Completion Summary for City of Portland Outfall Basin S-5

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 S-5.

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.

Basin S-5 is located on the southwestern portion of Swan Island, along the east side of the Willamette River. Current land use in this basin is light industrial (recycling, warehouse, sandblasting and painting, truck assembly and testing, and small manufacturing operations) and general employment (offices and associated parking).

Evaluation of inriver sediment data near the outfall showed slightly elevated contaminant concentrations in the vicinity of the outfall, indicating that contaminant sources may be present in the basin. Subsequently, the City conducted an inline solids investigation and a stormwater screening evaluation to identify any major sources in the basin and to confirm that further source tracing was not needed. In addition, the U.S. Environmental Protection Agency (EPA) has not identified the potential need for sediment remediation in the vicinity of the outfall.

The City concludes that no additional source investigations are warranted in this basin. Implementation of the existing programmatic source control measures (SCM) are sufficient for ensuring discharges from Outfall S-5 are protective of the river. Therefore, the City has met the remedial investigation (RI)/SCM objectives for Basin S-5.

2 Introduction

This Completion Summary presents a weight-of-evidence evaluation of whether further source investigation is needed in Basin S-5, and the rationale for concluding that current and 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 S-5 the City has met the joint RI/SCM objectives of the August 13, 2003, intergovernmental agreement (IGA) between the City and DEQ.

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 S-5 discharges to the east side of the Willamette River at approximately River Mile 9.2. The drainage area for the Basin S-5 conveyance system is approximately 38 acres. Figure 1 shows the location of the outfall and drainage basin boundary and provides an overview of the associated stormwater conveyance system. As shown in Figure 1, the basin includes five water quality swales along the western side of N. Channel Avenue. The City constructed two of these vegetated swales in 2009, and three more in 2013, to infiltrate stormwater and to reduce total suspended solids loading to Outfall S-5. City programs that result in these types of stormwater improvements are described in the Municipal Report.

Additional detail on the Outfall S-5 stormwater conveyance system and associated drainage basin is included in the *Programmatic Source Control Remedial Investigation Work Plan for the City of Portland Outfalls Project* (CH2M HILL, 2004) and *Outfall Basin S-5 Inline Solids Sampling, Technical Memorandum No. OF S5-1* (BES, 2006).

3.2 Land Use and Potential Upland Sources

Basin S-5 is located in the Swan Island industrial area. Zoning in the basin is light industrial and general employment.¹ A large office complex occupies nearly one-third of the southern portion of the basin. Other activities in the basin include recycling, warehousing, sandblasting and painting, truck assembly and testing, and small manufacturing operations. Most industrial activities in the basin are conducted within buildings, limiting industrial exposures to stormwater. There are no DEQ Cleanup Program sites in the basin.

Industrial sites covered, or historically covered, by National Pollutant Discharge Elimination System (NPDES) stormwater regulations were considered as potential sources of pollutants to the City conveyance system. Only one property in the basin has a current (and historical) NPDES stormwater permit: Environmental Fibers International Inc., located at the western end of the basin (see Figure 1). The facility recycles paper, cardboard, and plastic materials. Table 1 includes the history for the NPDES permits at this site. Note that the City operates under an NPDES Municipal Separate Storm Sewer System (MS4) stormwater permit that also covers basin drainage areas.

¹ General employment is a Portland zoning category that allows a range of employment opportunities but emphasizes industrial and industrial-support uses. The zones can allow for the transition to a less industrial overall nature.

| Address | Company | Permit Type | Time Period |
|-----------------|--|---------------------|----------------|
| 4325 N Commerce | Greenstone Ind Portland Inc. | Stormwater (1200-Z) | 1998 - 2001 |
| | Environmental Fibers International Inc. | Stormwater (1200-Z) | 2004 - Present |

Table 1. Current⁽¹⁾ and Historical NPDES Permit Coverage in Basin S-5

(1) Current permits are indicated in bold.

3.3 Outfall Setting

Outfall S-5 discharges to the main stem of the Willamette River, at the upstream end of Swan Island. The outfall does not discharge into an area of potential concern (AOPC) designated by the U.S. Environmental Protection Agency (EPA) as potentially warranting sediment remediation (EPA, 2010).

4 Basin Screening and Source Investigations

The City identified Basin S-5 as a Priority 2 for source tracing (CH2M HILL, 2004). Priority 2 designations were applied to outfalls where slightly elevated concentrations of contaminants in sediment were observed in the vicinity of the outfall, indicating that sources that could affect sediment quality may be present in the basin. In 2005, the City conducted an inline solids source investigation for metals and semivolatile organic compounds (SVOC). Material was not available for sampling in the eastern portion of the basin; the analytical results for samples subsequently collected from the western portion of the basin did not indicate that major contaminant sources are present in Basin S-5 (BES, 2006). To verify that additional source tracing was not needed, the City analyzed stormwater data collected in 2007 from the downstream end of the basin (i.e., representing all collective discharges to the system). Based on the evaluation of these data and using a conservative screening approach, no analytes were identified as potentially warranting further source tracing in Basin S-5 (BES, 2010).

Table 2 lists investigations and evaluations completed by the City in the Basin S-5 conveyance system.

| Data Collection Period | Purpose | Documentation |
|---------------------------|--|--|
| 2000 | Compile basin background information to identify potential sources. | Preliminary Evaluation of City Outfalls (Eastshore) (BES, 2000) |
| 2002 | Evaluate inriver sediment data near City outfalls to prioritize basins for source tracing. | Programmatic Source Control Remedial Investigation Work Plan (CH2M HILL, 2004) |
| 2005 | Investigate stormwater solids to determine if contaminants were being discharged at concentrations that could be detrimental to the Willamette River. | City Outfall Basin S-5 Inline Solids Sampling (TM No. OF S5-1) (BES, 2006) |
| 2007 | Evaluate stormwater data from City outfalls to identify additional source tracing needs. | Stormwater Evaluation Report, City of Portland Outfall Project (BES, 2010) |

 Table 2. City Investigations in the Basin S-5 Stormwater Conveyance System

The City's investigation work did not identify any current major sources of contaminants in Basin S-5.

5 Completion of Source Identification

The lines of evidence evaluated to confirm that source tracing is complete in Basin S-5 include (1) inriver sediment concentrations near the outfall, (2) results of source investigation activities conducted in the basin, and (3) land use. Findings from this evaluation are summarized below.

- *Inriver Sediment Concentrations:* River sediment in the vicinity of Outfall S-5 does not contain elevated contaminant concentrations (i.e., the outfall does not discharge to an AOPC).
- *Source Investigation Results*: The City's inline solids investigation (BES, 2006) and stormwater screening evaluation (BES, 2010) did not identify any analytes as potentially warranting further source tracing in Basin S-5.
- *Land Use:* Land use in Basin S-5 is light industrial (e.g., warehousing and small manufacturing operations) and commercial offices (see Figure 1). Most industrial operations take place within buildings. Figure 2 displays the spatial extent of DEQ and City programmatic controls (see key to figures provided at beginning of this Appendix). As shown in Figure 2, most of the sites in the basin have been inspected by the City Industrial Stormwater Program to evaluate and provide technical assistance on industrial exposures to stormwater. Current and future industrial activities that are exposed to stormwater are being addressed by the DEQ NPDES Program; 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 Basin S-5 source investigation is complete and there are no major contaminant sources in the basin.

6 Basin Source Controls

Source control in Basin S-5 includes ongoing City and DEQ programs that are described in the Municipal Report. Source controls implemented in the basin are displayed in Figures 1 and 2 and summarized in this section.

One type of programmatic source control is the elimination of stormwater exposures to industrial activities. Table 3 lists sites that hold, or historically held, an NPDES No Exposure Certification.

| Address | Company | NEC Time Period |
|----------------|--------------------------|-----------------|
| 4800 N Channel | Temp-Control Mechanical | 2010 – Present |
| 5016 N Channel | Temp-Control Mechanical | 2010 – Present |
| 5020 N Channel | Swan Island Sandblasting | 2009 – Present |

Table 3. Sites with No Exposure Certification (NEC) in Basin S-5⁽¹⁾

Notes:

(1) Current NECs are indicated in bold.

Table 4 summarizes additional programmatic source controls for Basin S-5.

| Site/Area | Source Controls | Implementation Timeframe | | | |
|---|---|-----------------------------|--|--|--|
| City Conveyance System | | | | | |
| N Channel Avenue | The City constructed two unlined water quality swales to reduce total suspended solids loading to Outfall S-5. The swales treat stormwater discharged from a portion of N. Channel Avenue northwest of the intersection of N. Ballast Street and N. Channel Avenue. | 2009 | | | |
| | The City constructed three additional lined water quality swales along the west side of N. Channel Avenue between N. Ballast Street and N. Dolphin Street. The swales are designed to reduce suspended solids loading to Outfall S-5. | 2013 | | | |
| Other (Programmatic Source Controls) ⁽¹⁾ | | | | | |
| Environmental Fibers International; Temp-Control Mechanical | Stormwater Management Manual Requirements | Ongoing | | | |
| Daimler Corp 2 Test Center | City Discharge Authorization ⁽²⁾ | Ongoing | | | |
| Environmental Fibers | NPDES 1200-Z Stormwater Permit Requirements | Ongoing | | | |
| See listing in Table 3 | NPDES No Exposure Certifications | Ongoing | | | |

Table 4. Basin S-5 Source Controls

Notes:

NPDES = National Pollutant Discharge Elimination System

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

(2) Additional site-specific stormwater pollution controls required and implemented under City Code.

Other municipal programs (e.g., periodic inspection of and technical assistance to non-NPDES sites, illicit discharge monitoring, street sweeping, etc.) likely 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 S-5 and concludes that no current major sources of contaminants to the City conveyance system are present. Therefore, future discharges from Outfall S-5 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 S-5.

8 References

- BES. 2000. Preliminary Evaluation of City Outfalls. Portland Harbor Study Area. Notebook 1: Eastshore Stormwater and CSO Outfalls. City of Portland, Bureau of Environmental Services. December 2000.
- BES. 2006. Outfall Basin S-5 Inline Solids Sampling, Technical Memorandum No. OF S5-1. City of Portland, Bureau of Environmental Services. June 6, 2006.
- BES. 2010. Stormwater Evaluation Report. City of Portland, Bureau of Environmental Services. February 2010.
- CH2M HILL. 2004. Programmatic Source Control Remedial Investigation Work Plan of the City of Portland Outfalls Project. Prepared by CH2M HILL for the City of Portland Bureau of Environmental Services. March 19, 2004.
- 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.

List of Figures

Figure 1: Basin S-5 Overview and Conveyance System Source Controls

Figure 2: Basin S-5 Upland Site Source Controls



