Completion Summary for City of Portland Outfall Basin 45

1 Summary

The City of Portland (City) has been addressing source control concerns related to the City conveyance systems for more than four decades, and several City programs have evolved to meet changing regulatory requirements and watershed health objectives. Following the 2000 listing of Portland Harbor on the National Priorities List, the City initiated a new partnership with the Oregon Department of Environmental Quality (DEQ) Cleanup Program to identify specific sources of contaminants to City stormwater conveyance systems in the harbor that were not being adequately controlled. This report summarizes the results of this collaborative effort in Outfall Basin 45.

This Completion Summary includes a weight-of-evidence evaluation to demonstrate that source identification is complete and a summary of source controls (implemented or planned) that will control future contaminant discharges to the Willamette River.

Outfall 45 is located at approximately River Mile (RM) 11 on the east side of the Willamette River, just downstream of the Fremont Bridge. The outfall discharges to an area of the river (referred to as RM11E) that has been targeted for focused inriver and upland investigations in response to detections of elevated concentrations of polychlorinated biphenyls (PCB) and other contaminants in river sediment, water, and fish tissue samples collected from this area. Outfall 45 discharges stormwater from a relatively small basin that currently includes parcels associated with Union Pacific Railroad's (UPRR) Albina Yard, Northwest Copper Works, a party rental business, a dance theater, the City's Materials Testing Laboratory, and adjacent rights-of-way.

Elevated concentrations of PCBs were detected in river sediment samples collected by the Lower Willamette Group and other parties at locations upstream and downstream of the outfall, but PCBs were not significantly elevated in the sample closest to the outfall. Because the Portland Harbor Initial Study Area did not extend up to Outfall 45, inriver data alone were insufficient to determine whether the basin was a likely pathway for PCB sources to the river. For this reason, after the Study Area expanded to include Basin 45, the City conducted an inline solids source investigation in the basin to assess the potential presence of PCB sources and evaluated basin stormwater samples for a comprehensive suite of contaminants to verify that additional source tracing was not needed. Results of these investigations do not indicate the presence of major sources of PCBs or other contaminants in Basin 45.

Portions of two DEQ Cleanup Program sites are located in the basin. Both sites are conducting source control evaluations (SCE), which will identify and address any ongoing stormwater contributions from these sites to the river via Outfall 45. Investigation at the UPRR site includes evaluation of the potential preferential groundwater pathway to Basin 45 because of the proximity of known site groundwater contamination to Basin 45 conveyances.

The City concludes that no further source investigation is warranted in this basin. Implementation of source control measures (SCM) at upland sites, as needed, together with the

existing programmatic SCMs in the basin, are sufficient for ensuring discharges from Outfall 45 are protective of the river. Therefore, the City has met the remedial investigation (RI)/SCM objectives for Basin 45.

2 Introduction

This Completion Summary presents a weight-of-evidence evaluation of whether further source investigation is needed in Basin 45, and the rationale for concluding that future discharges from the basin are not likely to be significant sources of contaminants to river sediment. The purpose of this report is to demonstrate that, for Basin 45, the City has met the joint RI/SCM objectives of the August 13, 2003, intergovernmental agreement (IGA) between the City and DEQ. Together the City and DEQ are using their respective authorities to ensure that source controls are implemented where needed.

This report is included in Appendix A of the *Municipal Stormwater Source Control Report for Portland Harbor* (Municipal Report), which provides additional background and detail regarding the City's harborwide source control efforts, including regulatory and non-regulatory programs to address current and future sources and to minimize recontamination potential.

3 Outfall and Basin Setting

3.1 Basin Location and Configuration

Outfall 45 discharges to the east side of the Willamette River near RM 11. The outfall conveys stormwater from an approximately 10-acre drainage basin.[1] Figure 1 shows the location of the outfall and drainage basin boundary and provides an overview of the associated stormwater conveyance system. Additional detail on the Outfall 45 stormwater conveyance system and associated drainage basin is included in the *Outfall Basin 45 Inline Solids Sampling* technical memorandum (BES, 2008a) and the *Albina Riverlots: City Basin Information and Source Investigation Approach* technical memorandum (BES, 2008b).

3.2 Land Use and Potential Upland Sources

Basin 45 is located in the historical Albina area. The basin is primarily zoned as heavy industrial, with some light industrial zoning (see Figure 1). Industrial land use in the basin includes parcels associated with UPRR's Albina Yard (paved parking areas and unpaved vacant land) and a metals fabrication plant (Northwest Copper Works). The basin also includes a party rental business, a dance theater, the City's Materials Testing Laboratory, and adjacent rights-of-way.

Sites that were identified as potential sources include sites that are in the DEQ Cleanup Program, as listed in DEQ's Environmental Cleanup Site Information (ECSI) database. Portions of two Cleanup Program sites are within Basin 45. Table 1 list these sites and indicates the associated contaminants of interest (COI) and the status of site SCEs. The portion of the

[1] Stated basin acreage is likely overestimated as the delineation includes properties under the Oregon Department of Transportation (ODOT) Interstate-405/Fremont Bridge (i.e., stormwater in these areas is intercepted by the bridge and conveyed to ODOT outfall WR-306).

Cleanup Program sites in Basin 45 are peripheral properties (i.e., not associated with the main current or historical industrial operations) and the COIs listed in Table 1 may not be associated with these site areas.

Table 1. DEQ Cleanup Program Sites in Basin 45

DEQ Cleanup Site	Site COIs (1)	Site Pathway Evaluations	
		Stormwater Pathway(2)	Preferential Groundwater Pathway(3)
UPRR - Albina Yard (ECSI #178)	*Stormwater:* To be determined(4) *Groundwater:* SVOCs, PAHs, TPH, metals, phthalates(5)	Source Control Evaluation in Progress	Source Control Evaluation Completed – Source Control Determination Pending
PacifiCorp - Albina Riverlots (ECSI #5117)	*Stormwater:* TPH, PCBs *Groundwater:* Not sampled	Source Control Evaluation In Progress	NA

Notes:

PAHs = polycyclic aromatic hydrocarbons; SVOCs = semivolatile organic compounds, TPH = total petroleum hydrocarbons; NA = not applicable; DEQ = Oregon Department of Environmental Quality; ECSI = Environmental Cleanup Site Information; RM = River Mile; PCBs = polychlorinated biphenyls; UPRR = Union Pacific Railroad; COIs = contaminants of interest

(1) Unless otherwise noted, site COIs are those identified in Appendix Q (Source Control Inventory Tables) of the Portland Harbor RI/FS Draft Feasibility Study (FS) (Anchor et al., 2012).

(2) Source: DEQ Milestone Report, Figure 1b, "Status of Stormwater Source Control Evaluations, January 2013" (DEQ, 2013).

(3) Source: DEQ Milestone Report, Figure 3, "Groundwater Source Control Evaluation Status, January 2013" (DEQ, 2013).

(4) The UPRR site extends along the east side of the Willamette River from approximately RM 9.8 to 11.1. Stormwater COIs listed in Appendix Q for other areas of the site that discharge (or formerly discharged) to the river include PAHs, TPH, metals, and PCBs.

(5) Source: Table 4.2-2 in the Portland Harbor RI/FS Draft Final Remedial Investigation Report (Integral et al., 2011).

Industrial sites covered or historically covered by National Pollutant Discharge Elimination System (NPDES) stormwater regulations also were considered as potential sources of pollutants to the City conveyance system. Table 2 lists one site that has a small runoff contribution to the basin and currently holds an NPDES permit.

Table 2. Current(1) and Historical NPDES Permit Coverage in Basin 45

Address	Company	Permit Type	Time Period
1402 N River St.	OldCastle APG West, Inc.	Stormwater (1200-Z)	2001 – 2011
	Central Premix Concrete Products Co.	Stormwater (1200-Z)	2011 - Present

Notes:

NPDES = National Pollutant Discharge Elimination System

(1) Current permits are indicated in bold.

Although the UPRR Albina Yard operates under an NPDES stormwater permit, permit coverage has not included the portion of the site in Basin 45. Note that both the City and Oregon Department of Transportation (ODOT) have NPDES Municipal Separate Storm Sewer System (MS4) stormwater permits that cover drainage areas in or adjacent to the basin.

3.3 Outfall Setting

Outfall 45 discharges to a reach of the river that the U.S. Environmental Protection Agency (EPA) has designated as an area of potential concern (AOPC 25) based on elevated concentrations of PCBs and other contaminants (EPA, 2010). In addition to Outfall 45, 3 other City outfalls (Outfalls 43, 44, and 44A), 1 ODOT outfall, and approximately 13 private industrial outfalls also discharge to AOPC 25.

4 Basin Screening and Source Investigations

In 2006, the City mapped known or suspected groundwater plumes in the vicinity of municipal stormwater pipes to determine plumes that might use the City system as a preferential pathway (GSI, 2006). The City identified a plume on the UPRR property that needed to be evaluated and referred the evaluation to DEQ.

In May 2007, the City conducted a video survey of the Basin 45 system to identify connections to the City's storm sewer lines and to determine target locations for sampling solids. A large portion of the basin is unpaved railroad property and the survey identified significant solids accumulation in many areas of the conveyance system. The City collected stormwater solids from the basin in July 2007 to evaluate whether legacy contaminated inline solids in the Basin 45 system were a possible current source of PCBs to river sediment and to assess the potential presence of PCB sources within the basin. The results indicated that PCB concentrations were not elevated in legacy solids within the Basin 45 system and that major sources of PCBs are not present in the basin (BES, 2008a). Following completion of the inline solids investigation, the City cleaned the Basin 45 storm system to restore flow capacity.

As part of the City's stormwater screening evaluation in 2008 (BES, 2010), the City collected stormwater samples from the downstream end of the basin (i.e., representing all collective discharges to the system) and analyzed samples for a broad array of contaminants. Based on the evaluation of these data and using a conservative screening approach, no analytes were identified as warranting further source tracing in Basin 45 (BES, 2010).

In addition, the City reviewed historical plumbing and conveyance system records and identified a number of possible connections from UPRR properties within Basin 45 that were not being evaluated as part of the Albina Yard RI/SCE (BES, 2008c). In response to this information, UPRR developed and is implementing a work plan to investigate the configuration of UPRR's stormwater system in this area and to characterize discharges to Basin 45 (CH2M HILL, 2012).

Table 3 lists investigations and evaluations completed by the City in the Basin 45 conveyance system.

Table 3. City Investigations in the Basin 45 Stormwater Conveyance System

Data Collection Period	Purpose	Documentation
NA	Describe existing inriver sediment data collected adjacent to the Albina Riverlots shoreline (RM11E), describe adjacent City basins and potential sources, and identify next steps to prioritize outfall basins for future source tracing activities.	Albina Riverlots: City Basin Information and Source Investigation Approach, Technical Memorandum (BES, 2008b)
2005	Evaluate existing data on groundwater plumes and identify the potential for City conveyance systems (including Basin 45) to act as preferential pathways.	Relationships Between Upland Shallow Groundwater Plumes and the City Stormwater and Combined Conveyance System with the Portland Harbor (GSI, 2006)
2007	Evaluate whether legacy inline solids within Basin 45 may be contributing PCBs to river sediment and assess the potential presence of PCB sources within the basin.	Outfall Basin 45 Inline Solids Sampling Technical Memorandum No. OF45-1 (BES, 2008a)
2008	Evaluate stormwater data from City outfalls to identify additional source tracing needs.	Stormwater Evaluation Report, City of Portland Outfall Project (BES, 2010)

Notes:

RM = River Mile; PCBs = polychlorinated biphenyls; NA = not applicable

5 Completion of Source Identification

The lines of evidence evaluated to verify that source tracing is complete include (1) results of source investigation activities conducted in the basin, (2) upland site investigation coverage, and (3) land use within the basin. Findings from this evaluation are summarized below.

- *Source Tracing Results*. The City's 2007 stormwater solids investigation (BES, 2008a) and 2008 stormwater screening evaluation (BES, 2010) did not indicate the presence of major sources of PCBs or other contaminants in Basin 45.
- *Upland Investigation Coverage*: Figure 2 displays the spatial extent of DEQ Cleanup Program site investigation and other programmatic controls (see key to figures provided at beginning of this Appendix) in the current basin. As shown in Figure 2, the need for SCMs is being determined on several parcels conducting SCEs under DEQ oversight. In addition, the City Industrial Stormwater Program has inspected the Northwest Copper Works site to evaluate and provide technical assistance on industrial exposures to stormwater.
- *Land Use*: Land use at sites not covered by DEQ Cleanup or Water Quality Programs mostly consists of indoor operations with minimal industrial exposures to stormwater. Sites include the City Materials Testing Laboratory, a party rental business, and a dance theater. Current and future industrial activities exposed to stormwater will be addressed by the DEQ Water Quality NPDES Program, and non-industrial activities are

not a known or suspected major source of contaminants to the City stormwater conveyance system.

Based on these lines of evidence, the City concludes that the Basin 45 source investigation is complete and no major sources are present.

6 Basin Source Controls

The City and DEQ collaborated under their respective authorities to identify control mechanisms for all potential sources identified in the basin. Two DEQ Cleanup Program sites within the basin (UPRR and PacifiCorp) are conducting SCEs to determine whether additional SCMs are needed to address the stormwater and/or preferential groundwater pathways. Source controls for minor sources also include ongoing City and DEQ programs that are described in the Municipal Report. Upland site source controls within Basin 45 are displayed in Figure 2.

One type of programmatic source control is the elimination of stormwater exposures to industrial activities. Table 4 lists one site that is partially within the basin and currently holds an NPDES no exposure certification.

Table 4. Site with No Exposure Certification (NEC) in Basin 45

Address	Company	NEC Time Period
1300 N River St.	Advanced M&D Sales	2011 – Present

Table 5 summarizes additional programmatic and conveyance system source controls for Basin 45.

Table 5. Basin 45 Source Controls

Site/Area	Source Controls	Implementation Timeframe
Source Control Measures (SCM) at DEQ Cleanup Program Sites		
PacifiCorp - Albina Riverlots (ECSI #5117)	To be determined	To be determined
UPRR Albina Railroad (ECSI #178) (1)	To be determined	To be determined
City Conveyance System		
Northwest Copper Works, Inc.	City Illicit Discharge Elimination Program identified an unauthorized process water discharge to the Basin 45 stormwater system and required site to reroute process water to the sanitary sewer system.	2009
North Russell St., N. River St., and N. Essex Ave.	City cleaned all the main branches of the Basin 45 system to remove accumulated inline solids.	2008
Other (Programmatic SCM)(2)		
See listing in Table 2	**NPDES 1200-Z Stormwater Permit Requirements**	Ongoing

Notes:

DEQ = Oregon Department of Environmental Quality; ECSI = Environmental Cleanup Site Information; NPDES = National Pollutant Discharge Elimination System

(1) For upland sites, description of SCMs are based on information in DEQ Milestone Report (DEQ, 2013), DEQ source control decisions, and/or reports on file with DEQ.

(2) Programmatic source controls are described in the Municipal Report.

All potential contaminant sources are being addressed under the programs identified above. Other municipal programs (e.g., periodic inspection of and technical assistance to non-NPDES sites, illicit discharge monitoring, street sweeping, etc.) likely will provide additional source control benefits in the basin and will help to address minor sources for which specific control measures have not been required. City programs that control current and future contaminant discharges to the conveyance system are described in the Municipal Report.

7 Conclusion

The City completed source tracing in Basin 45 and no major sources of contaminants to the City conveyance system were identified. Sites identified as potential sources are being addressed under appropriate DEQ and City regulatory authorities. Therefore, future discharges from Outfall 45 are unlikely to represent a significant source of contaminants to the river. The City concludes that it has met the RI/SCM objectives of the IGA and requests a source control decision from DEQ for Basin 45.

8 References

Anchor et al. 2012. Portland Harbor RI/FS Draft Feasibility Study. Prepared for The Lower Willamette Group by Anchor QEA, LLC, Windward Environmental, LLC, Kennedy/Jenks Consultants, and Integral Consulting, Inc. February 2012.

BES. 2008a. Outfall Basin 45 Inline Solids Sampling. Technical Memorandum No. OF45-1. City of Portland, Bureau of Environmental Services. June 17, 2008.

BES. 2008b. Albina Riverlots: City Basin Information and Source Investigation Approach. Technical Memorandum, to K. Tarnow (DEQ) from D. Sanders and L. Scheffler (BES). December 18, 2008.

BES. 2010. Stormwater Evaluation Report. City of Portland, Bureau of Environmental Services. February 2010.

CH2M HILL. 2012. Additional Stormwater Investigation Work Plan. Appendix B to Source Control Measures Monitoring Plan Union Pacific Railroad Albina Yard, Portland, Oregon. Prepared for Union Pacific Railroad by CH2M HILL. August 2012.

DEQ. 2013. Milestone Report, Upland Source Control at the Portland Harbor Superfund Site. Prepared by the Oregon Department of Environmental Quality. January 2013.

EPA. 2010. Re: Portland Harbor Superfund Site; Administrative Order on Consent for Remedial Investigation and Feasibility Study; Docket No. CERCLA-10-2001-0240. Portland Harbor Feasibility Study Source Tables. Letter from EPA to Mr. Bob Wyatt, Chairman, Lower Willamette Group. November 23, 2010.

GSI. 2006. Relationships Between Upland Shallow Groundwater Plumes and the City Stormwater and Combined Conveyance System with the Portland Harbor. Technical Memorandum prepared by Groundwater Solutions, Inc., for the City of Portland Bureau of Environmental Services. March 16, 2006.

Integral et al. 2011. Portland Harbor RI/FS, Draft Final Remedial Investigation Report. Prepared for the LWG. Prepared by Integral Consulting Inc., Windward Environmental LLC, Kennedy/Jenks Consultants, and Anchor QEA, LLC. August 29, 2011.

List of Figures

FIGURE 1

Basin 45
Overview

UNION PACIFIC RAILROAD ALBINA YARD
KNOTT ST
BRENDLE AVE
UPRR ALBINA RAILROAD
INTERSTATE AVE
ESSEX AVE
RUSSELL ST
UPRR ALBINA RAILROAD
CENTRAL PREMIX CONCRETE PRODUCTS COMPANY
ADVANCED M&D SALES
PACIFICORP-ALBINA RIVERLOTS
NESMITH AVE
RANDOLPH AVE
LARRABEE AVE
WR-291
OF45
RIVER ST
RANDOLPH AVE
FORGE GRAPHIC WORKS INC
HARDING AVE
STEELAB LLC
CLOUDBURST RECYCLING
VERMICULITE NORTHWEST, INC. (FORMER)
HARDING AVE
RM 11
FREMONT BRG
LORING ST
K F JACOBSEN & CO INC-PLANT
ROSS ISLAND SAND & GRAVEL CO - ALBINA FACILITY
CLARK AVE
WILLAMETTE RIVER

- Basin 45
- DEQ ECSI Site
- NPDES Stormwater Permit
- NPDES No Exposure Certification

Conveyance System

- Storm Line
- Catch Basin
- City Outfall
- Non-City Outfall

Land Use/Zoning

- Heavy Industrial
- Light Industrial

All Other Data

- River Mile (RM)
- Tax Lot
- Discharges to City Outfall
- Portland Harbor Hydroboundary

N

0 60 120 180
Feet

MAP NOTES:
Date: December 31, 2013
Data Sources: BES, METRO

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

BASIN 45

N

FIGURE 2

Basin 45
Upland Site Source Controls

Basin 45

Tax Lot

DEQ Stormwater SCE

SCEs implemented or pending

All Other Features

NPDES Stormwater Discharge Permit

City Discharge Authorization

NPDES No Exposure Certification

Site Inspection -
BES Industrial Stormwater Program

Discharges to City Outfall

Portland Harbor Hydroboundary

N

0 60 120 180
Feet

MAP NOTES:
Date: December 31, 2013
Data Sources: BES, METRO, Aerial Photo Taken 2012

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