARSENIC	TOTAL CADMIUM	TOTAL CHROMIUM	TOTAL COPPER	TOTAL LEAD	TOTAL NICKEL	TOTAL ZINC
DEPTH	25-35	0.283	2.69	9.22	0.844	0.472	18.5	27.5	12.12	0.1	69.0

LEGEND:

- SUBJECT PROPERTY BOUNDARY
- DP-1 DIRECT-PUSH BORING (APRIL 2018)
- DP-18 DIRECT-PUSH BORING (DECEMBER 2018)
- UST-1-N(4.5) SAMPLE
- FORMER UST LOCATION (REMOVED OR DECOMMISSIONED IN PLACE)

NOTES:

1. SAMPLE DEPTHS REPORTED IN FEET BGS
2. SAMPLE RESULTS REPORTED IN MICROGRAMS PER LITER (UG/L)
3. ONLY GROUNDWATER SAMPLE ANALYTICAL RESULTS WITH CONSTITUENT CONCENTRATIONS EXCEEDING PORTLAND HARBOR SCREENING LEVELS ARE SHOWN

GROUNDWATER SAMPLE ANALYTICAL RESULTS WITH CONSTITUENT CONCENTRATIONS EXCEEDING EPA CULS AND/OR DEQ JSCS SLVS ARE SHOWN

N

0 50 100

(SCALE IN FEET)

SITE PLAN BASED ON AERIAL PHOTOGRAPH OBTAINED FROM GOOGLE EARTH PRO®, JUNE 9, 2022

GROUNDWATER ANALYTICAL RESULTS

2100 N ALBINA DEVELOPMENT
PORTLAND, OR

NORTHPOINT-1-02-06

JUNE 2022

FIGURE 5

NV5

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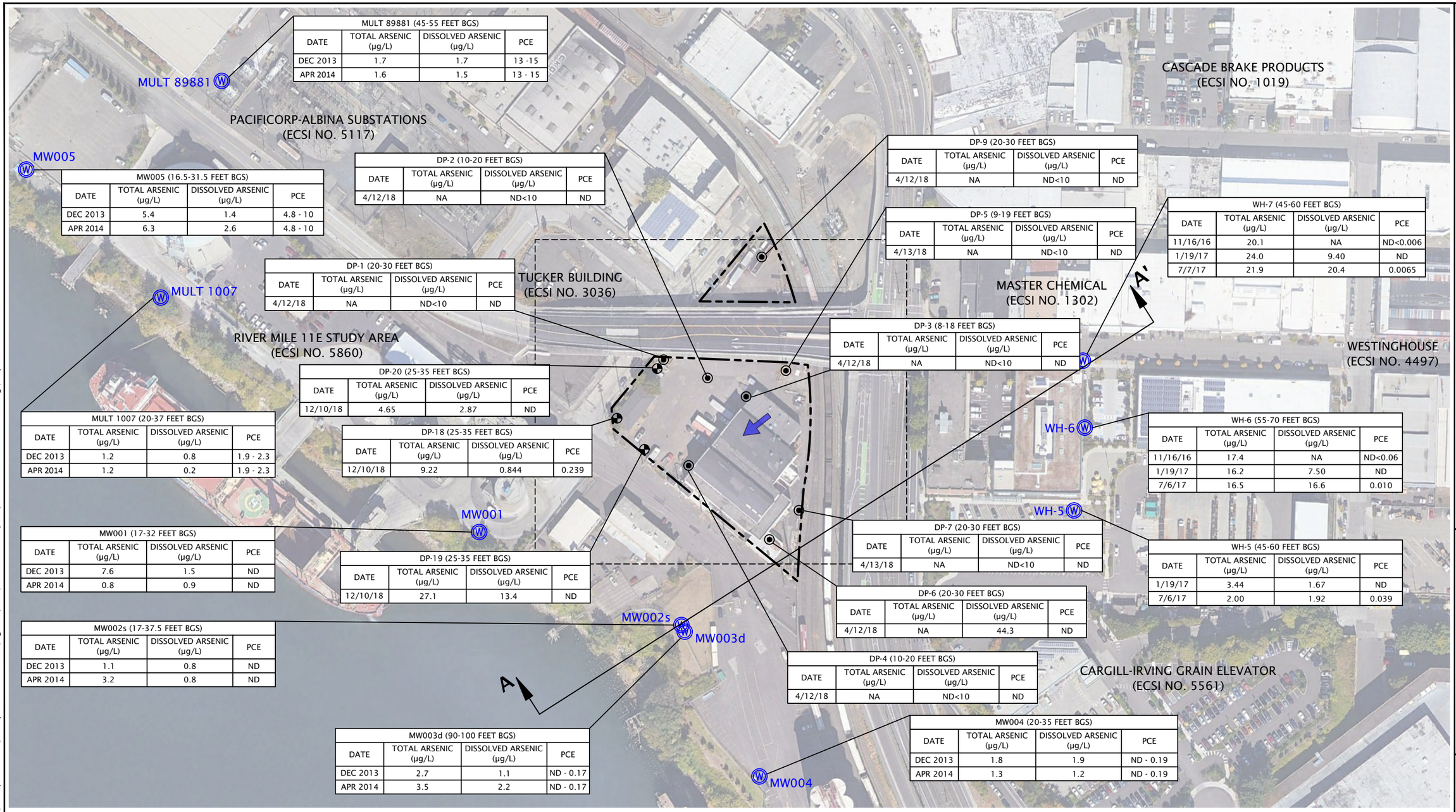
SITE PLAN - SURROUNDING ECSI SITES

FIGURE 6

2100 N ALBINA DEVELOPMENT
PORTLAND, OR

NORTHPOINT-1-02-06

JUNE 2022



MULT 89881 (45-55 FEET BGS)			
DATE	TOTAL ARSENIC (µg/L)	DISSOLVED ARSENIC (µg/L)	PCE
DEC 2013	1.7	1.7	13 -15
APR 2014	1.6	1.5	13 - 15

MW005 (16.5-31.5 FEET BGS)			
DATE	TOTAL ARSENIC (µg/L)	DISSOLVED ARSENIC (µg/L)	PCE
DEC 2013	5.4	1.4	4.8 - 10
APR 2014	6.3	2.6	4.8 - 10

DP-2 (10-20 FEET BGS)			
DATE	TOTAL ARSENIC (µg/L)	DISSOLVED ARSENIC (µg/L)	PCE
4/12/18	NA	ND<10	ND

DP-1 (20-30 FEET BGS)			
DATE	TOTAL ARSENIC (µg/L)	DISSOLVED ARSENIC (µg/L)	PCE
4/12/18	NA	ND<10	ND

MULT 1007 (20-37 FEET BGS)			
DATE	TOTAL ARSENIC (µg/L)	DISSOLVED ARSENIC (µg/L)	PCE
DEC 2013	1.2	0.8	1.9 - 2.3
APR 2014	1.2	0.2	1.9 - 2.3

DP-20 (25-35 FEET BGS)			
DATE	TOTAL ARSENIC (µg/L)	DISSOLVED ARSENIC (µg/L)	PCE
12/10/18	4.65	2.87	ND

DP-18 (25-35 FEET BGS)			
DATE	TOTAL ARSENIC (µg/L)	DISSOLVED ARSENIC (µg/L)	PCE
12/10/18	9.22	0.844	0.239

MW001 (17-32 FEET BGS)			
DATE	TOTAL ARSENIC (µg/L)	DISSOLVED ARSENIC (µg/L)	PCE
DEC 2013	7.6	1.5	ND
APR 2014	0.8	0.9	ND

DP-19 (25-35 FEET BGS)			
DATE	TOTAL ARSENIC (µg/L)	DISSOLVED ARSENIC (µg/L)	PCE
12/10/18	27.1	13.4	ND

MW002s (17-37.5 FEET BGS)			
DATE	TOTAL ARSENIC (µg/L)	DISSOLVED ARSENIC (µg/L)	PCE
DEC 2013	1.1	0.8	ND
APR 2014	3.2	0.8	ND

MW003d (90-100 FEET BGS)			
DATE	TOTAL ARSENIC (µg/L)	DISSOLVED ARSENIC (µg/L)	PCE
DEC 2013	2.7	1.1	ND - 0.17
APR 2014	3.5	2.2	ND - 0.17

DP-9 (20-30 FEET BGS)			
DATE	TOTAL ARSENIC (µg/L)	DISSOLVED ARSENIC (µg/L)	PCE
4/12/18	NA	ND<10	ND

DP-5 (9-19 FEET BGS)			
DATE	TOTAL ARSENIC (µg/L)	DISSOLVED ARSENIC (µg/L)	PCE
4/13/18	NA	ND<10	ND

WH-7 (45-60 FEET BGS)			
DATE	TOTAL ARSENIC (µg/L)	DISSOLVED ARSENIC (µg/L)	PCE
11/16/16	20.1	NA	ND<0.006
1/19/17	24.0	9.40	ND
7/7/17	21.9	20.4	0.0065

DP-3 (8-18 FEET BGS)			
DATE	TOTAL ARSENIC (µg/L)	DISSOLVED ARSENIC (µg/L)	PCE
4/12/18	NA	ND<10	ND

WH-6 (55-70 FEET BGS)			
DATE	TOTAL ARSENIC (µg/L)	DISSOLVED ARSENIC (µg/L)	PCE
11/16/16	17.4	NA	ND<0.06
1/19/17	16.2	7.50	ND
7/6/17	16.5	16.6	0.010

DP-7 (20-30 FEET BGS)			
DATE	TOTAL ARSENIC (µg/L)	DISSOLVED ARSENIC (µg/L)	PCE
4/13/18	NA	ND<10	ND

WH-5 (45-60 FEET BGS)			
DATE	TOTAL ARSENIC (µg/L)	DISSOLVED ARSENIC (µg/L)	PCE
1/19/17	3.44	1.67	ND
7/6/17	2.00	1.92	0.039

DP-6 (20-30 FEET BGS)			
DATE	TOTAL ARSENIC (µg/L)	DISSOLVED ARSENIC (µg/L)	PCE
4/12/18	NA	44.3	ND

DP-4 (10-20 FEET BGS)			
DATE	TOTAL ARSENIC (µg/L)	DISSOLVED ARSENIC (µg/L)	PCE
4/12/18	NA	ND<10	ND

MW004 (20-35 FEET BGS)			
DATE	TOTAL ARSENIC (µg/L)	DISSOLVED ARSENIC (µg/L)	PCE
DEC 2013	1.8	1.9	ND - 0.19
APR 2014	1.3	1.2	ND - 0.19

LEGEND:

- PROJECT SITE BOUNDARY
- SUPPLEMENTAL RI/FS MONITORING WELL (GSI, 2018)
- INFERRED GROUNDWATER FLOW DIRECTION
- DIRECT-PUSH BORING (APRIL 2018)
- DIRECT-PUSH BORING (DECEMBER 2018)
- A — A' CROSS SECTION

GROUND SURFACE ELEVATIONS AT WELLS WH-5, WH-6, AND WH-7 ARE APPROXIMATELY 26 FEET HIGHER THAN THE GROUND SURFACE ELEVATION AT THE PROJECT SITE.

N

0 150 300

(SCALE IN FEET)

SITE PLAN BASED ON AERIAL PHOTOGRAPH OBTAINED FROM GOOGLE EARTH PRO MAY 2, 2019

NV5

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FIGURE 7

Summary of Groundwater Data for Contaminants Detected at Concentrations Above SLVs in Site Monitoring Wells - VOCs

Former Westinghouse Site

WH-2
(concentrations in µg/L)

Chloroform	15 - 21.9
Tetrachloroethene (PCE)	0.67 - 1.41
Vinyl Chloride	ND - 0.034

WH-3
(concentrations in µg/L)

Chloroform	ND - 7.3
1,1-Dichloroethane (1,1-DCA)	4.41 - 210
Tetrachloroethene (PCE)	1.8 - 9.8
1,1,1-Trichloroethane (TCA)	7.07 - 100
Vinyl Chloride	ND - 0.030

WH-7
(concentrations in µg/L)
None

WH-1

WH-4
(concentrations in µg/L)

Chloroform	ND - 1.9*
Vinyl Chloride	0.013 - 0.039*

WH-6
(concentrations in µg/L)

Chloroform	0.012 - 3.0

WH-5
(concentrations in µg/L)

Chloroform	0.13 - 0.23

MULT89881
(concentrations in µg/L)

Chloroform	ND - 0.33 J
1,1-Dichloroethane (1,1-DCA)	NA
Tetrachloroethene (PCE)	13 - 15 T
1,1,1-Trichloroethane (TCA)	NA
Vinyl Chloride	NA

MW003d
(concentrations in µg/L)

Chloroform	ND
1,1-Dichloroethane (1,1-DCA)	NA
Tetrachloroethene (PCE)	ND - 0.17 J
1,1,1-Trichloroethane (TCA)	NA
Vinyl Chloride	NA

MW002s
(concentrations in µg/L)

Chloroform	ND - 1.3
1,1-Dichloroethane (1,1-DCA)	NA
Tetrachloroethene (PCE)	ND
1,1,1-Trichloroethane (TCA)	NA
Vinyl Chloride	NA

MW005
(concentrations in µg/L)

Chloroform	ND
1,1-Dichloroethane (1,1-DCA)	NA
Tetrachloroethene (PCE)	4.8 T - 10
1,1,1-Trichloroethane (TCA)	NA
Vinyl Chloride	NA

MW001
(concentrations in µg/L)

Chloroform	ND
1,1-Dichloroethane (1,1-DCA)	NA
Tetrachloroethene (PCE)	ND
1,1,1-Trichloroethane (TCA)	NA
Vinyl Chloride	NA

MW004
(concentrations in µg/L)

Chloroform	ND
1,1-Dichloroethane (1,1-DCA)	NA
Tetrachloroethene (PCE)	ND - 0.19 J
1,1,1-Trichloroethane (TCA)	NA
Vinyl Chloride	NA

MULT1007
(concentrations in µg/L)

Chloroform	ND - 0.17 J
1,1-Dichloroethane (1,1-DCA)	NA
Tetrachloroethene (PCE)	1.9 - 2.3
1,1,1-Trichloroethane (TCA)	NA
Vinyl Chloride	NA

FORMER WESTINGHOUSE SITE

RUSSELL ST
MISSISSIPPI AVE
ALBINA AVE
RAE ST
THOMPSON ST
KERBY AVE
INTERSTATE AVE
LARRABEE AVE
RANDOLPH AVE
HASKINS AVE
CLARK AVE
LEWIS AVE
ALBINA AVE
WHEELER PL
LORING ST
TILLAMOOK ST
HANCOCK ST
RIVER ST

LEGEND

- Monitoring Well for Former Westinghouse Site
- Monitoring Well for River Mile 11 East Supplemental RI/FS
- General Direction of Regional Groundwater Flow at Site
- RED Exceeds the Portland Harbor Screening Criterion

NOTES:

J = Estimated concentration
NA = Not analyzed
ND = Not detected
T = Value was mathematically derived (e.g., from summing multiple results for a single analyte)
VOC = Volatile organic compound

Data for Site monitoring well WH-1 are not included because this well is screened in a perched groundwater zone, not the regional aquifer.

Prepared By:GSI, September 25, 2017
Data Sources: City of Portland BES, Shannon and Wilson, 2017 b, Aerial Photo 2016

0 90 180 270
Feet

ENVIRONMENTAL SERVICES
CITY OF PORTLAND
1120 SW Fifth Avenue, Room 1000
Portland Oregon, 97204-1912

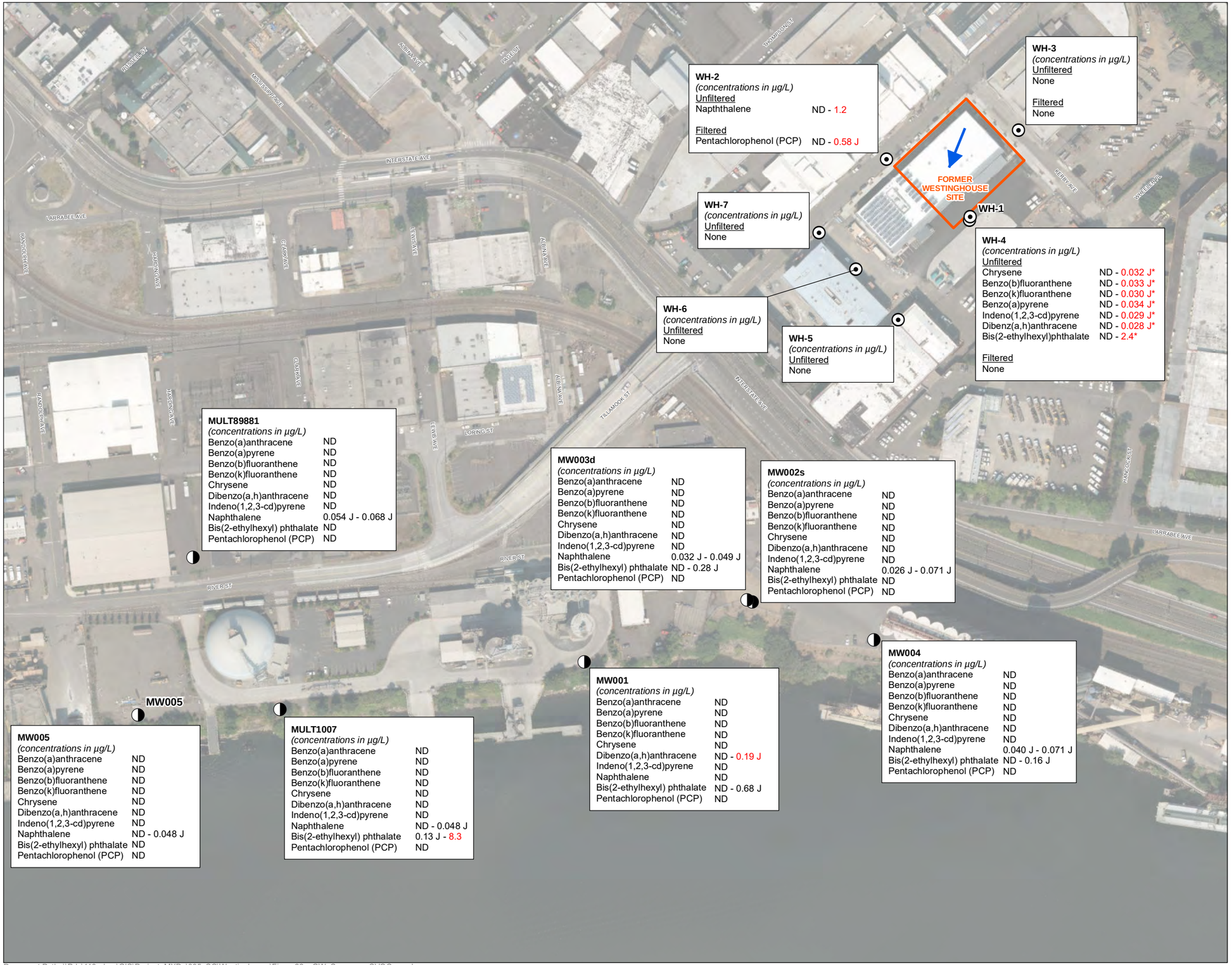
GSI Water Solutions, Inc.

Document Path: \\Pdx\110 - bes\GIS\Project_MXDs\095_SC\Westinghouse\Figure22b_GW_Summary_VOCs.mxd

FIGURE 8

Summary of Groundwater Data for Contaminants Detected at Concentrations Above SLVs in Site Monitoring Wells - SVOCs

Former Westinghouse Site



LEGEND

- Monitoring Well for Former Westinghouse Site
- Monitoring Well for River Mile 11 East Supplemental RI/FS
- General Direction of Regional Groundwater Flow at Site
- RED Exceeds the Portland Harbor Screening Criterion

NOTES:

* Detections only in samples collected before this well was redeveloped in December 2014.
J = Estimated concentration
NA = Not analyzed
ND = Not detected
SVOC = Semivolatile organic compound

Data for Site monitoring well WH-1 are not included because this well is screened in a perched groundwater zone, not the regional aquifer.

Disclaimer: Information contained on this map is accurate according to available records, however the City of Portland makes no warranty, expressed or implied, as to the completeness or accuracy of the information published.
Prepared By: GSI, September 25, 2017
Data Sources: City of Portland BES, Shannon and Wilson, 2017 b, Aerial Photo 2016

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Feet

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Portland Oregon, 97204-1912

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FIGURE 9

Summary of Groundwater Data for Contaminants Detected at Concentrations Above SLVs in Site Monitoring Wells - Metals

Former Westinghouse Site

LEGEND

- Monitoring Well for Former Westinghouse Site
- Monitoring Well for River Mile 11 East Supplemental RI/FS
- General Direction of Regional Groundwater Flow at Site
- RED Exceeds the Portland Harbor Screening Criterion

NOTES:

J = Estimated concentration
NA = Not analyzed
ND = Not detected
T = Value was mathematically derived (e.g., from summing multiple results for a single analyte)

Data for Site monitoring well WH-1 are not included because this well is screened in a perched groundwater zone, not the regional aquifer.

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TABLE 1
Stormwater Sampling Analytical Results
2100 N Albina Development
2100 N Albina Avenue
Portland, Oregon

Analyte	Sampling Results		Screening Levels		
	SW(052822) (05/28/2022)		NPDES 1200Z Benchmarks for Portland Harbor (µg/L)	EPA Portland Harbor CULs[1] (µg/L)	DEQ JSCS SLV[2] (µg/L)
Diesel- and Oil-Range Hydrocarbons by NWTPH-Dx (µg/L)					
Diesel-range	187	U	10,000 (oil & grease)	NE	NE
Oil-range	374	U		NE	NE
Gasoline-range	100	U		NE	NE
Total Metals by EPA Method 6020 (µg/L)					
Arsenic	0.156		NE	0.018	0.014
Cadmium	0.0400	U	NE	NE	0.094
Chromium	2.00	U	NE	100	100
Copper	2.31		20	2.74	2.7
Lead	0.536		40	0.54	0.54
Mercury	0.0800	U	NE	NE	0.77
Silver	0.200	U	NE	NE	0.12
Zinc	14.4		120	36.5	36
SVOCs/PAHs by EPA Method 8270D/8270D SIM (µg/L)					
Acenapththene	0.0187	U	NE	NE	0.2
Acenaphthylene	0.0187	U	NE	NE	0.2
Anthracene	0.0187	U	NE	NE	0.2
Fluorene	0.0187	U	NE	NE	0.2
1-Methylnapthalene	0.0374	U	NE	NE	NE
2-Methylnapthalene	0.0374	U	NE	NE	0.2
Naphthalene	0.0374	U	NE	NE	0.2
Phenanthrene	0.0187	U	NE	NE	0.2
Benz(a)anthracene	0.0187	U	NE	0.0012	0.018
Benzo(a)pyrene	0.0280	U	NE	0.00012	0.018
Benzo(b)fluoranthene	0.0280	U	NE	0.0012	0.018
Benzo(k)fluoranthene	0.0280	U	NE	0.0013	0.018
Benzo(g,h,i)perylene	0.0187	U	NE	NE	0.2
Chrysene	0.0187	U	NE	0.0013	0.018
Dibenz(a,h)anthracene	0.0187	U	NE	0.00012	0.018
Fluoranthene	0.0187	U	NE	NE	0.2
Indeno(1,2,3-cd)pyrene	0.0187	U	NE	0.0012	0.018
Pyrene	0.0187	U	NE	NE	0.2
cPAHs (BaP eq.)	ND		NE	0.00012	NE
Chlorinated Hydrocarbons by EPA Method 8260D (µg/L)					
1,1,1-Trichloroethane	0.400	U	NE	NE	11
1,1-Dichloroethane	0.400	U	NE	NE	47
1,1-DCE	0.400	U	NE	NE	NE
1,2-Dichloroethane	0.400	U	NE	NE	1
cis-1,2-DCE	0.400	U	NE	NE	61
trans-1,2-DCE	0.400	U	NE	NE	110
PCE	0.0200	U	NE	NE	0.12
TCE	0.0200	U	NE	NE	0.17
Vinyl Chloride	0.0200	U	NE	NE	0.015
Phenols and Substituted Phenols					
Phenol	0.187	U	NE	NE	2,560
2-Methylphenol (o-Cresol)	0.0398	J	NE	NE	13
4-Methylphenol (p-Cresol)	0.0467	U	NE	NE	180
2,4-Dimethylphenol	0.0690	J	NE	NE	730
2-Chlorophenol	0.0935	U	NE	NE	30
2,4-Dichlorophenol	0.0935	U	NE	NE	110
2,4,5-Trichlorophenol	0.103	U	NE	NE	3600
2,4,6-trichlorophenol	0.0935	U	NE	NE	2.4
2,3,4,6-Tetrachlorophenol	0.0935	U	NE	NE	1,100
Pentachlorophenol	0.166	J	NE	0.03	0.56
4-Chloro-3-methylphenol	0.187	U	NE	NE	NE
2-Nitrophenol	0.187	U	NE	NE	150
4-Nitrophenol	0.187	U	NE	NE	150
2,4-Dinitrophenol	0.467	U	NE	NE	73
Methyl-4,6-Dinitrophenol 2-	0.467	U	NE	NE	150
Phthalates by EPA Method 8270D (µg/L)					
Dimethylphthalate	0.374	U	NE	NE	3
Diethylphthalate	0.374	U	NE	NE	3
Di-n-butylphthalate	0.374	U	NE	NE	3
Butyl benzyl phthalate	0.374	U	NE	NE	3
Bis(2-ethylhexyl)phthalate	0.374	U	NE	0.2	2.2
Di-n-octylphthalate	0.374	U	NE	NE	3
PCBs by EPA Method 8082A (µg/L)					
Aroclor 1016	0.0187	U	NE	NE	0.96
Aroclor 1221	0.0187	U	NE	NE	0.034
Aroclor 1232	0.0187	U	NE	NE	0.034
Aroclor 1242	0.0187	U	NE	NE	0.034
Aroclor 1248	0.0187	U	NE	NE	0.034
Aroclor 1254	0.0187	U	NE	NE	0.033
Aroclor 1260	0.0187	U	NE	NE	0.034
Total PCBs	0.0187	U	NE	0.0000064	0.000064
TSS by Method SM 2540D (mg/L)					
TSS	6.00		30	NE	NE

Notes:

1. EPA Record of Decision Portland Harbor Superfund Site Portland, Oregon, dated January 2017; Table 17 Surface Water CULs

2. DEQ *Portland Harbor Joint Source Control Strategy* dated December 2005; Table 3.1 Initial Upland Stormwater Evaluation SLVs

U: Not detected. Reporting or detection limit shown.

J: Estimated result. Result detected below the lowest point of the calibration curve, but above the specified MDL.

Bolding indicates analyte detection.

Yellow shading indicates that the detected concentration exceeds the EPA ROD CUL or SLV by one order of magnitude.

–: not analyzed

TABLE 2
Summary of Soil Sample Chemical Analytical Results
Petroleum Hydrocarbons and Total Phenols
2100 N Albina Development
2100 N Albina Avenue
Portland, Oregon

Sample I.D. (depth in feet BGS)	Sample Location	Sample Date	Hydrocarbon Identification by Method NWTPH-HCID (mg/kg)			Gasoline-Range Hydrocarbons by Method NWTPH-Gx (mg/kg)	Diesel- and Oil-Range Hydrocarbons by Method NWTPH-Dx (mg/kg)		Total Phenols by EPA Method 9066
			Gasoline-Range	Diesel-Range	Oil-Range		Diesel-Range	Oil-Range	
UST Removal, ROW Excavation and Imported Soil Samples									
UST-1(4.5)	2 to 6 inches beneath base of UST #1	12/30/19	–	–	–	6.17 U	25.0 U	50.0 U	–
UST-2(3.5)	2 to 6 inches beneath base of UST #2	12/30/19	–	–	–	**47.2**	25.1 U	**172**	–
SP-1-1	Stockpile associated with UST #1 and UST #2	12/30/19	–	–	–	6.31 U	25.0 U	50.0 U	–
UST-1-N(1)	1 foot beneath north end of UST #1	01/02/20	–	–	–	7.95 U	**31.4**	50.6 U	–
UST-1-S(1)	1 foot beneath south end of UST #1	01/02/20	–	–	–	8.28 U	25.7 U	51.3 U	–
UST-2-N(1)	1 foot beneath north end of UST #2	01/02/20	–	–	–	8.66 U	25.4 U	50.9 U	–
UST-2-S(1)	1 foot beneath south end of UST #2	01/02/20	–	–	–	5.43 U	25.0 U	50.0 U	–
ROW-Sanitary-1(2.5)	Sanitary sewer excavation	05/06/20	22.6 U	56.4 U	113 U	–	–	–	–
ROW-Storm-1(9)	Stormwater excavation	03/30/20	24.8 U	62.0 U	124 U	–	–	–	–
ROW-Storm-2(10)	Stormwater excavation	03/30/20	24.2 U	60.6 U	121 U	–	–	–	–
ROW-Storm-2(10)	Stormwater excavation	03/31/20	25.2 U	61.6 U	122 U	–	–	–	–
Topsoil	Topsoil	04/23/21	–	–	–		**29.2** F-17	**110** F-17	–
Direct-Push Explorations									
DP-1(5-6.5)	Refer to Figure 2	04/12/18	–	–	–	0.130 U	5.19 U	13.0 U	–
DP-1(10-11.5)	Refer to Figure 2	04/12/18	–	–	–	0.134 U	5.38 U	13.4 U	–
DP-2(1-2.5)	Refer to Figure 2	04/12/18	–	–	–	**266**	**5.92**	**26.4**	–
DP-2(12.5-14)	Refer to Figure 2	04/12/18	–	–	–	0.152 U	**790**	**7,460**	–
DP-3(2-3.5)	Refer to Figure 2	04/12/18	–	–	–	0.127 U	50.7 U	**530**	–
DP-3(6-7.5)	Refer to Figure 2	04/12/18	–	–	–	0.133 U	5.17 U	12.9 U	–
DP-4(2-3.5)	Refer to Figure 2	04/12/18	–	–	–	0.124 U	46.3 U	**156**	–
DP-4(6.5-8)	Refer to Figure 2	04/12/18	–	–	–	0.146 U	**8.49**	**18.0**	–
DP-5(1.5-3)	Refer to Figure 2	04/12/18	–	–	–	**0.382**	**121**	**719**	–
DP-5(6-7.5)	Refer to Figure 2	04/12/18	–	–	–	0.117 U	**15.3**	**29.5**	–
DP-6(7.5-9)	Refer to Figure 2	04/12/18	–	–	–	0.119 U	**8.15**	**11.9**	–
DP-6(17-18.5)	Refer to Figure 2	04/12/18	–	–	–	0.136 U	5.43 U	13.6 U	–
DP-7(1-2.5)	Refer to Figure 2	04/13/18	–	–	–	0.118 U	23.6 U	59.1 U	–
DP-7(10-11.5)	Refer to Figure 2	04/13/18	–	–	–	0.128 U	5.11 U	12.8 U	–
DP-8(6.5-8)	Refer to Figure 2	04/13/18	4.98 U	4.98 U	12.5 U	–	–	–	–
DP-9(1.5-3)	Refer to Figure 2	04/13/18	–	–	–	0.136 U	5.46 U	13.6 U	0.915 U
DP-9(12.5-14)	Refer to Figure 2	04/13/18	–	–	–	0.129 U	5.15 U	12.9 U	–
DP-10(4-5)	Refer to Figure 2	06/22/18	–	–	–	0.181 U	4.20 U	10.5 U	–
DP-11(1-2)	Refer to Figure 2	06/22/18	–	–	–	0.116 U	**5.25**	**11.6**	–
DP-13(9-10)	Refer to Figure 2	06/22/18	–	–	–	3.45 U	5.53 U	13.8 U	–
DP-18(1-2.5)	Refer to Figure 2	12/10/18	21.9 U	54.7 U	109 U	–	–	–	–
DP-18(17-18.5)	Refer to Figure 2	12/10/18	26.0 U	64.9 U	130 U	–	12.4 U	24.8 U	–
DP-19(10-11.5)	Refer to Figure 2	12/10/18	24.8 U	62.0 U	124 U	–	–	–	–
DP-19(15.5-17.5)	Refer to Figure 2	12/10/18	25.6 U	64.0 U	128 U	–	–	–	–
DP-19(21-23)	Refer to Figure 2	12/10/18	27.6 U	69.0 U	138 U	–	13.5 U	27.0 U	–
DP-20(13-15)	Refer to Figure 2	12/10/18	25.2 U	63.0 U	126 U	–	–	–	–
DP-20(23-25)	Refer to Figure 2	12/10/18	24.9 U	62.2 U	124 U	–	12.3 U	24.6 U	–
EPA Portland Harbor CULs[1]			NE	NE	NE	NE	91	NE	NE
DEQ JSCS SLVs[2]			NE	NE	NE	NE	NE	NE	50

Notes:

1. EPA *Record of Decision Portland Harbor Superfund Site Portland, Oregon,* dated January 2017; Table 17 Riverbank Soil/Sediment CULs
2. DEQ *Portland Harbor Joint Source Control Strategy* dated December 2005; Table 3.1 Initial Upland Soil and Stormwater Sediment Evaluation SLVs

F-17: No fuel pattern detected. The diesel result represents carbon range C12 to C14 and the oil result represents >C24 to C40.
U: Not detected. Reporting or detection limit shown.
Bolding indicates analyte detection.
Orange shading indicates analyte detection at a concentration greater than EPA Portland Harbor CULs.
–: not analyzed

TABLE 3
Summary of Soil Sample Chemical Analytical Results
VOCs
2100 N Albina Development
2100 N Albina Avenue
Portland, Oregon

Sample I.D. (depth in feet BGS)	Sample Date	VOCs[1] by EPA Methods 8260B and 5035A/8260C (mg/kg)																		
		Acetone	Benzene	2-Butanone (MEK)	n-Butylbenzene	sec-Butylbenzene	1,2-Dichlorobenzene	1,4-Dichlorobenzene	1,1-Dichloroethene	1,2-Dichloropropane	Ethylbenzene	Isopropylbenzene	p-Isopropyltoluene	Naphthalene	PCE	Toluene	TCE	1,2,4-TMB	1,3,5-TMB	Total Xylenes
UST Removal, RDW Excavation and Imported Soil Samples																				
UST-1(4.5)	12/30/19	1.23 U	0.0123 U	0.617 U	0.0617 U	0.0617 U	0.0308 U	0.0308 U	0.0308 U	0.123 U	0.0308 U	0.0308 U	0.0617 U	0.123 U	0.0308 U	0.0617 U	0.0308 U	0.0617 U	0.0617 U	0.0925 U
UST-2(3.5)	12/30/19	1.34 U	0.0134 U	0.668 U	**0.212**	0.0668 U	0.0334 U	0.0334 U	0.0334 U	0.134 U	*0.0334 U*	**0.0337**	0.0668 U	**0.163**	0.0334 U	0.0668 U	0.0334 U	**0.0806**	0.0668 U	0.1002 U
SP-1-1	12/30/19	1.26 U	0.0126 U	0.631 U	0.0631 U	0.0631 U	0.0316 U	0.0316 U	0.0316 U	0.126 U	*0.0316 U*	0.0316 U	0.0631 U	0.126 U	0.0316 U	0.0631 U	0.0316 U	0.0631 U	0.0631 U	0.0947 U
Topsoil	04/23/21	1.29 U	0.0129 U	0.646 U	0.0646 U	0.0646 U	0.0323 U	0.0323 U	0.0323 U	0.0323 U	*0.0323 U*	0.0323 U	0.0646 U	0.129 U	0.0323 U	0.0646 U	0.0323 U	0.0646 U	0.0646 U	0.0969 U
Direct-Push Explorations																				
DP-1(5-6.5)	04/12/18	0.0649 U	0.00130 U	0.0130 U	0.00130 U, J3	0.00130 U, J3	0.00130 U, J3	0.00130 U, J3	0.00130 U	0.00130 U	0.00649 U, J3	0.00130 U, J3	0.00130 U, J3	0.00649 U	0.00130 U, J3	0.00649 U, J3	0.00649 U, J3	0.00130 U, J3	0.00130 U, J3	0.00390 U, J3
DP-1(10-11.5)	04/12/18	0.0820 U	0.00164 U	0.0164 U	0.00164 U, J3	0.00164 U, J3	0.00164 U, J3	0.00164 U, J3	0.00164 U	0.00164 U	0.00164 U, J3	0.00164 U, J3	0.00164 U, J3	0.00820 U	0.0016 U, J3, J4	0.00820 U, J3	0.00164 U, J3	0.00164 U, J3	0.00164 U, J3	0.00492 U, J3
DP-2(1-2.5)	04/12/18	0.109 U	**0.0162**	0.0218 U	**0.0499** J3, V3	**0.154** J3, V3	0.00218 U, J3	0.00218 U, J3	0.00218 U	0.00218 U	**0.00421** J3	**0.0352** J3, V3	**0.0929** J3, V3	0.0109 U, J3, V3	**0.0118** J3, J4	**0.0109** J3	**0.0154** J3	**0.348** J3, V3	**0.232** J3, V3	0.0327 J3
DP-2(12.5-14)	04/12/18	0.0769 U	0.00154 U	0.0154 U	0.00154 U	0.00154 U	0.00154 U	0.00154 U	0.00154 U	**0.00186**	0.00154 U	0.00154 U	0.00154 U	0.00769 U	0.0015 U	0.00769 U	0.00154 U	0.00154 U	0.00154 U	0.00461 U
DP-3(2-3.5)	04/12/18	0.0633 U	0.00127 U	0.0127 U	0.00127 U	0.00127 U	0.00127 U	0.00127 U	0.00127 U	0.00127 U	0.00127 U	0.00127 U	0.00127 U	0.00633 U	0.0013 U	0.00633 U	0.00127 U	0.00127 U	0.00127 U	0.00380 U
DP-3(6-7.5)	04/12/18	0.0647 U	0.00129 U	0.0129 U	0.00129 U	0.00129 U	0.00129 U	0.00129 U	0.00129 U	0.00129 U	0.00129 U	0.00129 U	0.00129 U	0.00647 U	0.0013 U	0.00647 U	0.00129 U	0.00129 U	0.00129 U	0.00388 U
DP-4(2-3.5)	04/12/18	0.0601 U	0.00120 U	0.0120 U	0.00120 U	0.00120 U	0.00120 U	0.00120 U	0.00120 U	0.00120 U	0.00120 U	0.00120 U	0.00120 U	0.00601 U	0.00120 U	0.00601 U	0.00120 U	0.00120 U	0.00120 U	0.00361 U
DP-4(6.5-8)	04/12/18	0.0598 U	0.00120 U	0.0120 U	0.00120 U	0.00120 U	0.00120 U	0.00120 U	0.00120 U	0.00120 U	0.00120 U	0.00120 U	0.00120 U	0.00598 U	0.00120 U	0.00598 U	0.00120 U	0.00120 U	0.00120 U	0.00359 U
DP-5(1.5-3)	04/12/18	**0.0829**	0.00153 U	**0.0174**	0.00153 U	0.00153 U	0.00153 U	0.00153 U	0.00153 U	0.00153 U	0.00153 U	0.00153 U	0.00153 U	0.00765 U	0.0015 U	0.00765 U	0.00153 U	0.00153 U	0.00153 U	0.00459 U
DP-5(6-7.5)	04/12/18	0.0587 U	0.00117 U	0.0117 U	0.00117 U	0.00117 U	0.00117 U	0.00117 U	0.00117 U	0.00117 U	0.00117 U	0.00117 U	0.00117 U	0.00587 U	0.0012 U	0.00587 U	0.00117 U	0.00117 U	0.00117 U	0.00352 U
DP-6(7.5-9)	04/12/18	0.0678 U	0.00136 U	0.0136 U	0.00136 U	0.00136 U	0.00136 U	0.00136 U	0.00136 U	0.00136 U	0.00136 U	0.00136 U	0.00136 U	0.0068 U	0.0014 U	0.00678 U	0.00136 U	0.00136 U	0.00136 U	0.00407 U
DP-6(17-18.5)	04/12/18	0.0679 U	0.00136 U	0.0136 U	0.00136 U	0.00136 U	0.00136 U	0.00136 U	0.00136 U	0.00136 U	0.00136 U	0.00136 U	0.00136 U	0.00679 U	0.0014 U	0.00679 U	0.00136 U	0.00136 U	0.00136 U	0.00407 U
DP-7(1-2.5)	04/13/18	0.0591 U	**0.00233**	0.0118 U	0.00118 U	0.00118 U	**0.0102**	**0.00202**	**0.00180**	0.00118 U	0.00118 U	0.00118 U	0.00118 U	0.00591 U	0.0012 U	0.00591 U	0.00118 U	0.00118 U	0.00118 U	0.00354 U
DP-7(10-11.5)	04/13/18	0.0639 U, J3	0.00128 U	0.0128 U, J3	0.00128 U	0.00128 U	0.00128 U	0.00128 U	0.00128 U	0.00128 U	0.00128 U	0.00128 U	0.00128 U	0.00639 U	0.0013 U	0.00639 U	0.00128 U	0.00128 U	0.00128 U	0.00383 U
DP-9(1.5-3)	04/13/18	0.0799 U, J3	0.00160 U	0.0160 U, J3	0.00160 U	0.00160 U	0.00160 U	0.00160 U	0.00160 U	0.00160 U	0.00160 U	0.00160 U	0.00160 U	0.00799 U	0.00160 U	0.00799 U	0.00160 U	0.00160 U	0.00160 U	0.00479 U
DP-9(12.5-14)	04/13/18	0.0643 U	0.00129 U	0.0129 U, J3	0.00129 U	0.00129 U	0.00129 U	0.00129 U	0.00129 U	0.00129 U	0.00129 U	0.00129 U	0.00129 U	0.00643 U	0.0013 U	0.00643 U	0.00129 U	0.00129 U	0.00129 U	0.00386 U
DP-10(4-5)	06/22/18	0.0341 U	**0.0163**	0.0341 U	0.0171 U	0.0171 U	0.00682 U	0.00682 U	0.00341 U	0.00682 U	0.00341 U	0.00341 U	0.00682 U	0.0171 U	**0.0074**	0.00682 U	**0.00426**	0.00682 U	0.00682 U	0.00887 U
DP-11(1-2)	06/22/18	0.0266 U	**0.0343**	0.0266 U	0.0133 U	0.0133 U	0.00532 U	0.00532 U	**0.00627**	0.00532 U	0.00266 U	0.00266 U	0.00532 U	**0.0316**	**0.0367**	**0.00898**	**0.00528**	0.00532 U	0.00532 U	**0.00748**
DP-13(9-10)	06/22/18	0.0345 U	0.00138 U	**0.0446** B	0.0173 U	0.0173 U	0.00691 U	0.00691 U	0.00345 U	0.00691 U	0.00345 U	0.00345 U	0.00691 U	0.0173 U	0.0035 U	0.00691 U	0.00138 U	0.00691 U	0.00691 U	0.00898 U
DP-18(17-18.5)	12/10/18	0.699 U	0.00699 U	0.350 U	0.0350 U	0.0350 U	0.0175 U	0.0175 U	0.0175 U	0.0175 U	*0.0175 U*	0.0350 U	0.0350 U	0.0699 U	0.0175 U	0.0350 U	0.0175 U	0.0350 U	0.0350 U	0.0525 U
DP-19(21-23)	12/10/18	0.787 U	0.00787 U	0.394 U	0.0394 U	0.0394 U	0.0197 U	0.0197 U	0.0197 U	0.0197 U	0.0197 U	0.0394 U	0.0394 U	0.0787 U	0.0197 U	0.0394 U	0.0197 U	0.0394 U	0.0394 U	0.0591 U
DP-20(23-25)	12/10/18	0.753 U	0.00753 U	0.376 U	0.0376 U	0.0376 U	0.0188 U	0.0188 U	0.0188 U	0.0188 U	0.0188 U	0.0376 U	0.0376 U	0.0753 U	0.0188 U	0.0376 U	0.0188 U	0.0376 U	0.0376 U	0.0564 U
EPA Portland Harbor CULs[2]		NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
DEQ JSCS SLVs[3]		NE	NE	NE	NE	NE	1.7	0.3	NE	NE	0.0073	NE	NE	0.561	0.5	NE	2.1	9.2	NE	NE

Notes:
1. Only detected VOCs are listed.
2. EPA *Record of Decision Portland Harbor Superfund Site Portland, Oregon,* dated January 2017; Table 17 Riverbank Soil/Sediment CULs
3. DEQ *Portland Harbor Joint Source Control Strategy* dated December 2005; Table 3.1 Initial Upland Soil and Stormwater Sediment Evaluation SLVs

B: The same analyte is found in the associated blank.
J3: The associated batch QC was outside the established QC range for precision.
J4: The associated batch QC was outside the established QC range for accuracy.
U: Not detected. Reporting or detection limit shown.
V3: The internal standard exhibited poor recovery due to sample matrix interference. The analytical results will be biased high.
Bolding indicates analyte detection.
Italics indicates the laboratory reporting or detection limit exceeds DEQ JSCS SLVs.

TABLE 4
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Total and Leachable Metals
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2100 N Albina Avenue
Portland, Oregon

Sample I.D. (depth in feet BGS)	Sample Date	Total Metals by EPA Methods 6010B/6020/7471A (mg/kg)														TCLP Metals by EPA Methods 1311 and 6010B/7471A (mg/L)		
		Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc	Chromium	Lead	Mercury
UST Removal, ROW Excavation and Imported Soil Samples																		
UST-2(3.5)	12/30/19	1.26 U	5.19 [1]	–	0.453	0.251 U	18.9	46.8	153	0.284	17.0	1.26 U	0.251 U	0.251	96.8	–	0.192	–
UST-2-S(1)	01/02/20	1.19 U	4.13 [1]	–	0.275	0.239 U	20.5	30.2	77.7	0.0955 U	16.0	1.19 U	0.239 U	0.239	43.0	–	–	–
ROW-Sanitary-1(2.5)	05/06/20	–	3.6 [1]	98.1	–	0.232 U	13.7	–	37.0	0.0929 U	–	1.16 U	0.232 U	–	–	–	–	–
ROW-Storm-1(9)	03/30/20	–	9.37	167	–	0.278 U	19.8	–	17.5	0.111 U	–	1.39 U	0.278 U	–	–	–	–	–
ROW-Storm-2(10)	03/30/20	–	7.88 [1]	174	–	0.256 U	21.3	–	12.0	0.102 U	–	1.28 U	0.256 U	–	–	–	–	–
Topsoil	04/23/21	1.34 U	3.78 [1]	0.383	–	0.268 U	15.1	17.8	10.7	0.107 U	12.5	1.34 U	0.268 U	0.268 U	66.5	–	–	–
Direct-Push Explorations																		
DP-1(5-6.5)	04/12/18	–	5.87 [1]	153	–	0.649 U	20.4	–	8.71	0.0260 U	–	2.60 U	1.30 U	–	–	–	–	–
DP-1(10-11.5)	04/12/18	–	11.2	193	–	0.672 U	21.9 Q1	–	16.9	0.0269 U	–	2.69 U	1.34 U	–	–	–	–	–
DP-2(1-2.5)	04/12/18	–	4.52 [1]	153	–	0.589 U	17.8	–	67.2	0.147 [1]	–	2.35 U	1.18 U	–	–	–	–	–
DP-2(12.5-14)	04/12/18	–	11.7	65.1	–	0.761 U	33.1	–	13.1	0.0368	–	3.05 U	1.52 U	–	–	–	–	–
DP-3(2-3.5)	04/12/18	–	4.24 [1]	121	–	0.633 U	12.4	–	91.2	0.149 [1]	–	2.53 U	1.27 U	–	–	–	–	–
DP-3(6-7.5)	04/12/18	–	5.49 [1]	36.4	–	0.647 U	19.4	–	16.2	0.0323	–	2.59 U	1.29 U	–	–	–	–	–
DP-4(2-3.5)	04/12/18	–	5.89 [1]	39.4	–	0.578 U	9.29	–	23.5	0.0369	–	2.31 U	1.16 U	–	–	–	–	–
DP-4(6.5-8)	04/12/18	–	4.97 [1]	1.540	–	0.592 U	23.4	–	35.4	0.0240	–	2.37 U	1.18 U	–	–	–	–	–
DP-5(1.5-3)	04/12/18	–	3.51 [1]	95.9	–	0.622 U	17.7	–	61.3	0.0966 [1]	–	2.49 U	1.24 U	–	–	–	–	–
DP-5(6-7.5)	04/12/18	–	5.53 [1]	109	–	0.587 U	231	–	198	0.488	–	2.35 U	1.17 U	–	–	0.100 U	0.100 U	–
DP-6(7.5-9)	04/12/18	–	8.29 [1]	226	–	0.595 U	7.45	–	136	0.607	–	2.38 U	1.19 U	–	–	–	16.6	–
DP-6(17-18.5)	04/12/18	–	9.23	180	–	0.679 U	23.8	–	12.5	0.0292	–	2.71 U	1.36 U	–	–	–	–	–
DP-7(1-2.5)	04/13/18	–	8.21 [1]	180	–	3.93	22.5	–	114	6.07	–	2.36 U	1.18 U	–	–	–	0.100 U	0.0100 U
DP-7(10-11.5)	04/13/18	–	4.55 [1]	131	–	0.639 U	18.0	–	7.23	0.0255 U	–	2.55 U	1.28 U	–	–	–	–	–
DP-9(1.5-3)	04/13/18	–	5.88 [1]	139	–	0.682 U	24.1	–	6.17	0.0273 U	–	2.73 U	1.36 U	–	–	–	–	–
DP-9(12.5-14)	04/13/18	–	8.35 [1]	132	–	0.643 U	17.8	–	10.3	0.0257 U	–	2.57 U	1.29 U	–	–	–	–	–
DP-10(4-5)	06/22/18	–	2.1 U	46.6	–	0.525 U	2.71	–	40.4	0.0552 U	–	2.10 U	1.05 U	–	–	–	–	–
DP-10(10-11)	06/22/18	–	–	–	–	–	–	–	637	–	–	–	–	–	–	–	18.8	–
DP-11(1-2)	06/22/18	–	3.95 [1]	885	–	0.646	13.4	–	139	0.0406	–	2.13 U	1.06 U	–	–	–	0.100 U	–
DP-11(10-11)	06/22/18	–	–	–	–	–	–	–	24.8	–	–	–	–	–	–	–	–	–
DP-12(10-10.5)	06/22/18	–	–	–	–	–	–	–	947	–	–	–	–	–	–	–	2.68	–
DP-13(9-10)	06/22/18	–	6.00 [1]	174	–	0.691 U	25.7	–	8.66	0.0276 U	–	2.76 U	1.38 U	–	–	–	–	–
DP-14(9-10)	06/22/18	–	–	–	–	–	–	–	61.8	–	–	–	–	–	–	–	–	–
DP-15(8-9)	06/22/18	–	–	–	–	–	–	–	11.6	–	–	–	–	–	–	–	–	–
DP-16(9-9.5)	06/22/18	–	–	–	–	–	–	–	174	–	–	–	–	–	–	–	3.32	–
DP-17(9-9.5)	06/22/18	–	–	–	–	–	–	–	129	–	–	–	–	–	–	–	2.02	–
DP-18(1-2.5)	12/10/18	–	3.69 [1]	152	–	0.292	15.6	–	69.0	0.0696 J	–	0.611 U	0.122 U			–	–	–
DP-18(17-18.5)	12/10/18	0.748 U	9.00	–	0.661	0.538 [1]	17.7	23.6	11.3	0.0598 U	18.4	0.748 U	0.150 U	0.175 J	73.3	–	–	–
DP-19(10-11.5)	12/10/18	–	5.81 [1]	122	–	0.285	16.8	–	41.6	0.119 [1]	–	0.683 U	0.137 U	–	–	–	–	–
DP-19(15.5-17.5)	12/10/18	–	6.92 [1]	145	–	0.412	20.1	–	14.4	0.0588 U	–	0.734 U	0.147 U	–	–	–	–	–
DP-19(21-23)	12/10/18	0.718 U	16.3	–	0.764	0.582 [1]	20.3	30.4	14.1	0.0575 U	23.4	0.718 U	0.144 U	0.196 J	87.2	–	–	–
DP-20(13-15)	12/10/18	–	10.7	156	–	0.673	26.5	–	12.4	0.0574 U	–	0.718 U	0.144 U	–	–	–	–	–
DP-20(23-25)	12/10/18	0.764 U	7.78 [1]	–	0.751	0.807	16.3	27.9	10.2	0.0611 U	23.1	0.764 U	0.153 U	0.181 J	88.6	–	–	–
Remedial Excavation Confirmation Soil Samples																		

TABLE 4
Summary of Soil Sample Chemical Analytical Results
Total and Leachable Metals
2100 N Albina Development
2100 N Albina Avenue
Portland, Oregon

Sample I.D. (depth in feet BGS)	Sample Date	Total Metals by EPA Methods 6010B/6020/7471A (mg/kg)														TCLP Metals by EPA Methods 1311 and 6010B/7471A (mg/L)		
		Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc	Chromium	Lead	Mercury
UST Removal, ROW Excavation and Imported Soil Samples																		
UST-2(3.5)	12/30/19	1.26 U	5.19 [1]	–	0.453	0.251 U	18.9	46.8	153	0.284	17.0	1.26 U	0.251 U	0.251	96.8	–	0.192	–
UST-2-S(1)	01/02/20	1.19 U	4.13 [1]	–	0.275	0.239 U	20.5	30.2	77.7	0.0955 U	16.0	1.19 U	0.239 U	0.239	43.0	–	–	–
ROW-Sanitary-1(2.5)	05/06/20	–	3.6 [1]	98.1	–	0.232 U	13.7	–	37.0	0.0929 U	–	1.16 U	0.232 U	–	–	–	–	–
ROW-Storm-1(9)	03/30/20	–	9.37	167	–	0.278 U	19.8	–	17.5	0.111 U	–	1.39 U	0.278 U	–	–	–	–	–
ROW-Storm-2(10)	03/30/20	–	7.88 [1]	174	–	0.256 U	21.3	–	12.0	0.102 U	–	1.28 U	0.256 U	–	–	–	–	–
Topsoil	04/23/21	1.34 U	3.78 [1]	0.383	–	0.268 U	15.1	17.8	10.7	0.107 U	12.5	1.34 U	0.268 U	0.268 U	66.5	–	–	–
Direct-Push Explorations																		
DP-1(5-6.5)	04/12/18	–	5.87 [1]	153	–	0.649 U	20.4	–	8.71	0.0260 U	–	2.60 U	1.30 U	–	–	–	–	–
DP-1(10-11.5)	04/12/18	–	11.2	193	–	0.672 U	21.9 Q1	–	16.9	0.0269 U	–	2.69 U	1.34 U	–	–	–	–	–
DP-2(1-2.5)	04/12/18	–	4.52 [1]	153	–	0.589 U	17.8	–	67.2	0.147 [1]	–	2.35 U	1.18 U	–	–	–	–	–
DP-2(12.5-14)	04/12/18	–	11.7	65.1	–	0.761 U	33.1	–	13.1	0.0368	–	3.05 U	1.52 U	–	–	–	–	–
DP-3(2-3.5)	04/12/18	–	4.24 [1]	121	–	0.633 U	12.4	–	91.2	0.149 [1]	–	2.53 U	1.27 U	–	–	–	–	–
DP-3(6-7.5)	04/12/18	–	5.49 [1]	36.4	–	0.647 U	19.4	–	16.2	0.0323	–	2.59 U	1.29 U	–	–	–	–	–
DP-4(2-3.5)	04/12/18	–	5.89 [1]	39.4	–	0.578 U	9.29	–	23.5	0.0369	–	2.31 U	1.16 U	–	–	–	–	–
DP-4(6.5-8)	04/12/18	–	4.97 [1]	1.540	–	0.592 U	23.4	–	35.4	0.0240	–	2.37 U	1.18 U	–	–	–	–	–
DP-5(1.5-3)	04/12/18	–	3.51 [1]	95.9	–	0.622 U	17.7	–	61.3	0.0966 [1]	–	2.49 U	1.24 U	–	–	–	–	–
DP-5(6-7.5)	04/12/18	–	5.53 [1]	109	–	0.587 U	231	–	198	0.488	–	2.35 U	1.17 U	–	–	0.100 U	0.100 U	–
DP-6(7.5-9)	04/12/18	–	8.29 [1]	226	–	0.595 U	7.45	–	136	0.607	–	2.38 U	1.19 U	–	–	–	16.6	–
DP-6(17-18.5)	04/12/18	–	9.23	180	–	0.679 U	23.8	–	12.5	0.0292	–	2.71 U	1.36 U	–	–	–	–	–
DP-7(1-2.5)	04/13/18	–	8.21 [1]	180	–	3.93	22.5	–	114	6.07	–	2.36 U	1.18 U	–	–	–	0.100 U	0.0100 U
DP-7(10-11.5)	04/13/18	–	4.55 [1]	131	–	0.639 U	18.0	–	7.23	0.0255 U	–	2.55 U	1.28 U	–	–	–	–	–
DP-9(1.5-3)	04/13/18	–	5.88 [1]	139	–	0.682 U	24.1	–	6.17	0.0273 U	–	2.73 U	1.36 U	–	–	–	–	–
DP-9(12.5-14)	04/13/18	–	8.35 [1]	132	–	0.643 U	17.8	–	10.3	0.0257 U	–	2.57 U	1.29 U	–	–	–	–	–
DP-10(4-5)	06/22/18	–	2.1 U	46.6	–	0.525 U	2.71	–	40.4	0.0552 U	–	2.10 U	1.05 U	–	–	–	–	–
DP-10(10-11)	06/22/18	–	–	–	–	–	–	–	637	–	–	–	–	–	–	–	18.8	–
DP-11(1-2)	06/22/18	–	3.95 [1]	885	–	0.646	13.4	–	139	0.0406	–	2.13 U	1.06 U	–	–	–	0.100 U	–
DP-11(10-11)	06/22/18	–	–	–	–	–	–	–	24.8	–	–	–	–	–	–	–	–	–
DP-12(10-10.5)	06/22/18	–	–	–	–	–	–	–	947	–	–	–	–	–	–	–	2.68	–
DP-13(9-10)	06/22/18	–	6.00 [1]	174	–	0.691 U	25.7	–	8.66	0.0276 U	–	2.76 U	1.38 U	–	–	–	–	–
DP-14(9-10)	06/22/18	–	–	–	–	–	–	–	61.8	–	–	–	–	–	–	–	–	–
DP-15(8-9)	06/22/18	–	–	–	–	–	–	–	11.6	–	–	–	–	–	–	–	–	–
DP-16(9-9.5)	06/22/18	–	–	–	–	–	–	–	174	–	–	–	–	–	–	–	3.32	–
DP-17(9-9.5)	06/22/18	–	–	–	–	–	–	–	129	–	–	–	–	–	–	–	2.02	–
DP-18(1-2.5)	12/10/18	–	3.69 [1]	152	–	0.292	15.6	–	69.0	0.0696 J	–	0.611 U	0.122 U			–	–	–
DP-18(17-18.5)	12/10/18	0.748 U	9.00	–	0.661	0.538 [1]	17.7	23.6	11.3	0.0598 U	18.4	0.748 U	0.150 U	0.175 J	73.3	–	–	–
DP-19(10-11.5)	12/10/18	–	5.81 [1]	122	–	0.285	16.8	–	41.6	0.119 [1]	–	0.683 U	0.137 U	–	–	–	–	–
DP-19(15.5-17.5)	12/10/18	–	6.92 [1]	145	–	0.412	20.1	–	14.4	0.0588 U	–	0.734 U	0.147 U	–	–	–	–	–
DP-19(21-23)	12/10/18	0.718 U	16.3	–	0.764	0.582 [1]	20.3	30.4	14.1	0.0575 U	23.4	0.718 U	0.144 U	0.196 J	87.2	–	–	–
DP-20(13-15)	12/10/18	–	10.7	156	–	0.673	26.5	–	12.4	0.0574 U	–	0.718 U	0.144 U	–	–	–	–	–
DP-20(23-25)	12/10/18	0.764 U	7.78 [1]	–	0.751	0.807	16.3	27.9	10.2	0.0611 U	23.1	0.764 U	0.153 U	0.181 J	88.6	–	–	–
Remedial Excavation Confirmation Soil Samples																		

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		Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc	Chromium	Lead	Mercury
COMP-1(10.5)	10/08/19	–	–	–	–	–	–	–	**48.1**	–	–	–	–	–	–	–	–	–
COMP-2(10.5)	10/08/19	–	–	–	–	–	–	–	**36.4**	–	–	–	–	–	–	–	–	–
COMP-3(10)	10/08/19	–	–	–	–	–	–	–	**86.4**	–	–	–	–	–	–	–	–	–
COMP-4(10.5)	10/08/19	–	–	–	–	–	–	–	**28.6**	–	–	–	–	–	–	–	–	–
COMP-5(10.5)	10/08/19	–	–	–	–	–	–	–	**35.8**	–	–	–	–	–	–	–	–	–
COMP-6(10)	10/08/19	–	–	–	–	–	–	–	**67.2**	–	–	–	–	–	–	–	–	–
COMP-7(10)	10/08/19	–	–	–	–	–	–	–	**45.3**	–	–	–	–	–	–	–	–	–
COMP-8(10)	10/08/19	–	–	–	–	–	–	–	**37.0**	–	–	–	–	–	–	–	–	–
COMP-9(10)	10/08/19	–	–	–	–	–	–	–	**19.5**	–	–	–	–	–	–	–	–	–
COMP-10(10)	10/08/19	–	–	–	–	–	–	–	**70.3**	–	–	–	–	–	–	–	–	–
COMP-11(10)	10/08/19	–	–	–	–	–	–	–	**73.2**	–	–	–	–	–	–	–	–	–
COMP-12(10)	10/08/19	–	–	–	–	–	–	–	**79.9**	–	–	–	–	–	–	–	–	–
COMP-13(10)	10/08/19	–	–	–	–	–	–	–	**75.5**	–	–	–	–	–	–	–	–	–
COMP-14(10)	10/08/19	–	–	–	–	–	–	–	**115**	–	–	–	–	–	–	–	**0.228**	–
COMP-15(10)	10/08/19	–	–	–	–	–	–	–	**63.8**	–	–	–	–	–	–	–	–	–
COMP-16(10)	10/08/19	–	–	–	–	–	–	–	**276**	–	–	–	–	–	–	–	**2.21**	–
EPA Portland Harbor CULs[2]		NE	3	NE	NE	0.51	NE	359	196	0.085	NE	NE	NE	NE	459	NE	NE	NE
DEQ JSCS SLVs[3]		64	7	NE	NE	1	111	149	17	0.07	48.6	2	5	NE	459	NE	NE	NE
Portland Basin Background Concentrations[4]		0.56	8.8	790	2.0	0.63	76	34	79	0.23	47	0.71	0.82	5.2	180	NE	NE	NE

Notes:
1. While the detected concentration exceeds one or more screening levels, it is within the range of naturally occurring concentrations in soil in this area.
2. EPA *Record of Decision Portland Harbor Superfund Site Portland, Oregon*, dated January 2017; Table 17 Riverbank Soil/Sediment CULs
3. DEQ *Portland Harbor Joint Source Control Strategy* dated December 2005; Table 3.1 Initial Upland Soil and Stormwater Sediment Evaluation SLVs
4. DEQ *Development of Oregon Background Metals Concentrations in Soil*, dated March 2013; Table 4

J: Estimated result. Result detected below the lowest point of the calibration curve, but above the specified MDL.
>Max: The constituent RBC for this pathway is calculated as greater than 1,000,000 mg/kg or 1,000,000 mg/L. Therefore, this substance is deemed not to pose risks in this scenario.
NV: chemical is considered non-volatile
01: The analyte failed the method required serial dilution test and/or subsequent post-spike criteria. These failures indicate matrix interference.
U: Not detected. Reporting or detection limit shown.
Bolding indicates analyte detection.
Orange shading indicates analyte detection at a concentration greater than the EPA Portland Harbor CUL. If the CUL has not been established, the value is compared to the DEQ JSCS SLV.
Italics indicates the laboratory reporting or detection limit exceeds Portland Harbor CULs and/or DEQ JSCS SLVs.
–: not analyzed

TABLE 5
Summary of Soil Sample Chemical Analytical Results
SVOCs
2100 N Albina Development
2100 N Albina Avenue
Portland, Oregon

Sample I.D. (depth in feet BGS)	Sample Date	SVOCs by EPA Method 8270D-SIM (mg/kg)																		
		Anthracene	Acenaphthene	Acenaphthylene	Benzo(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(g,h,i)perylene	Benzo(k)fluoranthene	Chrysene	Dibenz(a,h)anthracene	Dibenzofuran	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	Naphthalene	Phenanthrene	Pyrene	2-Chloronaphthalene	1-Methylnaphthalene	2-Methylnaphthalene
UST Removal, ROW Excavation and Imported Soil Samples																					
UST-2(3.5)	12/30/19	0.0907	0.0299	0.0690	0.406	0.462	0.522	0.225	0.167	Chrysene	0.0588	0.0597	0.789	0.0619	0.264	1.15	0.301	0.846	–	1.26	2.23
UST-1-N(1)	01/02/20	0.0332	0.0590	0.0126 U	0.0525	0.0496	0.0723	0.0343	0.0212	0.0618	0.0126 U	0.0126 U	0.0936	0.0279	0.0315	0.298	0.164	0.118	–	0.0696	0.117
UST-2-N(1)	01/02/20	0.0126 U	0.0126 U	0.0126 U	0.0126 U	0.0126 U	0.0126 U	0.0126 U	0.0126 U	0.0126 U	0.0126 U	0.0126 U	0.0126 U	0.0126 U	0.0126 U	0.0441	0.0255	0.0126 U	–	0.0174	0.0263
UST-2-S(1)	01/02/20	0.0128	0.0230	0.0113 U	0.0113 U	0.0113 U	0.0113 U	0.0113 U	0.0113 U	0.0113 U	0.0113 U	0.0113 U	0.0187	0.0113 U	0.0113 U	0.142	0.0595	0.0220	–	0.0163	0.0319
Topsoil	04/23/21	0.0117 U	0.0117 U	0.0117 U	0.0118	0.0117 U	0.0117 U	0.0117 U	0.0117 U	0.0173	0.0117 U	0.0117 U	0.0410	0.0117 U	0.0117 U	0.0117 U	0.0492	0.0317	–	0.0117 U	0.0117 U
Direct-Push Explorations																					
DP-1(5.6-5.5)	04/12/18	0.00779 U	0.00779 J3	0.00779 J3	0.00779 U	0.00779 U	0.00779 U	0.00779 U	0.00779 U	0.00779 U	0.00779 U	–	0.00779 U	0.00779 J3	0.00779 U	0.0260 U	0.00779 U	0.00779 U	0.0260 U	0.0260 U	0.0260 U
DP-1(10-11.5)	04/12/18	0.00807 U	0.00807 U	0.00807 U	0.00807 U	0.00807 U	0.00807 U	0.00807 U	0.00807 U	0.00807 U	0.00807 U	–	0.00807 U	0.00807 U	0.00807 U	0.0269 U	0.00807 U	0.00807 U	0.0269 U	0.0269 U	0.0269 U
DP-2(1-2.5)	04/12/18	0.00706 U	0.00706 U	0.00706 U	0.00986	0.0105	0.0126	0.00776	0.00706 U	0.0108	0.00706 U	–	0.0168	0.00706 U	0.00706 U	0.0235 U	0.00863	0.0157	0.0235 U	0.0235 U	0.0235 U
DP-2(12.5-14)	04/12/18	0.00914 U	0.00914 U	0.00914 U	0.00914 U	0.00914 U	0.00914 U	0.00914 U	0.00914 U	0.00914 U	0.00914 U	–	0.00914 U	0.00914 U	0.00914 U	0.0305 U	0.00914 U	0.0239	0.0305 U	0.0305 U	0.0305 U
DP-3(2-3.5)	04/12/18	0.107	0.0125	0.0577	0.170	0.223	0.256	0.147	0.0725	0.200	0.0383	–	0.422	0.0523	0.116	0.0732	0.352	0.393	0.0253 U	0.0259	0.0434
DP-3(6-7.5)	04/12/18	0.00776 U	0.00776 U	0.00776 U	0.00776 U	0.00776 U	0.00776 U	0.00776 U	0.00776 U	0.00776 U	0.00776 U	–	0.00776 U	0.00776 U	0.00776 U	0.0259 U	0.00776 U	0.00776 U	0.0259 U	0.0259 U	0.0259 U
DP-4(2-3.5)	04/12/18	0.0395	0.00694 U	0.0161	0.0652	0.115	0.185	0.112	0.0413	0.101	0.0337	–	0.200	0.0173	0.0911	0.0231 U	0.124	0.142	0.0231 U	0.0231 U	0.0231 U
DP-4(6.5-8)	04/12/18	0.176	0.131	0.00710 U	0.650	0.608	0.724	0.397	0.270	0.665	0.0983	–	1.38	0.0851	0.319	0.594	0.982	1.13	0.0237 U	0.0608	0.0924
DP-5(1.5-3)	04/12/18	0.0746 U	0.0746 U	0.0746 U	0.153	0.160	0.268	0.121	0.0746 U	0.206	0.0746 U	–	0.430	0.0746 U	0.0912	0.249 U	0.218	0.262	0.249 U	0.249 U	0.249 U
DP-5(6-7.5)	04/12/18	0.0417	0.0382	0.00704 U	0.110	0.114	0.151	0.0756	0.0371	0.115	0.0184	–	0.236	0.0404	0.0633	0.0239	0.201	0.207	0.0235 U	0.0328	0.0526
DP-6(7.5-9)	04/12/18	0.273	0.0259	0.0628	0.626	0.498	0.594	0.267	0.171	0.551	0.0799	–	1.24	0.0587	0.223	0.0906	0.593	1.01	0.0238 U	0.0238 U	0.0355
DP-6(17-18.5)	04/12/18	0.00814 U	0.00814 U	0.00814 U	0.00814 U	0.00814 U	0.00814 U	0.00814 U	0.00814 U	0.00814 U	0.00814 U	–	0.00814 U	0.00814 U	0.00814 U	0.0271 U	0.00814 U	0.00814 U	0.0271 U	0.0271 U	0.0271 U
DP-7(1-2.5)	04/13/18	0.00709 U	0.00709 U	0.00709 U	0.0256	0.0324	0.0442	0.0317	0.0130	0.0308	0.00717	–	0.0463	0.00709 U	0.0235	0.0236 U	0.0267	0.0438	0.0236 U	0.0236 U	0.0236 U
DP-7(10-11.5)	04/13/18	0.00766 U	0.00766 U	0.00766 U	0.00766 U	0.00766 U	0.00766 U	0.00766 U	0.00766 U	0.00766 U	0.00766 U	–	0.00766 U	0.00766 U	0.00766 U	0.0255 U	0.00766 U	0.00766 U	0.0255 U	0.0255 U	0.0255 U
DP-9(1.5-3)	04/13/18	0.00819 U	0.00819 U	0.00819 U	0.00819 U	0.00819 U	0.00819 U	0.00819 U	0.00819 U	0.00819 U	0.00819 U	–	0.00819 U	0.00819 U	0.00819 U	0.0273 U	0.00819 U	0.00819 U	0.0273 U	0.0273 U	0.0273 U
DP-9(12.5-14)	04/13/18	0.00772 U	0.00772 U	0.00772 U	0.00772 U	0.00772 U	0.00772 U	0.00772 U	0.00772 U	0.00772 U	0.00772 U	–	0.00772 U	0.00772 U	0.00772 U	0.0257 U	0.00772 U	0.00772 U	0.0257 U	0.0257 U	0.0257 U
DP-10(4-5)	06/22/18	0.0110	0.00630 U	0.00704	0.0760	0.0803	0.0913	0.0698	0.0307	0.0625	0.0166	–	0.146	0.00630 U	0.0519	0.0210 U	0.0321	0.119	0.0210 U	0.0210 U	0.0210 U
DP-11(1-2)	06/22/18	0.0491	0.0130	0.00638 U	0.172	0.181	0.221	0.148	0.0761	0.160	0.0376	–	0.349	0.00984	0.121	0.115	0.162	0.282	0.0213 U	0.0213 U	0.0235
DP-13(9-10)	06/22/18	0.00829 U	0.00829 U	0.00829 U	0.00829 U	0.00829 U	0.00829 U	0.00829 U	0.00829 U	0.00829 U	0.00829 U	–	0.00829 U	0.00829 U	0.00829 U	0.0276 U	0.00829 U	0.00829 U	0.0276 U	0.0276 U	0.0276 U
DP-18(17-18.5)	12/10/18	0.00586 U	0.00586 U	0.00586 U	0.00586 U	0.00586 U	0.00586 U	0.00586 U	0.00586 U	0.00586 U	0.00586 U	0.00586 U	0.00586 U	0.00586 U	0.00586 U	0.00586 U	0.00586 U	0.00586 U	–	0.00586 U	0.00586 U
DP-19(21-23)	12/10/18	0.00617 U	0.00617 U	0.00617 U	0.00617 U	0.00617 U	0.00617 U	0.00617 U	0.00617 U	0.00617 U	0.00617 U	0.00617 U	0.00617 U	0.00617 U	0.00617 U	0.00617 U	0.00617 U	0.00617 U	–	0.00617 U	0.00617 U
DP-20(23-25)	12/10/18	0.00619 U	0.00619 U	0.00619 U	0.00619 U	0.00619 U	0.00619 U	0.00619 U	0.00619 U	0.00619 U	0.00619 U	0.00619 U	0.00619 U	0.00619 U	0.00619 U	0.00619 U	0.0106 J	0.00619 U	–	0.00619 U	0.00619 U
EPA Portland Harbor CULs[1]		NE	NE	NE	NE	0.012	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE	NE
General PAHs		23																			
DEQ JSCS SLVs[2]		0.845	0.3	0.2	1.05	1.45	NE	0.3	13	1.29	1.3	NE	2.23	0.536	0.1	0.561	1.17	1.52	NE	NE	0.2

Notes:
1. EPA *Record of Decision Portland Harbor Superfund Site Portland, Oregon*, dated January 2017; Table 17 Riverbank Soil/Sediment CULs
2. DEQ *Portland Harbor Joint Source Control Strategy* dated December 2005; Table 3.1 Initial Upland Soil and Stormwater Sediment Evaluation SLVs

J: Estimated result. Result detected below the lowest point of the calibration curve, but above the specified MDL.
J3: The associated batch QC was outside the established QC range for precision.
U: Not detected. Reporting or detection limit shown.
Bolding indicates analyte detection.
Orange shading indicates analyte detection at a concentration greater than the EPA Portland Harbor CUL. If the CUL has not been established, the value is compared to the DEQ JSCS SLV.
–: not analyzed

TABLE 6
Summary of Soil Sample Chemical Analytical Results
PCBs
2100 N Albina Development
2100 N Albina Avenue
Portland, Oregon

Sample I.D. (depth in feet BGS)	Sample Date	PCBs by EPA Method 8082 (mg/kg)						
		Aroclor 1016	Aroclor 1221	Aroclor 1232	Aroclor 1242	Aroclor 1248	Aroclor 1254	Aroclor 1260
UST Removal, ROW Excavation and Imported Soil Samples								
UST-2(3.5)	12/30/19	*0.0118 U*	*0.0118 U*	*0.0118 U*	*0.0118 U*	*0.0118 U*	*0.0118 U*	*0.0118 U*
UST-2-S(1)	01/02/20	*0.0119 U*	*0.0119 U*	*0.0119 U*	*0.0119 U*	*0.0119 U*	*0.0119 U*	*0.0119 U*
Topsoil	04/23/21	*0.0120 U*	*0.0120 U*	*0.0120 U*	*0.0120 U*	*0.0120 U*	*0.0120 U*	*0.0120 U*
Direct-Push Explorations								
DP-2(12.5-14)	04/12/18	*0.0259 U*	*0.0259 U*	*0.0259 U*	*0.0259 U*	*0.0259 U*	*0.0259 U*	*0.0259 U*
DP-3(2-3.5)	04/12/18	*0.0215 U*	*0.0215 U*	*0.0215 U*	*0.0215 U*	*0.0215 U*	*0.0215 U*	*0.0215 U*
DP-5(1.5-3)	04/12/18	*0.0211 U*	*0.0211 U*	*0.0211 U*	*0.0211 U*	*0.0211 U*	*0.0211 U*	*0.0211 U*
EPA Portland Harbor CULs[1]		0.009						
DEQ JSCS SLVs[2]		0.39						

Notes:

1. EPA *Record of Decision Portland Harbor Superfund Site Portland, Oregon,* dated January 2017; Table 17 Riverbank Soil/Sediment CULs
2. DEQ *Portland Harbor Joint Source Control Strategy* dated December 2005; Table 3.1 Initial Upland Soil and Stormwater Sediment Evaluation SLVs

>Csat: This soil RBC exceeds the limit of three-phase equilibrium partitioning. Refer to Appendix D of DEQ's RBDM guidance document for the corresponding value of Csat. Soil concentrations in excess of Csat indicate that free product might be present.

U: Not detected. Reporting or detection limit shown.

Italics indicates the laboratory reporting or detection limit exceeds Portland Harbor CULs.

TABLE 7
Summary of Groundwater Sample Chemical Analytical Results
Petroleum Hydrocarbons
2100 N Albina Development
2100 N Albina Avenue
Portland, Oregon

Sample I.D.	Sample Date	Screen Interval (feet BGS)	Gasoline-Range Hydrocarbons by Method NWTPH-Gx (µg/L)		Diesel- and Oil-Range Hydrocarbons by Method NWTPH-Dx (µg/L)			
					Diesel-Range		Residual-Range	
DP-1(041218)	04/12/18	20-30	100	U	111	U	278	U
DP-2(041218)	04/12/18	10-20	100	U	**1,730**		**3,930**	
DP-3(041218)	04/12/18	8-18	100	U	229	B	250	U
DP-4(041218)	04/12/18	10-20	100	U	**323**	B	250	U
DP-5(041218)	04/12/18	9-19	100	U	**177**	B	250	U
DP-6(041218)	04/12/18	20-30	100	U	**175**	B	250	U
DP-7(041318)	04/13/18	20-30	100	U	**244**	B	250	U
DP-9(041318)	04/13/18	20-30	100	U	**459**	B	250	U
DP-18(121018)	12/10/18	25-35	--		39.2	U	78.4	U
DP19(121018)	12/10/18	25-35	--		39.2	U	78.4	U
DP-19(121018)-DUP	12/10/18	25-35	--		39.2	U	78.4	U
DP-20(121018)	12/10/18	25-35	--		39.2	U	78.4	U
EPA Portland Harbor CULs[1]			NE		NE		NE	
DEQ JSCS SLVs[2]			NE		NE		NE	

Notes:
1. EPA *Record of Decision Portland Harbor Superfund Site Portland, Oregon*, dated January 2017; Table 17 Groundwater CULs
2. DEQ *Portland Harbor Joint Source Control Strategy* dated December 2005; Table 3.1 Initial Upland Groundwater Evaluation SLVs
B: The same analyte is found in the associated blank.
U: Not detected. Reporting or detection limit shown.
Bolding indicates analyte detection.
--: not analyzed

TABLE 7
Summary of Groundwater Sample Chemical Analytical Results
Petroleum Hydrocarbons
2100 N Albina Development
2100 N Albina Avenue
Portland, Oregon

Sample I.D.	Sample Date	Screen Interval (feet BGS)	Gasoline-Range Hydrocarbons by Method NWTPH-Gx (µg/L)		Diesel- and Oil-Range Hydrocarbons by Method NWTPH-Dx (µg/L)			
					Diesel-Range		Residual-Range	
DP-1(041218)	04/12/18	20-30	100	U	111	U	278	U
DP-2(041218)	04/12/18	10-20	100	U	**1,730**		**3,930**	
DP-3(041218)	04/12/18	8-18	100	U	229	B	250	U
DP-4(041218)	04/12/18	10-20	100	U	**323**	B	250	U
DP-5(041218)	04/12/18	9-19	100	U	**177**	B	250	U
DP-6(041218)	04/12/18	20-30	100	U	**175**	B	250	U
DP-7(041318)	04/13/18	20-30	100	U	**244**	B	250	U
DP-9(041318)	04/13/18	20-30	100	U	**459**	B	250	U
DP-18(121018)	12/10/18	25-35	--		39.2	U	78.4	U
DP19(121018)	12/10/18	25-35	--		39.2	U	78.4	U
DP-19(121018)-DUP	12/10/18	25-35	--		39.2	U	78.4	U
DP-20(121018)	12/10/18	25-35	--		39.2	U	78.4	U
EPA Portland Harbor CULs[1]			NE		NE		NE	
DEQ JSCS SLVs[2]			NE		NE		NE	

Notes:
1. EPA *Record of Decision Portland Harbor Superfund Site Portland, Oregon*, dated January 2017; Table 17 Groundwater CULs
2. DEQ *Portland Harbor Joint Source Control Strategy* dated December 2005; Table 3.1 Initial Upland Groundwater Evaluation SLVs
B: The same analyte is found in the associated blank.
U: Not detected. Reporting or detection limit shown.
Bolding indicates analyte detection.
--: not analyzed

TABLE *8*
Summary of Groundwater Sample Chemical Analytical Results
Aliphatic and Aromatic Hydrocarbons
2100 N Albina Development
2100 N Albina Avenue
Portland, Oregon

Sample I.D.	Sample Date	Screen Interval (feet BGS)	Aliphatic and Aromatic Hydrocarbons by Method WA EPH (µg/L)									
			C8-C10 Aliphatics	C10-C12 Aliphatics	C12-C16 Aliphatics	C16-C21 Aliphatics	C21-C34 Aliphatics	C8-C10 Aromatics	C10-C12 Aromatics	C12-C16 Aromatics	C16-C21 Aromatics	C21-C34 Aromatics
DP-18(121018)	12/10/18	25-35	40 U	*40 U*	40 U	40 U	40 U	40 U, H	40 U, H	40 U, H	40 U, H	40 U, H
DP19(121018)	12/10/18	25-35	40 U	*40 U*	40 U	40 U	40 U	40 U, H	40 U, H	40 U, H	40 U, H	40 U, H
DP-19(121018)-DUP	12/10/18	25-35	40 U	*40 U*	40 U	40 U	40 U	40 U, H	40 U, H	40 U, H	40 U, H	40 U, H
DP-20(121018)	12/10/18	25-35	40 U	*40 U*	40 U	40 U	40 U	40 U, H	40 U, H	40 U, H	40 U, H	40 U, H
EPA Portland Harbor CULs[1]			NE	2.6	NE	NE	NE	NE	NE	NE	NE	NE
DEQ JSCS SLVs[2]			NE	NE	NE	NE	NE	NE	NE	NE	NE	NE

Notes:
1. EPA *Record of Decision Portland Harbor Superfund Site Portland, Oregon,* dated January 2017; Table 17 Groundwater CULs
2. DEQ *Portland Harbor Joint Source Control Strategy* dated December 2005; Table 3.1 Initial Upland Groundwater Evaluation SLVs

H: Hold time was exceeded.
U: Not detected. Reporting or detection limit shown.
Italics indicates the laboratory reporting or detection limit exceeds DEQ JSCS SLVs.

TABLE 9
Summary Groundwater Sample Chemical Analytical Results
VOCs
2100 N Albina Development
2100 N Albina Avenue
Portland, Oregon

Sample I.D.	Sample Date	Screen Interval (feet BGS)	VOCs[1] by EPA Methods 82608, 8260C, and 8260C-SIM (µg/L)						
			Benzene	Ethylbenzene	PCE	Toluene	TCE	Vinyl Chloride	Total Xylenes
DP-1(041218)	04/12/18	20-30	*1.00 U*	1.00 U	*1.00 U*	1.00 U	*1.00 U*	*1.00 U*	3.00 U
DP-2(041218)	04/12/18	10-20	*1.00 U*	1.00 U	*1.00 U*	1.00 U	*1.00 U*	*1.00 U*	3.00 U
DP-3(041218)	04/12/18	8-18	*1.00 U*	1.00 U	*1.00 U*	1.00 U	*1.00 U*	*1.00 U*	3.00 U
DP-4(041218)	04/12/18	10-20	*1.00 U*	1.00 U	*1.00 U*	1.00 U	*1.00 U*	*1.00 U*	3.00 U
DP-5(041218)	04/12/18	9-19	*1.00 U*	1.00 U	*1.00 U*	1.00 U	*1.00 U*	*1.00 U*	3.00 U
DP-6(041218)	04/12/18	20-30	*1.00 U*	1.00 U	*1.00 U*	1.00 U	*1.00 U*	*1.00 U*	3.00 U
DP-7(041318)	04/13/18	20-30	*1.00 U*	1.00 U	*1.00 U*	1.00 U	*1.00 U*	*1.00 U*	3.00 U
DP-9(041318)	04/13/18	20-30	*1.00 U*	1.00 U	*1.00 U*	1.00 U	*1.00 U*	*1.00 U*	3.00 U
DP-18(121018)	12/10/18	25-35	0.100 U	0.250 U	0.239	0.500 U	*0.200 U*	0.0100 U	0.750 U
DP-19(121018)	12/10/18	25-35	0.100 U	0.250 U	0.0100 U	0.500 U	*0.200 U*	0.0100 U	0.750 U
DP-19(121018)-DUP	12/10/18	25-35	0.100 U	0.250 U	0.0100 U	0.500 U	*0.200 U*	0.0100 U	0.750 U
DP-20(121018)	12/10/18	25-35	0.100 U	0.250 U	0.0100 U	0.500 U	*0.200 U*	0.0100 U	0.750 U
EPA Portland Harbor CULs[2]			0.44	7.3	0.24	9.8	0.6	0.022	13
DEQ JSCS SLVs[3]			1.2	7.3	0.12	9.8	0.17	0.015	200

Notes:
1. Only VOCs detected during current and previous investigations and BTEX are shown.
2. EPA *Record of Decision Portland Harbor Superfund Site Portland, Oregon*, dated January 2017; Table 17 Groundwater CULs
3. DEQ *Portland Harbor Joint Source Control Strategy* dated December 2005; Table 3.1 Initial Upland Groundwater Evaluation SLVs
U: Not detected. Reporting or detection limit shown.
Bolding indicates analyte detection.
Orange shading indicates analyte detection at a concentration greater than the EPA Portland Harbor CUL.
Italics indicates reporting limit is greater than the EPA Portland Harbor CULs and/or DEQ JSCS SLVs.

TABLE 10
Summary of Groundwater Sample Chemical Analytical Results
SVOCs
2100 N Albina Development
2100 N Albina Avenue
Portland, Oregon

Sample I.D.	Sample Date	Screen Interval (feet BGS)	SVOCs by EPA Methods 8270D-SIM and 8270D-LVI (µg/L)																					
			Acenaphthene	Acenaphthylene	Anthracene	Benz(a)anthracene	Benzo(a)pyrene	Benzo(b)fluoranthene	Benzo(k)fluoranthene	Benzo(g,h,i)perylene	Carbazole	Chrysene	Dibenz(a,h)anthracene	Dibenzofuran	2-Chloronaphthalene	Fluoranthene	Fluorene	Indeno(1,2,3-cd)pyrene	1-Methylnaphthalene	2-Methylnaphthalene	Naphthalene	Phenanthrene	Pyrene	Pentachlorophenol
DP-1(041218)	04/12/18	20-30	0.0555 U	0.0555 U	0.0555 U	*0.0555 U*	*0.0555 U*	*0.0555 U*	*0.0555 U*	0.0555 U	--	*0.0555 U*	*0.0555 U*	--	0.278 U	0.0555 U	0.0555 U	*0.0555 U*	0.278 U	*0.278 U*	*0.278 U*	0.0555 U	0.0555 U	--
DP-2(041218)	04/12/18	10-20	0.0500 U	0.0500 U	**0.115**	*0.0500 U*	*0.0500 U*	*0.0500 U*	*0.0500 U*	0.0500 U	--	*0.0500 U*	*0.0500 U*	--	0.250 U	0.0500 U	0.0500 U	*0.0500 U*	0.250 U	*0.250 U*	*0.250 U*	0.0500 U	0.0500 U	--
DP-3(041218)	04/12/18	8-18	0.0500 U	0.0500 U	0.0500 U	*0.0500 U*	*0.0500 U*	*0.0500 U*	*0.0500 U*	0.0500 U	--	*0.0500 U*	*0.0500 U*	--	0.250 U	0.0500 U	0.0500 U	*0.0500 U*	0.250 U	*0.250 U*	*0.250 U*	0.0500 U	0.0500 U	--
DP-4(041218)	04/12/18	10-20	0.0500 U	0.0500 U	0.0500 U	*0.0500 U*	*0.0500 U*	*0.0500 U*	*0.0500 U*	0.0500 U	--	*0.0500 U*	*0.0500 U*	--	0.250 U	0.0500 U	0.0500 U	*0.0500 U*	0.250 U	*0.250 U*	*0.250 U*	0.0500 U	0.0500 U	--
DP-5(041218)	04/12/18	9-19	0.0500 U	0.0500 U	0.0500 U	**0.0665**	**0.0589**	**0.0676**	*0.0500 U*	0.0500 U	--	**0.0587**	*0.0500 U*	--	0.250 U	**0.125**	0.0500 U	*0.0500 U*	0.250 U	*0.250 U*	*0.250 U*	**0.0631** B	**0.146**	--
DP-6(041218)	04/12/18	20-30	0.0500 U	0.0500 U	0.0500 U	*0.0500 U*	*0.0500 U*	*0.0500 U*	*0.0500 U*	0.0500 U	--	*0.0500 U*	*0.0500 U*	--	0.250 U	0.0500 U	0.0500 U	*0.0500 U*	0.250 U	*0.250 U*	*0.250 U*	0.0500 U	0.0500 U	--
DP-7(041318)	04/13/18	20-30	0.0500 U	0.0500 U	0.0500 U	*0.0500 U*	*0.0500 U*	*0.0500 U*	*0.0500 U*	0.0500 U	--	*0.0500 U*	*0.0500 U*	--	0.250 U	0.0500 U	0.0500 U	*0.0500 U*	0.250 U	*0.250 U*	*0.250 U*	0.0500 U	0.0500 U	--
DP-9(041318)	04/13/18	20-30	0.0500 U	0.0500 U	0.0500 U	*0.0500 U*	*0.0500 U*	*0.0500 U*	*0.0500 U*	0.0500 U	--	*0.0500 U*	*0.0500 U*	--	0.250 U	0.0500 U	0.0500 U	*0.0500 U*	0.250 U	*0.250 U*	*0.250 U*	0.0500 U	0.0500 U	*11.1 U*
DP-18(121018)	12/10/18	25-35	**0.294**	**0.0197** J	**0.0233** J	*0.00858 U*	*0.00858 U*	*0.00858 U*	*0.00858 U*	0.0179 U	**0.0853**	*0.00858 U*	*0.00858 U*	**0.0317** J	--	0.0179 U	**0.103**	*0.00895 U*	**0.191**	**0.283**	**2.69**	**0.152**	0.0179 U	--
DP-19(121018)	12/10/18	25-35	0.0158 U	0.0158 U	0.0158 U	*0.00789 U*	*0.00789 U*	*0.00789 U*	*0.00789 U*	0.0158 U	0.0158 U	*0.00789 U*	*0.00789 U*	0.0158 U	--	0.0158 U	0.0158 U	*0.00789 U*	0.0316 U	0.0316 U	0.0316 U	0.0316 U	0.0158 U	--
DP-19(121018)-DUP	12/10/18	25-35	0.0162 U	0.0162 U	0.0162 U	*0.00809 U*	*0.00809 U*	*0.00809 U*	*0.00809 U*	0.0162 U	0.0162 U	*0.00809 U*	*0.00809 U*	0.0162 U	--	0.0162 U	0.0162 U	*0.00809 U*	0.0324 U	0.0324 U	0.0324 U	0.0324 U	0.0162 U	--
DP-20(121018)	12/10/18	25-35	0.0159 U	0.0159 U	**0.0231** J	*0.00793 U*	*0.00793 U*	*0.00793 U*	*0.00793 U*	0.0159 U	0.0159 U	*0.00793 U*	*0.00793 U*	0.0159 U	--	0.0159 U	0.0159 U	*0.00793 U*	0.0317 U	0.0317 U	0.0317 U	0.0317 U	0.0159 U	--
EPA Portland Harbor CULs[1]			23	NE	0.73	0.0012	0.00012	0.0012	0.0013	[0.4]NE	NE	0.00130	0.00012	NE	NE	[6.2]NE	[3.9]NE	0.0012	NE	[2.1]NE	[12] NE	[6.3]NE	[10] NE	0.03
DEQ JSCS SLVs[2]			0.2	0.2	0.2	0.018	0.018	0.018	0.018	0.2	3.4	0.018	0.018	3.7	490	0.2	0.2	0.018	2.1	0.2	0.2	0.2	0.2	0.56

Notes:
1. EPA *Record of Decision Portland Harbor Superfund Site Portland, Oregon*, dated January 2017; Table 17 Groundwater CULs
2. DEQ *Portland Harbor Joint Source Control Strategy* dated December 2005; Table 3.1 Initial Upland Groundwater Evaluation SLVs
J: Estimated result. Result detected below the lowest point of the calibration curve, but above the specified MDL.
U: Not detected. Reporting or detection limit shown.
Bolding indicates analyte detection.
Orange shading indicates analyte detection at a concentration greater than the EPA Portland Harbor CUL. If the CUL has not been established, the value is compared to the DEQ JSCS SLV.
Italics indicates reporting limit is greater than the Portland Harbor Cleanup Values and/or DEQ JSCS SLVs.
--: not analyzed

TABLE 11
Summary of Groundwater Sample Chemical Analytical Results
PCBs
2100 N Albina Development
2100 N Albina Avenue
Portland, Oregon

Sample I.D.	Sample Date	Screen Interval (feet BGS)	PCBs by EPA Method 8082 (µg/L)						
			PCB 1016	PCB 1221	PCB 1232	PCB 1242	PCB 1248	PCB 1254	PCB 1260
DP-1(041218)	04/12/18	20-30	*0.530 U*	*0.530 U*	*0.530 U*	*0.530 U*	*0.530 U*	*0.530 U*	*0.530 U*
DP-2(041218)	04/12/18	10-20	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*
DP-3(041218)	04/12/18	8-18	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*
DP-4(041218)	04/12/18	10-20	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*
DP-5(041218)	04/12/18	9-19	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*
DP-6(041218)	04/12/18	20-30	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*
DP-7(041318)	04/13/18	20-30	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*
DP-9(041318)	04/13/18	20-30	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*	*0.500 U*
EPA Portland Harbor CULs[1]			0.0000064						
DEQ JSCS SLVs[2]			0.0000064						

Notes:
1. EPA *Record of Decision Portland Harbor Superfund Site Portland, Oregon,* dated January 2017; Table 17 Groundwater CULs
2. DEQ *Portland Harbor Joint Source Control Strategy* dated December 2005; Table 3.1 Initial Upland Groundwater Evaluation SLVs
Italics indicates reporting limit is greater than the EPA Portland Harbor CULs and DEQ JSCS SLVs.
U: Not detected. Reporting or detection limit shown.

TABLE 12
Summary of Groundwater Sample Chemical Analytical Results
Total Metals
2100 N Albina Development
2100 N Albina Avenue
Portland, Oregon

Sample I.D.	Sample Date	Screen Interval (feet BGS)	Total Metals by EPA Method 200.8 (µg/L)											
			Antimony	Arsenic	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc
DP-18(121018)	12/10/18	25-35	**0.506 J**	**9.22**	**0.858**	**0.472**	**18.5**	**27.5**	**12.1**	**0.0429 J**	**20.1**	0.500 U	0.100 U	**0.178 J**	**69.0**
DP-19(121018)	12/10/18	25-35	**0.808 J**	**27.1**	**1.92**	**1.26**	**37.6**	**63.4**	**25.4**	**0.0532 J**	**46.1**	0.500 U	**0.186 J**	**0.357**	**167**
DP-19(121018)-DUP	12/10/18	25-35	0.500 U	**18.8**	**0.599**	**0.476**	**12.1**	**20.5**	**8.72**	0.0400 U	**16.6**	0.500 U	0.100 U	**0.123 J**	**54.8**
DP-20(121018)	12/10/18	25-35	0.500 U	**4.65**	**0.163 J**	**0.206**	**3.42**	**5.58**	**2.93**	0.0400 U	**5.56**	0.500 U	0.100 U	0.100 U	**16.7**
EPA Portland Harbor CULs[1]			NE	0.018	NE	0.091	11	2.74	0.54	NE	NE	NE	NE	NE	36.5
DEQ JSCS SLVs[2]			6	0.045	NE	0.094	100	2.7	0.54	0.77	16	5	0.12	NE	36

Notes:
1. EPA *Record of Decision Portland Harbor Superfund Site Portland, Oregon,* dated January 2017; Table 17 Groundwater CULs
2. DEQ *Portland Harbor Joint Source Control Strategy* dated December 2005; Table 3.1 Initial Upland Groundwater Evaluation SLVs

J: Estimated result. Result detected below the lowest point of the calibration curve, but above the specified MDL.
U: Not detected. Reporting or detection limit shown.
Bolding indicates analyte detection.
Orange shading indicates analyte detection at a concentration greater than the EPA Portland Harbor CUL. If the CUL has not been established, the value is compared to the DEQ JSCS SLV if available.

TABLE 13
Summary of Groundwater Sample Chemical Analytical Results
Dissolved Metals
2100 N Albina Development
2100 N Albina Avenue
Portland, Oregon

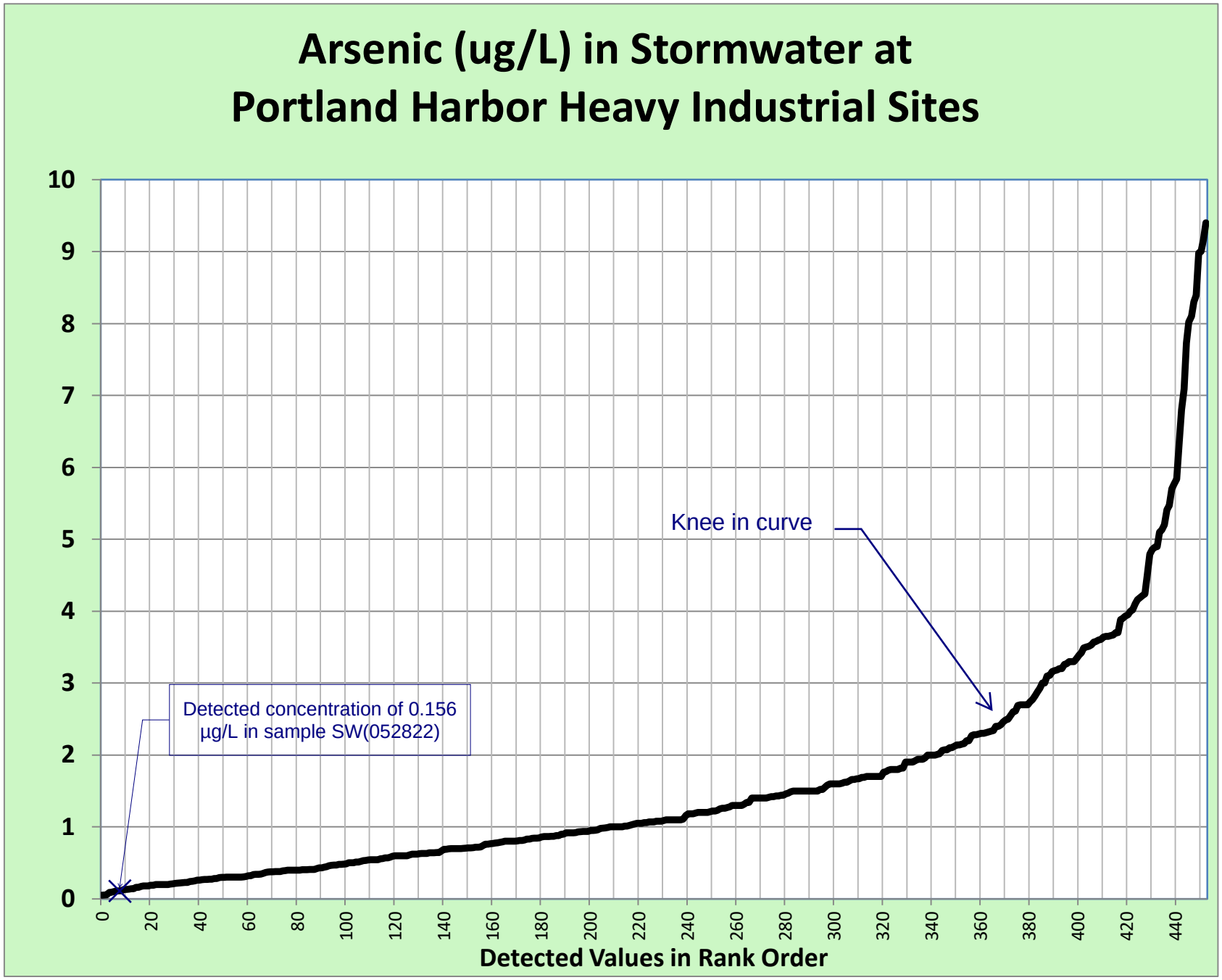
Sample I.D.	Sample Date	Screen Interval (feet BGS)	Dissolved Metals by EPA Method 60108/200.8 (µg/L)													
			Antimony	Arsenic	Barium	Beryllium	Cadmium	Chromium	Copper	Lead	Mercury	Nickel	Selenium	Silver	Thallium	Zinc
DP-1(041218)	04/12/18	20-30	--	*10.0 U*	116	--	*2.00 U*	10.0 U	--	*5.00 U*	0.200 U	--	*10.0 U*	*5.00 U*	--	--
DP-2(041218)	04/12/18	10-20	--	*10.0 U*	30.2	--	*2.00 U*	10.0 U	--	*5.00 U*	0.200 U	--	*10.0 U*	*5.00 U*	--	--
DP-3(041218)	04/12/18	8-18	--	*10.0 U*	32.5	--	*2.00 U*	10.0 U	--	*5.00 U*	0.200 U	--	*10.0 U*	*5.00 U*	--	--
DP-4(041218)	04/12/18	10-20	--	*10.0 U*	215	--	*2.00 U*	10.0 U	--	*5.00 U*	0.200 U	--	*10.0 U*	*5.00 U*	--	--
DP-5(041218)	04/12/18	9-19	--	*10.0 U*	20.8	--	*2.00 U*	10.0 U	--	*5.00 U*	0.200 U	--	*10.0 U*	*5.00 U*	--	--
DP-6(041218)	04/12/18	20-30	--	44.3	226	--	*2.00 U*	10.0 U	--	9.78	0.200 U	--	*10.0 U*	*5.00 U*	--	--
DP-7(041318)	04/13/18	20-30	--	*10.0 U*	170	--	*2.00 U*	10.0 U	--	*5.00 U*	0.200 U	--	*10.0 U*	*5.00 U*	--	--
DP-9(041318)	04/13/18	20-30	--	*10.0 U*	108	--	*2.00 U*	10.0 U	--	*5.00 U*	0.200 U	--	*10.0 U*	*5.00 U*	--	--
DP-18(121018)	12/10/18	25-35	0.500 U	0.844 J	--	0.100 U	*0.100 U*	3.75	0.858 J	0.100 U	0.0400 U	2.50	0.500 U	0.100 U	0.100 U	2.00 U
DP-19(121018)	12/10/18	25-35	0.500 U	13.4	--	0.100 U	*0.100 U*	0.500 U	0.500 U	0.100 U	0.0400 U	2.37	0.500 U	0.100 U	0.100 U	2.00 U
DP-19(121018)-DUP	12/10/18	25-35	0.500 U	13.8	--	0.100 U	*0.100 U*	0.500 U	0.500 U	0.100 U	0.0400 U	2.30	0.500 U	0.100 U	0.100 U	2.00 U
DP-20(121018)	12/10/18	25-35	0.500 U	2.87	--	0.100 U	*0.100 U*	0.500 U	0.500 U	0.100 U	0.0400 U	2.09	0.500 U	0.100 U	0.100 U	2.00 U
EPA Portland Harbor CULs[1]			NE	0.018	NE	NE	0.091	11	2.74	0.54	NE	NE	NE	NE	NE	36.5
DEQ JSCS SLVs[2]			6	0.045	NE	NE	0.094	100	2.7	0.54	0.77	16	5	0.12	NE	36

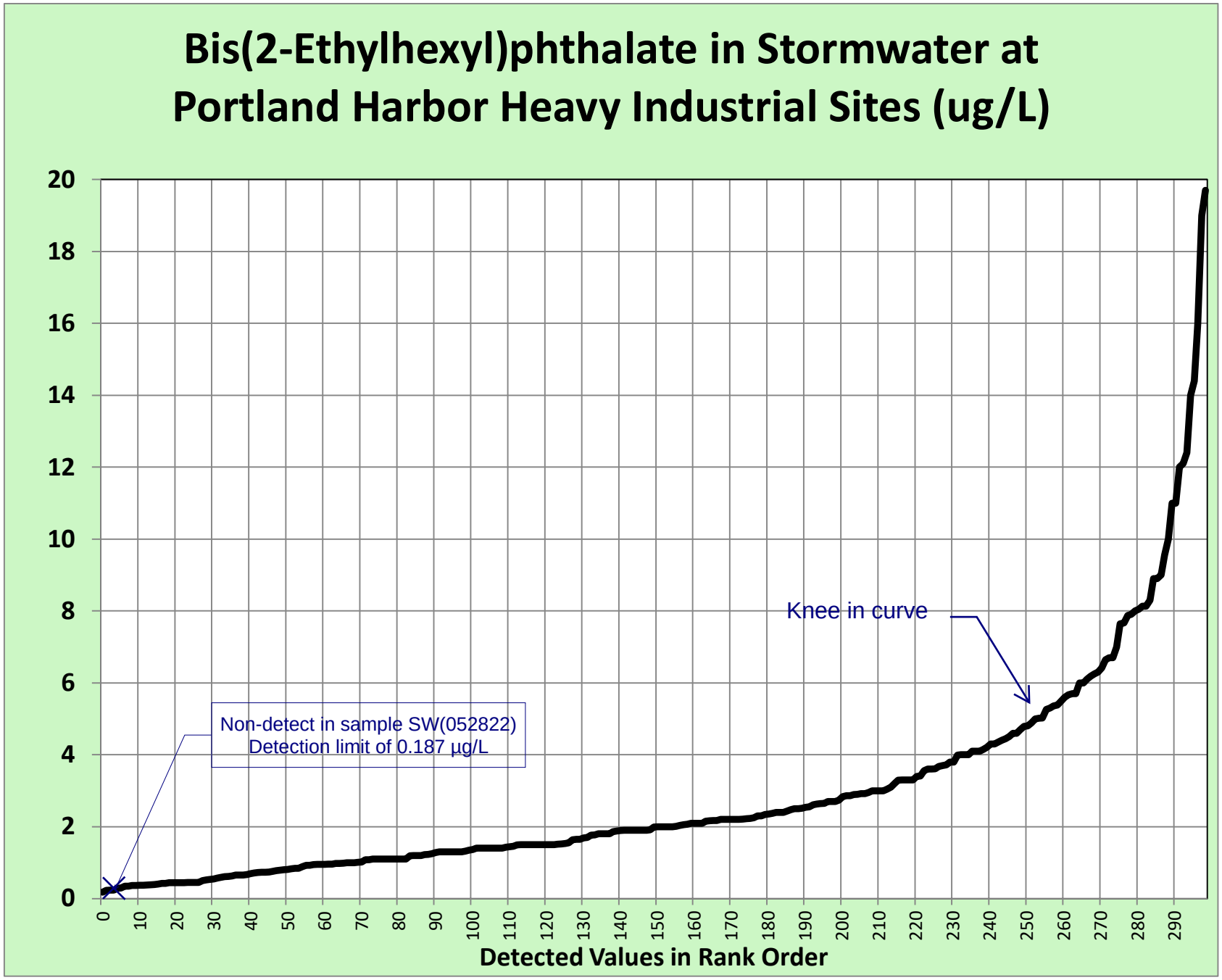
Notes:
1. EPA *Record of Decision Portland Harbor Superfund Site Portland, Oregon*, dated January 2017; Table 17 Groundwater CULs
2. DEQ *Portland Harbor Joint Source Control Strategy* dated December 2005; Table 3.1 Initial Upland Groundwater Evaluation SLVs
J: Estimated result. Result detected below the lowest point of the calibration curve, but above the specified MDL.
U: Not detected. Reporting or detection limit shown.
Bolding indicates analyte detection.
Orange shading indicates analyte detection at a concentration greater than the EPA Portland Harbor CUL. If the CUL has not been established, the value is compared to the DEQ JSCS SLV if available.
Italics indicates reporting limit is greater than the EPA Portland Harbor CULs and/or DEQ JSCS SLVs
--: not analyzed

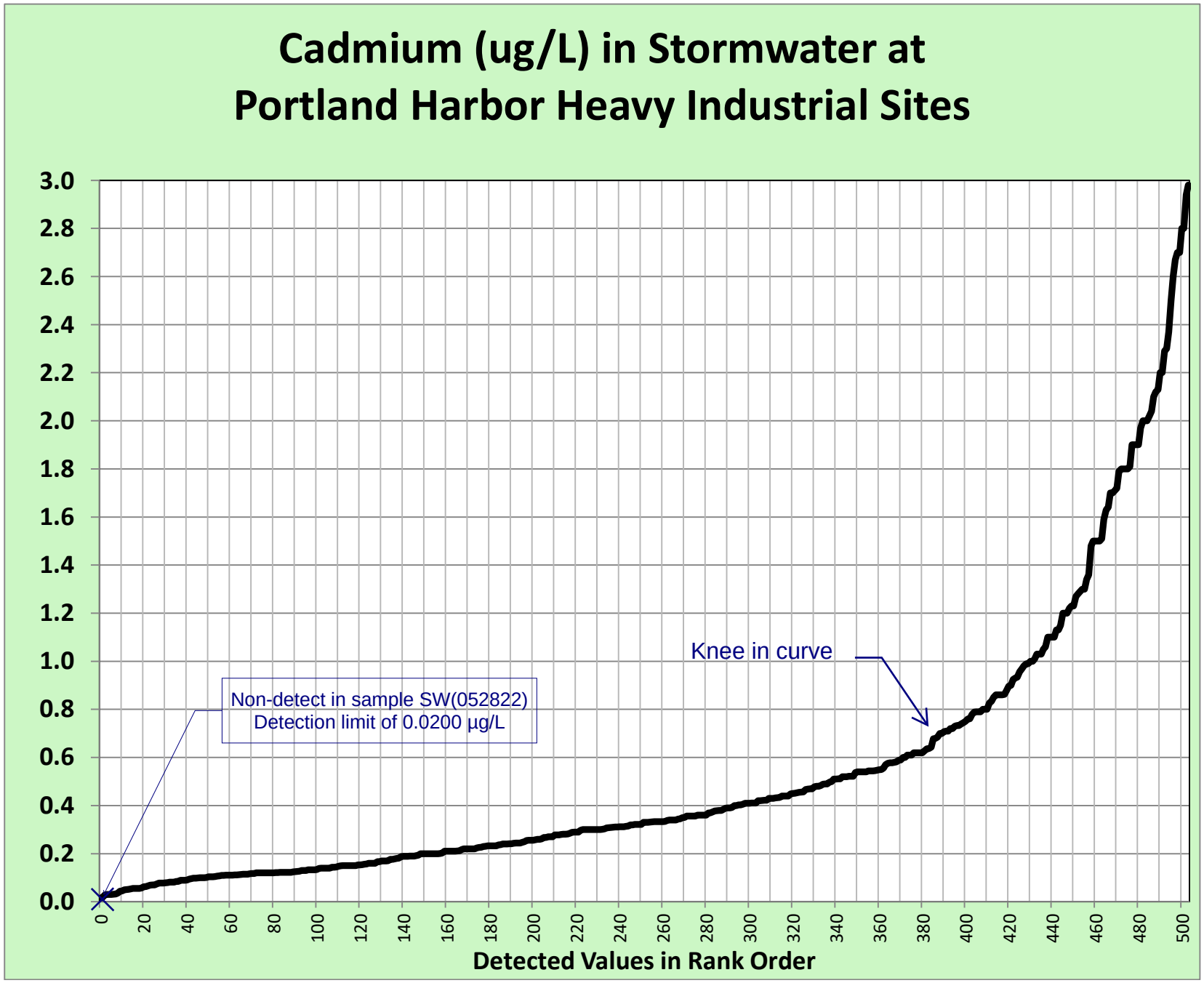
TABLE 14
Summary of Groundwater Parameters in Temporary Well Samples
2100 N Albina Development
2100 N Albina Avenue
Portland, Oregon

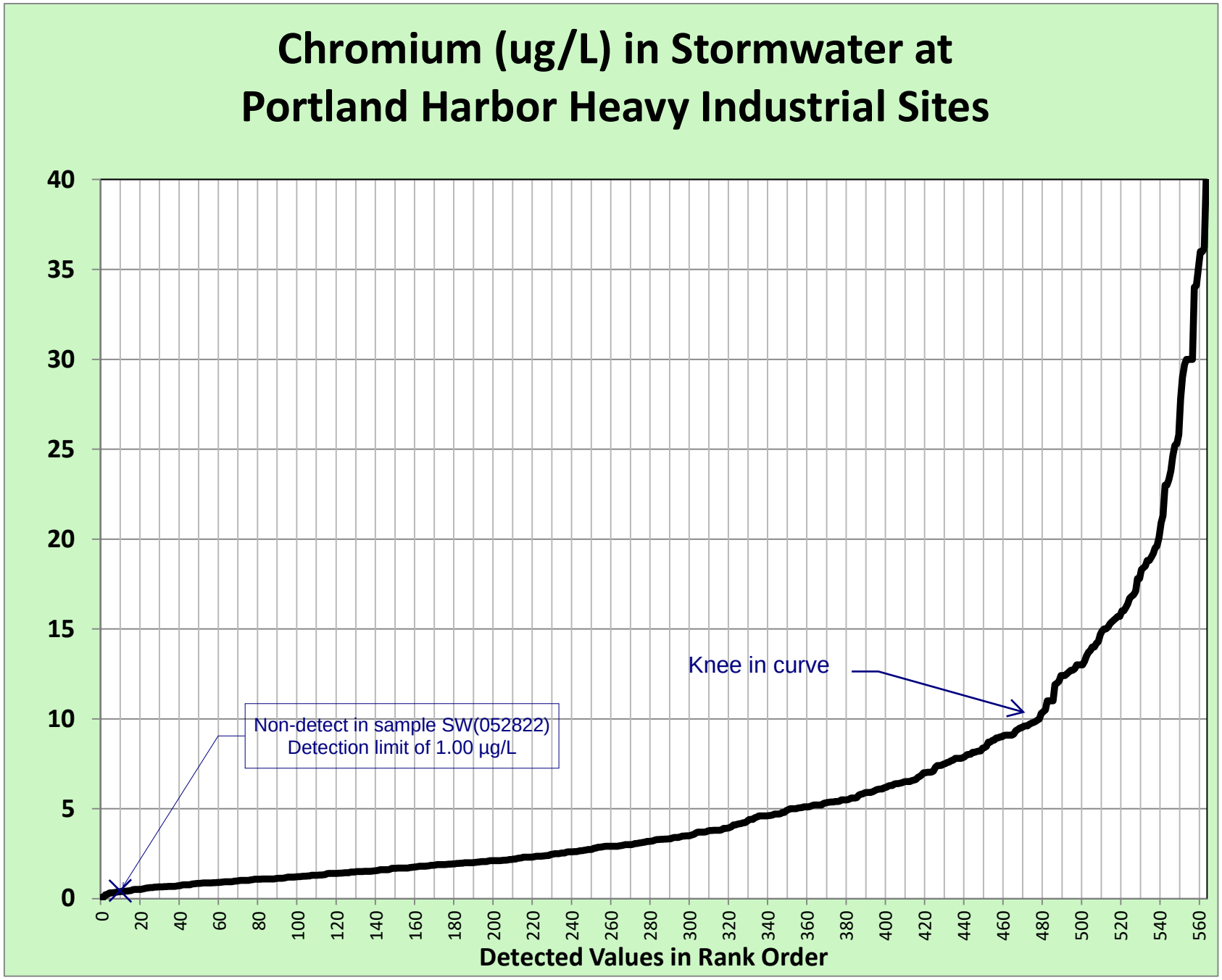
Sample I.D.	Sample Date	Sample Time	Temperature (degrees Fahrenheit)	Dissolved Oxygen (mg/L)	pH	ORP (mV)	Specific Conductivity (µS/cm)	Turbidity (NTU)	Total Purged (gallons)
DP-18	12/10/18	12:20	14.20	2.33	5.36	52.5	0.424	1,010	10.5
		12:30	14.20	2.30	5.40	47.6	0.421	980.2	
		12:40	14.25	2.30	5.43	45.8	0.421	903.8	
DP-19		14:50	14.46	0.51	6.06	-0.6	0.485	*143.2*	8.5
		14:55	14.40	0.50	6.08	-3.4	0.485	*258.1*	
		15:00	14.40	0.48	6.08	-5.8	0.485	*157.5*	
DP-20		15:45	14.04	0.78	6.23	-48.4	0.750	*141.2*	8
		16:05	13.98	0.57	6.26	-54.4	0.745	*139.8*	
		16:15	13.99	0.54	6.29	-53.1	0.744	*115.1*	

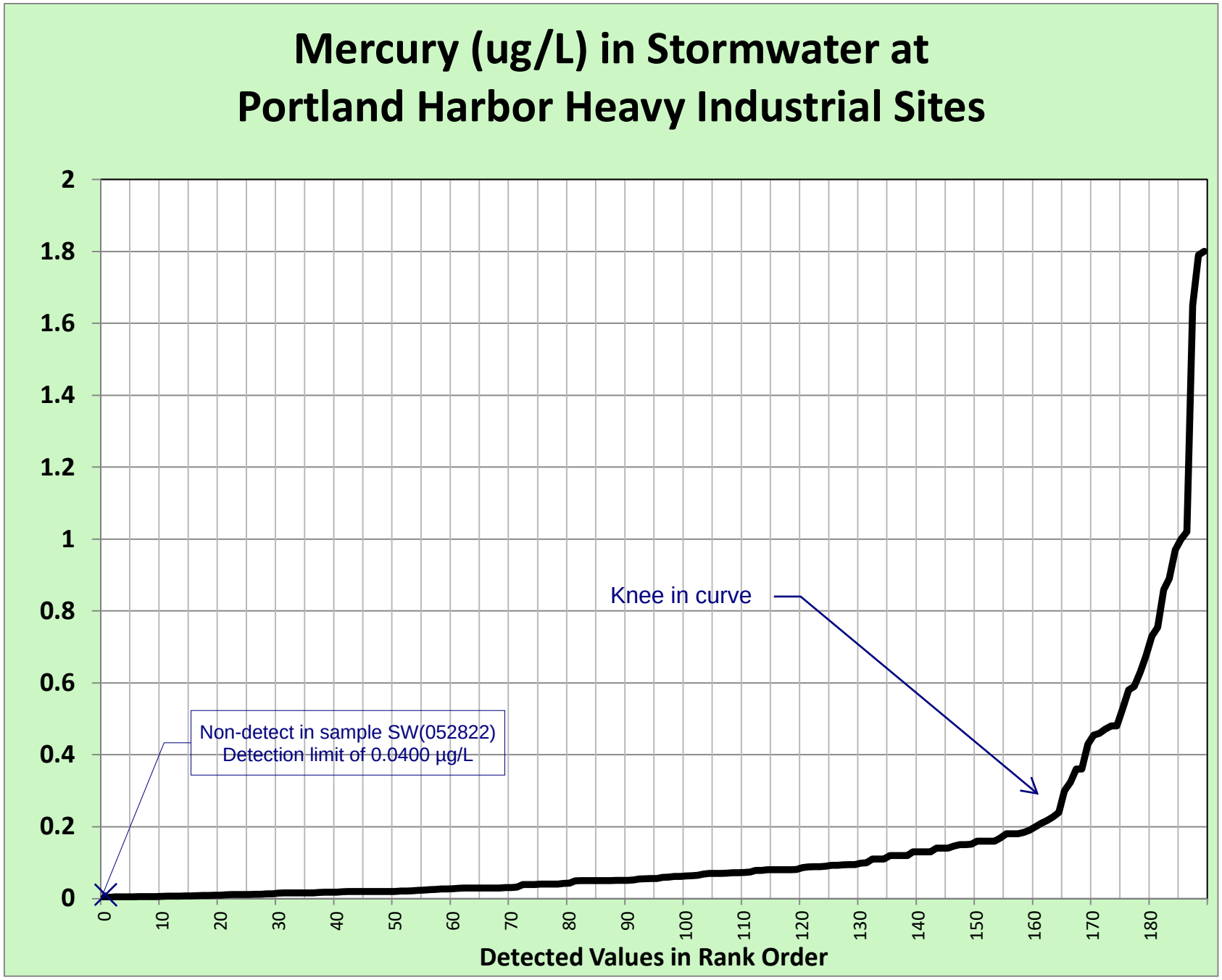
Attachment 1


Arsenic (ug/L) in Stormwater at
Portland Harbor Heavy Industrial Sites
10
9
8
7
6
5
4
3
2
1
0
Knee in curve
Detected concentration of 0.156
µg/L in sample SW(052822)
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
360
380
400
420
440
Detected Values in Rank Order

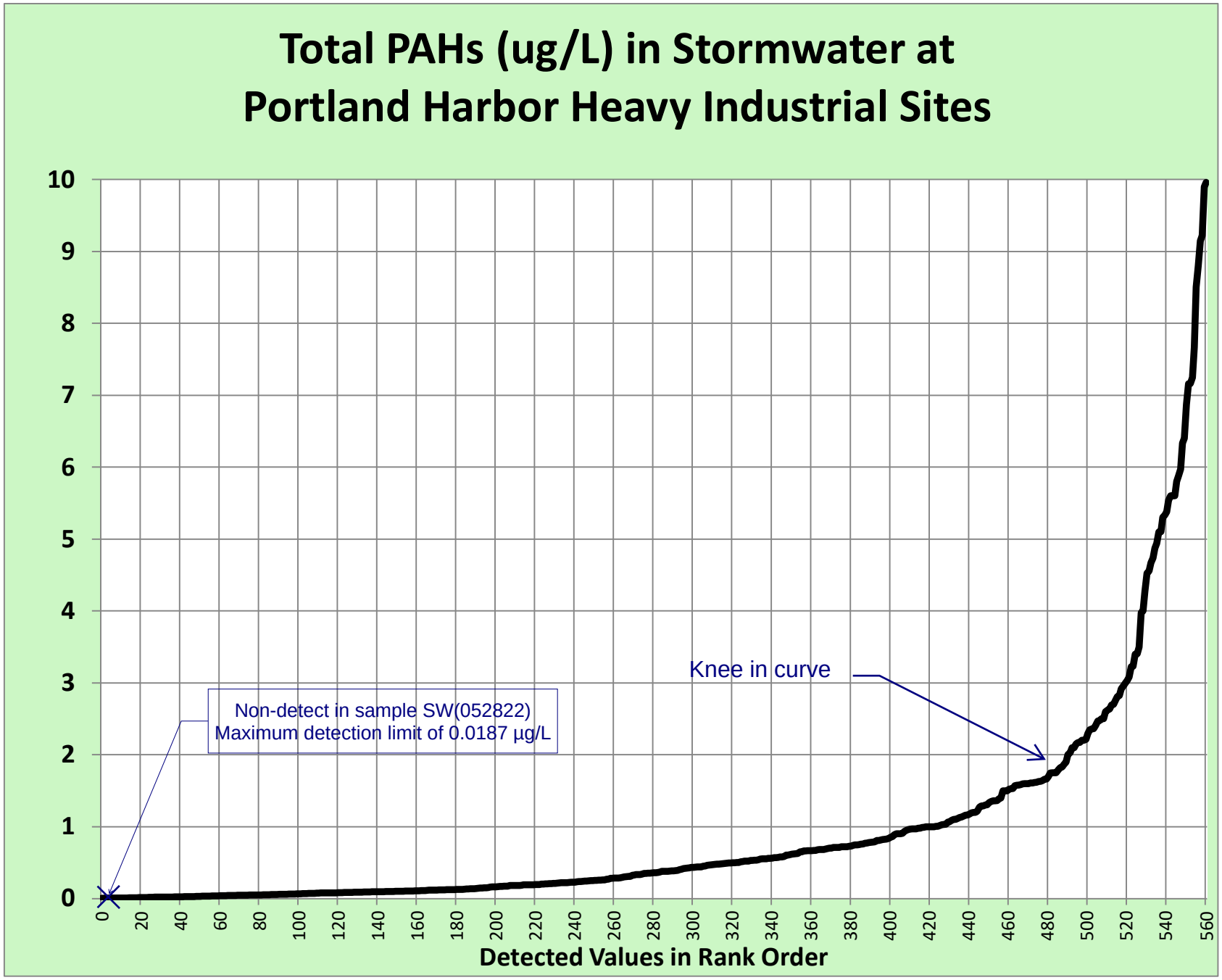

Bis(2-Ethylhexyl)phthalate in Stormwater at Portland Harbor Heavy Industrial Sites (ug/L)
20
18
16
14
12
10
8
6
4
2
0
Knee in curve
Non-detect in sample SW(052822)
Detection limit of 0.187 µg/L
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
180
190
200
210
220
230
240
250
260
270
280
290
Detected Values in Rank Order


Cadmium (ug/L) in Stormwater at
Portland Harbor Heavy Industrial Sites
3.0
2.8
2.6
2.4
2.2
2.0
1.8
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
360
380
400
420
440
460
480
500
Detected Values in Rank Order
Knee in curve
Non-detect in sample SW(052822)
Detection limit of 0.0200 µg/L

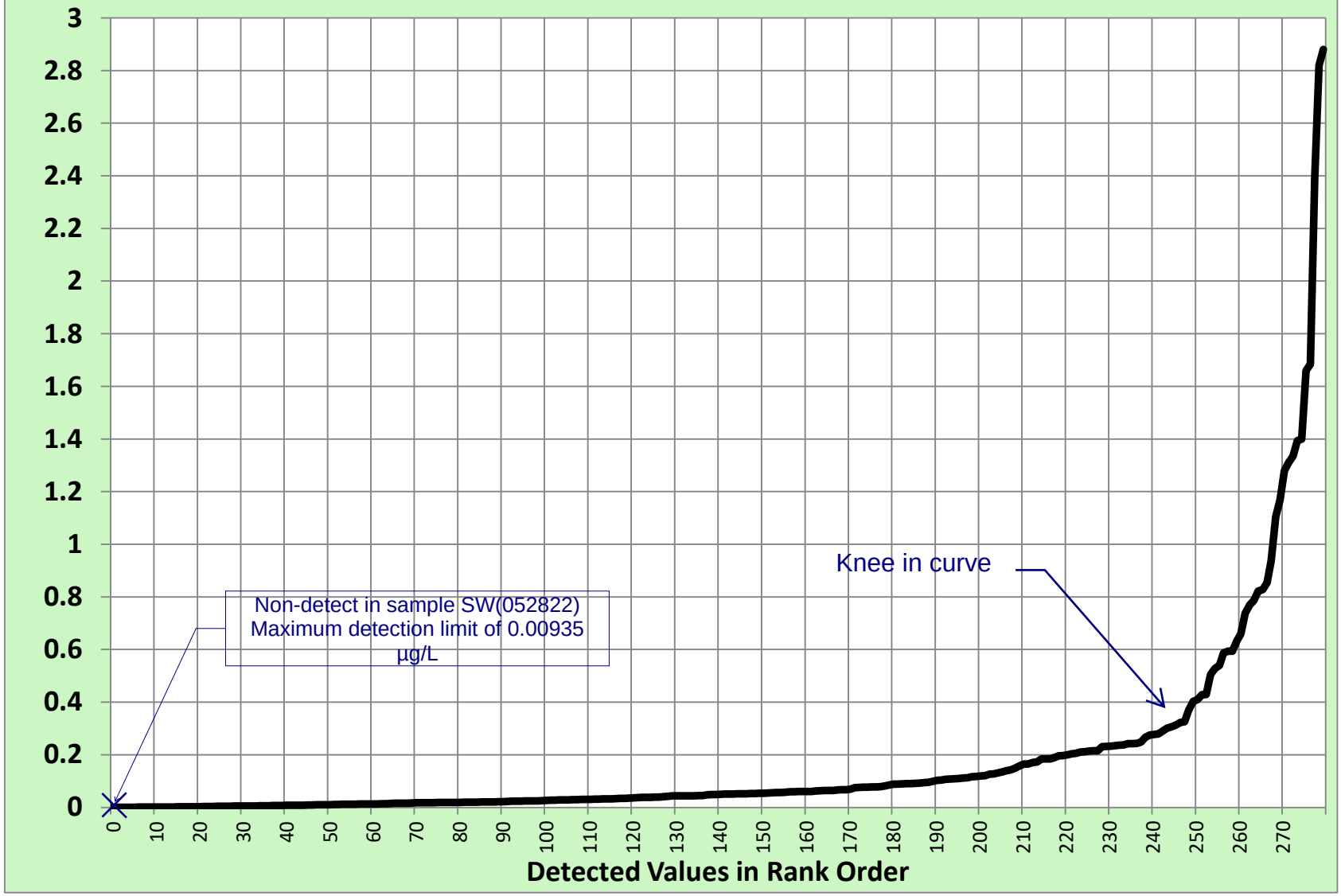

Chromium (ug/L) in Stormwater at
Portland Harbor Heavy Industrial Sites
40
35
30
25
20
15
10
5
0
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
360
380
400
420
440
460
480
500
520
540
560
Detected Values in Rank Order
Knee in curve
Non-detect in sample SW(052822)
Detection limit of 1.00 µg/L

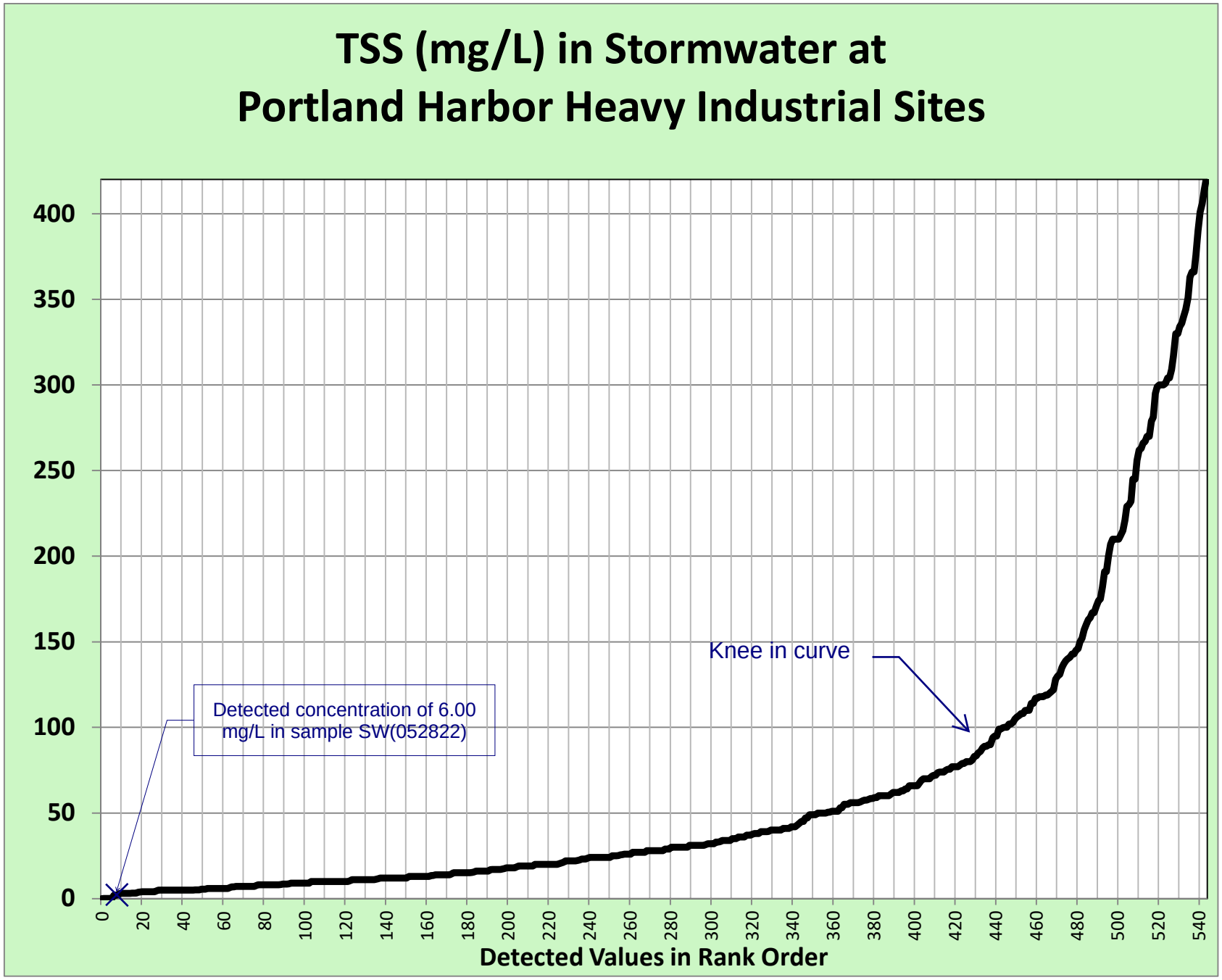

Mercury (ug/L) in Stormwater at
Portland Harbor Heavy Industrial Sites
2
1.8
1.6
1.4
1.2
1
0.8
0.6
0.4
0.2
0
Knee in curve
Non-detect in sample SW(052822)
Detection limit of 0.0400 µg/L
0
10
20
30
40
50
60
70
80
90
100
110
120
130
140
150
160
170
180
Detected Values in Rank Order

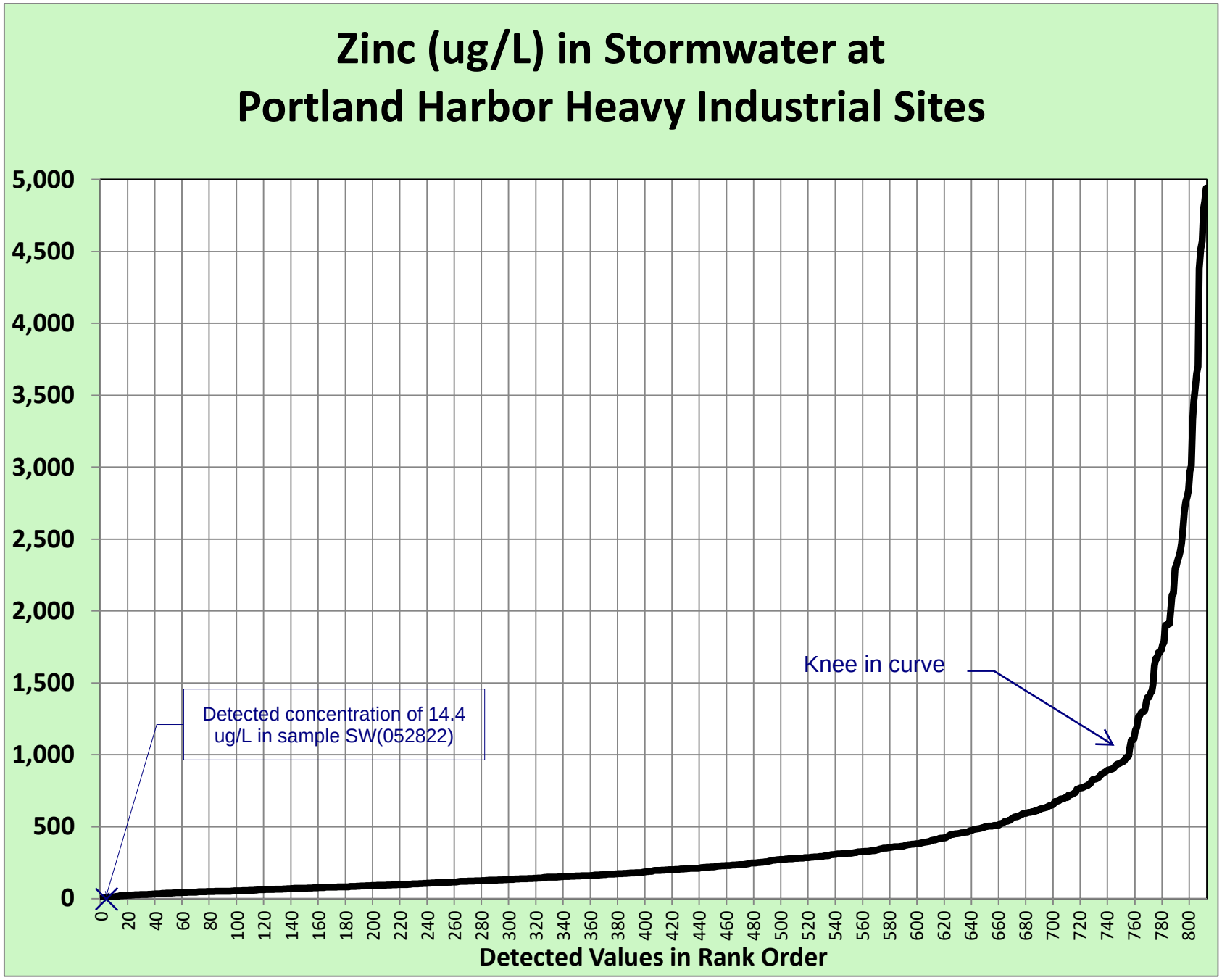
Total PAHs (ug/L) in Stormwater at Portland Harbor Heavy Industrial Sites



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




TSS (mg/L) in Stormwater at
Portland Harbor Heavy Industrial Sites
400
350
300
250
200
150
100
50
0
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
360
380
400
420
440
460
480
500
520
540
Detected Values in Rank Order
Knee in curve
Detected concentration of 6.00 mg/L in sample SW(052822)


Zinc (ug/L) in Stormwater at
Portland Harbor Heavy Industrial Sites
5,000
4,500
4,000
3,500
3,000
2,500
2,000
1,500
1,000
500
0
Detected concentration of 14.4 ug/L in sample SW(052822)
Knee in curve
0
20
40
60
80
100
120
140
160
180
200
220
240
260
280
300
320
340
360
380
400
420
440
460
480
500
520
540
560
580
600
620
640
660
680
700
720
740
760
780
800
Detected Values in Rank Order