
# Lower Duwamish Waterway
# RM 1.0 to 1.2 East
# (King County Lease Parcels)

# Source Control Action Plan

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# (King County Lease Parcels)

## Source Control Action Plan

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# Executive Summary

The purpose of this Source Control Action Plan (SCAP) is to describe potential sources of contaminants to sediments along the Lower Duwamish Waterway (LDW) River Mile (RM) 1.0 to 1.2 East, and to identify actions necessary to prevent recontamination of sediment after cleanup. This SCAP is based on a thorough review of information pertinent to sediment recontamination, as documented in *Summary of Existing Information and Identification of Data Gaps* (SAIC 2010).

The LDW, located in Seattle, Washington, was added to the National Priorities List (Superfund) by the U.S. Environmental Protection Agency (EPA) on September 13, 2001. Chemicals of concern (COCs) found in waterway sediments include polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), mercury, bis(2-ethylhexyl)phthalate (BEHP), dioxins/furans, and organo-tin compounds. These COCs may pose threats to people, fish, and wildlife.

In December 2000, EPA and the Washington State Department of Ecology (Ecology) entered into an order with King County, the Port of Seattle, the City of Seattle, and The Boeing Company to perform a Remedial Investigation (RI) and Feasibility Study (FS) of sediment contamination in the waterway. EPA is the lead agency for the RI/FS. Ecology is the lead agency for controlling current sources of pollution to the site, in cooperation with the City of Seattle, King County, the Port of Seattle, the City of Tukwila, and EPA.

Phase 1 of the RI/FS (Windward 2003a) used existing data to identify potential human health and ecological risks, information needs, and high priority areas for cleanup. Seven candidate early action areas were identified (Windward 2003b). Ecology's *Lower Duwamish Waterway Source Control Status Report, 2003 to June 2007* (Ecology 2007a) and *Lower Duwamish Waterway Source Control Status Report, July 2007 to March 2008* (Ecology 2008a) identified another 16 source control areas where source control actions may be necessary.[1] The King County (KC) Lease Parcels source control area was identified as one of these areas.

As part of source control efforts in the LDW, Ecology works with other members of the Source Control Work Group (SCWG) to develop SCAPs for terrestrial source control areas that are potential sources of contaminants to contaminated sediments that will or may require cleanup. The SCAP for each of these source control areas describes potential sources of sediment contaminants and the actions needed to control them, and evaluates whether ongoing sources are present that could recontaminate sediments after cleanup. In addition, the SCAPs describe source control actions that are planned or currently underway, and sampling and monitoring activities that will be conducted to identify additional sources.

Sections 1 and 2 of this SCAP provide background information about the LDW site and the sediments associated with the KC Lease Parcels source control area. PCBs, PAHs, mercury, and BEHP are considered to be the major COCs in sediments associated with the source control area. While this SCAP focuses on these COCs, other chemicals that could result in sediment recontamination will be addressed as sources are identified.

[1] One additional source control area was added by Ecology in 2010, for a total of 24 source control areas.

Section 3 contains the following: a description of potential sources of contamination that may affect sediments associated with the KC Lease Parcels source control area, including outfalls, spills to the waterway, and releases from adjacent properties or upland properties within the S Brandon Street combined sewer overflow (CSO) basin; an evaluation of the significance of these potential sources; and an identification of the actions that are planned or underway to control potential contaminant sources. Section 4 discusses monitoring activities that will be conducted to identify additional sources and assess progress, and Section 5 describes how source control efforts will be tracked and reported. Section 6 lists documents reviewed during preparation of this SCAP.

Table ES-1 lists the source control actions that have been identified for the KC Lease Parcels source control area. This table includes a brief description of the potential contaminant sources for each property, source control activities to be conducted, parties involved in source control actions for each property or task, and milestone/target dates for completion of the identified action items. The milestones and targets are best-case scenarios based on consultation with the identified agencies or facilities. They reflect reasonably achievable schedules, and include the time required for planning, contracting, field work, laboratory analysis, and activities dependent on weather.

A removal action for sediment associated with the KC Lease Parcels source control area was not scheduled at the time this SCAP was prepared.

## Table ES-1. Source Control Actions – King County Lease Parcels Source Control Area

| Potential Sources | Action Items | Priority | Responsible Party(ies) | Status | Target Date |
|---|---|---|---|---|---|
| **Public Outfall Nos. 2007 and 2244** | | | | | |
| Stormwater is discharged to the LDW from Outfall No. 2007, which drains approximately 4.5 acres of the J.A. Jack facility, and from Outfall No. 2244, which drains approximately 6.5 acres of the Cadman and Lehigh Northwest facility. | Conduct business inspections at facilities with stormwater drainage to Outfall Nos. 2007 and 2244 including Cadman, Lehigh Northwest, and J.A. Jack, to verify that these facilities are in compliance with applicable regulations/code and have implemented appropriate stormwater best management practices (BMPs) to minimize the potential for contaminants to enter the storm drain system. | Medium | King County, Ecology | Planned | TBD |
| **S Brandon Street Combined Sewer Overflow** | | | | | |
| The S Brandon Street CSO basin covers approximately 380 acres. From 2000 to 2007, combined wastewater and stormwater overflows were discharged through the S Brandon Street CSO on average 23 times per year, with an annual average volume of approximately 31.6 million gallons per year (mgy). Approximately 128 facilities with Ecology Facility/Site IDs are located in the S Brandon Street CSO basin. | Provide data to Ecology from solids samples collected in June 2010 in the S Brandon Street CSO basin. | Medium | King County | Planned | TBD |
| | Evaluate the 2009 effluent discharge and 2010 solids sample data to assess whether the effluent concentrations and/or solids sample concentrations represent a potential source of contaminants to sediments associated with the KC Lease Parcels source control area, and develop source control actions if necessary. | Medium | Ecology | Planned | TBD |
| | Use source tracing data to identify and evaluate possible point source contributions of LDW COCs to CSO discharges. Determine if contaminant loading analyses are necessary for King County Industrial Waste (KCIW) Program permit holders in this CSO basin. | Medium | King County | Planned | TBD |
| **Manson Construction Company (5209 East Marginal Way S)** | | | | | |
| Past facility operations resulted in soil contamination. Notes from a 2002 facility inspection performed by Ecology indicate that soil remediation has been performed on the property.<br>Data from LDW sediment sampling near the Manson Construction facility indicate the presence of PAHs and PCBs at concentrations above the SQS. | Obtain laboratory data and site plans from historical site assessment(s) and remediation performed at the property. Confirm that satisfactory completion of soil cleanup activities was achieved to eliminate groundwater discharge as a potential sediment recontamination pathway. Determine if arsenic or other sediment COCs may be present in soil and groundwater beneath the facility at concentrations that may have the potential to recontaminate LDW sediments.[1] | High | Ecology | Planned | TBD |
| | If satisfactory soil cleanup was not achieved, require the property owner/operator to conduct a site assessment to determine residual concentrations of sediment COCs in soil and groundwater beneath the property in order to evaluate the potential for sediment recontamination via groundwater discharge.[1] | High | Ecology | Planned | TBD |

## Table ES-1. Source Control Actions – King County Lease Parcels Source Control Area

| Potential Sources | Action Items | Priority | Responsible Party(ies) | Status | Target Date |
|---|---|---|---|---|---|
| | Conduct a visual bank survey. If bank erosion is likely, collect bank soil samples and analyze them for sediment COCs to evaluate the potential for contaminants to enter the LDW via erosion.[1] | Low | King County, Ecology | Planned | TBD |
| Stormwater from the Manson Construction facility may be discharged to the LDW via the Cadman stormwater system. | Conduct a follow-up inspection at the Manson Construction facility to determine if corrective measures have been implemented and to ensure that operations at Manson Construction are in compliance with applicable regulations and BMPs to prevent the release of contaminants to the LDW. Assess whether the facility should apply for coverage under the Industrial Stormwater General Permit.[2] | High | Ecology | Planned | TBD |
| | Determine if the catch basin on the Manson Construction facility that was identified by the City of Seattle and field-verified by King County is connected to the Cadman stormwater system. | High | King County, Ecology | Planned | TBD |
| Due to the property's proximity to the LDW, surface runoff and spills may be conveyed to the slip. Over-water loading activities and truck/equipment washing activities may occur at the property. Spills or runoff from these activities may reach the LDW. | Review responses to EPA Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 104(e) Request for Information letters sent to Manson Construction, Manson International, Inc., and Manson-Dutra JV.[1] | Medium | Ecology | Planned | TBD |
| | Obtain and review a copy of *Environmental Site Assessment, Duwamish Properties* prepared by Boateng for King County in January 1997, to identify additional potential sources of COCs to sediment and develop appropriate source control actions, if necessary.[2] | Medium | Ecology | Planned | TBD |
| **Cadman Seattle, Inc. and Lehigh Northwest (5225 East Marginal Way S)** | | | | | |
| The facility has a stormwater treatment system. When the capacity of the facility's stormwater treatment system is exceeded, stormwater is discharged to the LDW through Outfall 2244. Ecology determined that parts, equipment, liquid products, and wastes stored outdoors represent a potential threat to stormwater quality. | Conduct a follow-up business inspection of Cadman and Lehigh Northwest to verify compliance with Ecology's 2007 and 2009 recommendations, applicable regulations, and BMPs to prevent the release of contaminants to the LDW. | High | Ecology | Planned | TBD |
| | Require Cadman and Lehigh Northwest to report when discharges to Outfall No. 2244 occur to allow Ecology to track overflow events and evaluate potential impacts to the LDW. | High | Ecology | Planned | TBD |
| | Review the updated Stormwater Pollution Prevention Plan (SWPPP), when completed, to ensure compliance with Ecology's requirements. | High | Ecology | Planned | TBD |
| | Obtain and review a copy of *Environmental Site Assessment, Duwamish Properties*, prepared by Boateng for King County in January 1997, to identify additional potential sources of COCs to sediment and develop appropriate source control actions, if necessary. | Medium | Ecology | Planned | TBD |

## Table ES-1. Source Control Actions – King County Lease Parcels Source Control Area

| Potential Sources | Action Items | Priority | Responsible Party(ies) | Status | Target Date |
|---|---|---|---|---|---|
| **United Western Supply (5245 East Marginal Way S)** | | | | | |
| This facility is adjacent to the LDW. Operations at United Western Supply may represent a source of COCs to sediments associated with the KC Lease Parcels source control area; however, insufficient information is available to make this determination. Potential pathways include stormwater discharge, surface runoff/spills, and bank erosion. | Perform a source control inspection of United Western Supply and the buildings on the southern portion of the property to verify compliance with applicable regulations and BMPs to prevent the release of contaminants to the LDW. | Medium | King County, Ecology | Planned | TBD |
| | Review responses from Western Utilities and United Western Supply to EPA's CERCLA Section 104(e) Request for Information letters, when available. | Medium | Ecology | Planned | TBD |
| | Obtain and review the March 1997 environmental assessment report, prepared by Boateng, in order to identify potential sources of COCs to sediment and develop appropriate source control actions. | Medium | Ecology | Planned | TBD |
| **J.A. Jack & Sons (5801 East Marginal Way S)** | | | | | |
| Stormwater from this facility is collected in an onsite stormwater system, which discharges to groundwater. In the event of a system malfunction or storm event that exceeds the capacity of the system, stormwater is directed to storm drain lines on the St. Gobain facility and then discharged to the LDW via Outfall 2007.<br><br>In 2007 Ecology indicated that an area adjacent to the LDW needed to be re-graded to prevent surface runoff from reaching the LDW; in 2009, Seattle Public Utilities (SPU) indicated that Ecology blocks in the Pinch Point area were situated to allow for discharge. Contaminants suspended in surface runoff, if any, could represent a source of sediment recontamination. | Conduct a follow-up inspection of J.A. Jack to verify compliance with corrective actions identified by Ecology in 2007 and SPU in 2009, applicable regulations, and BMPs to prevent the release of contaminants to the LDW. | High | Ecology | Planned | TBD |
| | Evaluate the onsite stormwater collection system to determine its efficiency since Ecology inspectors observed stormwater flowing to the catch basins on the St. Gobain facility. | High | Ecology | Planned | TBD |
| | Determine if the infiltration gallery is in compliance with Underground Injection Control regulations. | Medium | Ecology | Planned | TBD |
| | Obtain additional information, through facility inspections/ observations or environmental sampling, to determine if discharges from the Pinch Point area are permissible and if these discharges are a potential source of sediment recontamination. | High | Ecology | Planned | TBD |
| Stormwater and wash water that is discharged to the infiltration gallery may have the potential to contaminate groundwater. If sediment COCs are present in the groundwater, they may be transported to the LDW. | Require J.A. Jack to obtain environmental data to assess the groundwater quality in the infiltration gallery in order to determine if sediment COCs are present in groundwater and if these COCs may be transported to the LDW. | Medium | Ecology | Planned | TBD |
| | Conduct a visual bank survey. If bank erosion is likely, collect bank soil samples and analyze them for sediment COCs to evaluate the potential for contaminants to enter the LDW via bank erosion. | Medium | Ecology | Planned | TBD |

## Table ES-1. Source Control Actions – King County Lease Parcels Source Control Area

| Potential Sources | Action Items | Priority | Responsible Party(ies) | Status | Target Date |
|---|---|---|---|---|---|
| **Facilities Within the S Brandon Street CSO Basin** | | | | | |
| There are approximately 128 facilities within the CSO basin with Ecology Facility/Site IDs, including 11 listed on the Confirmed and Suspected Contaminated Sites List (CSCSL), 61 listed on Ecology's underground storage tank (UST) or leaking underground storage tank (LUST) lists, 8 with National Pollutant Discharge Elimination System (NPDES) permits, and 5 with KCIW discharge authorizations or permits. Because combined sewer discharges are significantly diluted prior to discharge, the potential that contaminants from these properties will impact sediments associated with the KC Lease Parcels source control area is low. | Conduct business inspections within the S Brandon Street CSO basin to verify compliance with applicable regulations and BMPs to prevent the release of contaminants to the LDW. | Low | King County, Ecology, SPU | Planned | TBD |
| | Review information regarding two LUST facilities, Bob's Texaco Service and Chevron 9-0636, to evaluate the potential for sediment recontamination, if any, that may be associated with these facilities. | Low | Ecology | Planned | TBD |
| | Perform an inspection at Union Pacific Motor (a LUST facility) to verify compliance with applicable regulations and BMPs to prevent the release of contaminants to the LDW. | Low | Ecology | Planned | TBD |
| | Perform inspections at two facilities holding KCIW discharge authorizations, City of Seattle--SPU Materials Storage Yard and Kamco Seafood, Inc., that have not been assigned Facility/Site ID numbers by Ecology. | Low | Ecology | Planned | TBD |

1. This action item, which was previously identified for Manson Construction in the Slip 1 SCAP (Ecology 2009c), is also applicable to source control efforts in the KC Lease Parcels source control area.
2. This action item identified for Manson Construction with regard to the KC Lease Parcels source control area may also be applicable to the Slip 1 source control area.

**Priority:**

High priority action item – to be completed prior to sediment cleanup
Medium priority action item – to be completed prior to or concurrent with sediment cleanup
Low priority action item – ongoing actions or actions to be completed as resources become available

# Acknowledgements

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# Acronyms/Abbreviations

| | |
|---|---|
| BEHP | bis(2-ethylhexyl)phthalate |
| bgs | below ground surface |
| BMP | best management practice |
| CERCLA | Comprehensive Environmental Response, Compensation, and Liability Act |
| COC | chemical of concern |
| CSCSL | Confirmed and Suspected Contaminated Sites List |
| CSL | Cleanup Screening Level |
| CSO | combined sewer overflow |
| DW | dry weight |
| EAA | Early Action Area |
| Ecology | Washington State Department of Ecology |
| EPA | United States Environmental Protection Agency |
| FS | Feasibility Study |
| HPAH | high molecular weight polycyclic aromatic hydrocarbon |
| KC | King County |
| KCIW | King County Industrial Waste |
| LDW | Lower Duwamish Waterway |
| LDWG | Lower Duwamish Waterway Group |
| LPAH | low molecular weight polycyclic aromatic hydrocarbon |
| LUST | leaking underground storage tank |
| mgy | million gallons per year |
| NOAA | National Oceanic and Atmospheric Administration |
| NPDES | National Pollutant Discharge Elimination System |
| OC | organic carbon |
| PAH | polycyclic aromatic hydrocarbon |
| PCB | polychlorinated biphenyl |
| RCRA | Resource Conservation and Recovery Act |
| RI | Remedial Investigation |
| RM | river mile |
| ROD | Record of Decision |
| SAIC | Science Applications International Corporation |
| SCAP | Source Control Action Plan |
| SCWG | Source Control Work Group |
| SD | storm drain |
| SMS | Sediment Management Standards |
| SPU | Seattle Public Utilities |
| sq ft | square feet |
| SQS | Sediment Quality Standards |
| SWPPP | Stormwater Pollution Prevention Plan |
| TEQ | Toxic Equivalency Quotient |
| TOC | total organic carbon |
| TPH | total petroleum hydrocarbons |
| UST | underground storage tank |
| VOC | volatile organic compound |
| WAC | Washington Administrative Code |
| WQC | water quality criteria |

# 1.0 Introduction

This Source Control Action Plan (SCAP) describes potential sources of contamination that may affect sediments in and adjacent to the River Mile (RM) 1.0 to 1.2 East[2] (King County [KC] Lease Parcels) Source Control Area.[3] The purpose of this plan is to evaluate the significance of these sources and to determine if actions are needed to minimize the potential for recontamination of sediment associated with the KC Lease Parcels source control area after cleanup. In addition, this SCAP describes:

- Source control actions/programs that are planned or currently underway,
- Sampling and monitoring activities that will be conducted to identify additional sources and assess progress, and
- How these source control efforts will be tracked and reported.

The information in this document was obtained from a variety of sources, including the following documents:

- *Lower Duwamish Waterway, RM 1.0 to 1.2 East (King County Lease Parcels) – Summary of Existing Information and Identification of Data Gaps*, Science Applications International Corporation (SAIC), June 2010, located on Ecology's website: http://www.ecy.wa.gov/programs/tcp/sites/lower_duwamish/sites/RM_10-12_E/KCLeaseParcels.html
- *Lower Duwamish Waterway Source Control Strategy*, Washington State Department of Ecology, January 2004, located on Ecology's website: http://www.ecy.wa.gov/pubs/0409043.pdf

## 1.1 Organization of Document

Section 1 of this SCAP describes the Lower Duwamish Waterway (LDW) site, the strategy for source control, and the responsibilities of the public agencies involved in source control for the LDW. Section 2 provides background information on the KC Lease Parcels source control area, including a description of the chemicals of concern (COCs) for sediments. Section 3 provides an overview of potential sources of contaminants that may affect sediments associated with the KC Lease Parcels source control area, including outfalls, spills, properties adjacent to the LDW, and upland properties tributary to the S Brandon Street combined sewer overflow (CSO) outfall. Section 3 also describes actions planned or currently underway to control potential sources of contaminants, while Sections 4 and 5 describe monitoring and tracking/reporting activities, respectively. References are listed in Section 6, and figures and tables are presented at the end of the document.

As new information about the sites and potential sources discussed in this document becomes available and as source control progress is made, Ecology will update the information in this

[2] River miles as defined in this report are measured from the southern tip of Harbor Island.
[3] This SCAP incorporates data published through April 8, 2010. Section 5, Tracking and Reporting of Source Control Activities, describes how newer data will be disseminated.

SCAP as needed. The status of source control actions is summarized in the LDW Source Control Status Reports (Ecology 2007a, 2008a, 2008b, 2009f and as updated).

## 1.2 Lower Duwamish Waterway Site

The LDW is the downstream portion of the Duwamish River, extending from the southern tip of Harbor Island to just south of Turning Basin 3 (Figure 1). It is a major shipping route for bulk and containerized cargo. Most of the upland areas adjacent to the LDW have been developed for industrial and commercial operations. These include cargo handling and storage, marine construction, boat manufacturing, marina operations, concrete manufacturing, paper and metals fabrication, food processing, and aerospace manufacturing. In addition to industry, the river is used for fishing, recreation, and wildlife habitat. Residential areas near the waterway include the South Park and Georgetown neighborhoods. Beginning in 1913, this portion of the Duwamish River was dredged and straightened to promote navigation and industrial development, resulting in the river's current form. Shoreline features within the waterway include constructed bulkheads, piers, wharves, buildings extending over the water, and steeply sloped banks armored with riprap or other fill materials (Weston 1999). This development left intertidal habitats dispersed in relatively small patches, with the exception of Kellogg Island, which is the largest contiguous area of intertidal habitat remaining in the Duwamish River (Tanner 1991). Over the past 20 years, public agencies and volunteer organizations have worked to restore intertidal and subtidal habitat to the river. Some of the largest restoration projects are at Herring House Park/Terminal 107, Turning Basin 3, Hamm Creek, and Terminal 105.

The presence of chemical contamination in the LDW has been recognized since the 1970s (Windward 2003a). In 1988, the United States Environmental Protection Agency (EPA) investigated sediments in the LDW as part of the Elliott Bay Action Program. Problem chemicals identified by the EPA study included metals, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), phthalates, and other organic compounds. In 1999, EPA completed a study of approximately 6 miles of the waterway, from the southern tip of Harbor Island to just south of the turning basin near the Norfolk CSO (Weston 1999). This study confirmed the presence of PCBs, PAHs, phthalates, mercury, and other metals. These contaminants may pose threats to people, fish, and wildlife.

In December 2000, EPA and the Washington State Department of Ecology (Ecology) signed an agreement with King County, the Port of Seattle, the City of Seattle, and The Boeing Company, collectively known as the Lower Duwamish Waterway Group (LDWG). Under the agreement, the LDWG is conducting a Remedial Investigation (RI) and Feasibility Study (FS) of the LDW to assess risks to human health and the environment and to evaluate cleanup alternatives. The RI for the site is being done in two phases. Results of Phase 1 were published in July 2003 (Windward 2003a). The Phase 1 RI used existing data to characterize the nature and extent of chemical distributions in LDW sediments, develop preliminary risk estimates, and identify candidate sites for early cleanup action. The Phase 2 RI was published in July 2010, and presents the results of investigations conducted for the LDW study area between 2003 and 2009, including studies to assess sediment dynamics, the nature and extent of contamination in the LDW, preliminary background concentrations, ecological and human health risks, and potential chemical sources (Windward 2010). No additional early cleanup areas were identified. An FS,

which will address cleanup options for contaminated sediments in the LDW, is currently in progress.

On September 13, 2001, EPA added the LDW to its National Priorities List. This is EPA's list of hazardous waste sites that warrant further investigation and cleanup under Superfund. Ecology added the site to the Washington State Hazardous Sites List on February 26, 2002.

An interagency Memorandum of Understanding, signed by EPA and Ecology in April 2002 and updated in April 2004, divides responsibilities for the site (EPA and Ecology 2002; EPA and Ecology 2004). EPA is the lead agency for the RI/FS, while Ecology is the lead agency for source control issues.

In June 2003, the *Technical Memorandum: Data Analysis and Candidate Site Identification* (Windward 2003b) was issued. Seven candidate sites for early action (Early Action Areas [EAAs]) were recommended (Figure 1). The sites are:

- Area 1: Duwamish/Diagonal CSO and storm drain (SD);
- Area 2: West side of the waterway, just south of the First Avenue S Bridge, approximately 2.2 miles from the south end of Harbor Island;
- Area 3: Slip 4, approximately 2.8 miles from the south end of Harbor Island;
- Area 4: South of Slip 4, on the east side of the waterway, just offshore of the Boeing Plant 2 and Jorgensen Forge properties, approximately 2.9 to 3.7 miles from the south end of Harbor Island;
- Area 5: Terminal 117 and adjacent properties, approximately 3.6 miles from the south end of Harbor Island, on the west side of the waterway;
- Area 6: East side of the waterway, approximately 3.8 miles from the south end of Harbor Island; and
- Area 7: Norfolk CSO/SD, on the east side of the waterway, approximately 4.9 to 5.5 miles from the south end of Harbor Island.

Of the seven recommended EAAs, five either had sponsors to begin investigations or were already under investigation by a member or group of members of the LDWG. These five sites are: Slip 4, Terminal 117, Boeing Plant 2, Duwamish/Diagonal CSO/SD, and Norfolk CSO/SD. EPA is the lead agency for managing cleanup at Terminal 117 and Slip 4. The other three early action cleanup projects were begun before the current LDW RI/FS was initiated. Cleanup at Boeing Plant 2, under EPA Resource Conservation and Recovery Act (RCRA) management, is currently in the planning stage. The Duwamish/Diagonal CSO/SD and Norfolk CSO/SD cleanups are under King County management as part of the Elliott Bay-Duwamish Restoration Program. Cleanup at Duwamish/Diagonal was partially completed in March 2004; a partial sediment cleanup was conducted at Norfolk CSO/SD in 1999. Early action cleanups may involve members of the LDWG or other parties as appropriate. Planning and implementation of early action cleanups is being conducted concurrently with the Phase 2 RI/FS investigation.

In 2007, Ecology, in consultation with EPA, identified eight additional source control areas based on available sediment data, size of the upland basin draining to the source control area, and general knowledge about facilities operating in the basin. In February 2008, Ecology identified

the source control areas of the LDW not covered by a SCAP or planned SCAP. Using the same criteria as in 2007, eight additional potential source control areas were added to the list (Ecology 2008a). One additional source control area was added by Ecology in 2010, for a total of 24 source control areas. The seven EAAs and 17 additional source control areas are shown in Figure 1.

Further information about the LDW can be found at:
http://yosemite.epa.gov/r10/cleanup.nsf/sites/lduwamish and
http://www.ecy.wa.gov/programs/tcp/sites/lower_duwamish/lower_duwamish_hp.html.

## 1.3 LDW Source Control Strategy

The LDW Source Control Strategy (Ecology 2004) describes the process for identifying source control issues and implementing effective source controls for the LDW. The plan is to identify and manage sources of potential contamination and recontamination in coordination with sediment cleanups. The goal of the strategy is to minimize the potential for recontamination of sediments to levels exceeding the LDW sediment cleanup goals and the Washington State Sediment Management Standards (SMS).[4] Existing administrative and legal authorities will be used to perform inspections and require necessary source control actions.

The strategy is being implemented through the development of a series of detailed, source control area-specific SCAPs that will be coordinated with sediment cleanups, beginning with the EAAs. Each SCAP will document what is known about the area, the potential sources of recontamination, actions taken to address them, and how to determine when adequate source control is achieved for an area. Because the scope of source control for each site will vary, it is necessary to adapt each plan to the specific situation at that site. The success of this strategy depends on the coordination and cooperation of all public agencies with responsibility for source control in the LDW area, as well as prompt compliance by the businesses that must make necessary changes to control releases from their properties.

The source control strategy focuses on controlling contamination that affects LDW sediments. It is based on the principles of source control for sediment sites described in EPA's *Principles for Managing Contaminated Sediment Risks at Hazardous Waste Sites; February 12, 2002* (USEPA 2002), and Ecology's SMS. The first principle is to control sources early, starting with identifying all ongoing sources of contaminants to the site. EPA's Record of Decision (ROD) for the site will require that sources of sediment contamination to the entire site be evaluated, investigated, and controlled as necessary. Dividing source control work into specific SCAPs and prioritizing those plans to coordinate with sediment cleanups will address the guidance and regulations and will be consistent with the selected remedial actions in the EPA ROD.

Source control priorities are divided into four tiers. Tier 1 consists of source control actions associated with EAA sediment cleanups. Tier 2 consists of source control actions associated with cleanup areas identified in Phase 2 of the RI/FS and EPA's ROD. Tier 3 consists of source control necessary to prevent future sediment contamination from basins that may not drain directly to an identified sediment cleanup area. Tier 4 consists of source control necessary to

[4] Washington Administrative Code (WAC) 173-204

address any recontamination identified by post-cleanup sediment monitoring (Ecology 2008a). This document is a SCAP for a Tier 3 Source Control Area.

Further information about the LDW Source Control Strategy can be found at: http://www.ecy.wa.gov/biblio/0409052.html and http://www.ecy.wa.gov/programs/tcp/sites/lower_duwamish/lower_duwamish_hp.html.

## 1.4 Source Control Work Group

The primary public agencies responsible for source control for the LDW are Ecology, the City of Seattle, King County, Port of Seattle, City of Tukwila, and EPA. All of these agencies, except the Port of Seattle and City of Tukwila, are involved in the source control activities for the KC Lease Parcels source control area.

In order to coordinate among these agencies, Ecology formed the Source Control Work Group (SCWG) in January 2002. The purpose of the SCWG is to share information, discuss strategy, actively participate in developing SCAPs, jointly implement source control measures, and share progress reports on source control activities for the LDW area. The monthly SCWG meetings are chaired by Ecology. All final decisions on source control actions and completeness will be made by Ecology, in consultation with EPA, as outlined in the April 2004 Ecology/EPA LDW Memorandum of Understanding (EPA and Ecology 2004).

Other public agencies with relevant source control responsibilities include the Washington State Department of Transportation, Puget Sound Clean Air Agency, and the Seattle/King County Department of Public Health. These agencies are invited to participate in source control with the SCWG as appropriate (Ecology 2004).

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# 2.0 River Mile 1.0 to 1.2 East (King County Lease Parcels)

The KC Lease Parcels source control area is located along the eastern side of the LDW Superfund Site between 1.0 and 1.2 miles from the southern tip of Harbor Island (Figure 1). Elevated concentrations of chemicals, including metals, PAHs, bis(2-ethylhexyl)phthalate (BEHP), and PCBs, have been measured in sediments associated with the source control area; these may be a result of historical and/or ongoing sources within the source control area. Chemicals may have entered the LDW through direct discharges, spills, bank erosion, groundwater discharge, surface water runoff, atmospheric deposition, or other non-point source discharges.

The RM 1.0 to 1.2 East (KC Lease Parcels) source control area extends from the southern side of Slip 1 to the Saint Gobain Containers (St. Gobain) facility (Figure 1). King County owns the property located directly adjacent to the LDW within this source control area and leases it to several facilities (Figure 2). From north to south, these facilities are:

- Manson Construction Company (Manson Construction),
- Cadman Seattle Inc. (Cadman) and Lehigh Northwest,
- United Western Supply, and
- J.A. Jack & Sons (J.A. Jack).

The LDW is west of these facilities. Located to the east of these properties are East Marginal Way S and other industrial facilities. Slip 1 is north of Manson Construction. St. Gobain is south of J.A. Jack. Slip 1 and associated sources are discussed as part of the Slip 1 (RM 0.9 to 1.0 East) source control area, and St. Gobain and associated sources are discussed as part of the St. Gobain to Glacier Northwest (RM 1.2 to 1.7 East) source control area.[5]

In the late 1800s and early 1900s, extensive topographic modifications were made to the Duwamish River to create a straightened channel; many of the current side slips are remnants of these old river meanders. Groundwater flow in the KC Lease Parcels source control area is generally to the west-southwest, toward the LDW, although the direction may vary locally depending on the nature of the subsurface material, and temporally, based on proximity to the LDW and the influence of tidal action.

Sediments associated with the KC Lease Parcels source control area consist of 40 to 60 percent fines from approximately RM 1.0 to 1.1 East and greater than 80 percent fines from approximately RM 1.1 to 1.2 East. Total organic carbon (TOC) in this area ranges from 0.34 to 3.93 percent (SAIC 2010).

[5] A SCAP was published for the Slip 1 source control area in May 2009 (Ecology 2009c) and a SCAP was published for the St. Gobain to Glacier Northwest source control area in June 2009 (Ecology 2009d).

## 2.1 Chemicals of Concern in Sediment

Several environmental investigations have included the collection of sediment associated with the KC Lease Parcels source control area (Figure 3), including the following:

- Thirteen surface sediment samples from one sampling station (WQABRAN) located approximately 150 feet southwest of the S Brandon Street CSO. King County collected the samples from March to June 1997 as part of a CSO Water Quality Assessment study (King County 1999).
- Seven surface sediment samples collected as part of a National Oceanic and Atmospheric Administration (NOAA) sediment characterization of the Duwamish River in 1997 (NOAA 1998);
- Nine surface sediment samples collected during an EPA Site Inspection in 1998 (Weston 1999);
- Three subsurface sediment samples collected in August 2003 adjacent to Lehigh Northwest (Windward 2010);
- Eight surface sediment and 23 subsurface sediment samples from four coring locations collected during the LDW Phase 2 RI (Windward 2005a, 2005b, 2007a, 2007b).

Sediment data associated with the KC Lease Parcels source control area are detailed in *Summary of Existing Information and Identification of Data Gaps* (SAIC 2010), referred to in this document as the KC Lease Parcels Data Gaps Report. Chemical data were compared to the SMS, which include both the Sediment Quality Standards (SQS) and Cleanup Screening Levels (CSLs) (WAC 173-204). The results of this comparison are provided on Tables 1 and 2. Sediments that meet the SQS criteria have a low likelihood of adverse effects on sediment-dwelling biological resources. However, an exceedance of the SQS numerical criteria does not necessarily indicate adverse effects or toxicity, and the degree of SQS exceedance does not correspond to the level of sediment toxicity. The CSL is greater than or equal to the SQS and represents a higher level of risk to benthic organisms than SQS levels. The SQS and CSL values provide a basis for identifying sediments that may pose a risk to some ecological receptors. The SMS for most organic chemicals are based on total organic carbon (OC)-normalized concentrations.

COCs were identified based on the results of sediment sampling in the vicinity of the KC Lease Parcels source control area, as identified above. Chemicals that exceeded the SQS in at least one surface or subsurface sediment sample are considered COCs for the KC Lease Parcels source control area. The greatest exceedances were observed for PCBs at sample locations between the surface and 2 feet below ground surface (bgs) offshore of Cadman and Lehigh Northwest, and for PAHs in a surface sample offshore of Cadman and Lehigh Northwest and between 3 to 3.5 feet bgs downstream of Outfall 2007 (Figure 3). Additional information on SQS/CSL exceedances is provided in the KC Lease Parcels Data Gaps Report (SAIC 2010).

The following chemicals were detected at concentrations above the SQS/CSL in sediments associated with the King County source control area, and are considered sediment COCs.

| Chemicals Detected at Concentrations Above the SQS/CSL | Surface Sediment | | Subsurface Sediment | |
|---|---|---|---|---|
| | > SQS | > CSL | > SQS | > CSL |
| ***Metals*** | | | | |
| Mercury | ● | ● | ● | ● |
| ***PAHs*** | | | | |
| 2-Methylnaphthalene | ● | ● | | |
| Acenaphthene | ● | ● | ● | ● |
| Anthracene | | | ● | |
| Benzo(a)anthracene | ● | | ● | ● |
| Benzo(a)pyrene | | | ● | ● |
| Benzo(b)fluoranthene | | | ● | |
| Benzofluoranthenes (total calc'd) | ● | | ● | ● |
| Benzo(g,h,i)perylene | | | ● | |
| Chrysene | ● | | ● | ● |
| Dibenz(a,h)anthracene | | | ● | |
| Dibenzofuran | ● | ● | | |
| Fluoranthene | ● | | ● | ● |
| Fluorene | ● | ● | ● | ● |
| Indeno(1,2,3-cd)pyrene | ● | | ● | |
| Naphthalene | ● | ● | | |
| Phenanthrene | ● | ● | ● | ● |
| Pyrene | | | ● | |
| Total HPAH | ● | | ● | |
| Total LPAH | ● | ● | ● | ● |
| ***Phthalates*** | | | | |
| BEHP | | | ● | |
| ***PCBs*** | | | | |
| PCBs (total) | ● | ● | ● | ● |

Chemical concentrations and exceedance factors, which are a measure of the degree to which maximum detected concentrations exceed the SQS/CSL values, are listed on Tables 1 and 2.
HPAH = high molecular weight PAH
LPAH = low molecular weight PAH

In addition, although no sediment quality standards have been promulgated, dioxins and furans are also considered to be COCs at the KC Lease Parcels source control area. Mammalian dioxin/furan toxic equivalency quotients (TEQs) ranged from 10.6 to 133 ng/kg dry weight (DW) at five sampling locations. The highest concentrations of dioxins/furans were detected at location LDW-SS37 (SAIC 2010).

## 2.2 Potential Pathways to Sediment

There are three outfalls discharging to the LDW within the KC Lease Parcels source control area, including two public storm drain outfalls and one CSO outfall (Figure 2). The public storm drain outfalls in this area include Outfall Nos. 2007 and 2244. The CSO outfall is the S Brandon Street CSO (Outfall No. 2223). Facilities that may represent sources of contaminants to sediments

along RM 1.0 to 1.2 East are considered to be within the KC Lease Parcels source control area; these include facilities located directly adjacent to the LDW and facilities within the S Brandon Street CSO system.

Transport pathways that could contribute to the recontamination of sediments associated with the KC Lease Parcels source control area following remedial activities include direct discharges via storm drain outfalls and the S Brandon Street CSO, surface runoff (sheet flow) from adjacent properties, bank erosion, groundwater discharges, air deposition, and spills directly to the LDW. Relevant pathways are described briefly below, and are discussed in more detail in the KC Lease Parcels Data Gaps Report (SAIC 2010). Specific contaminant sources and transport pathways are discussed in Section 3.

### 2.2.1 Direct Discharges from Outfalls

Direct discharges may occur from public or private storm drain systems or the S Brandon Street CSO. The LDW area is served by a combination of separated storm drain and sanitary sewers, and combined sewer systems. Storm drains convey stormwater runoff collected from streets, parking lots, roof drains, and residential, commercial, and industrial properties to the waterway. In the LDW, there are both public and private storm drain systems. Most of the waterfront properties along the LDW are served by privately owned systems that discharge directly to the waterway. The other upland areas are served by a combination of privately and publicly owned systems.

Within the S Brandon Street CSO system, there are facilities within the basin that have sanitary wastewater discharge connections as well as stormwater drainage connections to combined sewers. Although there can be specific distinctions whether a given sub-basin or sub-service area is a fully separated, partially separated, or a fully combined sewer system, this document uses "CSO basin" as a generic term to communicate the concept of a CSO system that is tributary to a specified CSO outfall and that includes some portion of identifiable storm drainage conveyance connected to combined sewers.

The storm drain system in the KC Lease Parcels source control area is publicly owned by King County; however, the storm drain system serves only the KC Lease Parcels. The only sources of stormwater to Outfall Nos. 2007 and 2004 are from the KC Lease Parcels.

Storm drains entering the LDW carry runoff generated by rain and snow. A wide range of chemicals may become dissolved or suspended in runoff as rainwater flows over the land. Urban areas may accumulate particulates, dust, oil, asphalt, rust, rubber, metals, pesticides, detergents, or other materials as a result of urban activities. These can be flushed into storm drains during wet weather. Storm drains can also convey materials from businesses with permitted discharges (i.e., National Pollutant Discharge Elimination System [NPDES] industrial stormwater permits), vehicle washing, runoff from landscaped areas, erosion of contaminated soil, groundwater infiltration, and materials illegally dumped into the system.

Some areas of the LDW are served by combined sewer systems, which carry both stormwater and municipal/industrial wastewater in a single pipe. These systems were generally constructed before about 1970 because it was less expensive to install a single pipe rather than separate storm

and sanitary systems. Under normal rainfall conditions, wastewater and stormwater are conveyed through this combined sewer pipe to a wastewater treatment facility. During large storm events, however, the total volume of wastewater and stormwater can sometimes exceed the conveyance and treatment capacity of the combined sewer system. When this occurs, the combined sewer system is designed to overflow through relief points, called CSOs. The CSOs prevent the combined sewer system from backing up and creating flooding problems.

Additional information on public storm drains and CSOs is presented in the KC Lease Parcels Data Gaps Report. Outfalls located within the KC Lease Parcels source control area are discussed in Section 3.1. Three outfalls are located within the source control area, including two publicly owned storm drains and one CSO outfall:

| Outfall No.[1] | Outfall Name | Diameter/Material | Outfall Type |
|---|---|---|---|
| 2007 | Unnamed | 18-inch composite construction | KC SD |
| 2223 | S Brandon Street CSO | 18-inch ductile iron | KC CSO |
| 2244 | Dock Pipe #2 Outfall | 15-inch | KC SD |

1. Outfall number as listed in Windward 2010, Appendix H.

These are discussed in more detail in Section 3.0.

### 2.2.2 Surface Runoff (Sheet Flow)

In areas lacking collection systems, spills or leaks on properties adjacent to the LDW could flow directly over impervious surfaces or through creeks and ditches to the waterway. Current operational practices at adjacent properties may contribute to the movement of contaminants to the LDW via runoff.

### 2.2.3 Groundwater Discharges

Contaminants in soil resulting from spills and releases to adjacent (and possibly upland) properties may be transported to groundwater and subsequently be released to the LDW. Contaminated groundwater at upland properties may infiltrate into the storm drain system and be discharged to the LDW.

### 2.2.4 Bank Erosion

The banks of the LDW shoreline are susceptible to erosion by wind and surface water, particularly in areas where banks are steep. Shoreline armoring and the presence of vegetation reduce the potential for bank erosion. Contaminants in soils, if present, along the banks of the KC Lease Parcels source control area could be released directly to sediments via erosion.

### 2.2.5 Spills to the LDW

Near-water and over-water activities have the potential to impact adjacent sediments from spills of material containing COCs. Cadman, Lehigh Northwest, and J.A. Jack conduct loading and unloading activities within the KC Lease Parcels source control area. Accidental spills during loading/unloading operations may result in transport of contaminants to sediment.

### 2.2.6 Atmospheric Deposition

Atmospheric deposition occurs when air pollutants enter the LDW directly or through stormwater. Air pollutants may be generated from point or non-point sources. Point sources include industrial facilities, and air pollutants may be generated from painting, sandblasting, loading/unloading of raw materials, and other activities, or through industrial smokestacks. Non-point sources include dispersed sources such as vehicle emissions, aircraft exhaust, and off-gassing from common materials such as plastics. Air pollutants may be transported over long distances by wind, and can be deposited to land and water surfaces by precipitation or particle deposition. None of the properties within the KC Lease Parcels source control area are currently regulated as point sources of air emissions. Five properties within the S Brandon Street CSO basin are currently regulated as point sources of air emissions. These properties are listed below.

| Facility | Air Facility System ID |
|---|---|
| Art Brass Plating, Inc. Seattle | 5303300386 |
| Capital Industries, Inc. | 5303300385 |
| Environmental Transport, Inc. | 5303317794 |
| Longview Fibre Paper & Packaging, Inc. | 5303315019 |
| Saint Gobain Containers, Inc. | 5303300004 |

Additional information on recent and ongoing atmospheric deposition studies in the LDW area is summarized in the LDW Source Control Status Report (Ecology 2007a, 2008a, 2008b, 2009f and subsequent updates); Ecology will continue to monitor these efforts.

# 3.0 Potential Sources of Sediment Recontamination

Potential sources of sediment recontamination are described in detail in the KC Lease Parcels Data Gaps Report (SAIC 2010). This section summarizes the information on public outfalls (Section 3.1), adjacent properties (Section 3.2), and properties associated with the S Brandon Street CSO basin (Section 3.3).

## 3.1 Outfalls

Storm drains convey stormwater runoff collected from streets, parking lots, roof drains, and residential, commercial, and industrial properties to the LDW. Storm drains entering the LDW carry runoff generated by rain and snow. A wide range of chemicals may become dissolved or suspended in runoff as rainwater flows over the land. Urban areas generally accumulate particulates, dust, oil, asphalt, rust, rubber, metals, pesticides, detergents, or other materials as a result of human activities throughout the stormwater drainage and CSO basins.

Human activities include landscaping, spills, illegal dumping, vehicle maintenance (fueling, washing), vehicle use (wear on roads, tires, brakes, fluid leaks, and emissions), manufacturing, chemical storage, outdoor material/equipment storage and stockpiling, and building materials and maintenance. These materials can be flushed into storm drains during wet weather and are then conveyed to the waterway, mainly through the stormwater system. In addition, contaminants in soil or groundwater could enter the storm drain system through cracks or gaps in the stormwater piping.

Two King County-owned storm drains and one King County-owned CSO outfall discharge to the LDW in the vicinity of RM 1.0 to 1.2 East (Figure 4). These are described below.

### 3.1.1 Outfall Nos. 2007 and 2244

Based on data provided by Seattle Public Utilities (SPU), Outfall No. 2007 drains an area of about 3.5 acres from KC Lease Parcel 9043 (Figures 4 and 5). Outfall No. 2007 is physically located on Parcel 9002. The outfall is owned by King County and the drainage area to the outfall includes only Parcels 9002 and 9043. J.A. Jack, one of the current operators at Parcel 9002, has an NPDES permit. J.A. Jack sublets approximately 1 acre of Parcel 9002 from St. Gobain. St. Gobain was included in the Data Gaps report and SCAP that were prepared for the RM 1.2 to 1.7 East Source Control Area.

Based on data provided by SPU, Outfall No. 2244 drains an area of about 6.5 acres from KC Lease Parcels 9052 and 9070 (Figures 4 and 5). The outfall is owned by King County and the drainage area to the outfall includes only Parcels 9052 and 9070. Cadman, the current operator at these parcels, has an NPDES permit.

#### Potential for Future Releases to LDW Sediments

Stormwater from J.A. Jack is discharged to an onsite stormwater system, which discharges to groundwater. In the event of a system malfunction or storm event that exceeds the capacity of the system, stormwater is directed to storm drain lines on the St. Gobain facility (property is owned

by King County) and then discharged to the LDW via Outfall 2007. In November 2007, Ecology observed that stormwater at the southern edge of the property appeared to flow to the storm drain catch basins on the St. Gobain facility instead of to the onsite stormwater system. Contaminants in stormwater, if any, could therefore represent a source of sediment recontamination.

In February 2009, Ecology determined that parts, equipment, liquid products, and wastes stored outdoors at the Cadman and Lehigh Northwest facility represented a potential threat to stormwater quality (Ecology 2009b). The potential for sediment recontamination via stormwater discharge through Outfall 2244 is unknown and depends on the frequency of discharges to the LDW and the potential concentrations of sediment COCs, if any, in discharges originating from this property.

### Source Control Actions

Information needed to assess the potential for sediment recontamination associated with the Outfall Nos. 2007 and 2244 was summarized in the KC Lease Parcels Data Gaps Report. The following source control actions will be conducted to fill the identified data gaps and reduce the potential for recontamination of sediments associated with the KC Lease Parcels source control area:

- King County and/or Ecology will conduct business inspections at facilities with stormwater drainage to Outfall Nos. 2007 and 2244, including Cadman, Lehigh Northwest, and J.A. Jack, to verify that these facilities are in compliance with applicable regulations/code and have implemented appropriate stormwater best management practices (BMPs) to minimize the potential for contaminants to enter the storm drain system.

## 3.1.2 S Brandon Street CSO

The S Brandon Street CSO basin covers approximately 380 acres, spanning west-to-east from the LDW to Corson Avenue S and north-to-south from Denver Avenue S to S Michigan Street (Figure 6). Land uses within the CSO basin include industrial and commercial properties and approximately 18 acres of the Union Pacific Railroad Argo Yard. Parts of the S Brandon Street CSO basin overlap with the Duwamish/Diagonal CSO/SD and Michigan Street CSO basins. In areas where the CSO basins overlap, wastewater and stormwater within the S Brandon Street CSO basin may be redirected to the Duwamish/Diagonal or Michigan Street outfalls depending on the route that the combined wastewater and stormwater takes through the county conveyance system.

From 2000 to 2007, combined wastewater and stormwater overflows were discharged through the S Brandon Street CSO on average 23 times per year, with an annual average volume of approximately 31.63 million gallons per year (mgy) (Tiffany 2008). Installation of a 0.8-million gallon storage/treatment tank to control the S Brandon Street CSO is projected to be completed by 2022 (King County 2008b).

King County Industrial Waste (KCIW) estimates that, on a county-wide basis, industrial discharges comprise less than 0.5 percent of the total volume of a CSO event (Tiffany 2008).

Typically, domestic users of the combined sewer system contribute a larger percentage of the chemical loading than industrial users. For example, KCIW testing has indicated that industrial users of the combined sewer system contribute less than 10 percent of the phthalate load, with the remainder coming from uncontrollable sources such as domestic users. However, other chemicals may contain more loading from industrial sources and therefore need to be evaluated on a case-by-case basis for a particular basin.

King County collected three effluent samples from the S Brandon Street CSO between 2008 and 2009 (King County 2009). Several sediment COCs, as identified in Section 2.1, were detected in the whole water samples. The following table shows the highest concentration detected in whole water for chemicals that are also considered sediment COCs, and indicates which of these chemicals have exceeded Water Quality Criteria (WQC) published by the EPA (USEPA 2009).

| Chemical of Concern | Water Sample Date | Concentration (µg/L) | WQC[1] (µg/L) | WQC Exceedance |
|---|---|---|---|---|
| ***Metals*** | | | | |
| Mercury | January 7, 2009 | 0.43 | 0.77 | |
| ***PAHs*** | | | | |
| 2-Methylnaphthalene | April 2, 2009 | 0.155 | NA | |
| Acenaphthene | January 7, 2009 | 0.0564 | 990 | |
| Anthracene | January 7, 2009 | 0.0974 | 40,000 | |
| Benzo(a)anthracene | January 7, 2009 | 0.37 | 0.018 | ● |
| Benzo(a)pyrene | January 7, 2009 | 0.37 | 0.018 | ● |
| Benzo(b)fluoranthene | January 7, 2009 | 0.506 | 0.018 | ● |
| Benzo(g,h,i)perylene | January 7, 2009 | 0.257 | NA | |
| Benzo(k)fluoranthene | April 2, 2009 | 0.33 | 0.018 | ● |
| Chrysene | April 2, 2009 | 0.497 | 0.018 | ● |
| Dibenz(a,h)anthracene | January 7, 2009 | 0.0925 | 0.018 | ● |
| Dibenzofuran | January 7, 2009 | 0.0533 | NA | |
| Fluoranthene | January 7, 2009 | 0.687 | 140 | |
| Fluorene | January 7, 2009 | 0.168 | 5,300 | |
| Indeno(1,2,3-cd)pyrene | January 7, 2009 | 0.212 | 0.018 | ● |
| Naphthalene | April 2, 2009 | 0.0122 | NA | |
| Phenanthrene | January 7, 2009 | 0.623 | NA | |
| Pyrene | January 7, 2009 | 0.793 | 4,000 | |
| ***Phthalates*** | | | | |
| Bis(2-ethylhexyl)phthalate | April 2, 2009 | 10.2 | 2.2 | ● |
| ***PCBs*** | | | | |
| PCBs, total | January 7, 2009 | 0.455 | 0.014 | ● |

1 – Recommended Water Quality Criteria (WQC) from USEPA (2009). The freshwater chronic criteria were used for metals and PCBs. The human health (consumption of organisms) criteria were used for PAHs and phthalates.
NA – No WQC have been promulgated for the chemical of concern.

On June 29, 2010, KCIW collected in-line solids samples from three locations within the S Brandon Street CSO basin:

- King County's Brandon CSO outfall station,
- Two SPU combined sewer manholes.

Analytical data from this sampling event are not currently available for review (Tiffany 2010). Additional information regarding this sampling event, including manhole structure numbers, was not available at the time this SCAP was prepared.

## Potential for Future Releases to LDW Sediments

Although COCs from individual industrial and commercial facilities within the CSO basin are significantly diluted, the cumulative effects of CSO events could contribute to recontamination of sediments associated with the KC Lease Parcels source control area. Industrial and commercial facilities discharging industrial wastes and/or stormwater to the combined sewer system are therefore considered to represent potential but relatively minor sources of sediment recontamination. Ecology has assigned Facility/Site ID numbers to 128 facilities within the S Brandon Street CSO basin (Table 3).

Additionally, an unknown number of undocumented industrial operations may take place within the S Brandon Street CSO basin. Unregulated industrial activities may be an ongoing although minor source of contaminants to sediments associated with the KC Lease Parcels source control area. Illicit sanitary sewer connections could result in direct discharge of sanitary sewage to the LDW.

## Source Control Actions

Information needed to assess the potential for sediment recontamination associated with the S Brandon Street CSO was summarized in the KC Lease Parcels Data Gaps Report. The following source control actions will be conducted to fill the identified data gaps and reduce the potential for recontamination of sediments associated with the KC Lease Parcels source control area:

- King County will provide data to Ecology from the June 2010 solids samples collected in the S Brandon Street CSO basin.

- Ecology will evaluate the 2009 effluent discharge and 2010 solids sample data to assess whether the effluent concentrations and/or solids sample concentrations represent a potential source of contaminants to sediments associated with the KC Lease Parcels source control area, and develop source control actions if necessary.

- King County will use source tracing data to identify and evaluate possible point source contributions of LDW COCs to CSO discharges and determine if contaminant loading analyses are necessary for KCIW Program permit holders in the S Brandon Street CSO basin.

- King County, Ecology and/or SPU will conduct business inspections within the S Brandon Street CSO basin to identify undocumented and unregulated industrial operations, if any, that may represent sources of contaminants to LDW sediments (see Section 3.3).

## 3.2 Adjacent Properties

Several facilities are located adjacent to the LDW in the KC Lease Parcels source control area; information about these facilities relevant to recontamination of LDW sediments was presented in the KC Lease Parcels Data Gaps Report (SAIC 2010). Adjacent properties that were identified as potential sources of sediment recontamination or for which insufficient information was available to assess the potential for sediment recontamination are listed below.

| Facility | Address | Potential Contaminant Pathways |
|---|---|---|
| Manson Construction Company | 5209 East Marginal Way S | Stormwater; surface runoff/spills; groundwater; bank erosion |
| Cadman Seattle, Inc. and Lehigh Northwest | 5225 East Marginal Way S | Stormwater; surface runoff/spills; bank erosion |
| United Western Supply | 5245 East Marginal Way S | Stormwater; surface runoff/spills; bank erosion |
| J.A. Jack & Sons | 5801 East Marginal Way S | Stormwater; surface runoff/spills; groundwater; bank erosion |

These facilities are discussed in more detail in Sections 3.2.1 through 3.2.4 below.

### 3.2.1 Manson Construction Company

| | |
|---|---|
| **Current Operations** | Heavy construction, office and storage yard |
| **Historical Operations** | Gravel yard |
| **Address** | 5209 East Marginal Way S |
| **Facility/Site ID** | 80333167 |
| **Chemicals of Concern** | None identified |
| **Media Affected** | Additional information needed |

King County leases two parcels (9041 and 9067) adjacent to the LDW to Manson Construction Company (Manson Construction). Manson Construction uses 5209 East Marginal Way S as its operating address. Based on aerial photographs, it appears the facility is mostly paved. A rectangular-shaped area at the southwestern edge of Parcel 9041 appears to be unpaved and may consist of native shoreline. Between 1977 and 1990, it appears that Manson Construction expanded their operations to a portion of Parcel 9070, the adjacent parcel to the south.

The smaller parcel (9067) encompasses most of Slip 1 with a small land area at the head of the slip. Most of this parcel is located outside the KC Lease Parcels source control area.

Manson Construction also leases two King County-owned parcels (9070 and 9052) and sublets them to Cadman and Lehigh Northwest. Both Cadman and Lehigh Northwest use 5225 East Marginal Way S as an operating address.

Manson Construction was also included in the Data Gaps report and SCAP that were previously published for RM 0.9 to 1.0 East (Slip 1). Summaries of current and historical operations and environmental investigations and cleanups are available in the *Lower Duwamish Waterway, RM 0.9 to 1.0 East, Slip 1, Summary of Existing Information and Identification of Data Gaps* (SAIC 2008). Source control actions were identified in the *Lower Duwamish Waterway, RM 0.9–1.0 East (Slip 1), Source Control Action Plan* (Ecology 2009c). The potential for sediment recontamination and source control actions identified in the previous reports, plus any new information obtained during preparation of the Data Gaps report for the KC Lease Parcels source control area, are summarized in the following sections.

## Historical Operations

Manson Construction began operations in 1905. Files reviewed by SAIC did not indicate if the company has continuously operated at these parcels since operations began or if the company moved to these parcels at a later date. Glacier Gravel Company was a previous occupant of this property (Foster 1945).

## Current Operations

Manson Construction has been operating at this location for an unknown duration. Manson Construction has been conducting marine construction projects, including wharf, pier, terminal, marina, and bridge development and maintenance dredging, channel cutting, and beach nourishment. Their headquarters office (5209 East Marginal Way S) serves as a staging location to perform projects along the west coast and Alaska (Manson Construction 2009). Based on 2002 aerial photos, Manson Construction stores heavy equipment and associated machinery at this location.

Activities performed at the property include fueling operations, loading and unloading of liquid and solid materials, liquid storage in stationary above ground tanks, outside portable container storage of dangerous wastes, and outside manufacturing activities. Some loading and unloading operations take place over water in Slip 1.

Manson Construction obtained two RCRA hazardous waste permits and one underground storage tank (UST) permit under EPA ID No. WAD007942824. However, all are currently inactive according to Ecology's Facility/Site Database.

## Regulatory History

In January 2008, King County investigated the existing stormwater systems on the KC Lease Parcels. City of Seattle Department of Planning and Development records were reviewed. Plans for a stormwater system at the Cadman facility showed a catch basin on the property occupied by Manson Construction. King County inspectors confirmed the presence of a catch basin on the property that matches the location of the catch basin shown on the Cadman stormwater system plans (King County 2008a).

In July 2008, EPA sent Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) Section 104(e) Request for Information letters to Manson Construction, Manson International, Inc., and Manson-Dutra JV. The responses to these requests were not available for review at the time this SCAP was prepared.

Ecology inspected Manson Construction in June 2009 to evaluate source control practices at the facility (after publication of the Slip 1 SCAP [Ecology 2009c]). Ecology directed Manson Construction to improve source control practices at the facility, including the following actions: provide proper cover and containment for all liquid products and wastes stored outside; control metal grindings and shavings in the vicinity of the machine shop; and cease outdoor maintenance activities on vehicles and equipment without cover. Ecology indicated that if source control practices were not improved, Manson Construction would be required to obtain coverage under the Industrial Stormwater General Permit (Ecology 2009e).

## Environmental Investigations and Cleanups

A 500-gallon gasoline UST was removed from the Manson Construction property on November 15, 1988. The UST was inspected in 1986 and records indicate it was one to two years old at the time of the inspection. According to a memo from Manson Construction, as of January 26, 1989, there are no USTs remaining on site (Manson Construction 1989). Since collecting soil samples for laboratory analysis from UST excavations did not become an enforceable requirement until 1991 (Wietfeld 2008), it is assumed that the assessment for contamination within the UST excavation was limited to visual and field screening inspections of the soil (e.g., screening for volatile organic compounds [VOCs] using a PID).

A Phase I Environmental Site Assessment was performed at the facility in December 1996 to identify evidence of past or ongoing contamination. Environmental concerns identified for the properties leased by Manson Construction included: historic creosote use for pole treatment on the property; soil staining and sand blasting grit on soil at Manson Construction; and historic use of the properties as a factory site by WEC and Seattle Boiler Works (Boateng 1997). Only four pages from the Phase I Environmental Site Assessment report were available for review; additional information regarding Manson Construction may be available in the full report.

Field notes collected by an Ecology inspector during a 2002 facility inspection indicate that soil remediation had been conducted under a building, designed and constructed by Manson Construction, which serves as secondary containment for dangerous waste (Ecology 2002b). No records of soil laboratory results associated with this cleanup or any other remediation efforts were found in the files reviewed by SAIC.

## Potential for Sediment Recontamination

Insufficient information is available to determine whether Manson Construction is a source of COCs that may result in recontamination of sediments associated with the KC Lease Parcels source control area. Potential pathways include stormwater discharge, surface runoff/spills, groundwater discharge, and bank erosion. The following factors indicate a potential for transport of contaminants from Manson Construction to the LDW:

- Plans for a stormwater system at the Cadman facility show a catch basin on the property occupied by Manson Construction. King County inspectors confirmed the presence of a catch basin on the property that matches the location of the catch basin shown on the Cadman stormwater system plans (King County 2008a). Stormwater from Manson Construction may be discharged to the LDW via the Cadman stormwater system.
- Ecology has directed Manson Construction to improve source control practices at the facility, and if source control practices were not improved, Manson Construction would be required to obtain coverage under the Industrial Stormwater General Permit (Ecology 2009e). This indicates that liquid products and wastes, metal shavings, and other wastes are mingling with stormwater and may be discharged to the LDW via the Cadman stormwater system or by surface runoff.
- Due to the property's proximity to the LDW, contaminants (if any) suspended in surface runoff have the potential to reach the LDW.
- A 2002 facility inspection report (Ecology 2002b) indicates that soil remediation was performed at the property; however, no additional information (e.g., site assessment report or laboratory data) regarding the remediation activities was available for review by SAIC. It is not known if satisfactory cleanup was achieved. The potential for sediment recontamination via this pathway may range from low to high and depends on the levels of residual contamination in soil and groundwater beneath the facility.

## Source Control Actions

Information needed to assess the potential for sediment recontamination associated with current or historical operations at Manson Construction was summarized in the Slip 1 Data Gaps Report (SAIC 2008) and the KC Lease Parcels Data Gaps Report (SAIC 2010).

The following source control actions, previously identified with regard to Slip 1, will be conducted to fill the identified data gaps and reduce the potential for recontamination of sediments associated with the KC Lease Parcels and Slip 1 source control areas:

- Ecology will request laboratory data and site plans from historical site assessment(s) and remediation performed at the property. Ecology will confirm that satisfactory completion of soil cleanup activities was achieved to eliminate groundwater discharge as a potential sediment recontamination pathway. Additionally, Ecology will evaluate if arsenic and other sediment COCs may be present in soil and groundwater at concentrations that may have the potential to recontaminate LDW sediments.
- If Ecology determines that satisfactory soil cleanup was not achieved, Ecology will require the property owner/operator to conduct a site assessment to determine residual concentrations of arsenic and other sediment COCs in soil and groundwater beneath the property in order to evaluate the potential for sediment recontamination via groundwater discharge.
- Ecology will review the responses to the CERCLA Section 104(e) Request for Information letters sent to Manson Construction, Manson International, Inc., and Manson-Dutra JV.

- Ecology will conduct a visual bank survey. If bank erosion is likely, Ecology will collect bank soil samples, and analyze them for sediment COCs to evaluate the potential for contaminants to enter the LDW via bank erosion.[6]

In addition, the following ***new*** source control actions will be conducted to fill the identified data gaps and reduce the potential for recontamination of sediments associated with the KC Lease Parcels and Slip 1 source control areas:

- Ecology will conduct a follow-up inspection at Manson Construction to determine if corrective measures have been implemented and to ensure that operations at Manson Construction are in compliance with applicable regulations and BMPs to prevent the release of contaminants to the LDW. Ecology will assess whether the facility should apply for coverage under the Industrial Stormwater General Permit.
- King County and/or Ecology will determine if the catch basin on the Manson Construction facility that was identified by the City of Seattle and field-verified by King County is connected to the Cadman stormwater system.
- Ecology will obtain and review a copy of *Environmental Site Assessment, Duwamish Properties*, prepared by Boateng for King County in January 1997, to identify additional potential sources of COCs to sediment and develop appropriate source control actions, if necessary.

### 3.2.2 Cadman Seattle, Inc. and Lehigh Northwest

| | |
|---|---|
| **Current Operations** | Sand and gravel distribution, Portland cement concrete manufacturing and distribution (Cadman)<br>Cement terminal (Lehigh Northwest) |
| **Historical Operations** | Construction supplies, sand/gravel/cement distribution |
| **Address** | 5225 East Marginal Way S |
| **Facility/Site ID** | 70313617 (Cadman)<br>5145176 (Lehigh Northwest) |
| **Chemicals of Concern** | Petroleum hydrocarbons, toluene |
| **Media Affected** | Soil |

Cadman and Lehigh Northwest occupy two parcels adjacent to the LDW. The facility is bordered by Manson Construction to the north, East Marginal Way S to the east, United Western Supply to the south, and the LDW to the west. Parcels 9052 and 9070 are leased to Manson Construction by King County. Manson Construction sublets the parcels to Cadman. There is one building on the parcel, a 57,540-square foot (sq ft) warehouse built in 1969. The entire facility is paved (Cadman 1998).

The property is underlain by approximately 4.5 to 5 feet of fill. The fill consists of silty, clayey, gravelly sand, slightly silty sand, and gravel. A 2.5- to 3-foot thick layer of marsh deposits

[6] This action item has been modified from the original source control action item that was presented in the Slip 1 SCAP (Ecology 2009c) for consistency with action items for other facilities in the source control area.

consisting of sandy silt with trace clay and scattered organics and wood fragments is present beneath the fill. The marshy layer is underlain by dense silty sand with some gravel (Shannon & Wilson 1997).

## Historical Operations

Ocean Construction Supplies Company and Tilbury Cement Company are historical names for the facility (Anderson Bjornsten 1986). In 1991 the owners of Ocean Construction Supplies, CBR, purchased Cadman. CBR decided to do business as Cadman in the state of Washington (Ecology 1993).

Genstar Sand and Gravel Company and Tilbury Cement historically operated a cement distribution terminal at the property. Both companies are historical predecessors to Lehigh Northwest (Cadman 2000a; K&L Gates 2007).

## Current Operations

Cadman manufactures and distributes Portland cement, concrete and concrete blocks, sand, and gravel. Processed sand and gravel is stockpiled on the property. The washed or crushed materials are used in the production of ready-mix concrete or sold to contractors for construction projects (Cadman 1992). Lehigh Northwest operates a cement terminal at the property. Lehigh Northwest receives cement from barges (Ecology 2009a).

Approximately 11,500 tons of cement and 14,000 tons of sand and gravel are received at the facility by barge each month. The dry cement is piped ashore and stored in silos. Underground pipes convey the dry cement to the ready-mix plant. Sand and gravel are loaded onto a conveyor from the barges and then into trucks. The trucks move the sand and gravel to stockpiles (Ecology 1993; PSAPCA 1995).

Cadman discharges some wastes to the sanitary sewer. In 1992, METRO determined that Cadman was not a Significant Industrial User and indicated that Cadman would be issued a Discharge Authorization (METRO 1992). Discharge Authorization Number 392 was issued in 1992 or 1993. Approximately 13,000 gallons of process water is discharged to the sanitary sewer daily. Process water includes noncontact cooling water, wash water from cement bulk trucks, rinse water from loading hoppers, and overflow water from the truck wheel wash (Ecology 1993; Cadman 2009). Process water is also reused in the concrete pre-mix operation (CH2M Hill 1994). KCIW is currently reviewing archived files relating to the facility's discharge authorization (Mansfield 2009).

Transit mixers are washed on a weekly basis using a muriatic acid wash in a Challenge-Cook Enviromatic unit. Concrete residue and the rinse water from the unit are collected and reused in the concrete batch plant (Ecology 1993).

The property is cleaned daily with a vacuum/sweeper truck (Ecology 1993).

A stormwater treatment system was installed on the property and started up on January 24, 1997 (Cadman 1998). The treatment system adjusts the pH and removes particulate matter from stormwater prior to discharge to the LDW. The treatment system is designed to operate

continuously and has the capacity to contain a 10-year, 24-hour storm. Stormwater from the entire property collects at catch basin 13 and is diverted to the pump station, then diverted to the detention vault (pond) (Cadman 2000b). The detention vault is cleaned at least monthly. Accumulated material is re-used for ready-mix concrete or fill dirt (Cadman 2000b). Storm drains and catch basins are cleaned quarterly (Ecology 2009a).

Most stormwater is recycled in the Cadman concrete batching process. When stormwater in the vault nears the overflow level, stormwater overflow is directed to the LDW (Cadman 2009). During 2007 and 2008, no discharges of stormwater were made to the LDW (Ecology 2009a). Discharge monitoring reports for 2009 and 2010 were not available for review during the preparation of this SCAP. Note there is a discrepancy between the stormwater and sanitary sewer line placement information provided by SPU (Figure 4) and by Cadman (Figure 7).

## Regulatory History

Cadman and Lehigh Northwest's operations are both covered by the facility's Sand and Gravel NPDES permit number WAG503337 (Ecology 2009a). Aggregate and form oil are exposed to stormwater. Stormwater from the Ecology Block area flows into a sump and the water is recycled (Cadman 2000b).

Ecology performed a Stormwater Compliance Inspection at the facility in January 2009. Ecology determined that the stormwater pollution prevention plan (SWPPP), monitoring plan, and facility plan needed to be updated and that adequate cover and containment should be provided for all liquids and wastes stored outdoors. Ecology recommended installing catch basin filter inserts to reduce the sediment load to the manhole housing the carbon dioxide sparging unit, and processing of cement trucks through the wheel-wash, since track-out from the facility toward East Marginal Way S has been a chronic issue. Additionally, Ecology recommended that Cadman perform an inventory in the area known as the "boneyard," which is between the maintenance shop and the LDW. Parts and equipment stored in this area may pose a threat to stormwater runoff quality due to its proximity to the LDW (Ecology 2009a).

In February 2009, Ecology issued a warning letter to Cadman based on the results of the January inspection (Ecology 2009b). Ecology required Cadman to complete the following actions:

- Complete a signed and updated SWPPP that meets the requirements outlined in the Sand and Gravel General Permit.
- Include in the SWPPP a comprehensive facility map that includes all storm drain lines, pumps, ponds, vaults, sparging systems, wheel and truck washes, and connections to the sanitary sewer.
- Provide proper cover and containment for all liquid products and wastes stored outdoors.
- Verify detention pond overflow system and procedures for discharges to the sanitary sewer or the LDW.

EPA sent CERCLA Section 104(e) Request for Information letters to Lehigh Northwest and Cadman. SAIC reviewed the responses from Lehigh Northwest (K&L Gates 2007) and Cadman

(Kirk Lilly 2009) and incorporated relevant information into the KC Lease Parcels Data Gaps Report (SAIC 2010).

## Environmental Investigations and Cleanups

Underground Storage Tank Removal

In February 1989, two 550-gallon USTs containing solvent and waste oil were removed from the facility (Ocean Construction Supplies Company 1989a). Stained soil was present around the fill pipes and a petroleum odor was present in soil surrounding the solvent UST. Stained soil was not present around the waste oil UST. Soil samples were collected beneath each UST and from unstained soil near the solvent UST fill pipe. The samples were analyzed for total petroleum hydrocarbons (TPHs) and VOCs; no analytes were detected at concentrations exceeding the Ecology cleanup levels (Kennedy/Jenks/Chilton 1989). Three other USTs containing petroleum products were removed at the same time; however, no additional information regarding these USTs was available for review (Ocean Construction Supplies Company 1989b).

Phase I Environmental Site Assessment

A Phase I Environmental Site Assessment was performed at the facility in December 1996 to identify evidence of past or ongoing contamination. The investigation consisted of a visual reconnaissance of the Cadman and Tilbury facilities and the surrounding area. Environmental concerns identified for the properties leased by Manson Construction (note that Cadman sublets the property from Manson Construction) included: historic creosote use for pole treatment on the property, historic use of the properties as a factory site by WEC and Seattle Boiler Works, historical vehicle maintenance in the shop used by Cadman, and USTs at the Cadman facility (Boateng 1997). Only four pages from the Phase I Environmental Site Assessment report were available for review; additional information regarding Cadman and Manson Construction may be available in the full report.

## Potential for Sediment Recontamination

Insufficient information is available to determine whether Cadman and Lehigh Northwest are a source of COCs that may result in recontamination of sediments associated with the KC Lease Parcels source control area. The following factors indicate a potential for transport of contaminants from Cadman and Lehigh Northwest to the LDW:

- When the capacity of the facility's stormwater treatment system is exceeded, stormwater is discharged to the LDW through Outfall No. 2244. In February 2009, Ecology determined that parts, equipment, liquid products, and wastes stored outdoors represented a potential threat to stormwater quality. The potential for sediment recontamination via this pathway is unknown.
- The facility is adjacent to the LDW; therefore, surface runoff and spills have the potential to reach the LDW.

- Little information was available on the construction of the banks in this area and the potential for sediment recontamination via this pathway. Contaminants in soils, if any, along the banks of the LDW could be released directly to sediments via erosion.

### Source Control Actions

Information needed to assess the potential for sediment recontamination associated with current or historical operations at this property was summarized in the KC Lease Parcels Data Gaps Report. The following source control actions will be conducted to fill the identified data gaps and reduce the potential for recontamination of sediments:

- Ecology will conduct a follow-up business inspection of Cadman and Lehigh Northwest to verify compliance with the corrective actions required by Ecology as a result of the January 2009 inspection, applicable regulations, and BMPs to prevent the release of contaminants to the LDW.
- Ecology will require Cadman and Lehigh Northwest to report when discharges to Outfall No. 2244 occur to allow Ecology to track overflow events and evaluate potential impacts to the LDW.
- Ecology will review the updated SWPPP, when completed, to ensure compliance with Ecology's requirements.
- Ecology will obtain and review a copy of *Environmental Site Assessment, Duwamish Properties,* prepared by Boateng for King County in January 1997, to identify additional potential sources of COCs to sediment and develop appropriate source control actions, if necessary.

## 3.2.3 United Western Supply

| | |
|---|---|
| **Current Operations** | Distribution of foundry and abrasive equipment, parts, and supplies |
| **Historical Operations** | Demolition contractor offices and unknown manufacturing, industrial, warehousing, and commercial activities |
| **Address** | 5245 East Marginal Way S |
| **Facility/Site ID** | 9953954 |
| **Chemicals of Concern** | None identified |
| **Media Affected** | Additional information needed |

United Western Supply subleases Parcel 9051 from ICONCO Inc. (ICONCO). ICONCO leases the property from King County. The property is bordered by Cadman and Lehigh Northwest on the north and J.A. Jack on the south. The United Western Supply facility is bordered by the LDW on the west and East Marginal Way S on the east. The majority of the parcel is located on the western side of Ohio Avenue S; a small area (approximately 0.2 acre) of the parcel is located on the eastern side of Ohio Avenue S. This 0.2-acre portion is not included in the KC Lease Parcels source control area.

A rail spur is present on the property between the 69,210 sq ft warehouse on the northern portion of the property and the smaller warehouses on the southern portion of the property (Figure 8).

The property is roughly divided into two equal parts by the rail spur. According to King County Tax Assessor Records, the property is currently used as a terminal for marine and commercial fishing. The property name is listed as Western Utilities. Western Utilities may have subleased a portion of the property in the early 1990s (HD Supply 2009).

The property is underlain by approximately 6.5 feet of sandy fill. Loose silt is present beneath the fill to a depth of approximately 10 feet bgs. The Duwamish sand, consisting of interbedded sandy silts and silty fine sands, is present beneath the silt layer. Groundwater is encountered at approximately 7.5 feet bgs (Zipper Zeman 2001).

## Historical Operations

Utilities Warehouse first leased the property from King County in August 1964. The lease stipulates that the property could be used only for manufacturing, industrial, warehousing, or commercial purposes. Apparently, Utilities Warehouse never occupied the property; instead it subleased the property to various tenants. In September 1980, Utilities Warehouse subleased the northern portion of the property to United Western Supply. In October 1994, Utilities Warehouse subleased the southern portion of the property to ICONCO. Tenants listed in the sublease agreement included Pacific Western Maritime, Inc., J.A. Jack, United Western Supply, and Ackerly Communication, Inc. Pacific Maritime leased moorage facilities at the property from 1994 to 1999.[7]

In lease documents, ICONCO, Inc. is described as a demolition contractor. ICONCO's offices (e.g., sales and marketing) were located at the property. ICONCO also used the property to support field operations. A 250-gallon aboveground storage tank with secondary containment was used to store waste oil. Lumber, steel plates and shapes used in construction and demolition operations, and salvaged lumber, steel, metal fixtures, and masonry products were stored outdoors on the property (Cascadia Law Group 2008). In 2005, LVI Environmental Services, Inc. (LVI Services) acquired ICONCO (LVI Services 2005). ICONCO's lease was assigned to LVI Services in July 2005. LVI Services operated on the southern portion of the property (Cascadia Law Group 2008). LVI Services' website presents conflicting information regarding its operations in Seattle. The "Locations" map indicates that there is a Seattle office; however, the page listing office addresses does not include an address for a Seattle office (LVI Services 2009). LVI Services' lease expired on December 31, 2009 (Cascadia Law Group 2008).

## Current Operations

United Western Supply is a distributor of foundry and abrasive products, equipment, parts, and supplies for the foundry and surface preparation industries. According to the company's website, the following products are available: foundry supplies, metal and carbon products, and abrasive media. The company also provides technical assistance on recycling and containment (United Western Supply 2009b). United Western Supply has operated in the northern portion of the property since September 1980 (Cascadia Law Group 2008).

[7] Note that there are no visible moorage facilities associated with Parcel 9051 on the 2007 aerial photograph available on King County's iMAP website.

United Western Supply uses a conveyor belt to load and unload sand from rail cars. A bagging machine is used to package the sand. Other equipment used at the property includes a Muller mixer, a pallet wrapper carousel, and forklifts (United Western Supply 2009a).

From the documents available for review, SAIC was unable to determine if the buildings on the southern portion of the property are currently occupied.

## Regulatory History

EPA sent CERCLA Section 104(e) Request for Information letters to ICONCO, Western Utilities, and United Western Supply. Cascadia Law Group responded on behalf of ICONCO (Cascadia Law Group 2008). SAIC reviewed this response and incorporated relevant information into the KC Lease Parcels Data Gaps Report (SAIC 2010). Responses from Western Utilities and United Western Supply were not available for review during the preparation of this SCAP.

## Environmental Investigations and Cleanups

A 1998 letter from ICONCO to King County indicates that Boateng Environmental prepared an environmental property assessment report in March 1997. Small piles of sand blast grit were observed along the rail spur. United Western Supply indicated that the piles consisted of copper and nickel slags and silica sand. United Western Supply further indicated that the materials are inert and that the piles were periodically cleaned up to prevent excessive buildup on the rail spur (ICONCO 1998). A copy of the 1997 report, which apparently focuses on United Western Supply, was not available for review.

No records of environmental investigations or cleanups were available for review; however, a geotechnical study was performed at the property in June 2001. The geotechnical study was performed prior to the repair of the United Western Supply warehouse, which was damaged in a February 2001 earthquake (Zipper Zeman 2001).

## Potential for Sediment Recontamination

Operations at United Western Supply may represent a source of COCs to sediments associated with the KC Lease Parcels source control area; however, insufficient information is available to make this determination. Potential pathways include stormwater discharge, surface runoff/spills, and bank erosion.

## Source Control Actions

Information needed to assess the potential for sediment recontamination associated with current or historical operations at United Western Supply was summarized in the KC Lease Parcels Data Gaps Report. The following source control actions will be conducted to fill the identified data gaps and reduce the potential for recontamination of sediments associated with the KC Lease Parcels source control area:

- King County and/or Ecology will perform a source control inspection of United Western Supply and the buildings on the southern portion of the property to verify compliance with applicable regulations and BMPs to prevent the release of

contaminants to the LDW. King County and/or Ecology will collect the following information during the inspection in order to evaluate the potential for contaminant transport to the LDW via stormwater discharge or surface runoff:

- Facility plans showing the locations of all catch basins and storm drains (if any);
- Locations/maps of floor drains and storm drain lines on the property (if any);
- Information regarding how any hazardous materials or chemicals are stored and used at the facility;
- Information on any containment system(s) present at the site.

- Ecology will review responses from Western Utilities and United Western Supply to the EPA CERCLA Section 104(e) Request for Information letters, when available.
- Ecology will obtain and review the March 1997 environmental assessment report, prepared by Boateng, in order to identify potential sources of COCs to sediment and develop appropriate source control actions.

### 3.2.4 J.A. Jack & Sons

| | |
|---|---|
| **Current Operations** | Limestone processing and distribution |
| **Historical Operations** | Unknown |
| **Address** | 5801 East Marginal Way S |
| **Facility/Site ID** | None |
| **Chemicals of Concern** | None identified |
| **Media Affected** | Additional information needed |

J.A. Jack's operations are performed primarily on Parcel 9043. The company also occupies approximately 1 acre on Parcel 9002. J.A. Jack is a subtenant of St. Gobain. St. Gobain leases both parcels from King County (J.A. Jack 2008). The facility is bordered by the LDW on the west, United Western Supply on the north, Ohio Avenue S on the east, and St. Gobain to the south.

#### Historical Operations

J.A. Jack has operated at this location since 1967 (SPU 2009a). Operations at the property prior to 1967 are unknown.

#### Current Operations

Limestone is crushed, screened, and stockpiled at the J.A. Jack facility (Eckhart 1994). The limestone is offloaded from barges. Front end loaders on the barges load limestone onto a conveyor system that carries the limestone to the property. The offshore conveyor system apparently connects to additional onshore conveyors to stockpile the limestone on the facility. Crushed limestone is bagged or loaded onto trucks and railcars. Truck washing and parking lot cleaning is performed at the facility (Ecology 2002a, 2007b; J.A. Jack 2003a).

Wash water is generated through truck and parking lot washing activities. Parking lot washing is performed to reduce dust buildup on the property (J.A. Jack 2003a). Wash water is cycled through an underground settling vault and discharged to a drain field (SPU 2009a).

In the event of a stormwater system failure or storm event that exceeds the capacity of the system, stormwater and/or wash water can be diverted to the storm drain line on the St. Gobain property. The storm drain line on the St. Gobain property discharges to the LDW through Outfall 2007 (J.A. Jack 2003b). A lip has been built at the western edge of the property, adjacent to the LDW, to prevent sheet flow from reaching the LDW (Ecology 2002a).

## Regulatory History

J.A. Jack's NPDES permit covers a paved area that is used primarily for truck loading and parking (J.A. Jack 2002). Stormwater and wash water drains to two catch basins on the property and is conveyed to the facility stormwater system (Figure 9). The stormwater system consists of an underground settling vault and ground discharge drain field on the property. The effluent from the catch basins drains to the settling vault and then discharges to the ground discharge drain field (identified as "Infiltration Gallery" in Figure 9). The system is designed to contain a 100-year storm. The drain field is set approximately 400 feet east of the LDW to minimize the potential for groundwater discharge to the LDW (J.A. Jack 2003b). The vault is cleaned annually (Ecology 2007b).

Ecology performed a Stormwater Compliance Inspection at the facility in November 2007. The Ecology inspector observed that stormwater from the southern property boundary appeared to flow to the storm drain system at St. Gobain and indicated that monitoring would be required for the discharge. The inspector indicated that the area beneath the riverside conveyor belt needed to be re-graded and noted that the current condition of the bank was unlikely to prevent turbid discharges to the LDW during a storm event. Additionally, the inspector indicated that better BMPs, housekeeping, and an updated facility plan were needed (Ecology 2007b).

SPU inspected the facility in April 2009. The SWPPP required updates to include containment for limestone stockpiles. Uncontrolled discharges had occurred in the Pinch Point area. The SPU inspector indicated that Ecology blocks were situated in the area, apparently to allow for discharge. J.A. Jack's representative indicated that the Pinch Point area was a lake prior to re-grading the area (SPU 2009b).

EPA sent a CERCLA Section 104(e) Request for Information letter to J.A. Jack. SAIC reviewed J.A. Jack's response to the request (J.A. Jack 2008) and incorporated the relevant information into the KC Lease Parcels Data Gaps Report (SAIC 2010).

## Environmental Investigations and Cleanups

An evaluation was performed in 2002 to determine the rate of stormwater infiltration to the subsurface at the J.A. Jack facility. A test pit (EP-1 on Figure 9) was excavated to a maximum depth of 12 feet bgs near the northwest corner of the warehouse. Testing results indicated a long-term design infiltration rate of 2 inches per hour (Associated Earth Sciences 2002). No environmental samples were collected for chemical analysis.

## Potential for Sediment Recontamination

Operations at J.A. Jack may represent a source of COCs to sediments associated with the KC Lease Parcels source control area; however, insufficient information is available to make this determination. Potential pathways include stormwater discharge, surface runoff/spills, and bank erosion:

- Stormwater from J.A. Jack is collected in the onsite stormwater system, which discharges to groundwater. In the event of a system malfunction or storm event that exceeds the capacity of the system, stormwater is directed to storm drain lines on the St. Gobain facility and then discharged to the LDW via Outfall 2007. In November 2007, Ecology observed that stormwater at the southern edge of the property appeared to flow to the storm drain catch basins on the St. Gobain facility instead of to the onsite stormwater system. Contaminants in stormwater, if any, could therefore represent a source of sediment recontamination.
- The property is paved, has a stormwater collection system, and has a lipped edge to contain surface runoff. In November 2007, Ecology indicated that the area adjacent to the LDW beneath the barge-to-land conveyer system needed to be re-graded to prevent surface runoff from reaching the LDW. In April 2009, SPU indicated that Ecology blocks in the Pinch Point area were situated to allow for discharge. Therefore, due to the property's proximity to the LDW, contaminants suspended in surface runoff, if any, could represent a source of sediment recontamination.
- During two inspections in 2009, SPU and Ecology observed limestone spilling into the LDW from stockpiles that were not adequately contained. Although spills to the LDW have occurred, limestone is not a sediment COC. The potential for sediment recontamination via this pathway is very low. However, spills of limestone can potentially harm the river environment.
- Stormwater and wash water that is discharged to the infiltration gallery may have the potential to contaminate groundwater. If sediment COCs are present in the groundwater, the groundwater may transport the sediment COCs to the LDW.

## Source Control Actions

Information needed to assess the potential for sediment recontamination associated with current or historical operations at this facility was summarized in the KC Lease Parcels Data Gaps Report. The following source control actions will be conducted to fill the identified data gaps and reduce the potential for recontamination of sediments:

- Ecology will conduct a follow-up business inspection of J.A. Jack to verify compliance with corrective actions identified by Ecology in 2007 and SPU in 2009, applicable regulations, and BMPs to prevent the release of contaminants to the LDW.
- Ecology will evaluate the onsite stormwater collection system to determine its efficiency, since Ecology inspectors observed stormwater flowing to the catch basins on the St. Gobain facility.
- Ecology will determine if the infiltration gallery is in compliance with Underground Injection Control regulations.

- Ecology will require J.A. Jack to obtain environmental data to assess the groundwater quality in the infiltration gallery in order to determine if sediment COCs are present in groundwater and if these COCs may be transported to the LDW.
- Ecology will obtain additional information, through facility inspections/observations or environmental sampling, to determine if the discharges from the Pinch Point area are permissible and if these discharges are a potential source of sediment recontamination.
- Ecology will conduct a visual bank survey. If bank erosion is likely, Ecology will collect bank soil samples and analyze them for sediment COCs to evaluate the potential for contaminants to enter the LDW via bank erosion and leaching.

## 3.3 Facilities Within the S Brandon Street CSO Basin

The following industrial and commercial facilities within the S Brandon Street CSO basin were identified:

- 128 facilities within the S Brandon Street CSO basin have been assigned Ecology Facility/Site ID numbers (Table 3).
- 11 of these facilities are listed on Ecology's Confirmed and Suspected Contaminated Sites List (CSCSL).
- 52 of these facilities have active EPA ID numbers.
- 8 of the facilities hold NPDES permits.
- 5 of these facilities have KCIW discharge authorizations or permits.[8]
- 18 of these facilities are listed on Ecology's leaking underground storage tank (LUST) list.
- 43 of these facilities are listed on Ecology's UST list.

Relevant information about these facilities was summarized in the KC Lease Parcels Data Gaps Report (SAIC 2010). Data gaps and source control actions (if any) have been identified previously for many of these facilities (SAIC 2010, Appendix C-3). The following facilities have not been addressed previously and are identified as potential sources of sediment recontamination in this SCAP. Their locations are shown in Figures 10 and 11.

| Facility | Address | Reason for Inclusion |
|---|---|---|
| Air Tec Co., Parcel C | 5701 1st Avenue S<br>85 S Orcas Street<br>71 S Orcas Street | Listed on CSCSL; confirmed soil and groundwater contamination |
| General Electric Aviation Division | 220 S Dawson Street | Listed on CSCSL; confirmed soil and groundwater contamination |
| Former Sahlberg Equipment | 5950 4th Avenue S | Listed on CSCSL; confirmed soil and groundwater contamination |
| Shell 121430 | 600 S Michigan Street | Listed on CSCSL; confirmed soil contamination |

[8] Note that two facilities have KCIW discharge authorizations but have not been assigned Ecology Facility/Site ID numbers (see Table 1).

| Facility | Address | Reason for Inclusion |
|---|---|---|
| Draper Machine Works Inc. | 5055 4th Avenue S | LUST facility; confirmed soil contamination |
| Environmental Transport Inc. | 54 and 55 S Dawson Street | LUST facility |
| Loomis Fargo & Company | 5200 East Marginal Way S | LUST facility; confirmed soil contamination |
| Former National Transfer Inc. Seattle | 5265 Utah Avenue S | LUST facility; confirmed soil and groundwater contamination |
| PNB Building | 707 S Orcas Street | LUST facility; confirmed soil and groundwater contamination |
| Former Western Parcel Express Seattle | 525 S Front Street | LUST facility; confirmed soil and groundwater contamination |

The S Brandon Street CSO serves an area of approximately 380 acres. During periods of heavy rainfall, when the combined wastewater and stormwater flow exceeds system capacity, the excess flow is discharged to the S Brandon Street CSO structure. CSO discharges contain a mixture of wastewater and stormwater, with stormwater generally comprising the majority of the flow. Wastewater may carry concentrations of sediment COCs, particularly from those facilities that are permitted to discharge industrial wastes to the sanitary sewer (Art Brass Plating, Cadman, Longview Fibre Paper & Packaging, and St. Gobain). Chemical residues present in catch basins on these properties or on adjacent roadways may become dissolved and suspended in stormwater. Contaminants suspended in the combined sewer discharge (if any) may be conveyed to the KC Lease Parcels source control area during a CSO event.

## Potential for Sediment Recontamination

Due to the distance between these facilities and the LDW, the potential for sediment recontamination via soil and groundwater is very low. Soil and/or groundwater contamination has been confirmed at Air Tec Co., Parcel C, General Electric Aviation Division, former Sahlberg Equipment, Shell 121430, Draper Machine Works Inc., Loomis Fargo & Company, former National Transfer Inc. Seattle, PNB Building, and former Western Parcel Express Seattle. Contaminated groundwater may infiltrate to the combined sewer system, contributing to potential contaminant loads in the combined sewer discharge. Additional information regarding contamination at these facilities is included in the KC Lease Parcels Data Gaps Report.

Chemical concentrations in the combined sewer discharge are likely to be heavily diluted prior to discharge to the LDW. Therefore, the potential for sediment recontamination via this pathway is likely to be lower than for direct discharges from adjacent facilities and the stormwater drainage basin. However, given the frequency of discharge from the S Brandon Street CSO (approximately 23 times per year with an average discharge of 31.6 mgy), the cumulative effects of CSO discharges over an extended period of time could contribute to recontamination of sediments associated with the KC Lease Parcels source control area.

## Source Control Actions

Information needed to assess the potential for ongoing releases and sediment recontamination associated with current operations at each of the facilities in the S Brandon Street CSO basin is listed below.

- KCIW, Ecology, and/or SPU will perform source control inspections at facilities within the S Brandon Street CSO basin to verify compliance with applicable regulations and BMPs to prevent the release of contaminants to the LDW. The following information should be collected during the inspection in order to evaluate the potential for contaminant transport to the LDW via CSO events:
    - Facility plans showing the locations of all catch basins and storm drains (if any);
    - Locations/maps of floor drains and storm drain lines on the property (if any);
    - Information regarding how any hazardous materials or chemicals are stored and used at the facility; and
    - Information on any containment system(s) present at the site.
- Ecology will perform an inspection at Union Pacific Motor, which is a LUST facility. No files were available for review during the preparation of the KC Lease Parcels Data Gaps Report.
- Ecology will perform inspections at two facilities holding KCIW discharge authorizations (City of Seattle – SPU Materials Storage Yard and Kamco Seafood, Inc.) that have not been assigned Facility/Site ID numbers by Ecology.
- Ecology will review information regarding two LUST facilities, Bob's Texaco Service and Chevron 9-0636, to evaluate the potential for sediment recontamination, if any, that may be associated with these facilities. Due to a potential conflict of interest, documents associated with these facilities were not reviewed by SAIC for the KC Lease Parcels Data Gaps Report.

In addition, information on the materials used to construct storm drain and sanitary sewer lines in this area and the age of the storm drain and sanitary sewer lines would be useful to assess the potential for contaminated groundwater to infiltrate the combined sewer system.

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# 4.0 Monitoring

Monitoring efforts by SPU, Ecology, King County, and the Puget Sound Clean Air Agency will continue to assist in identifying and tracing ongoing sources of COCs present in LDW sediments or in upland media. This information will be used to focus source control efforts on specific problem areas within the KC Lease Parcels source control area and to track the progress of the source control program. The following types of samples will be collected:

- In-line sediment trap samples from storm drain systems,
- Onsite catch basin sediment samples, and
- Soil and groundwater samples as necessary.

If monitoring data indicate the presence of additional sources that could result in recontamination of sediments associated with the KC Lease Parcels source control area, then Ecology will identify source control activities as appropriate.

Because source control is an iterative process, monitoring is necessary to identify trends in concentrations of COCs. Monitoring is anticipated to continue for some years. Any decisions to discontinue monitoring will be made jointly by Ecology and EPA, based on the best available information. At this time, Ecology plans to review the progress and data associated with source control action items for each SCAP at least annually, and to summarize this information in the LDW Source Control Status Reports, which are scheduled for publication twice a year. In addition, Ecology may prepare Technical Memoranda to update the Data Gaps reports and SCAPs, as needed.

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# 5.0 Tracking and Reporting of Source Control Activities

Ecology is the lead for tracking, documenting, and reporting the status of source control to EPA and the public. Each agency involved in source control will document its source control activities and provide regular updates to Ecology. Ecology will prepare semiannual LDW Source Control Status Reports that summarize recent activities for each source control area and the overall status of source control in the LDW.

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# Tables

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# Table 1
## Chemicals Detected Above Screening Levels in Surface Sediment Samples
## Near the King County Lease Parcels Source Control Area

| Event Name | Location Name | Date Collected | Chemical | Conc'n (mg/kg DW) | TOC % | Conc'n (mg/kg OC) | SQS | CSL | Units | SQS Exceedance Factor | CSL Exceedance Factor |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Metals*** | | | | | | | | | | | |
| LDW RI Phase 2 Round 2 | LDW-SS39 | 3/11/2005 | Mercury | 1.09E+00 | 3.93 | | 0.41 | 0.59 | mg/kg DW | 2.7 | 1.8 |
| EPA Site Inspection | DR025 | 8/17/1998 | Mercury | 7.50E-01 | 2.54 | | 0.41 | 0.59 | mg/kg DW | 1.8 | 1.3 |
| LDW RI Phase 2 Round 1 | LDW-SS37 | 1/18/2005 | Mercury | 6.90E-01 | 2.33 | | 0.41 | 0.59 | mg/kg DW | 1.7 | 1.2 |
| EPA Site Inspection | DR087 | 8/12/1998 | Mercury | 5.50E-01 | 1.67 | | 0.41 | 0.59 | mg/kg DW | 1.3 | <1 |
| LDW RI Phase 2 Round 2 | LDW-SS35 | 3/8/2005 | Mercury | 4.60E-01 J | 2.01 | | 0.41 | 0.59 | mg/kg DW | 1.1 | <1 |
| ***PAHs*** | | | | | | | | | | | |
| LDW RI Phase 2 Round 2 | LDW-SS35 | 3/8/2005 | 2-Methylnaphthalene | 3.30E+00 | 2.01 | 1.64E+02 | 38 | 64 | mg/kg OC | 4.3 | 2.6 |
| LDW RI Phase 2 Round 2 | LDW-SS35 | 3/8/2005 | Acenaphthene | 5.20E+00 | 2.01 | 2.59E+02 | 16 | 57 | mg/kg OC | 16 | 4.5 |
| EPA Site Inspection | DR087 | 8/12/1998 | Acenaphthene | 5.30E-01 | 1.67 | 3.17E+01 | 16 | 57 | mg/kg OC | 2.0 | <1 |
| LDW RI Phase 2 Round 2 | LDW-SS35 | 3/8/2005 | Benzo(a)anthracene | 3.20E+00 | 2.01 | 1.59E+02 | 110 | 270 | mg/kg OC | 1.4 | <1 |
| LDW RI Phase 2 Round 2 | LDW-SS35 | 3/8/2005 | Benzofluoranthenes (total-calc'd) | 5.10E+00 | 2.01 | 2.54E+02 | 230 | 450 | mg/kg OC | 1.1 | <1 |
| LDW RI Phase 2 Round 2 | LDW-SS35 | 3/8/2005 | Chrysene | 3.70E+00 | 2.01 | 1.84E+02 | 110 | 460 | mg/kg OC | 1.7 | <1 |
| LDW RI Phase 2 Round 2 | LDW-SS35 | 3/8/2005 | Dibenzofuran | 3.50E+00 | 2.01 | 1.74E+02 | 15 | 58 | mg/kg OC | 12 | 3.0 |
| LDW RI Phase 2 Round 2 | LDW-SS35 | 3/8/2005 | Fluoranthene | 1.70E+01 | 2.01 | 8.46E+02 | 160 | 1200 | mg/kg OC | 5.3 | <1 |
| LDW RI Phase 2 Round 2 | LDW-SS35 | 3/8/2005 | Fluorene | 4.90E+00 | 2.01 | 2.44E+02 | 23 | 79 | mg/kg OC | 11 | 3.1 |
| EPA Site Inspection | DR087 | 8/12/1998 | Indeno(1,2,3-cd)pyrene | 6.20E-01 | 1.67 | 3.71E+01 | 34 | 88 | mg/kg OC | 1.1 | <1 |
| LDW RI Phase 2 Round 2 | LDW-SS35 | 3/8/2005 | Naphthalene | 5.30E+00 | 2.01 | 2.64E+02 | 99 | 170 | mg/kg OC | 2.7 | 1.6 |
| LDW RI Phase 2 Round 2 | LDW-SS35 | 3/8/2005 | Phenanthrene | 1.50E+01 | 2.01 | 7.46E+02 | 100 | 480 | mg/kg OC | 7.5 | 1.6 |
| LDW RI Phase 2 Round 2 | LDW-SS35 | 3/8/2005 | Total HPAH (calc'd) | 4.20E+01 | 2.01 | 2.09E+03 | 960 | 5300 | mg/kg OC | 2.2 | <1 |
| LDW RI Phase 2 Round 2 | LDW-SS35 | 3/8/2005 | Total LPAH (calc'd) | 3.40E+01 | 2.01 | 1.69E+03 | 370 | 780 | mg/kg OC | 4.6 | 2.2 |
| ***PCBs*** | | | | | | | | | | | |
| LDW RI Phase 2 Round 1 | LDW-SS37 | 1/18/2005 | PCBs (total calc'd) | 5.10E+00 | 2.33 | 2.19E+02 | 12 | 65 | mg/kg OC | 18 | 3.4 |
| LDW RI Phase 2 Round 2 | LDW-SS35 | 3/8/2005 | PCBs (total calc'd) | 6.50E-01 | 2.01 | 3.23E+01 | 12 | 65 | mg/kg OC | 2.7 | <1 |
| LDW RI Phase 2 Round 1 | LDW-SS40 | 1/18/2005 | PCBs (total calc'd) | 5.10E-01 J | 1.89 | 2.70E+01 | 12 | 65 | mg/kg OC | 2.2 | <1 |
| LDW RI Phase 2 Round 3 | LDW-SS324 | 10/4/2006 | PCBs (total calc'd) | 4.80E-01 | 1.05 | 4.57E+01 | 12 | 65 | mg/kg OC | 3.8 | <1 |
| LDW RI Phase 2 Round 3 | LDW-SS321 | 10/4/2006 | PCBs (total calc'd) | 4.50E-01 J | 1.43 | 3.15E+01 | 12 | 65 | mg/kg OC | 2.6 | <1 |
| EPA Site Inspection | DR025 | 8/17/1998 | PCBs (total-calc'd) | 1.15E+00 | 2.54 | 4.54E+01 | 12 | 65 | mg/kg OC | 3.8 | <1 |
| EPA Site Inspection | DR088 | 8/31/1998 | PCBs (total-calc'd) | 1.01E+00 | 1.68 | 6.01E+01 | 12 | 65 | mg/kg OC | 5.0 | <1 |
| EPA Site Inspection | DR087 | 8/12/1998 | PCBs (total-calc'd) | 6.96E-01 | 1.67 | 4.17E+01 | 12 | 65 | mg/kg OC | 3.5 | <1 |

mg/kg - Milligram per kilogram
µg/kg - Microgram per kilogram
DW - Dry weight
TOC - Total Organic Carbon
OC - Organic carbon normalized
SQS - SMS Sediment Quality Standard
CSL - SMS Cleanup Screening Level

SMS - Sediment Management Standard (Washington Administrative Code 173-204)
PAH - Polycyclic aromatic hydrocarbon
Total HPAH - Total high molecular weight PAH
Total LPAH - Total low molecular weight PAH
PCB - Polychlorinated biphenyl
J - Estimated value between the method detection limit and the laboratory reporting limit

Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentrations to the CSL or SQS; exceedance factors are shown only if they are greater than 1.

**Table 2**
**Chemicals Detected Above Screening Levels in Subsurface Sediment Samples**
**Near the King County Lease Parcels Source Control Area**

| Event Name | Location Name | Date Collected | Sample Depth (feet) | | | Chemical | Conc'n (mg/kg DW) | | TOC % | Conc'n (mg/kg OC) | SQS | CSL | Units | SQS Exceedance Factor | CSL Exceedance Factor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Metals*** | | | | | | | | | | | | | | | |
| LDW Subsurface Sediment 2006 | LDW-SC20 | 2/15/2006 | 0 | - | 2 | Mercury | 6.50E-01 | | 1.58 | | 0.41 | 0.59 | mg/kg DW | 1.6 | 1.1 |
| ***PAHs*** | | | | | | | | | | | | | | | |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 3 | - | 3.5 | Acenaphthene | 2.20E+00 | | 1.3 | 1.69E+02 | 16 | 57 | mg/kg OC | 11 | 3.0 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 3 | - | 3.5 | Acenaphthene | 2.10E+00 | | 1.3 | 1.62E+02 | 16 | 57 | mg/kg OC | 10 | 2.8 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 3.5 | - | 4 | Acenaphthene | 1.60E+00 | | 2.29 | 6.99E+01 | 16 | 57 | mg/kg OC | 4.4 | 1.2 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 3.5 | - | 4 | Acenaphthene | 1.50E+00 | | 2.29 | 6.55E+01 | 16 | 57 | mg/kg OC | 4.1 | 1.1 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 2.5 | - | 3 | Acenaphthene | 5.70E-01 | | 1.39 | 4.10E+01 | 16 | 57 | mg/kg OC | 2.6 | <1 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 2 | - | 4 | Acenaphthene | 3.70E-01 | | 2.14 | 1.73E+01 | 16 | 57 | mg/kg OC | 1.1 | <1 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 3 | - | 3.5 | Anthracene | 8.80E+00 | | 1.3 | 6.77E+02 | 220 | 1200 | mg/kg OC | 3.1 | <1 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 3 | - | 3.5 | Benzo(a)anthracene | 7.10E+00 | | 1.3 | 5.46E+02 | 110 | 270 | mg/kg OC | 5.0 | 2.0 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 2 | - | 4 | Benzo(a)anthracene | 3.40E+00 | | 2.14 | 1.59E+02 | 110 | 270 | mg/kg OC | 1.4 | <1 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 2 | - | 4 | Benzo(a)anthracene | 3.20E+00 | | 2.14 | 1.50E+02 | 110 | 270 | mg/kg OC | 1.4 | <1 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 3.5 | - | 4 | Benzo(a)anthracene | 2.80E+00 | | 2.29 | 1.22E+02 | 110 | 270 | mg/kg OC | 1.1 | <1 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 3.5 | - | 4 | Benzo(a)anthracene | 2.70E+00 | | 2.29 | 1.18E+02 | 110 | 270 | mg/kg OC | 1.1 | <1 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 3 | - | 3.5 | Benzo(a)pyrene | 3.10E+00 | | 1.3 | 2.38E+02 | 99 | 210 | mg/kg OC | 2.4 | 1.1 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 3 | - | 3.5 | Benzo(a)pyrene | 3.00E+00 | | 1.3 | 2.31E+02 | 99 | 210 | mg/kg OC | 2.3 | 1.1 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 2 | - | 4 | Benzo(a)pyrene | 2.60E+00 | | 2.14 | 1.21E+02 | 99 | 210 | mg/kg OC | 1.2 | <1 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 2 | - | 4 | Benzo(a)pyrene | 2.50E+00 | | 2.14 | 1.17E+02 | 99 | 210 | mg/kg OC | 1.2 | <1 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 3 | - | 3.5 | Benzo(b)fluoranthene | 4.40E+00 | | 1.3 | 3.38E+02 | 230 | 450 | mg/kg OC | 1.5 | <1 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 3 | - | 3.5 | Benzo(b)fluoranthene | 3.90E+00 | | 1.3 | 3.00E+02 | 230 | 450 | mg/kg OC | 1.3 | <1 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 3 | - | 3.5 | Benzo(g,h,i)perylene | 7.30E-01 | | 1.3 | 5.62E+01 | 31 | 78 | mg/kg OC | 1.8 | <1 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 3 | - | 3.5 | Benzo(g,h,i)perylene | 6.90E-01 | | 1.3 | 5.31E+01 | 31 | 78 | mg/kg OC | 1.7 | <1 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 3 | - | 3.5 | Benzofluoranthenes (total-calc'd) | 6.40E+00 | | 1.3 | 4.92E+02 | 230 | 450 | mg/kg OC | 2.1 | 1.1 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 2 | - | 4 | Benzofluoranthenes (total-calc'd) | 6.00E+00 | | 2.14 | 2.80E+02 | 230 | 450 | mg/kg OC | 1.2 | <1 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 3 | - | 3.5 | Chrysene | 7.80E+00 | | 1.3 | 6.00E+02 | 110 | 460 | mg/kg OC | 5.5 | 1.3 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 2 | - | 4 | Chrysene | 7.20E+00 | | 2.14 | 3.36E+02 | 110 | 460 | mg/kg OC | 3.1 | <1 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 3.5 | - | 4 | Chrysene | 3.20E+00 | | 2.29 | 1.40E+02 | 110 | 460 | mg/kg OC | 1.3 | <1 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 3.5 | - | 4 | Chrysene | 3.10E+00 | | 2.29 | 1.35E+02 | 110 | 460 | mg/kg OC | 1.2 | <1 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 3 | - | 3.5 | Dibenzo(a,h)anthracene | 1.80E-01 | | 1.3 | 1.38E+01 | 12 | 33 | mg/kg OC | 1.2 | <1 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 3 | - | 3.5 | Fluoranthene | 2.40E+01 | | 1.3 | 1.85E+03 | 160 | 1200 | mg/kg OC | 12 | 1.5 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 3.5 | - | 4 | Fluoranthene | 1.00E+01 | | 2.29 | 4.37E+02 | 160 | 1200 | mg/kg OC | 2.7 | <1 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 2 | - | 4 | Fluoranthene | 7.40E+00 | B | 2.14 | 3.46E+02 | 160 | 1200 | mg/kg OC | 2.2 | <1 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 3 | - | 3.5 | Fluorene | 2.00E+00 | | 1.3 | 1.54E+02 | 23 | 79 | mg/kg OC | 6.7 | 1.9 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 3 | - | 3.5 | Fluorene | 1.80E+00 | | 1.3 | 1.38E+02 | 23 | 79 | mg/kg OC | 6.0 | 1.8 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 3 | - | 3.5 | Indeno(1,2,3-cd)pyrene | 9.30E-01 | | 1.3 | 7.15E+01 | 34 | 88 | mg/kg OC | 2.1 | <1 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 3 | - | 3.5 | Indeno(1,2,3-cd)pyrene | 8.90E-01 | | 1.3 | 6.85E+01 | 34 | 88 | mg/kg OC | 2.0 | <1 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 2 | - | 4 | Indeno(1,2,3-cd)pyrene | 8.00E-01 | | 2.14 | 3.74E+01 | 34 | 88 | mg/kg OC | 1.1 | <1 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 3 | - | 3.5 | Phenanthrene | 1.20E+01 | | 1.3 | 9.23E+02 | 100 | 480 | mg/kg OC | 9.2 | 1.9 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 3 | - | 3.5 | Pyrene | 1.40E+01 | | 1.3 | 1.08E+03 | 1000 | 1400 | mg/kg OC | 1.1 | <1 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 3 | - | 3.5 | Total HPAH (calc'd) | 6.40E+01 | | 1.3 | 4.92E+03 | 960 | 5300 | mg/kg OC | 5.1 | <1 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 2 | - | 4 | Total HPAH (calc'd) | 3.15E+01 | J | 2.14 | 1.47E+03 | 960 | 5300 | mg/kg OC | 1.5 | <1 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 3.5 | - | 4 | Total HPAH (calc'd) | 2.50E+01 | | 2.29 | 1.09E+03 | 960 | 5300 | mg/kg OC | 1.1 | <1 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 3 | - | 3.5 | Total LPAH (calc'd) | 2.50E+01 | | 1.3 | 1.92E+03 | 370 | 780 | mg/kg OC | 5.2 | 2.5 |

**Table 2**
**Chemicals Detected Above Screening Levels in Subsurface Sediment Samples**
**Near the King County Lease Parcels Source Control Area**

| Event Name | Location Name | Date Collected | Sample Depth (feet) | | | Chemical | Conc'n (mg/kg DW) | TOC % | Conc'n (mg/kg OC) | SQS | CSL | Units | SQS Exceedance Factor | CSL Exceedance Factor |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Phthalates*** | | | | | | | | | | | | | | |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 2 | - | 4 | Bis(2-ethylhexyl)phthalate | 1.60E+00 | 2.14 | 7.48E+01 | 47 | 78 | mg/kg OC | 1.6 | <1 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 2 | - | 4 | Bis(2-ethylhexyl)phthalate | 1.60E+00 | 2.14 | 7.48E+01 | 47 | 78 | mg/kg OC | 1.6 | <1 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 3 | - | 3.5 | Bis(2-ethylhexyl)phthalate | 8.00E-01 | 1.3 | 6.15E+01 | 47 | 78 | mg/kg OC | 1.3 | <1 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 3 | - | 3.5 | Bis(2-ethylhexyl)phthalate | 7.80E-01 | 1.3 | 6.00E+01 | 47 | 78 | mg/kg OC | 1.3 | <1 |
| ***PCBs*** | | | | | | | | | | | | | | |
| LDW Subsurface Sediment 2006 | LDW-SC20 | 2/15/2006 | 0 | - | 2 | PCBs (total calc'd) | 3.20E+00 | 1.49 | 2.15E+02 | 12 | 65 | mg/kg OC | 18 | 3.3 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 4 | - | 6 | PCBs (total calc'd) | 8.80E-01 | 1.46 | 6.03E+01 | 12 | 65 | mg/kg OC | 5.0 | <1 |
| LDW Subsurface Sediment 2006 | LDW-SC20 | 2/15/2006 | 2 | - | 4 | PCBs (total calc'd) | 6.00E-01 | 1.5 | 4.00E+01 | 12 | 65 | mg/kg OC | 3.3 | <1 |
| LDW Subsurface Sediment 2006 | LDW-SC20 | 2/15/2006 | 4 | - | 6 | PCBs (total calc'd) | 4.00E-01 | 2.22 | 1.80E+01 | 12 | 65 | mg/kg OC | 1.5 | <1 |
| LDW Subsurface Sediment 2006 | LDW-SC23 | 2/16/2006 | 6 | - | 8 | PCBs (total calc'd) | 4.00E-01 | 2.25 | 1.78E+01 | 12 | 65 | mg/kg OC | 1.5 | <1 |

mg/kg - Milligram per kilogram
µg/kg - Microgram per kilogram
DW - Dry weight
TOC - Total Organic Carbon
OC - Organic carbon normalized
SQS - SMS Sediment Quality Standard
CSL - SMS Cleanup Screening Level
SMS - Sediment Management Standard (Washington Administrative Code 173-204)
PAH - Polycyclic aromatic hydrocarbon
Total HPAH - Total high molecular weight PAH
Total LPAH - Total low molecular weight PAH
PCB - Polychlorinated biphenyl
B - The analyte was found in the associated method blank at a level that is significant relative to the sample result
J - Estimated value between the method detection limit and the laboratory reporting limit

Three TOC results were provided in the LDW RI data set for sample LDW-SC20 8-10 feet. The three TOC results for the sample were averaged for the purpose of calculated the mg/kg OC-normalized concentration.
Table presents detected chemicals only.
Exceedance factors are the ratio of the detected concentrations to the CSL or SQS; exceedance factors are shown only if they are greater than 1.

## Table 3
## Facilities within the S Brandon Street CSO Basin that are Listed in the Ecology Facility/Site Database

| Facility/ Site ID | Facility Name | Alternate Name(s) | Facility Address | KCLP Data Gaps Report | Active EPA ID No. | Ecology CSCSL | NPDES Permit | KCIW Discharge Authorization or Permit | LUST | UST | Ecology NFA Determination | EPA CERCLA Section 104(e) Request for Information Letter | Map ID[1] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 23766347 | 80 S Hudson Street Site | SES Seattle | 80 S Hudson Street | | | | | | ● | ● | | | 1 |
| 59441643 | Ace Radiator | None | 311 S Brandon Street | | | | | | | | ● | | 2 |
| 63478536 | Air Products Manufacturing Corp Seattle | None | 5801A East Marginal Way S | | ● | | | | | | | | 3 |
| 57633623 | Air Tec Co. Parcel C | Air Tec Co. Inc., Leavitt Shay Real Estate Co. | 5701 1st Avenue S | ■ | | ● | | | ● | ● | | | 4 |
| 26737544 | Aleutian Constructors | Cleanscapes | 5939 4th Avenue S | | | | | | | | | | 5 |
| 2992519 | AM International | None | 5901 4th Avenue S | | | | | | | | | | 7 |
| 98441868 | Amalgamated Sugar Co Seattle | Amalgamated Sugar Co | 5400 Denver Avenue S | | | | | | | ● | | | 8 |
| 47512364 | American Dry Ice Orcas | None | 672 S Orcas Street | | ● | | | | | | | | 9 |
| 6346940 | American Motor Freight LLC | None | 5700 6th Avenue S, Suite 203 | | ● | | | | | | | | 10 |
| 12467128 | American Technical Coatings Inc. | None | 666 S Fidalgo Street | | | | | | | | | | 11 |
| 27632327 | AR Torrico Sons Shipping Inc | Seattle Biodiesel LLC | 6335 1st Avenue S | | | | | | | | | | 12 |
| 61212661 | Argo Blower & Mfg Co Inc | None | 5400 E Marginal Way S | | ● | | | | | | | | 13 |
| 18398858 | Argo TOFC | Union Pacific Railroad Co Dawson Street, Dow Chemical | 4th Avenue S & Dawson Street | | | | | | | ● | | | 14 |
| 55897213 | Art Brass Plating | None | 5815 4th Avenue S | | | | | | | | | | 15 |
| 88531932 | Art Brass Plating Inc Seattle | Helen V. Warner | 5516 3rd Avenue S | | ● | ● | | ● | | | | | 16 |
| 9399901 | AT&T Wireless Marginal Way & Alaskan | None | 4797 1st Avenue S | | | | | | | | | | 17 |
| 63217123 | Bank & Office Interiors | Ener-G Foods Inc., | 5990 1st Avenue S | | ● | | | | | | | | 18 |
| 14379672 | Battery Systems, Inc. | Allied Battery Co. Inc Seattle, Allied Battery Inc S Brandon, Allied Battery Seattle | 105 S Brandon Street | | ● | | | | | | | | 19 |
| 96937296 | Beckwith Kuffel Inc | Beckwith & Kuffel Inc. | 5930 1st Avenue S | | | | | | | ● | | | 20 |
| 91823668 | Berg Evans Chain Co | None | 217 S Findlay Street | | | | | | | | | | 21 |
| 32698478 | Big Johns Truck Repair Inc Seattle | None | 5622-1/2 1st Avenue S | | | | | | | | | | 22 |
| 86499282 | Bindery | None | 215 S Bennett Street | | | | | | | | | | 23 |
| 7118747 | Blaser Die Casting Co. | Blaser Tool & Mold Co., Scougal Rubber Corporation | 5700 3rd Avenue S | | | ● | | | | | | | 24 |
| 415282 | Blue Nile Inc. | None | 5907 4th Avenue S | | | | | | | | | | 25 |
| 47157762 | Bob's Texaco Service | None | 5304 1st Avenue S | | | | | | ● | ● | | | 26 |
| 63627615 | Branom Instrument Co Inc | None | 5500 4th Avenue S | | | | | | | | | | 27 |
| 65697348 | Burgess Enterprises | Duwamish Marine Center, Samson Tug & Barge, Ray Burgess Co. | 6361 1st Avenue S | | | | | | | ● | | | 28 |
| 37332122 | Burlington Env Philip Services Corp | None | 402 S Dawson Up Tracks | | | | | | | | | | 29 |
| 46161728 | BYG Cooperative | Abhe Svodboda Inc, SES Inc West Pac Environmental | 74 S Hudson Street Warehouse | | ● | | | | | | | | 30 |
| 77372687 | Byrne Specialty Gases, Inc. MEAD | | 118 S Mead Street | | | | | | | | | | 31 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 70313617 | Cadman Seattle Inc | Cadman Inc Seattle, Cadman Seattle, Lehigh Northwest | 5225 East Marginal Way S | ■ | ● | | ● | ● | | ● | | ♦ | 32 |
| 11598755 | Capital Industries Inc | None | 5801 3rd Avenue S | | ● | ● | | | | | | | 33 |
| 99747798 | Cenveo Graphic Arts Center | Graphic Arts Center, The Allied Printers | 832 S Fidalgo Street | | ● | | | | | | | | 34 |
| 2253 | Certainteed Gypsum Manufacturing | BPB Gypsum, James Hardie Gypsum, Certainteed Gypsum, Lone Star Northwest, Norwest Gypsum | 5931 East Marginal Way S | | ● | | ● | | ● | ● | ● | | 35 |
| 9361279 | Charles H Lilly Co | Chas H Lilly CO | 5200 Denver Avenue S | | | | | | | | | | 37 |
| 74478588 | Charles H Lilly Co | Chas H Lilly CO | 6000 East Marginal Way S | | | | | | | | | | 36 |
| 1792892 | Chevron 90636 | Chevron 0636, Chevron SS 90636 | 5940 East Marginal Way S | | ● | | | | ● | ● | | | 38 |
| NA | City of Seattle - SPU Materials Storage Yard | Fray Equipment Co | 5821 1st Avenue S | | | | | ● | | | | | 129 |
| 83494216 | Clough Equipment Co S Front S | None | 515 S Front Street | | | | | | | | | | 39 |
| 54757868 | Consolidated Freightways Seattle | Shippers Transport Express, Consolidated Freightways UST 11012 | 6050 East Marginal Way S | | ● | ● | | | ● | ● | | | 40 |
| 21759322 | Continental Industries | None | 222 S Orcas Street | | | | | | | | | | 41 |
| 2363 | Craig Taylor Equipment | None | 5030 1st Avenue S | | | | | | | ● | ● | | 42 |
| 53625878 | Dawson Street Land Co | None | 56 S Dawson Street | | ● | | | | | | | | 43 |
| 343781 | Denco Sales Co | None | 711 S Fidalgo Street | | ● | | | | | | | | 44 |
| 99894694 | Don's Radiator | None | 5626 1st Avenue S | | | | | | | | | | 45 |
| 36961494 | Dow Chemical USA Michigan Div | Union Pacific Railroad,Union Pacific Railroad Transfer Facility, Argo TOFC, UPRR Diesel Shop, UPRR SEA, Union Pacific Railroad Co. Dawson Street | 4th Avenue S & Dawson Street | | | | | | | | | | 46 |
| 75459442 | Draper Machine Works Inc | Draper Machine Works Company, Howard Cooper | 5055 4th Avenue S | ■ | | | | | ● | ● | | | 47 |
| 74936217 | Dresser Rand | None | 225 S Lucile Street | | ● | | | | | | | | 48 |
| 2521 | Drive Line Services of Seattle Inc | None | 108 S Brandon Street | | ● | | | | | | ● | | 49 |
| 21945598 | Duwamish Marine Center | Samson Tug & Barge, Burgess Enterprises | 6365 1st Avenue S | | | ● | | | | | | | 50 |
| 87626746 | Eagle Systems, Inc. | Milwaukee Motor Transportation Co. | 53 S Dawson Street | | | | | | | ● | | | 51 |
| 22245293 | Emerald City Disposal Dawson St | Allied Waste Services, Environmental Transport Inc., NW Waste Emerald City Disposal, Seattle Disposal, West Pac Environmental | 54 S Dawson Street | ■ | ● | | | | | ● | | | 52 |
| 78563473 | Emerald City Freight Distribution | None | 6003 6th Avenue S | | | | | | | | | | 53 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7307167 | Ener-G Foods Inc. | Bank & Office Interiors | 5960 1st Avenue S | | ● | | | | | | | ♦ | 54 |
| 36716241 | Environmental Transport Inc | Allied Waste Services, Emerald City Disposal Dawson St, NW Waste Emerald City Disposal, Seattle Disposal, West Pac Environmental | 54 S Dawson Street | ■ | | | | | ● | ● | | | 55 |
| 2337 | Frank's Used Cars | None | 6309 East Marginal Way S | | | ● | | | | | | | 56 |
| 62393528 | Fray Equipment Co | City of Seattle - SPU Materials Storage Yard | 5821 1st Avenue S | | | | | | | ● | | | 57 |
| 78676691 | Fred Hutchinson Cancer Research Center | Fred Hutchinson CRC / (Former Vincent Metal Goods), Fred Hutchinson Cancer Research CNTR/AKA Vincent Metal Goods, Metal Goods Service Center, Qwest Replacement Project Facility, Vincent Metal Goods Seattle Branch | 4755 1st Avenue S | | ● | | | | | ● | ● | | 58 |
| 15892877 | Fryer Knowles Inc | None | 211 S Dawson Street | | | | | | | | | | 59 |
| 73183189 | Furniture Spa Inc | Sharps Automotive, Inc. | 126 S Findlay Street | | ● | | | | | ● | | | 60 |
| 83552111 | GE Aircraft Engines | None | 637 S Lucile Street | | | | | | | | | | 61 |
| 95662832 | GE Aircraft Engines Front St | None | 540 S Front Street | | | | | | | | | | 62 |
| 31535274 | GE Lighting Seattle Distribution Center | None | 549 S Dawson Street | | ● | | | | | | | | 63 |
| 2522 | General Electric Aviation Div | GE Aviation, General Electric Co. Dawson Street | 220 S Dawson Street | ■ | ● | ● | | ● | | | | | 64 |
| 96679259 | Georgetown Center | Former Gull Station | NW Corner of Corson Avenue S & S Michigan Street | | | | | | | | ● | | 65 |
| 95534411 | Glacier Northwest East Marginal Way | Kaiser Cement, Lone Star Cement, CEMEX, Slip 2 Duwamish Bank Stabilization | 5975 East Marginal Way S | | ● | | ● | ● | ● | ● | | | 66 |
| 35148584 | Greater Seattle Floors | Greater Seattle Floors, LLC | 5517 6th Avenue S | | ● | | | | | | | | 67 |
| 37836248 | JA Jack & Sons, Inc. | None | 5427 Ohio Avenue S | ■ | | | ● | | | ● | | ♦ | 68 |
| NA | Kamco Seafood, Inc. | None | 128 S Orcas Street | | | | | ● | | | | | 128 |
| 6878135 | Kettells | None | 5800 4th Avenue S | | | | | | | ● | | | 69 |
| 5145176 | Lehigh Northwest | Lehigh Northwest Dredge | 5225 East Marginal Way S | ■ | | | | | | | | ♦ | 70 |
| 96377286 | Leone VanValkenburg Trust | Exide Technologies Seattle, GNB Battery Technologies | 5200 4th Avenue S | | ● | | | | | | | | 71 |
| 71277652 | Lockwood Marine Inc | None | 6502 East Marginal Way S | | | | | | | | | | 72 |
| 2226 | Longview Fibre Paper & Packaging Inc | Longview Fibre Company | 5901 East Marginal Way S | | ● | ● | ● | ● | ● | ● | | ♦ | 73 |
| 67737549 | Loomis Fargo & Co | Loomis Armored Inc | 5200 East Marginal Way S | ■ | | | | | ● | ● | | | 74 |
| 13593282 | Mail Dispatch, Inc. | None | 917 S Nebraska | | | | | | | ● | | | 75 |
| 80333167 | Manson Construction | Manson Construction & Engineering | 5209 E Marginal Way S | ■ | ● | | | | | ● | | | 76 |
| 2254 | Master Builders | A&C Construction | 64 S Lucile Street | | | | | | | | ● | | 77 |

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|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 87686611 | McKinstry Co | None | 4975 A 3rd Avenue S | | ● | | | | | | | | 78 |
| 61127232 | McKinstry Co 215 Hudson St | None | 215 S Hudson Street | | ● | | | | | | | | 79 |
| 85743277 | McKinstry Co 5005 | None | 5005 3rd Avenue S | | | | | | | | | | 80 |
| 28755278 | McKinstry Co Ste B | None | 4975 B 3rd Avenue S | | | | | | | | | | 81 |
| 36652818 | Mesher Supply | None | 5001 1st Avenue S | | | | | | | ● | | | 82 |
| 91681677 | Michigan Properties | None | 5035 1st Avenue S | | | | | | | | | | 83 |
| 96851494 | Mobile Crane Co Inc | Western Bridge Co. | 5900 2nd Avenue S | | ● | | | | | ● | ● | | 84 |
| 46977612 | Moore Data Mgmt Svcs Div | None | 725 S Fidalgo Street | | | | | | | | | | 85 |
| 74398946 | NAPA Auto Parts Seattle | Genuine Parts Co, Genuine Parts Co. Seattle | 5201 4th Avenue S | | | | | | | | | | 86 |
| 73845797 | National Transfer Inc. Seattle | Seadrunar Recycling | 5265 Utah Avenue S | ■ | | | | | ● | ● | | | 87 |
| 19371183 | Nivas Business Corp | None | 6100 6th Avenue S | | | | | | | | | | 88 |
| 61549757 | North Coast Refrigeration Inc | Northcoast Refrigeration Inc. | 5047 Colorado Avenue S | | ● | | | | | ● | | | 89 |
| 44927387 | Northwest Corporate Park Building U | None | 520 S Brandon Street | | | | | | | ● | | | 90 |
| 59769876 | Northwest Sign Supply | None | 5300 4th Avenue S | | ● | | | | | | | | 91 |
| 57957617 | Olympic Medical Corp 1st Ave S | None | 5900 1st Avenue S | | ● | | | | | | | | 92 |
| 29775533 | Orcas Business Park LLC | None | 650 S Orcas Street | | ● | | | | | | | | 93 |
| 12545978 | Ostex Intl Inc 5955 Airport Way | None | 5955 Airport Way S | | | | | | | | | | 94 |
| 17634 | Ott Real Estate Property | None | 5903 1st Avenue S | | | | | | | | ● | | 95 |
| 63721371 | Pacific Marine Testing Co | None | 5807 4th Avenue S | | | | | | | | | | 96 |
| 27585467 | PNB Building | None | 707 S Orcas Street | ■ | | | | | ● | ● | | | 97 |
| 91919568 | Proliance International Inc | 115 S Dawson Street, Modine Aftermarket Holdings Inc, Modine Western | 115 S Dawson Street | | ● | | | | | | ● | | 98 |
| 73466467 | Rental Service Corporation 565 | Alpine Equipment Rentals & Supply, Hexcel Medical Division, Prime Equipment 565 Seattle | 5421 1st Avenue S | | ● | | | | | ● | | | 100 |
| 55698119 | Riveretzs Auto Care | Winters Investment LP, Former Georgetown Gasco/Tesoro | 6185 4th Avenue S | | | | | | ● | ● | | | 101 |
| 2450 | Sahlberg Equipment | Society of Saint Vincent de Paul, US Bank AJ Sahlberg Trust | 5950 4th Avenue S | ■ | ● | ● | | | | | | | 102 |
| 94925241 | Saint Gobain Containers Inc | Ball Glass, Ball-Foster Glass, Ball-Incon, Northwestern Glass Company, Incon Packaging | 5801 East Marginal Way S | | ● | | ● | ● | ● | ● | | ♦ | 103 |
| 1020256 | Samson Tug & Barge Co Inc Transporter | Duwamish Marine Center, Burgess Enterprises | 6365 1st Avenue S | | ● | | | | | | | ♦ | 104 |
| 59148337 | Seacast Inc Seattle | None | 207 S Bennett Street | | ● | | | | | | | | 105 |
| 49423263 | Seadrunar Recycling | National Transfer Inc. | 28 S Brandon Street | ■ | ● | | | | | | | | 99 |
| 44186982 | Sears Roebuck & Co UST 7837 | None | 4786 1st Avenue S | | | | | | | ● | | | 106 |
| 5023482 | Seattle Biodiesel LLC | AR Torrico Sons Shipping Inc, General Biodiesel Seattle | 6333 1st Avenue S | | ● | | ● | | | ● | | | 107 |
| 18582122 | SES Inc West Pac Environmental | BYG Coop, Abhe Svodboda Inc. | 74 S Hudson Street | | ● | | | | | | | | 108 |

## Table 3
## Facilities within the S Brandon Street CSO Basin that are Listed in the Ecology Facility/Site Database

| Facility/ Site ID | Facility Name | Alternate Name(s) | Facility Address | KCLP Data Gaps Report | Active EPA ID No. | Ecology CSCSL | NPDES Permit | KCIW Discharge Authorization or Permit | LUST | UST | Ecology NFA Determination | EPA CERCLA Section 104(e) Request for Information Letter | Map ID[1] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 19688471 | Shell Oil Products US SAP 121430 | Shell 600 Michigan, Texaco 121430, Texaco Station 632320400 UST 4487, Texaco Station Michigan | 600 S Michigan Street | ■ | ● | ● | | | ● | ● | | | 109 |
| 23243637 | Simon Golub & Sons Inc | None | 5506 6th Avenue S | | ● | | | | | | | | 110 |
| 85783156 | Smith Williston | None | 201 S Bennett Street | | ● | | | | | | | | 111 |
| 5184 | St Vincent De Paul Council Seattle | St Vincent De Paul, Sahlberg Equipment | 5972 4th Avenue S | | | | | | | | | | 131 |
| 41677496 | Sudden Printing | None | 571 S Michigan Street | | | | | | | | | | 112 |
| 47666565 | TW Express | None | 7901 1st Avenue S | | | | | | | | | | 113 |
| 74589256 | Union Pacific Motor | None | 420 S Dawson Street | | | | | | ● | ● | | | 114 |
| 44577768 | Union Pacific Railroad Co. Dawson Street | Argo TOFC, UPRR Diesel Shop, UPRR SEA, Union Pacific Railroad Transfer Facility | 402 S Dawson Street | | ● | | ● | | | | | | 115 |
| 9953954 | United Western Supply | Western Utilities Supply Co., Iconco | 5245 East Marginal Way S | ■ | ● | | | | | | | ♦ | 116 |
| 33482323 | UPS Seattle Export | None | 500 S Front Street | | ● | | | | | | | | 117 |
| 21503 | U.S. Starcraft | None | 5210 Utah Avenue S | | ● | | | | | | | | 130 |
| 21468652 | Valco Graphics Inc Seattle | None | 674 S Orcas Street | | | | | | | | | | 118 |
| 3258153 | Washington Machine Works | None | 5211 1st Avenue S, Unit C, Door 4 | | ● | | | | | | | | 119 |
| 72999973 | Wear Cote Northwest Inc | None | 5811 4th Avenue S | | | | | | | | | | 120 |
| 4961762 | West Pac Environmental | Allied Waste Services, Emerald City Disposal Dawson St, Environmmental Transport Inc., NW Waste Emerald City Disposal, Seattle Disposal | 55 S Dawson Street | ■ | | | | | | | | | 121 |
| 28825715 | West Pac Environmental Inc | Allied Waste Services, Emerald City Disposal Dawson St, Environmmental Transport Inc., NW Waste Emerald City Disposal, Seattle Disposal | 54 S Dawson Street, Suite 100 | ■ | | | | | | | | | 122 |
| 39473625 | Western Cartage Inc | None | 5050 1st Avenue S | | | | | | | ● | | | 123 |
| 39352815 | Western Parcel Express Seattle | Air Data Express, Inc. | 525 S Front Street | ■ | | | | | ● | ● | ● | | 124 |
| 33942516 | Western Union Telephone Co. UST 97407 | None | 808 S Fidalgo Street | | | | | | | ● | | | 125 |
| 56533162 | Westmar Services Inc | Airgas Dry Ice | 5930 6th Avenue S | | | | | | | ● | | | 126 |
| 49738534 | WW Grainger Inc, Seattle | None | 4930 3rd Avenue S | | | | | | | | | | 127 |

## Table 3
## Facilities within the S Brandon Street CSO Basin that are Listed in the Ecology Facility/Site Database

| Facility/ Site ID | Facility Name | Alternate Name(s) | Facility Address | KCLP Data Gaps Report | Active EPA ID No. | Ecology CSCSL | NPDES Permit | KCIW Discharge Authorization or Permit | LUST | UST | Ecology NFA Determination | EPA CERCLA Section 104(e) Request for Information Letter | Map ID[1] |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|

[1] - See Figure 6. Map ID number identifies the facility.

Color indicates that a facility is discussed in the Data Gaps Report or SCAP associated with the listed source control area(s):

- EAA-1 RM 0.1 to 0.9 East, Duwamish/Diagonal Way
- RM 0.9 to 1.0 East, Slip 1
- RM 1.2 to 1.7 East, St. Gobain to Glacier Northwest
- RM 1.7 to 2.0 East, Slip 2 to Slip 3

■ - Additional information regarding this facility is available in Sections 4.0 and 5.0 of the KC Lease Parcels Data Gaps Report.

● - Additional information regarding this facility is available on the accompanying tables.

♦ - EPA has sent a CERCLA Section 104(e) Request for Information Letter to this facility or property owner.

CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act
CSCSL - Confirmed or Suspected Contaminated Sites List
CSO - Combined Sewer Overflow
EAA - Early Action Area
EPA - U.S. Environmental Protection Agency
KCIW - King County Industrial Waste
KCLP - King County Lease Parcels
LUST - Leaking Underground Storage Tank
NFA - No Further Action
NPDES - National Pollutant Discharge Elimination System
RM - River Mile
UST - Underground Storage Tank

# Figures

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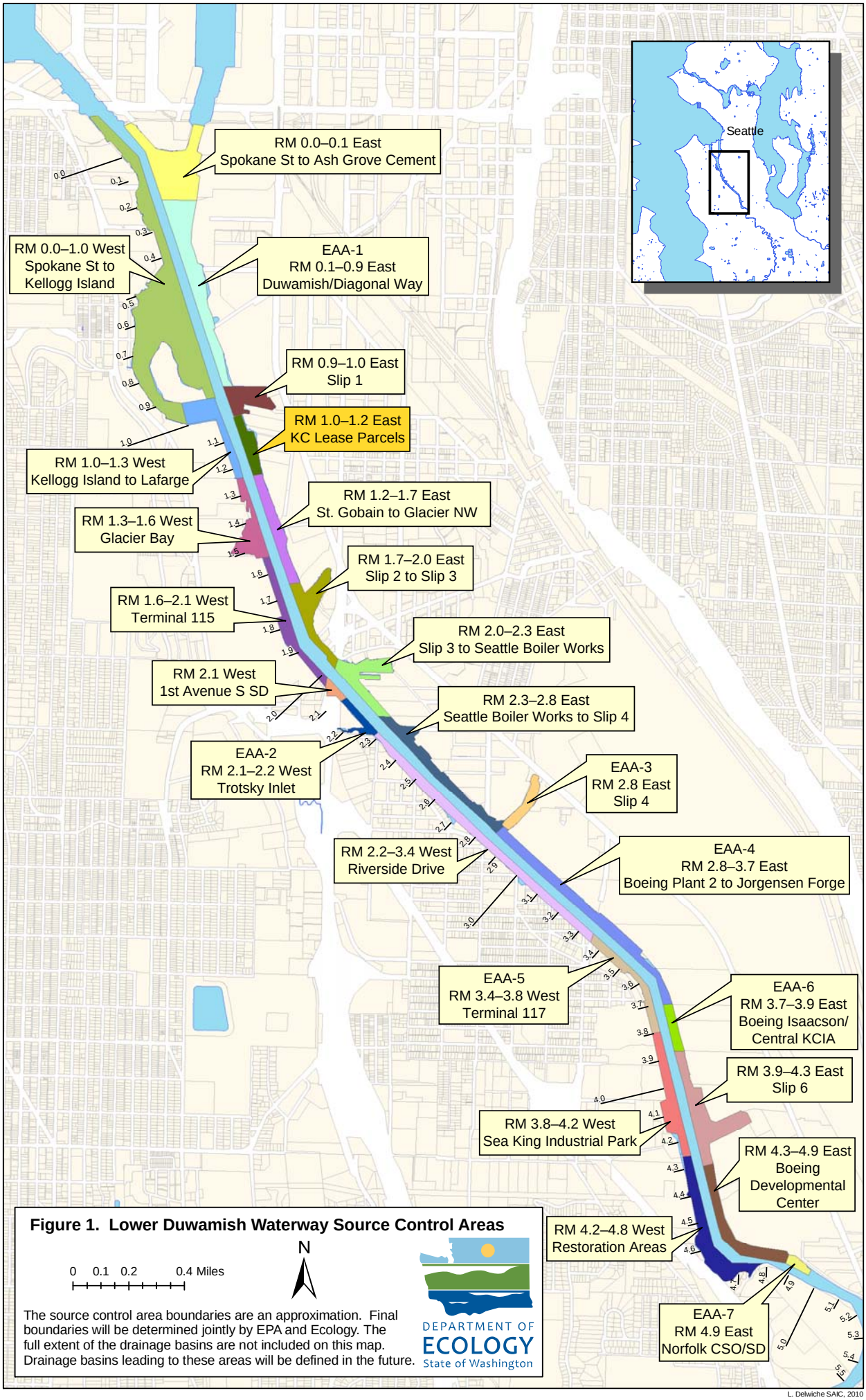



**Figure 1. Lower Duwamish Waterway Source Control Areas**

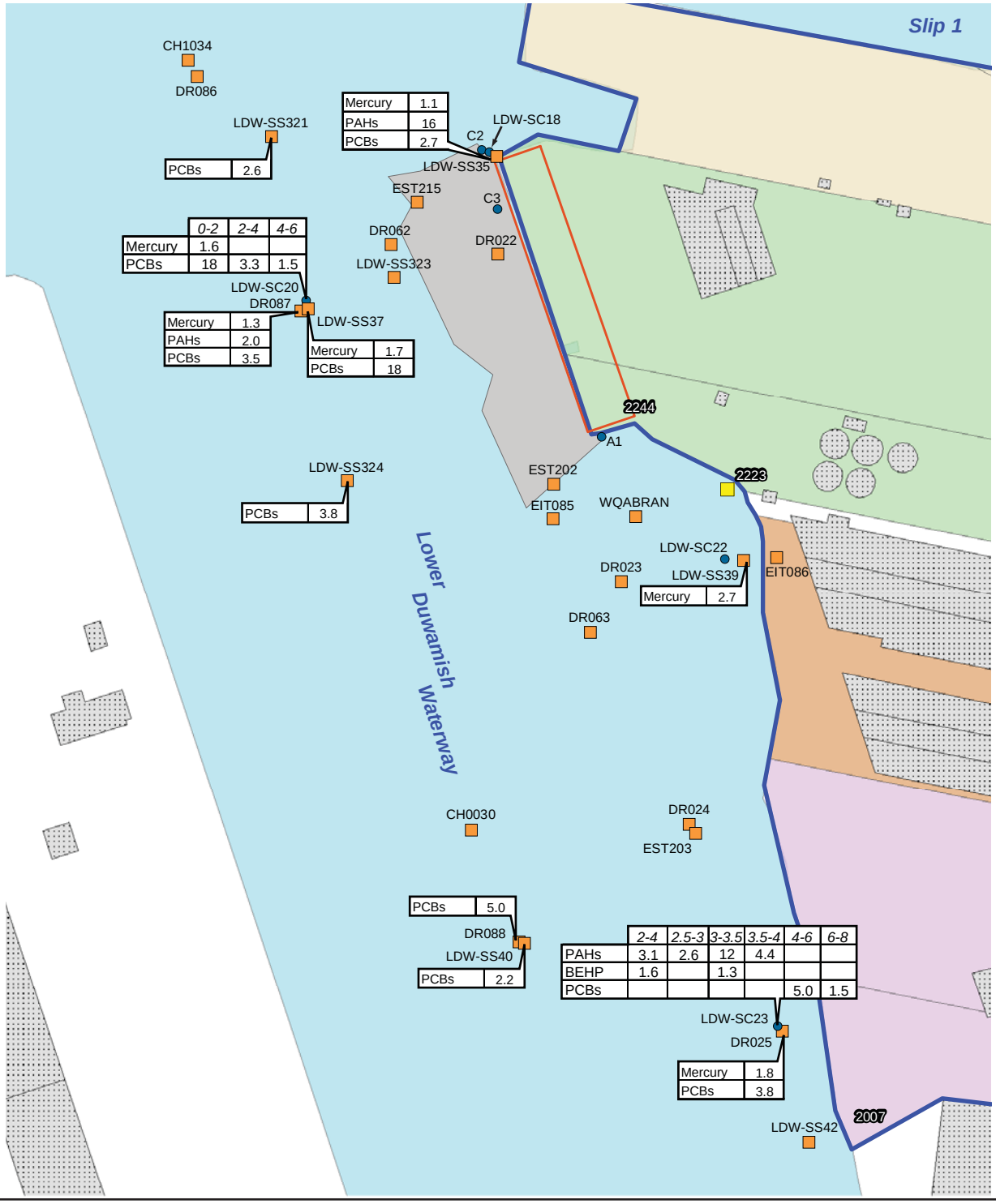
The source control area boundaries are an approximation. Final boundaries will be determined jointly by EPA and Ecology. The full extent of the drainage basins are not included on this map. Drainage basins leading to these areas will be defined in the future.


SAIC From Science to Solutions

**Figure 2. King County Lease Parcels**
**Source Control Area**

0 100 200 400 Feet

DEPARTMENT OF ECOLOGY State of Washington




## Legend

- Source Control Area
- Dock/Pier
- Dredged Area
- Building
- Manson Construction
- Cadman Seattle and Lehigh Northwest
- United Western Supply
- J.A. Jack & Sons

**Outfalls**

- Public Storm Drain
- Public CSO

**Samples**

- Subsurface Sample Location . | Chemical | *Depth Interval* Maximum SQS Exceedance Factor |
- Surface Sample Location . . . . | Chemical | Maximum SQS Exceedance Factor |

- Only SQS exceedance factors greater than or equal to 1 are shown.
- For more detail on chemical concentrations and exceedance factors, refer to Tables 1 and 2.

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# Figure 3. Sediment Sample Locations Near the King County Lease Parcels Source Control Area

0 75 150 300 Feet

N

DEPARTMENT OF ECOLOGY State of Washington

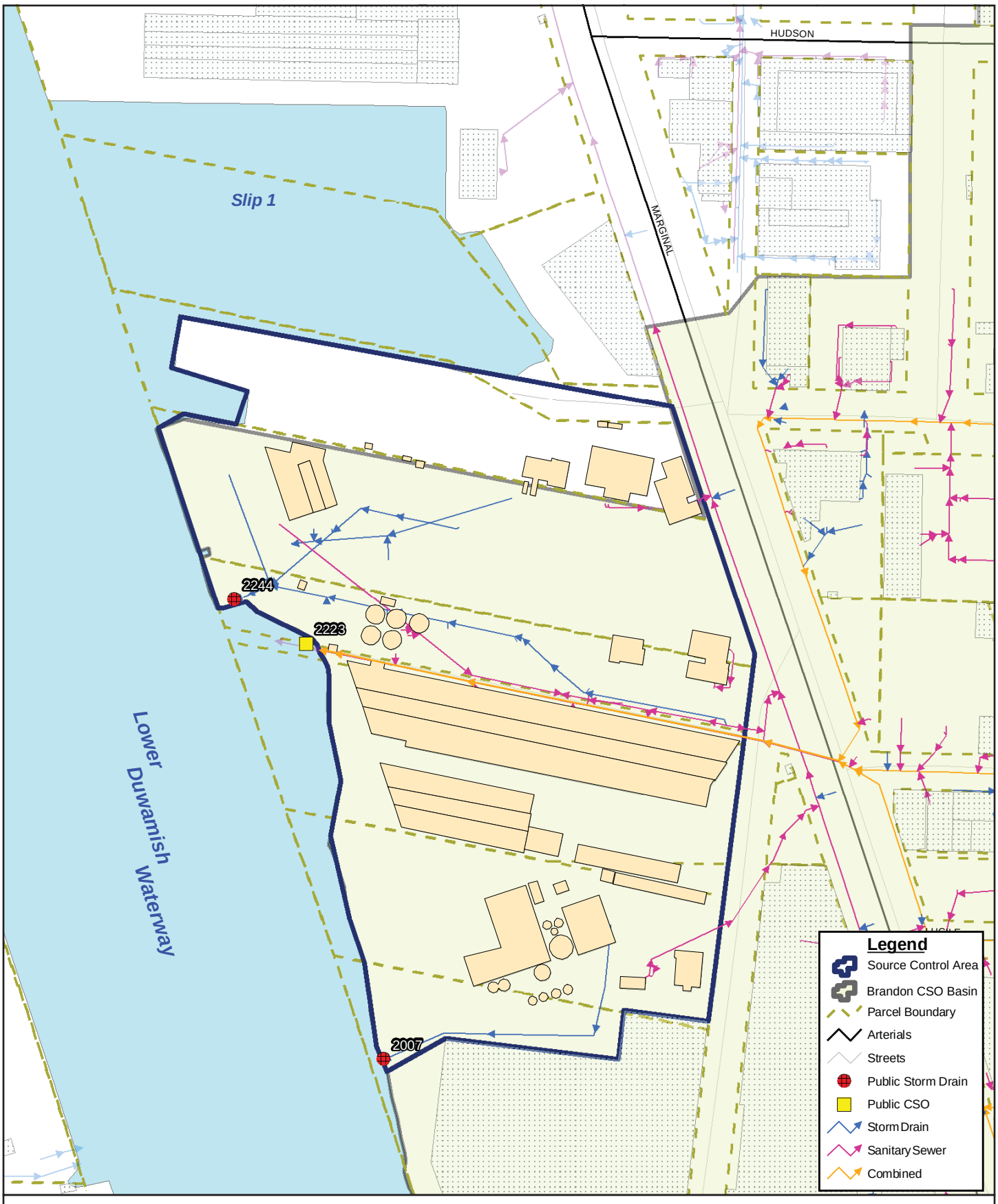


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**Figure 4. Storm Drain and Sanitary Sewer Lines in the King County Lease Parcels Source Control Area**

DEPARTMENT OF ECOLOGY State of Washington

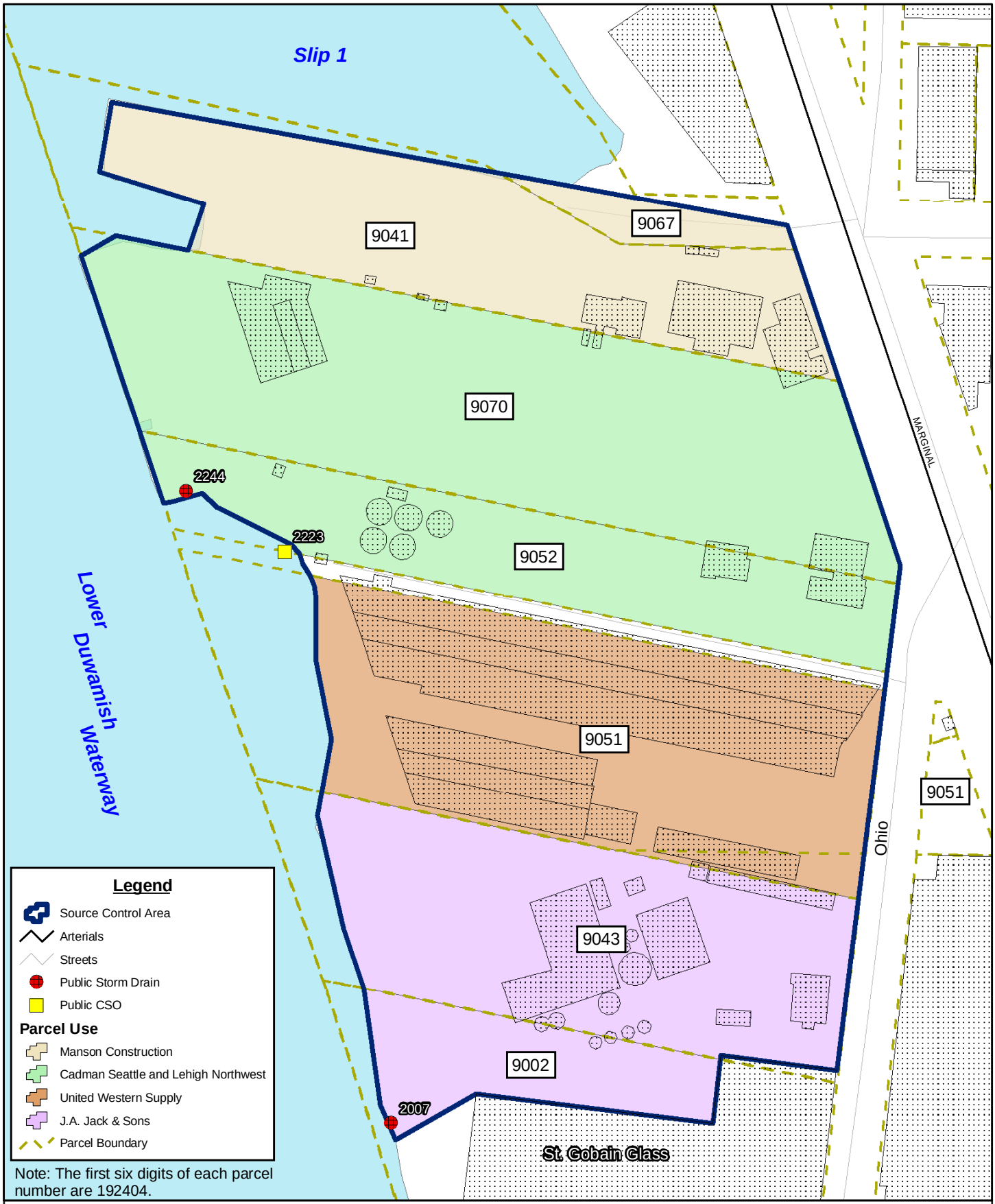


**Figure 5. Tax Parcels in the King County Lease Parcels Source Control Area**

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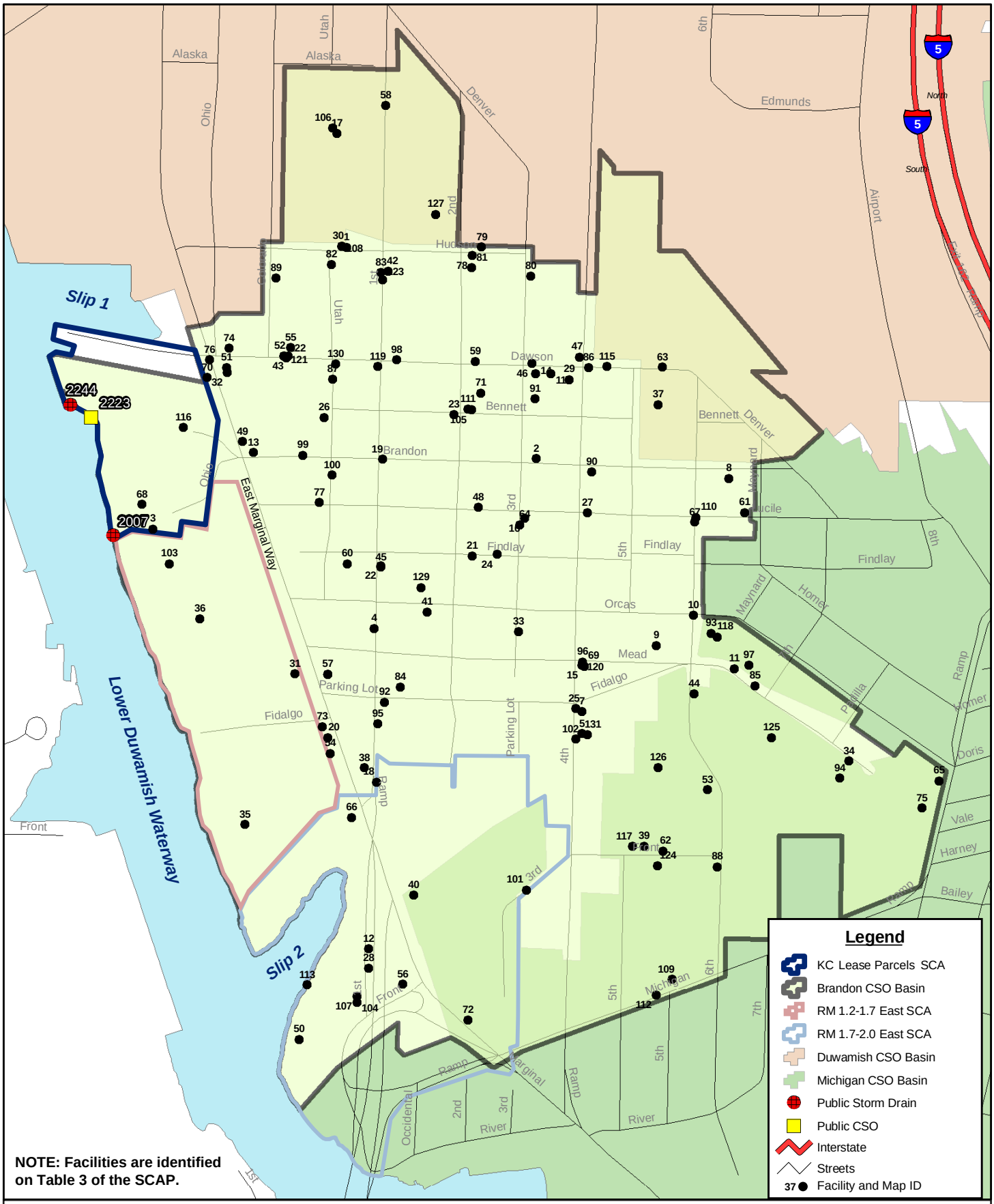


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**Figure 6. S Brandon Street CSO Basin**

DEPARTMENT OF ECOLOGY State of Washington

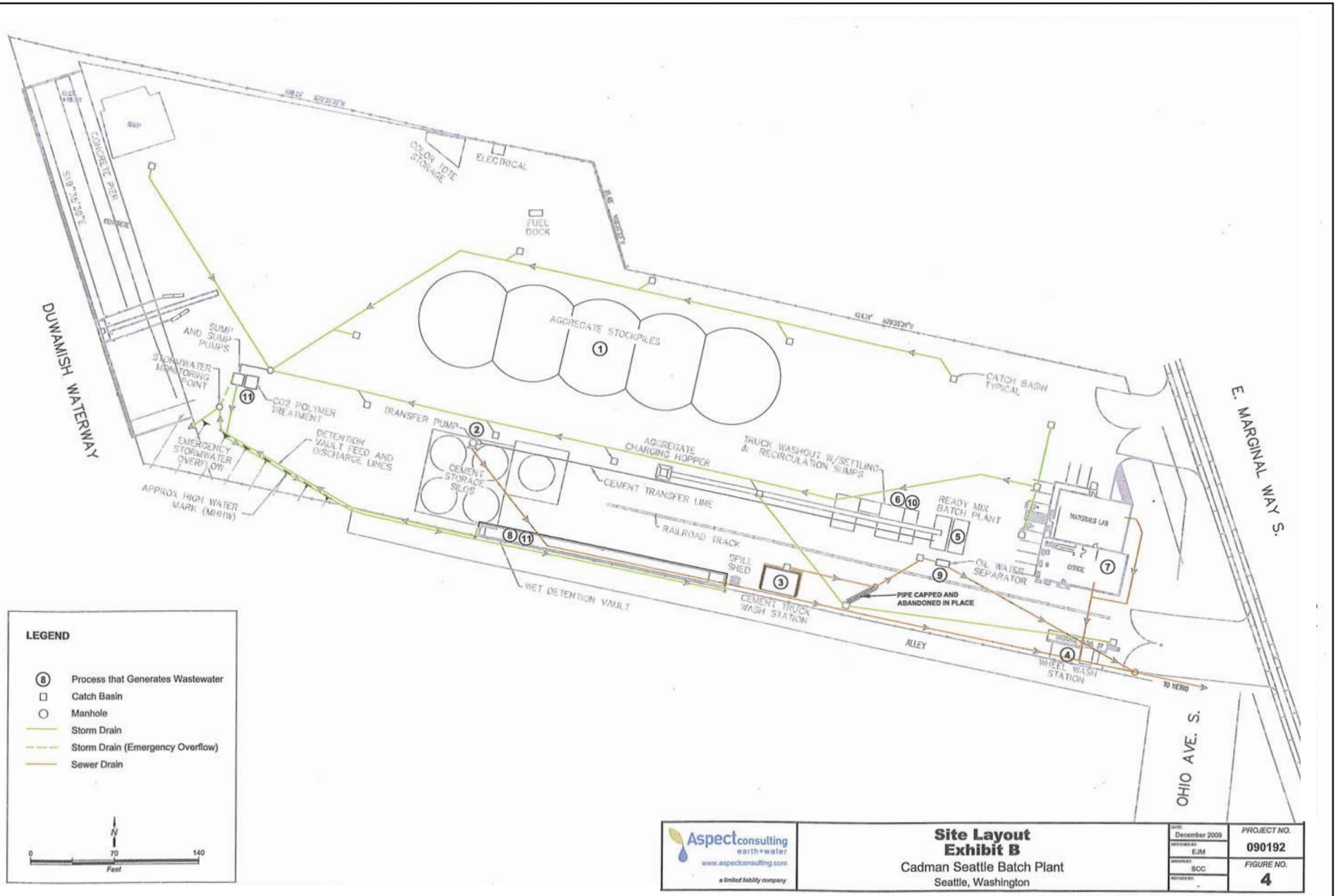


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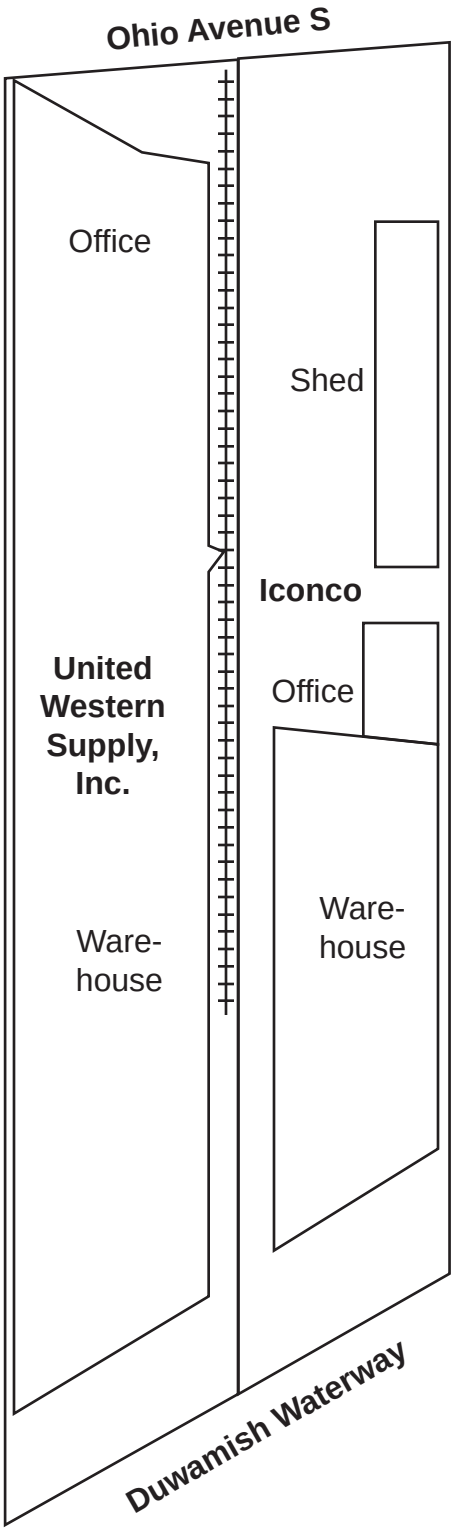
**Figure 7. Cadman Seattle, Inc. and Lehigh Northwest Facility Plan**

DEPARTMENT OF ECOLOGY State of Washington




Source: Cascadia Law Group 2008

**Figure 8. United Western Supply Facility Plan**

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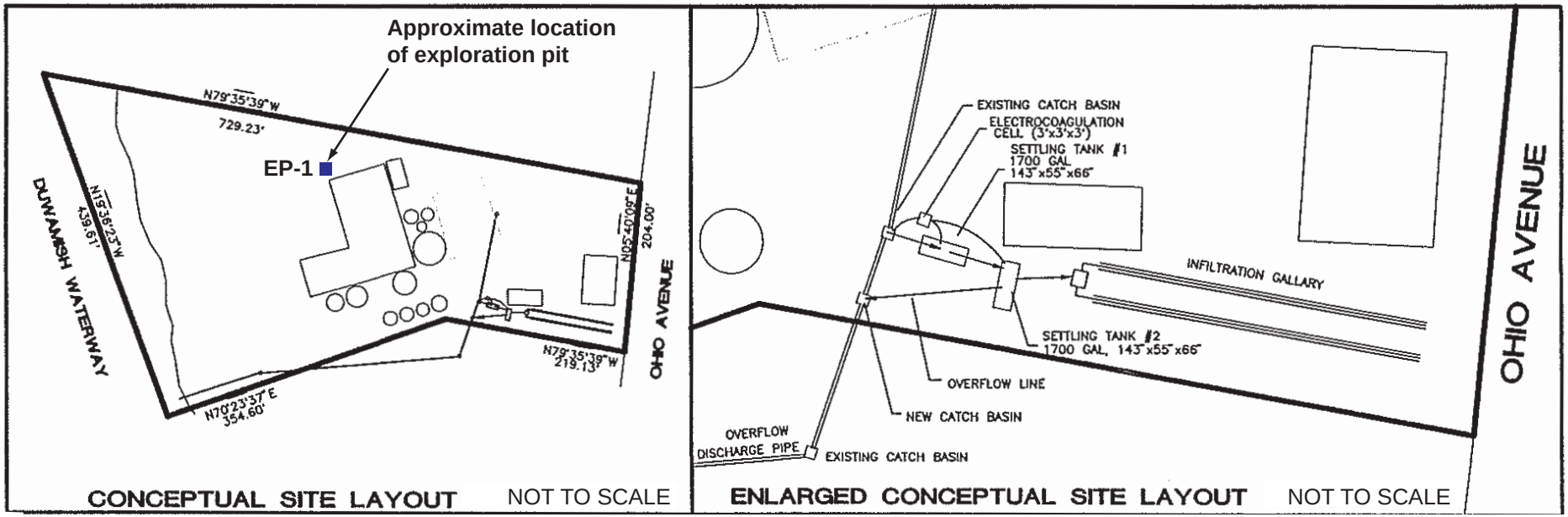
DEPARTMENT OF ECOLOGY State of Washington




Source: Associated Earth Sciences 2002; ESM 2003

**Figure 9. J.A. Jack & Sons Facility Plan**

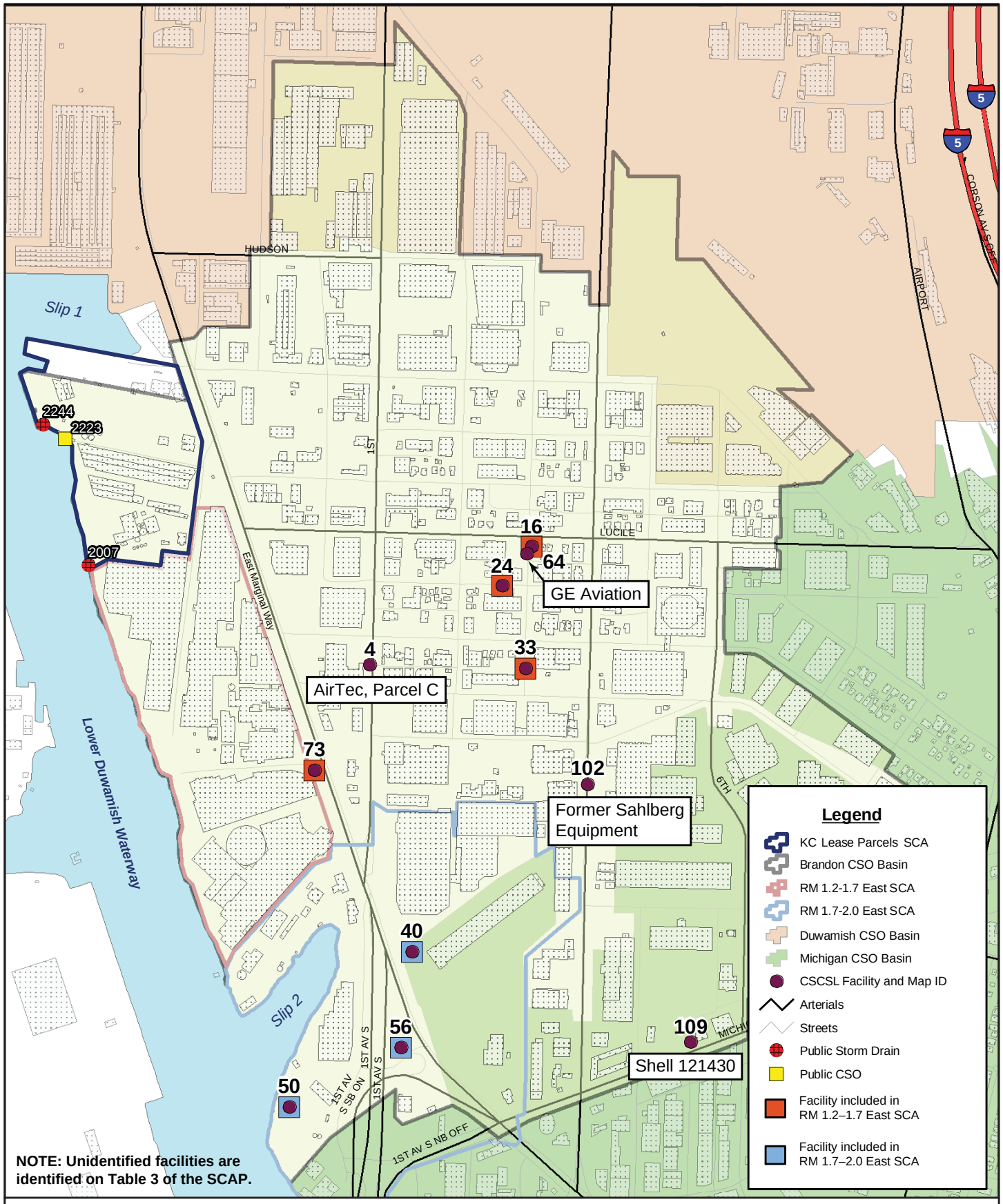



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**Figure 10. CSCSL Facilities in the S Brandon Street CSO Basin**

0 400 800 1,600 Feet

DEPARTMENT OF ECOLOGY State of Washington

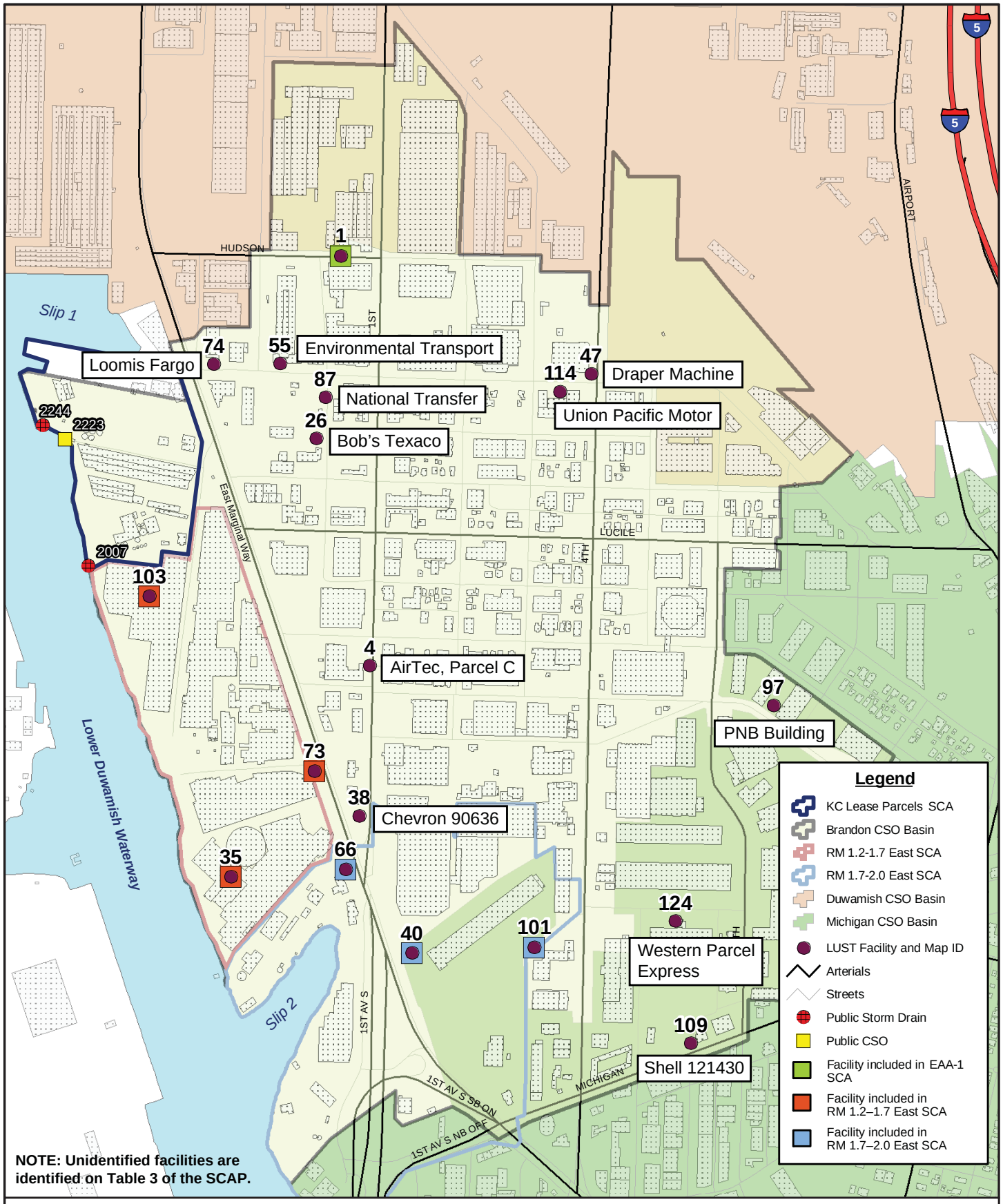


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**Figure 11. LUST Facilities in the S Brandon Street CSO Basin**

0 400 800 1,600 Feet

DEPARTMENT OF ECOLOGY State of Washington