TECHNICAL MEMORANDUM

Northwest Pipe Company, Portland, Oregon
Site Prioritization Information Summary

PREPARED FOR: Keith Johnson/Oregon DEQ
Jim Orr/Oregon DEQ

COPY TO: Stephanie Heldt-Sheller/Northwest Pipe Company
Mike Merchant/Black Helterline, LLP

PREPARED BY: Claudia Powers/Ater Wynne LLP
Ken Shump/CH2M HILL

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Introduction

Objectives

This memorandum presents the rationale for reclassifying the Northwest Pipe Company (Northwest Pipe) site from a "medium priority" to a "low priority" under the Portland Harbor Joint Source Control Strategy (EPA and DEQ 2006)(JSCS) and for issuance of a No-Further-Action determination by the Oregon Department of Environmental Quality (DEQ). The reclassification is necessary because Northwest Pipe's site does not pose a threat of contamination or recontamination to the Willamette River, it clearly falls within the definition of a "low priority" site, and it has continually upgraded and implemented source control at its site, including a stormwater treatment system that was not required by DEQ. Source control to prevent contamination or recontamination of Willamette River sediment is complete.

Summary of Findings

The "overarching goal of the Portland Harbor Joint Source Control Strategy (JSCS) is to identify, evaluate, and control sources of contamination that may impact the Willamette River . . . so that cleanup of the river can proceed without risk of significant recontamination." (JSCS at 1-1). To achieve this goal, the objectives of the JSCS include, presenting the process to prioritize upland sources by the magnitude of the threat or the degree of impact they may have on the river or its recontamination after cleanup. High, medium and low priority sources are described in the principles and objectives of the JSCS.

The JSCS defines a "medium priority site" as one that exceeds a screening level value (SLV) at the point of discharge to the Willamette River. (JSCS at iii.). Further, "[M]edium priority source control sites are those facilities where DEQ determines that a complete contaminant migration pathway exists and the upland source is impacting the river or poses a significant and/or imminent threat to the river based on an initial evaluation of the factors listed at the beginning of Section 4.4." (JSCS at 4-5). Medium priority sites undergo a weight-of-evidence evaluation supplemented by in-water data during the process. (JSCS at iii.). A "low-priority site" will typically be defined as not exceeding an appropriate SLV at the point of discharge to the Willamette River, and no further source control efforts will be required at the time the priority is determined. (*Id*.). Both medium and low priority sites assume there is a point of discharge, or a complete pathway, to the Willamette River. DEQ currently prioritizes the Northwest Pipe site as a medium priority.

The source control prioritization process is described in Section 4.4 of the JSCS. Medium priority source control sites are those where there is a known or a potentially complete pathway to the river and one or more media exceed applicable SLVs. Low priority sites are those where there is no current or reasonably likely complete contaminant pathway to the river where upland data indicate no contaminant source or

concentrations of contaminants are near or below SLVs. DEQ may issue an upland "No Further Action" (NFA) determination or lower the State's priority for further upland investigation or remedial action under DEQ's cleanup authority. (JSCS at 4-5 through 4-6).

The only potentially complete pathway for contaminant migration from the Northwest Pipe site is stormwater that discharges to the end of the International Terminals (IT) Slip which is a third of a mile away from the main stem of the Willamette River. For reasons explained in more detail later in this memorandum, discharges from Northwest Pipe's permitted stormwater system do not impact Willamette River sediment because those sediments do not leave the slip.

Northwest Pipe has worked with and under DEQ supervision since the late 1980s to investigate its Portland facility and address identified areas of environmental concern. Focused soil removal has occurred over time where indicated, culminating in an interim remedial action (capping the remaining exposed soil with asphalt pavement) that constitutes a major element of the final remedy for the site (DEQ 2010b).

In parallel with this history of site investigations and focused actions, Northwest Pipe has implemented a broad range of source control measures to address potential sources of contamination to storm water, including the installation of two state-of-the art storm water treatment systems; one on each of the two conveyance lines carrying storm water from the site to a communal outfall in the IT Slip. The outfall (referred to as Outfall 18 or WR-123) discharges storm water from an industrialized drainage basin of approximately 110 acres. However, Northwest Pipe controls, through ownership or lease, only 26 percent of the total drainage basin discharging through Outfall 18/WR-123.

Storm water source control monitoring data indicate that Northwest Pipe has been in material compliance with its NPDES Stormwater Permit and, in general, constituent concentrations in storm water leaving the site currently are within, or below, the range of concentrations typically observed in industrial storm water, as published by DEQ (2010a). Moreover, storm water quality for PAHs, PCBs, and zinc have shown substantial improvement as demonstrated by the following comparisons of storm water quality in 2007 versus storm water quality in 2012/2013:

- PAHs: broad decreases among PAH constituents with an average decrease in PAH concentrations of 65 percent
- PCBs: elimination of any PCB Aroclors above reporting limits
- Zinc: a decrease in roof runoff concentrations of greater than 90 percent, and a decrease in overall site runoff of 79 percent

In addition to these observations, other constituents that are drivers for potential cleanup in the harbor (such as dioxins and furans, for example) are not chemicals of concern for the Northwest Pipe site.

Sediment characterization in the IT Slip near the Outfall 18/WR-123 shows that the closed, east end of the slip where the outfall is located is characterized by sediment deposition and very low potential for erosion even during flood events. An analysis of sediment chemistry, sediment stability, and erosion potential completed by CH2M HILL (2010) reached the following conclusions:

- The east end of the slip has quiescent water and stable sedimentation except in areas subjected to maintenance dredging
- Using multiple lines of evidence, the long-term average sedimentation rate in the east end of the slip since its construction was determined to be approximately 1.1 inches per year
- The nature and spatial distribution of recalcitrant constituents in sediment (high molecular weight PAHs and PCBs) indicate that sediment potentially affected by storm water discharges from Outfall 18/WR-123 is localized in an approximate 1.2-acre area of the slip around Outfall 18/WR-123

- By contrast, the PAHs and PCBs in the central and western portion of the slip, and in the main stem of the Willamette River, exhibited patterns distinct from sediment around Outfall 18/WR-123, indicating different sources for the different areas
- Sediment containing PAHs and PCBs that appear to be associated with Outfall 18/WR-123 is stable and is located, at its closest, over one-third mile from the Willamette River main stem. The length, configuration, orientation and hydrodynamic features of the IT slip effectively isolate sediment in the eastern portion of the slip from the main stem of the Willamette River.

The key factors DEQ should consider to determine source control prioritization for the Northwest Pipe site are as follows:

1. Groundwater at the site does not pose a threat to the Willamette River
2. The only potentially material contaminant pathway is storm water;
3. The only discharge point for storm water is the IT Slip;
4. Stormwater from the Northwest Pipe site has not and is not contaminating sediment in the main stem of the Willamette River;
5. No data indicate that SLVs are exceeded at the point of discharge to the river;
6. The interim remedial capping of the site has been completed, reducing potential stormwater concentrations even further; and
7. The implementation of numerous approved source control actions and installation of state-of-the-art storm water treatment for the facility are complete and provide additional assurance that sediment quality is protected.

Applying these key factors shows Northwest Pipe's site meets DEQ and EPA "overarching goal" – it is a site that poses no risk of significant recontamination to the Willamette River, previously, currently or after the Portland Harbor Superfund Site has been remediated. Northwest Pipe also meets the definition of a low priority site; i.e., a site where there is no current or reasonably likely complete contaminant pathway to the river where upland data indicate no contaminant source or concentrations of contaminants near or below SLVs. Therefore, based upon investigations supervised by DEQ since 2000 and the work summarized in this memorandum, Northwest Pipe respectfully requests that DEQ reduce the site's ranking from "medium" to "low" and issue a No Further Action determination for the site upon receipt in December 2013 of the revised Remedial Investigation/Source Control Report.

Background

Northwest Pipe manufactures steel pipe used for water transmission. Its site is located on 28.48 acres of industrial land in North Portland, Oregon. It is located within the initial study area of the Portland Harbor Superfund site, but its only connection to the river is via a privately-owned, communal storm water outfall. The property has no Willamette River frontage. The outfall, referred to as Outfall 18 or WR-123, is located near the eastern, closed end of a slip approximately 1,960 feet from the main stem of the Willamette River. Outfall 18/WR-123 is used by Northwest Pipe and several other industrial properties in the area to discharge storm water to a manmade privately-owned basin, known as the Schnitzer International Terminals Slip ("IT Slip"), which is located on the east Willamette River bank about 3.7 miles upstream of the Willamette's confluence with the Columbia River. The Northwest Pipe site constitutes only 26 percent of the total drainage basin of Outfall18/WR-123.

The Northwest Pipe site was undeveloped until about 1940 when, at the request of the United States government, the Oregon Shipbuilding Corporation constructed a WWII shipyard in the area, including the property that now constitutes the Northwest Pipe site. The IT Slip was constructed in 1940 as the Outfitting Bay for the shipyard, which eventually produced a total of 473 Liberty Ships, Victory Ships, and Attack Transports. Since the shipyard ceased operations at the end of WWII, the Northwest Pipe site has at times sat idle and has at times been used for industrial activities, most of which involved metal fabrication. Based on documentation and a historical aerial photograph review, the IT Slip was used to scrap ships at the end of WWII, after which it was used for log raft storage and, beginning in the late 1960s, it was again used for ship and barge scrapping as well as being used to facilitate shipments of scrap metal from the Schnitzer Steel Industries scrap yard adjacent to Northwest Pipe.

The IT Slip is a closed end harbor basin about 2,200 feet long and 300 feet wide. It contains quiescent water and has limited water exchange with the Willamette River because of its shape, length, and orientation relative to river flow. The Lower Willamette Group completed hydrodynamic sediment transport modeling for Portland Harbor, which confirmed that the sediment in the IT Slip experiences the lowest modeled bed shear (potential sediment erosional forces) found anywhere in the Harbor under both normal flow conditions as well as flood flow conditions (LWG 2009). The slip is a depositional environment rather than an erosional environment. Some sediment in the slip, including near Outfall 18/WR 123, exhibits concentrations of various hazardous constituents including polynuclear aromatic hydrocarbons ("PAHs"), polychlorinated biphenyls ("PCBs"), and metals such as zinc However, the length, configuration, orientation and hydrodynamic features of the IT slip effectively isolate sediment in the eastern portion of the slip from the main stem of the Willamette River.

Evaluation of Potential Pathways

Non-existent or Incomplete Pathways

The Northwest Pipe site has only one potentially complete pathway: storm water. Northwest Pipe's storm water does not discharge directly to the Willamette River; it discharges to the IT Slip, and as discussed in more detail in the next subsection, potential sources of contamination to storm water are controlled.

The Joint Source Control Strategy guidance and DEQ's periodic Milestone Reports for Upland Source Control list six contaminant migration pathways that DEQ considers when determining a site's potential to be a source of contamination to the Willamette River. Consistent with previous determinations, in the most recent Milestone Report for Upland Source Control (DEQ 2013), DEQ determined the following pathways are "not applicable" for the Northwest Pipe site, owing to the site's inland location with no shoreline frontage as well as no wastewater discharges to the river or material air pollution discharges:

- Overland Transport/Sheet Flow
- Bank Erosion

- Overwater activities
- Other, which includes factors such as permitted wastewater discharges and air pollution

With respect to Pathway Priority Level, DEQ (2013) determined the priority of these pathways for the Northwest Pipe site as "none."

The groundwater pathway has been the subject of investigations over the past decade to document the nature and both the horizontal and vertical extent of constituents; fate and transport modeling; and a human health and ecological risk assessment (CH2M HILL 2005, 2012a, and 2012b). The conclusion of this work has been that the identified, limited groundwater contamination at the site does not pose an unacceptable risk to human health or the environment. Accordingly, DEQ's pathway determination for groundwater in the most recent Milestone Report is that groundwater is "not believed to be a complete pathway" with an associated "low" pathway priority level.

Absence of Effect on the Willamette River – Storm Water Potential Pathway Evaluation

The only potential discharge from the Northwest Pipe Site to the Willamette River is via Outfall 18/WR-123, a communal outfall that discharges near the east end of the IT Slip, approximately 1,960 feet from the main stem of the Willamette River. Northwest Pipe constitutes approximately 26 percent of the outfall's drainage area. The sediment quality in the IT Slip near Outfall18/WR-123 has been studied by the Lower Willamette Group (2009) and by CH2M HILL (2009b and 2010). The results indicate that, while constituents, including PAHs and PCBs, are detected generally at most sample locations throughout the slip and in the Willamette River, PAHs and PCBs that are similar to Northwest Pipe soil and catch basin solids are limited to a small area of approximately 1.2 acres in the immediate vicinity of Outfall 18/WR-123. By comparison, sediment further west within the slip and in the Willamette River outside the slip shows distinctly different signatures of PAHs and PCBs, consistent with the IT Slip serving as sediment deposition area with negligible water (and, in the eastern part of the slip, sediment) exchange with the Willamette River. The distribution of PAHs and PCBs in an area of sediment in the immediate vicinity of Outfall 18/WR-123 is clearly dissimilar from PCBs in the main stem river sediment or elsewhere in the IT Slip. The sediment in the immediate vicinity of Outfall 18/WR-123 is:

- In a stable, non-erosional area of the IT Slip
- Small (occupying only about 1.2 acres);
- Extends toward the river only about 175 feet to the west from Outfall 18/WR-123; and
- At its closest, is approximately 1,785 feet (over one-third mile) away from the main stem of the Willamette River

The Storm Water Potential Pathway Source Control Actions

After eliminating the first five pathways as incomplete, the remaining potential pathway to be considered for source control purposes is storm water. While this pathway is complete to the IT slip, potential sources (i.e., exposed soil, stored materials, and settled solids in the stormwater conveyance system) have been removed or controlled by a range of actions that have occurred over the past 15 years. Exhibit 1 summarizes 21 separate actions that have been undertaken to control potential sources to stormwater, ranging from straightforward operational improvements such as covering waste bins to major actions, such as installing a

state-of-the-art storm water treatment system as well as soil hot spot removal and constructing a pavement cap over the remaining 4 acres of exposed soil on the site.

These actions were complete or, in the case of ongoing activities such as storm water treatment, in operation as of the publication date of the 2013 Milestone Report by DEQ. Despite this, DEQ overlooked a change to the Pathway Priority ranking for storm water at the Northwest Pipe facility from "medium" to "low."

Northwest Pipe considers this to be a significant oversight, because the Joint Source Control Strategy guidance identifies a low priority source control site as a site that "likely poses a low threat to the river" or a site "where DEQ, in consultation with EPA, may issue an upland 'No Further Action' (NFA) determination or lower the State's priority of the site for further upland investigation or remedial action under DEQ's cleanup authority."

Section 9.0 of the 2013 Milestone Report, by contrast, describes a medium priority site as:

> *"Medium priority pathways and sites are those where a complete contaminant migration pathway exists and the upland source is impacting the river or poses a significant and/or imminent threat to the river based on an initial evaluation of key source control prioritization factors."*

The "Medium Priority" category is not consistent with conditions at the Northwest Pipe site, because the site is not affecting the river and presents no significant and/or imminent threat to the river. Moreover, Northwest Pipe already has completed a range of source control actions at the site (as noted in Exhibit 1) including those contemplated by DEQ in Section 4.1 of the 2013 Milestone Report. That section lists two general categories of actions that can be taken to control potential sources of contamination. The categories are listed in Exhibit 2, along with relevant actions completed at the Northwest Pipe site.

EXHIBIT 1

Key Actions Taken to Control Potential Sources to Storm Water

Northwest Pipe Company, Portland, Oregon

Storm Water Actions	Best Management Practices and Other Actions	Site Remediation Actions
Install, operate, and maintain two above-ground storm water treatment systems, one for each storm water line leaving the site, to reduce suspended solids and associated concentrations of metals and hydrophobic organic constituents in storm water	Stored lubricants and cutting oils under roof inside main production building	Completed feasibility study and implemented DEQ-approved capping remedy of previously-unpaved areas of the site with asphalt to prevent storm water and site worker contact with potentially-contaminated soil
Completed investigation of potential zinc sources at site; tested and painted 6.7 acres of building roof to reduce zinc in roof runoff by more than 90 percent and zinc in overall site runoff by 79 percent	Replaced bag houses for grit blast operation with more modern particulate filter system	In conjunction with DEQ, investigated identified areas of potential concern and completed soil removal of limited areas that were classified as hot spots under the Oregon Hazardous Substance Remedial Action rules
In conjunction with the soil capping remedial action, completed site storm water discharge modeling, designed and constructed new site grading to improve storm water drainage, and installed new catch basins and storm water line cleanouts	Enclosed the cement batch plant mixer system to reduce dusting	Independently characterized site and conducted focused soil removal in conjunction with Northwest Pipe taking ownership of the site
Installed closed loop storm water recycling system and supplemental storage for the cement-mortar lining area	Moved cement-mortar rebound, recycle sand management operation, and waste bins under roof	Underground storage tank removal and removal/treatment of affected soil; leading to DEQ no-further-action letter
Re-routed storm drainage away from failed offsite storm line on adjacent property and installed pump station to direct site discharge to Outfall 18/WR-123	Installed above-ground fuel storage with secondary containment and segregated storm water drainage system with shut-off valve	
Installed test ports for storm water monitoring	Replaced old paint line to reduce incidental overspray	
Install and periodically maintain catch basin filters to reduce the potential for suspended solids or oil & grease to enter storm water system	Sweep facility roads weekly to reduce potential for entrainment in storm water	
Completed video survey of storm water system and addressed identified issues, such as previously unknown lines and line blockages, where identified	Installed covered exterior waste bins and moved scrap metal staging bins under roof	
Closed catch basins that had been brought under roof by expanding the main production building roof	Periodically jet-clean storm water lines to remove settled solids, if any, in system	
	Stopped using, and replaced, zinc-containing products and paints with non-zinc-containing materials	

EXHIBIT 2

Storm Water Source Control Actions Identified in 2013 DEQ Milestone Report

Northwest Pipe Company, Portland, Oregon

DEQ Milestone Report Source Control Action Statement	Northwest Pipe Actions
"Cleaning-up contaminated upland areas *– Cleanup work addresses contaminated soil, groundwater, stormwater and other sources; and focuses on reducing or eliminating contaminant migration to the river. Common source control measures include removing highly contaminated soil areas, stabilizing or capping contaminated bank areas, treating or containing contaminated groundwater, and extracting contaminated sediment from storm sewer systems. Source control measures vary from site to site."*	**Soil addressed:** The 1989 soil removal, 2011 hot spot soil removal, and the 2012 site cap construction eliminated the potential for site storm water to be exposed to contaminated soil. **Groundwater addressed**: The 2005 draft Remedial Investigation/Source Control Evaluations report for the site investigated the potential for groundwater to infiltrate into storm water lines and confirmed that seasonal high groundwater remained below the invert (bottom) of site storm water liens, meaning no such infiltration is possible. **Storm water settled solids addressed:** Periodic catch basin cleaning and storm water line jet cleaning has removed settled solids from the storm water conveyance system. Use of catch basin filters and weekly roadway sweeping minimizes the potential for new solids to enter the storm water system.
"Source control of active discharges *– Tools to control active discharges include best management practices (BMPs), industrial process changes, pollution prevention practices, technology-based effluent controls, and end-of-pipe stormwater treatment. Compliance is achieved voluntarily or through administrative actions, including permits or enforcement."*	**Best management practices addressed:** Exhibit 1 lists several best management practices that have been implemented at the site to reduce the potential exposure of storm water to contaminants, including moving material storage under roof and retrofitting the storm water system at the secondary-containment fueling area to include a shutoff valve to isolate the fueling area from the rest of the storm water system if necessary.
"Source control of active discharges" (continued)	**Industrial process changes addressed:** Exhibit 1 lists several process changes at the site, including improved air particulate filters and removal of the coal tar coating process and associated materials from the site. **End-of-pipe storm water treatment addressed:** two state-of-the-art storm water treatment systems have been installed at the site to treat the two lines that convey storm water offsite the communal outfall in the IT Slip.

Source Control Monitoring Data – Weight of Evidence Demonstration and Effectiveness of Source Control Measures

Northwest Pipe is in compliance with all of its NPDES storm water permit benchmarks. In accordance with the approved Work Plan (CH2M HILL 2009a) Northwest Pipe has completed two source control sampling events to document the current condition of storm water leaving the site. Storm water samples were collected at National Pollutant Discharge Elimination System (NPDES) sampling ports 3 and 4, located downstream of the site's storm water treatment units. Samples were collected in December 2012 and May 2013, with a supplemental sampling event in November 2013 to collect additional metals data consistent with data quality expectations, specifically, low reporting limits.

The results of the sampling with the combination of remedial work (soil capping and hot spot removal), best management practices (covering waste material, sweeping, maintaining the storm water system) and storm water treatment prior to discharge, indicate that constituent concentrations generally were below SLVs and that concentrations in storm water leaving the site currently are within, or below, the range of concentrations typically observed in industrial storm water, as published by DEQ (2010a). Moreover, storm water quality for PAHs, PCBs, and zinc have shown substantial improvement as demonstrated by the following comparisons of storm water quality in 2007 versus storm water quality in 2012/2013:

- PAHs: broad decreases among PAH constituents with an average decrease in PAH concentrations of 65 percent
- PCBs: elimination of any PCB Aroclors above detection limits. No PCB Aroclors were detected in recent samples with reporting limits less than previously detected. Only Aroclor 1254 was detected in the 2007 samples (3 of the 7 samples).
- Zinc: a decrease in roof runoff concentrations of greater than 90 percent, and a decrease in overall site runoff of 79 percent

In addition to these observations, other constituents that are drivers for potential cleanup in the harbor (such as dioxins and furans, for example) are not chemicals of concern for the Northwest Pipe site.

Effectiveness of Source Control Measures

Even though the site has been in material compliance with its storm water National Pollutant Discharge Elimination System permit, Northwest Pipe has taken 21 source control actions over the past two decades to improve the quality of storm water discharging from the site (see Exhibit 2). Exhibit 3 compares the average concentration in storm water samples collected during site investigation activities in 2007 (11 samples within the site interior) with the average results from the recent source control samples (four samples collected at the two discharges from the site). As noted in Exhibit 5, PAH concentrations have decreased an average of 65 percent in concentration, with decreases ranging from 50 percent to 98 percent. Two PAHs (benzo(k)fluoranthene and dibenz(a,h)anthracene showed increased concentration (from 0.210 to 0.228 ug/L and from 0.075 to 0.117 ug/L, respectively); however the remainder of the PAHs reflected substantial decreases.

EXHIBIT 5
Storm Water Quality Change 2007-2013
Northwest Pipe Company Portland Oregon

Constituent	Average Site Storm Water, 2007 (ug/L)	Source control samples, 2012/2013 (ug/L)	Percent change (negative value indicates a reduction)
Acenaphthene	0.057	0.013	-77%
Acenaphthylene	0.029	0.014	-52%
Anthracene	0.223	0.025	-89%
Benzo(a)anthracene	0.415	0.032	-92%
Benzo(a)pyrene	0.404	0.055	-86%
Benzo(b)fluoranthene	0.636	0.055	-91%
Benzo(g,h,i) perylene	0.316	0.099	-69%
Benzo(k) fluoranthene	0.210	0.228	8%
Chrysene	0.626	0.194	-69%
Dibenz(a,h)anthracene	0.075	0.117	56%
Fluoranthene	1.054	0.231	-78%
Fluorene	0.073	0.012	-84%
Indeno(1,2,3-cd)pyrene	0.244	0.046	-81%
Naphthalene	0.039	0.020	-50%
Phenanthrene	0.528	0.049	-91%
Pyrene	0.968	0.015	-98%
		Average change, all PAHs	-65%
Aroclor 1254	0.343	None detected	N/A
Zinc	0.382	0.042	-89%

Notes:
1. Non-quantified values ("U" -flagged results) calculated at one-half the reporting limit
2. N/A = Not applicable because only non-quantified (below reporting limit) results were available

Only Aroclor 1254 was detected in the 2007 samples (3 samples). No PCB Aroclors were detected in the recent samples, with reporting limits less than previously detected. Lastly, the zinc concentration in the recent source control samples was 89 percent lower, on average, than in 2007.

These results, which will be presented in detail in the upcoming Remedial Investigation/Source Control Evaluation Report, indicate that the source control actions taken by Northwest Pipe have had a material effect on improving storm water quality at the site.

Conclusions

Northwest Pipe has implemented a broad range of source control measures to address potential sources of contamination to storm water, the only potentially complete pathway for contaminant migration between the site and the IT Slip off the Willamette River, culminating in a major action: installation of two state-of-the art storm water treatment systems; one on each of the two conveyance lines carrying storm water from the site to a communal outfall in the IT Slip.

Constituent concentrations in storm water leaving the site are within, or below, the range of concentrations typically observed in industrial storm water published by DEQ (2010a). In addition to complying with its NPDES Stormwater Permit, Northwest Pipe's storm water quality has shown substantial improvement over time. Having completed paving at the site, installation and operation of storm water treatment, and ongoing implementation of best management practices, the improvements in storm water quality observed over the past decade are expected to continue to be reflected in future storm water discharges from the site.

Sediment characterization in the IT Slip near the outfall serving the Northwest Pipe site (Outfall 18/WR-123) shows that the closed, east end of the slip where the outfall is located is depositional with extremely low potential for erosion even during flood events. The lack of erosion in the slip, coupled with the documented shoaling at the western mouth of the slip over one-third mile from Outfall 18/WR-123, act to isolate sediment within the slip from the sediment within the main stem of the Willamette River.

Contaminant fingerprinting using EPA's FALCON regression method for PAHs demonstrate that sediment quality in the immediate vicinity of Outfall 18/WR-123 can be distinguished from sediment quality in other parts of the IT Slip as well as from the main stem of the Willamette River. These observations indicate that storm water discharges from Outfall 18/WR-123 have historically led to sediment quality effects in only a small area around Outfall 18/WR-123, which lies over one-third mile from the Willamette River main stem. The data also indicate that these effects do not extend to the main stem of the river itself, a stable situation that is reasonably expected to continue indefinitely.

The successful completion of the interim remedial capping effort for the site, the conclusion that limited groundwater concentrations at the site do not pose a threat to the Willamette River, the implementation of numerous source control actions and storm water treatment for the facility, and the recent stormwater results being generally below SLVs and PCB/VOC levels below detection levels, show that the site's ranking among Portland Harbor sites should be reduced from "medium" to "low." Northwest Pipe respectfully requests that DEQ prepare a No-Further-Action determination for the site upon receipt, later this year, of the revised Remedial Investigation-Source Control Evaluation report for the Northwest Pipe Portland facility.

References

CH2M HILL. 2005. *Remedial Investigation Source Control Evaluation Report Northwest Pipe Company Portland Facility*. Unpublished consultant's report prepared for Northwest Pipe Company. December 2005.

CH2M HILL. 2009a. *Supplemental Remedial Investigation - Source Control Evaluation Work Plan.* Unpublished consultant's report prepared for Northwest Pipe Company. July 2009.

CH2M HILL. 2009b. *Sediment Sampling Results, Focused Sediment Investigation, International Terminals Slip, Portland, Oregon.* File memorandum prepared by Rob Healy and Ken Shump of CH2M HILL on behalf of Northwest Pipe Company. Submitted to Jim Orr of DEQ. April 15, 2009.

CH2M HILL. 2010. *Technical Evaluation of International Terminals Slip Sedimentation and Potential Contaminant Relationship to Upland and River Source Areas.* Technical report prepared by CH2M HILL on behalf of Northwest Pipe Company. December 2010.

CH2M HILL. 2012a. *Updated Groundwater Risk Screening Evaluation for Northwest Pipe Company, Portland, Oregon.* Technical memorandum prepared by Pat Heins, Ken Shump, and Rob Healy of CH2M HILL on behalf of Northwest Pipe Company for Jim Orr of DEQ. August 21, 2012.

CH2M HILL. 2012b. *Stained Soil Investigation Data Report and Evaluation, Northwest Pipe Company, Portland, Oregon.* Technical memorandum prepared by Rob Healy, Jeff Schut, and Ken Shump of CH2M HILL on behalf of Northwest Pipe Company for Jim Orr of DEQ. June 5, 2012.

DEQ. 2005. *Portland Harbor Joint Source Control Strategy, Final.* Prepared by the Oregon Department of Environmental Quality and Region 10 of the Environmental Protection Agency. Available at www.deq.state.or.us/lq/cu/nwr/PortlandHarbor/jointsource.htm, accessed June 26, 2013. Document issued December 2005. Table 3-1 last updated July 16, 2007.

DEQ. 2010a. *Guidance for Evaluating the Stormwater Pathway at Upland Sites.* Prepared by the Oregon Department of Environmental Quality Available at www.deq.state.or.us/lq/cu/stmwtrguidance.htm accessed July 3, 2013. Document issued January 2009 and updated October 2010.

DEQ. 2010b. *DEQ Notice to Proceed for Soil Capping Removal Action at NW Pipe Company Site ECSI #138.* Letter from Jim Anderson of DEQ to Stephanie Heldt of Northwest Pipe Company. October 13, 2010.

DEQ. 2012. *Comment Letter on Updated Groundwater Risk Screening Evaluation, Northwest Pipe Company Portland Plant, ECSI #138.* Letter from Jim Orr, R.G. of DEQ to Stephanie Heldt-Sheller of Northwest Pipe Company. November 12, 2012.

DEQ. 2013. *Milestone Report for Upland Source Control at the Portland Harbor Superfund Site.* Prepared by the Oregon Department of Environmental Quality. Available at www.deq.state.or.us/lq/cu/nwr/PortlandHarbor/jointsource.htm, accessed July 3, 2013. Document issued January 2013.

LWG. 2009. *Portland Harbor RI/FS Draft Remedial Investigation Report.* Unpublished consultant's report prepared for the Lower Willamette Group by Integral Consulting, Windward Environmental, Kennedy/Jenks, and Anchor QEA. October 27, 2009.