**State of Oregon**

**Department of Environmental Quality Memorandum**

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**Date: July 14, 2025**

**To: Laura Hanna, US EPA**

**Through: Amanda Wozab, DEQ Cleanup Section Manager**

**From: Jim Orr, Cleanup Project Manager**

**Subject: Proposed Source Control Decision**

**Northwest Pipe Company**

**ECSI #0138**

1. **Introduction**

This memorandum presents the basis for the Oregon Department of Environmental Quality (DEQ) source control decision for the Northwest Pipe Company site, located at 12005 North Burgard Road in Portland, Oregon. Northwest Pipe Company conducted a Source Control Evaluation (SCE) for the site in accordance with the 2005 *EPA/DEQ Portland Harbor Joint Source Control Strategy,* also known as the JSCS, under a 2004 Voluntary Agreement for Remedial Investigation and Source Control Evaluation (DEQ agreement LQDVC-NWR-0401).

DEQ concludes from review of *Source Control Evaluation in Support of No Further Action Source Control Decision, Revised* (2021, Jacobs) (2021 Revised SCE Report) and other supporting documents, that source control measures for the stormwater pathway have adequality controlled the pathway and will be managed via the site’s Water Quality 1200z NPDES permit going forward. The groundwater pathway does not pose a current risk of recontamination above RAL, or impediment of Portland Harbor ROD RAOs, and the potential future risk to RAO achievement is being addressed through implementation of a DEQ approved Monitored Natural Attenuation evaluation.

1. **Site Description and History**

**2.1 Site Description**

The Northwest Pipe Company Site, at 12005 North Burgard Road, in Portland, Oregon (Figure 2-1 2021 SCE Report included in Attachments), is located at river mile 3.9 east and is situated upland between the International Slip and the Port of Portland Terminal 4 Slip 1. The site is 29.15 acres, flat and inland from the Willamette River.

**2.2 Site History and Use**

Industrial operations at the site began in 1941 with steel fabrication associated with the manufacture of ships as part of the Kaiser Shipyard. After WWII, a portion of the site was used as a grain warehouse. Between 1950 and 1982, Bealle Pipe and Tank Company manufactured steel pipe and tanker trucks and conducted tanker repair and cleaning. NW Pipe has manufactured steel pipe at the site from 1982 to the present.

**2.3 Potential Sources of Contamination**

Identified sources of potential contamination are associated with the past and current heavy industrial use as part of a World War II shipyard and steel water transmission pipe manufacturing facility. Section 3.1 of the 2021 Revised SCE Report presents a detailed summary of potential sources of contamination.

**2.3 Chemicals of Interest**

Chemicals of interest were evaluated and presented in Section 3.3 of the SCE Report. COIs associated with the site and adjacent sediment include aluminum, antimony, arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, zinc, PAHs, PCBs, tributyl tin, phenol, phthalates, organochlorine pesticides, and dioxin/furans.

**2.4 Potentially Complete Pathways**

Potential contaminant transport pathways evaluated include releases during overwater activities, stormwater, riverbank erosion, 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.

**Stormwater**—Site stormwater leaves the site via two lines, which discharge to a communal stormwater line that discharges into the southern end of the international slip at Outfall 18/WR-124. 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 by the site may discharge to the Willamette River, which is downgradient of the site. This pathway was carried forward for further evaluation.

1. **Regulatory History**

In 2000, the Oregon Department of Environmental Quality requested that Northwest Pipe Company prepare an expanded preliminary assessment as part of DEQ’s efforts to identify potential sources of contamination to the Willamette River in conjunction with the Portland Harbor Superfund process. In 2004, Northwest Pipe Company and DEQ executed a Voluntary Agreement for Remedial Investigation and Source Control Evaluation (DEQ agreement LQDVC-NWR-04-01).

In compliance with the Agreement and consistent with the 2005 Portland Harbor Joint Source Control Strategy, Northwest Pipe Company provided a revised source control evaluation report in December 2021. This report documents the environmental investigations conducted to date at the site, the interim remedial and source control measures conducted, and evaluates the need for additional source control measures to prevent the recontamination of the pending EPA in-water sediment cleanup or to impede the Portland Harbor remedial action objectives.

**3.4 Stormwater Permit**

The Site’s stormwater discharge is authorized by DEQ under a general National Pollutant discharge Elimination System (NPDES) permit, re-issued in 2023. Currently, the Site’s stormwater discharge system operates under NPDES monitoring waivers, which removed the requirement to conduct compliance sampling. The sampling waver will need to be renewed when the is renewed, which occurs every five years.

**3.5 Hazardous Waste**

The site is a hazardous waste generator (RCRA ID: ORDO14307755).

1. **Hazardous Substance Releases**

A detailed summary of potential sources of contamination and investigations is presented in Sections 2 and 3 of the 2021 Revised SCE Report.

**4.1 Site investigations**

The site characterization and remediation/source control work conducted by Northwest Pipe company between 2001 and 2006 focused primarily on 8 of 14 areas of potential interest identified in a 1989 Phase 1 and Phase 2 Environmental Assessment (Dames & Moore 1989). Subsequent investigations were collected to address data gaps identified during the remedial investigation and source control evaluations which included the collection of groundwater, surface soil, subsurface soil, catch basin solids and stormwater samples.

Numerous investigations and evaluations have been implemented as part of the source control evaluation. The 2021 Revised SCE Report and supporting documents present a through summary of these. The most significant of which include the follow:

* *Remedial Investigation and Source Control Evaluation-Final*, March 2015
* *Source Control Evaluation Report in Support of No Further Action Source Control Decision-Revised,* December 2021
* *Remedial Investigation in Support of Site-wide No Further Action Determination-Revised*, December 2021
* *Passive Soil Gas Investigation Results and Proposed Well Locations*. August 2021
* *Monitored Natural Attenuation Evaluation Work Plan-Final*, April 2022
* *Dioxin/Furan Stormwater Sampling Summary of Full Sampling Series*, December 2023
* *2024 Annual Groundwater Monitoring Report*, August 22, 2024.

**4.2 Known Releases**

Two areas were identified during site investigations to have impacted the groundwater. An area of soil staining was observed during hot spot removal in the area north of the Lining and Coating Buildings. An investigation was completed to assess the nature and extent of the stained soil. Three monitoring wells were installed in the area, and PAH contamination was identified in the groundwater. Second, a release of tetrachloroethane has resulted in an area of elevated VOC concentrations observed in the shallow groundwater at the Southeast Area of the site.

**4.3 Removal Actions.**

Interim removal actions consisting of soil removal and capping to address elevated levels of PAHs were completed in 2011 to 2012. Removal and capping occurred in two areas: 1) in a narrow strip of soil north of the Lining and Coating Building, and 2) in soil that had sloughed onto the pavement on the leased portion of the Site from off-site.

**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. 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 is not a complete pathway. DEQ determined that 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. Natural attentiation performance monitoring and other source control measures were implemented and to date support 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 2021 Revised SCE Report, an 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)
* Metals (arsenic, cadmium, chromium, copper, lead, mercury, silver, and zinc)
* PAHs
* PCBs
* Dioxin/Furans
* 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. EPA and Partners concurred that the COIs were appropriate for the SCE.

**5.1.2 Stormwater Configuration**

The site stormwater system consists of roof downspouts and catch basins that drain into a network of stormwater conveyance lines, which in turn flow to the north/northeast before being treated and leaving the site via two discharge lines. These two lines discharge into single communal stormwater line that discharges into the southern end of the head of the International Slip at Outfall 18/WR-123 The site stormwater systems is presented in Figure 2-4 of the 2021 SCE Report (included in Attachments).

**5.1.3 Stormwater Source Control Measures**

A description of significant source control measures and performance monitoring implemented at the Site are included in Sections 4.1 and 6 of the 2021 Revised SCE Report. A complete list of stormwater improvements dating back to 1985 is presented in Table 4-1 of the 2021 Revised SCE Report (included in Attachments). Key source control measures implemented after 2009 include the following.:

* Main production building roof cleaning and coating in 2009
* Stormwater catch basins and conveyance system improvement from 2011 to 2015.
* Site grading, capping and repaving in 2011.
* Installation of two Aquip system by Stormwater Rx industrial stormwater filtration treatment system 2011.

**5.1.4 Best Management Practices**

Source control Best Management Practices identified in the 2021 Revised SCE Report intended to provide ongoing stormwater source control measures include the following:

* Routine inspection and replacement of catch basin filters.
* Weekly road sweeping
* Jet cleaning of stormwater lines as needed
* Implementing of Site’s Stormwater Pollution Control Plan (SWPCP).
  + Spill response kits stationed throughout the plant
  + Plant personnel annual training on environmental awareness
  + Monthly inspection of storm drain catch basin filters, fuel tanks, forklifts, covered dumpsters, and general plant cleanliness

**5.1.5 Stormwater Sample Evaluation**

Stormwater data collected from 2003 to 2007 detected exceedances of Portland Harbor ROD cleanup levels and JSCS screening level values for metals (aluminum, copper, lead, manganese, and zinc), polycyclic aromatic hydrocarbons and polychlorinated biphenyls. As a result, Northwest Pipe Company implemented a series of investigations and source control measures designed to remove, control and treat contaminants stormwater-related contaminants as discussed above.

Section 7.1 of the 2021 Revised SCE Report presents and evaluates the post-SCM data. This data is presented in Tables 7-1 and 7-3 of the 2021 Revised SCE Report (included in Attachments) Additionally, a supplemental investigation to evaluate the potential presents of dioxin/furans in treated stormwater was conducted in 2023. *Dioxin/Furan Stormwater Sampling Summary of Full Sampling Series* (Jacobs, 2023) presents and evaluates dioxin/furan results collected to address this data gap. Results were presented in Table 2 of this memo (included in Attachments) and show dioxins/furans detections are low and generally below detection limits for congeners with Portland Harbor remedial action levels (RALs).

Post source control measure implementation monitoring and NPDES 1200Z monitoring indicates that contaminants previously elevated have been substantially reduces and now are either now below detection limits or at or below the knee of the stormwater curves developed by DEQ.

**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 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.

1. 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.

1. 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.
2. 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.
3. 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.

1. 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.
2. 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**

Groundwater is encountered between xxx and xxx feet below ground surface. A groundwater divide occurs in the central part of the Site causing shallow groundwater to migrate offsite to the northwest and southwest toward the International Slip and Terminal 4 Slip 1, respectively.

The two areas identified during site investigations to have impacted groundwater were evaluated. In the area of soil staining north of the Lining and Coating Buildings an investigation was completed to assess the nature and extent of the stained soil. During implementation of the removal action in this area, workers discovered an area of stained soil approximately 1-foot below grade. Excavation continued until groundwater was encountered at a depth of 8 feet. Three monitoring wells were installed in the area and identified PAH contamination present in groundwater. Soil and groundwater sampling were conducted and a natural attenuation evaluation for PAHs in groundwater showed a predicted migration distance of 100 feet until PAHs attenuate below 0.001 milligram per liter (mg/L). Based on this evaluation DEQ concluded no additional action is needed to be protective of the river.

The plume of tetrachloroethylene and associated breakdown products has been characterized on the southeast area of the site and down gradient across the Port of Portland Terminal 4 site. COCs concentrations for benzene, tetrachloroethylene , cis-1,2-dichloroethene, and vinyl chloride exceed the groundwater ROD CULs in samples collected prior to 2016. Analytica results from groundwater monitoring wells downgradient of the release area on the adjacent Port of Portland property are presented in Table 5-7 of the 2021 Revised SCE Report (included in Attachments) and well locations are shown on Figure 5-10 (included in Attachments). The highest concentrations detected in monitoring well T4S1MW-03S (monitoring well located closest to Terminal 4 Slip 1) were observed in 2004 and 2005 with a maximum exceedances factors of their respective ROD groundwater CULs of 1.3x (1,2-DCE), 58x (PCE), 9x (TCE) and 249x.(vinyl chloride) Detected concentrations of these COCs has been below CULs and mostly below detection limits in the monitoring completed from 2016 to 2019.

However, to address uncertainty regarding the stability of the plume and the potential for preferential plume transport along the former Gatton Creek (Jim please confirm the name is correct) alignment. Rather than propose a no action Portland Harbor Source Control Decision for the groundwater pathway, DEQ has approved implementation of a Monitored Natural Attention (MNA) analysis to confirm that existing natural attenuation conditions are sufficient to prevent VOC discharge to surface water above cleanup levels and that preferential VOC transport is not occurring along the former Gatton Creek alignment. The 2022 *Monitored Natural Attenuation Evaluation Work Plan* (Jacobs, 2022) was provided to EPA and Partners for review and input, and implemented starting in 2023. In the event that monitoring indicates the VOC plume is not stable or a preferentially migration pathway is present, DEQ will evaluate more active source control options.

**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:

* Robust source control measures have been implemented such that stormwater does not appear to pose a current or reasonably likely future unacceptable risk to the Willamette River, provided that effective stormwater control measures remain in place and are routinely maintained, monitored and improved as required by the 1200Z permit, including the implementation of Stormwater Pollution Control Plan, the required Narrative Technology Based Effluent Limits and the implementation of Corrective Actions, as required.
* The groundwater transport pathway, while potentially complete, does not currently contribute contaminants at concentrations above Portland Harbor Cleanup Levels. DEQ has approved implementation of a Monitored Natural Attention (MNA) analysis to confirm that existing natural attenuation conditions are sufficient to prevent VOC discharge to surface water above cleanup levels. If the ongoing MNA evaluation determinates a potential future threat, then more active source control measures for the groundwater pathway may be required. DEQ will make a final determination upon receipt of the MNA report.

In summary, DEQ concludes that legacy contamination at the site has been adequately characterized and removed or controlled to minimize the potential for contaminants to be released through stormwater or groundwater to the river. Residual contamination does not appear to present a threat to the Willamette River. This determination is predicated on successful implementation of the groundwater MNA plan and continued implementation of source control measures described in the facility's stormwater pollution control plan and on stormwater monitoring required by the NPDES 1200Z permit.

**7.0 References**

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**Tables and Figures**

**Attachment 1**