Lower Duwamish Waterway

Source Control Action Plan Handbook

Prepared for

Toxics Cleanup Program
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List of Acronyms

BDC	Boeing Developmental Center
CSCSL	Confirmed and Suspected Contaminated Sites List
CSO	combined sewer overflow
E&E	Ecology and Environment
EAA	Early Action Area
Ecology	Washington State Department of Ecology
EOF	emergency overflow
EPA	U.S. Environmental Protection Agency
FS	Feasibility Study
GIS	Geographic Information System
GTSP	Georgetown Steam Plant
ISIS	Integrated Site Information System
KCIA	King County International Airport
LDW	Lower Duwamish Waterway
LDWG	Lower Duwamish Waterway Group
LUST	leaking underground storage tank
NBF	North Boeing Field
NPDES	National Pollutant Discharge Elimination System
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl
RI	Remedial Investigation
RM	river mile
ROD	Record of Decision
SAIC	Science Applications International Corporation
SCAP	Source Control Action Plan
SD	storm drain
TBD	to be determined
USEPA	U.S. Environmental Protection Agency
UST	underground storage tank
WAC	Washington Administrative Code

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1.0 Introduction and Purpose

1.1 Introduction

The Lower Duwamish Waterway (LDW) is the downstream portion of the Duwamish River, extending from just south of the Norfolk combined sewer overflow (CSO) to the southern tip of Harbor Island (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.

In December 2000, the U.S. Environmental Protection Agency (EPA) and 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 conducted 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. Chemicals of potential concern included metals, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), dioxins and furans, phthalates, and other organic compounds.

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 is the lead agency for the RI/FS, while Ecology is the lead agency for source control issues.

The LDW RI was published in July 2010, and the FS was completed in October 2012. EPA completed a Proposed Plan for cleanup of the LDW in February 2013 and made it available for public review through June 13, 2013.

Source control is the process of finding sources of contaminants, characterizing them, and then taking actions to stop or reduce them before they reach the LDW. Source control includes a variety of actions, from sampling, monitoring, site investigation, site cleanup, structural controls, and treatment, to education and agency coordination. All of these actions help reduce contamination in the LDW.

1.2 LDW Source Control Strategy

Ecology described the process for identifying source control issues and implementing effective source controls in the 2004 LDW Source Control Strategy. 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).[1] Ecology revised the LDW Source Control Strategy in December 2012. The revised strategy will be published in 2014.

A **Source Control Action Plan** (SCAP or Action Plan) identifies potential contaminant sources and pathways within a source control area, the actions needed to control potential sources, and evaluates whether ongoing sources are present that could recontaminate sediments following cleanup of the LDW Site. In addition, a SCAP describes source control actions that are planned or currently underway, and sampling and monitoring activities that will be conducted to identify additional sources.

The strategy is being implemented through the development of a series of detailed, area-specific Source Control Action Plans (SCAPs). The SCAPs provide a summary of what is known about an area, identify data gaps, describe how data gaps will be filled, list source control actions that are needed, and describe how these actions will be implemented. Ecology prioritizes source control actions based on their potential impact to sediment cleanup projects. The SCAPs include the following information:

- Status of contaminated media and pathways.
- Actions necessary to fill data gaps and control sources. These may include collection of additional environmental data, investigation and cleanup, and contaminant source tracing.
- Target dates for achieving source control actions.

Because the scope of source control for each area varies, it was necessary to adapt each plan to the specific situation in that area. Ecology developed a total of 24 SCAPs; the first was published in December 2004; the final SCAP was completed in September 2013.

The 2004 source control strategy can be found at Ecology's website:
http://www.ecy.wa.gov/biblio/0409043.html

Further information about LDW source control can be found at Ecology's Lower Duwamish Source Control website:
http://www.ecy.wa.gov/programs/tcp/sites_brochure/lower_duwamish/lower_duwamish_hp.html

1.3 Purpose of this Handbook

The purpose of this Handbook is to answer common questions that readers of the SCAPs may have. It explains how the SCAPs were developed and the reason for some of the differences between earlier and later SCAPs and associated reports. In addition, it identifies some of the challenges that were encountered during this process.

Preparation of the first SCAP began in February 2003, and the last one was completed in September 2013. During this period, Ecology and its contractors continually refined and improved the content and organization of the SCAPs.

The SCAPs were prepared during a period of great flux. During these 10 years, many source control activities were conducted, including:

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

- Thousands of business inspections;
- Collection and analysis of hundreds of source tracing samples in storm drains;
- Collection of river sediment samples and other data collection efforts; and
- Initiation, and in some cases, completion of, site cleanups.

As Ecology and its contractors gained more experience, the SCAPs evolved to reflect the lessons learned at the time each SCAP was prepared.

The Handbook includes a general timeline of the SCAP development process, and provides additional information about:

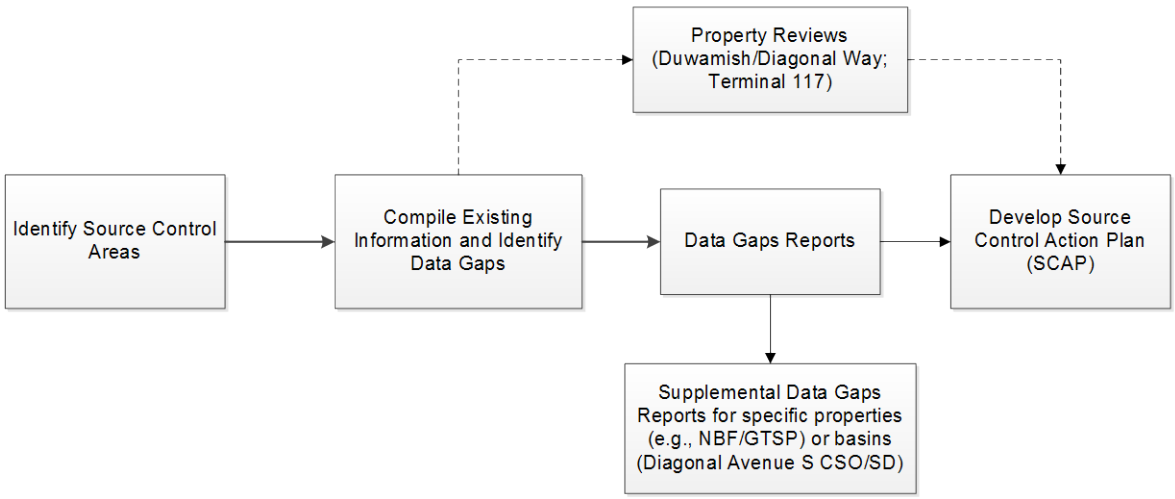
- How source control areas were defined;
- Process for preparation of SCAPs and associated reports, including a description of the types of source control evaluations conducted by Ecology;
- Identification of source control action items;
- Process for tracking updates and changes;
- A list of SCAPs and related documents that have been prepared; and
- Key issues related to specific source control areas, including:
    - Information to aid the reader in interpreting the source control documents for that source control area.
    - Corrections to the description of the drainage areas for specific facilities.

2.0 SCAP Development Process

The process to develop a SCAP consists of the following steps:

- Identify source control areas.
- Compile and document existing information and identify data gaps through preparation of property reviews, Data Gaps Reports, and Supplemental Data Gaps Reports.
- Develop an action plan for implementation of source control (SCAP).
- After publication of a SCAP, document updated information in periodic Source Control Status Reports.

These steps are shown in the diagram below and are discussed in more detail in the following sections.



2.1 Identify Source Control Areas

Ecology has identified 24 source control areas in the LDW basin. A source control area refers to the source area which may affect sediments in a segment of the waterway. In general, a source control area includes facilities adjacent to the waterway segment, plus facilities that are located within a public or private storm drain basin that discharges to the LDW within that segment. Facilities with groundwater discharge to the waterway segment are also generally included. Figure 1 shows the LDW study area; Figure 2 depicts the location and boundaries of the 24 source control areas.

Source control area names refer to landmarks (such as slips, terminals, streets, islands), or businesses in the area that are adjacent to the LDW. Facility names included in source control area names are used simply for location reference, and do not refer to the presence or absence of contamination or the need for remediation. In addition, source control areas are further identified by river mile (measured from the southern tip of Harbor Island), location of the source control area on the east or west side of the LDW, and EAA designation, as appropriate.

CSO basins, which overlap with stormwater drainage basins in many areas along the LDW, were not considered for defining source control area boundaries. However, sources within the CSO basins are evaluated as part of source control. Figure 3 shows the King County CSO basins associated with the LDW.

The source control areas were identified at various points in time. In June 2003, the LDWG published *Technical Memorandum: Data Analysis and Candidate Site Identification*. Seven candidate sites for early action were recommended. Ecology and EPA refined the boundaries of the candidate early action areas (EAAs), generally based on storm drain basin boundaries. These seven candidate EAAs were:

Candidate Early Action Area	Source Control Area Name	Location (River Mile)[2]
EAA-1	Duwamish/Diagonal Way	RM 0.1 – 0.9 East
EAA-2	Trotsky Inlet	RM 2.1 – 2.2 West
EAA-3	Slip 4	RM 2.8 East
EAA-4	Boeing Plant 2 to Jorgensen Forge	RM 2.8 – 3.7 East
EAA-5	Terminal 117	RM 3.4 – 3.8 West
EAA-6	Boeing Isaacson/Central KCIA	RM 3.7 – 3.9 East
EAA-7	Norfolk CSO/SD	RM 4.9 East

The 2004 Source Control Strategy identified four prioritized tiers of work, organized to manage source control in parallel with anticipated sediment cleanups:

- Tier 1: Source control associated with Early Action sediment cleanups,
- Tier 2: Source control associated with EAAs identified in the LDW Phase 1 RI, and cleanup areas identified in the Phase 2 RI and EPA's Record of Decision (ROD),
- Tier 3: Source control necessary to prevent future sediment contamination from basins that may not drain directly to an identified sediment cleanup area, and
- Tier 4: Source control as necessary to address any recontamination identified by post-cleanup monitoring of sediment cleanups.

Achieving source control before a cleanup begins can take years. For budgeting and planning purposes, Ecology needed to identify how many SCAPs would be necessary. In 2007, Ecology, in consultation with EPA, identified eight additional source control areas based on available sediment data (Tier 2). In February 2008, Ecology identified the areas of the LDW not yet covered by a SCAP or planned SCAP (Tier 3). Using the same criteria as in 2007, eight additional source control areas were added to the list. The source control areas were adjusted to include adjacent properties and incorporate new information on drainage basin boundaries. One additional source control area was added by Ecology in 2010, for a total of 24 source control areas, including the candidate EAAs. The17 additional source control areas and their current river mile designations are:

[2] River miles, as defined in this and all other LDW reports, are measured from the southern tip of Harbor Island.

Source Control Area Name	Location (River Mile)
Spokane Street to Ash Grove Cement	RM 0.0 – 0.1 East
Slip 1	RM 0.9 – 1.0 East
King County Lease Parcels	RM 1.0 – 1.2 East
St Gobain to Glacier Northwest	RM 1.2 – 1.7 East
Slip 2 to Slip 3	RM 1.7 – 2.0 East
Slip 3 to Seattle Boiler Works	RM 2.0 – 2.3 East
Seattle Boiler Works to Slip 4	RM 2.3 – 2.8 East
Slip 6	RM 3.9 – 4.3 East
Boeing Developmental Center	RM 4.3 – 4.9 East
Spokane Street to Kellogg Island	RM 0.0 – 1.0 West
Kellogg Island to Lafarge Cement	RM 1.0 – 1.3 West
Glacier Bay	RM 1.3 – 1.6 West
Terminal 115	RM 1.6 – 2.1 West
1st Avenue S Storm Drain	RM 2.1 West
Riverside Drive	RM 2.2 – 3.4 West
Sea King Industrial Park	RM 3.8 – 4.2 West
Restoration Areas	RM 4.2 – 5.8 West

Boundaries have been modified slightly in some cases as additional information became available; specific changes are described in Section 4. The seven candidate EAAs and 17 Ecology-defined source control areas are shown in Figure 1. Upland source control area boundaries are shown in Figure 2.

Table 1 shows the order in which source control areas were evaluated, and the completion dates for Data Gaps Reports and SCAPs, as applicable. Table 2 lists the SCAPs and supporting documents prepared by Ecology and its contractors, by source control area.

2.2 Compile Existing Information and Identify Data Gaps

Source control evaluations began in 2003 with the source control areas that were considered highest priority at that time: EAA-1 (Duwamish/Diagonal Way), EAA-3 (Slip 4), and EAA-5 (Terminal 117). The SCAPs for these three source control areas were published during a time when Ecology was developing the process and very limited funding was available. Sediment and source control investigations in these areas were already being conducted by LDWG members. Ecology used the existing information and data gaps reports prepared by LDWG for EAA-3 (Slip 4; SEA 2004) and EAA-5 (Terminal 117; Windward 2003). Ecology did not prepare separate Data Gaps Reports for these source control areas.

For EAA-1 and EAA-5, the SCAPs focused on properties adjacent to the LDW. Beginning with the SCAP for EAA-3 (Slip 4), where storm drain discharges from upland sources represented a potentially significant source of contaminants, Ecology expanded its focus to include facilities within the storm drain and CSO basins.

Beginning in 2006, Ecology obtained funding to hire contractors to review files and summarize available information for each source control area, including:

- Chemicals of potential concern in sediments near the source control area;
- Potential adjacent and upland sources of contaminants;
- Contaminant migration pathways from potential sources to LDW sediments;
- Potential for sediment recontamination after LDW cleanup;
- What, if any, effective source control is already in place;
- Critical data gaps that need to be addressed in order to assess the potential for sediment recontamination.

Publication dates for these summary reports, referred to as Data Gaps Reports, are listed in Table 1.

As described above, Ecology did not prepare Data Gaps Reports for the first three source control areas to be evaluated (EAA-1, EAA-3, and EAA-5). For these, Ecology's contractor prepared property reviews that provided background information for selected properties/facilities.

The general process used to prepare a Data Gaps Report is summarized below:

- Facilities listed in Ecology's Facility/Site database, that are located within the source control area, are identified using GIS to map their locations.
- A buffer is applied around the perimeter of the source control area to capture facilities that may be listed with incorrect coordinates.
- Facility addresses are compared to map locations, and locations are verified.
- Files are retrieved from Ecology Central Records and Archives, and are scanned and converted to electronic format.
- Information in the files is reviewed and summarized, the potential for sediment recontamination is assessed, and data gaps are identified.
- The draft Data Gaps Report is reviewed, commented on, and added to by other agencies and occasionally property owners.
- Comments are incorporated and the final Data Gaps Report is published; this report then serves as the basis for the SCAP (see below).

Ecology considers the following **contaminant transport pathways** when preparing a Data Gaps Report:

- ✓ Stormwater discharges
- ✓ Combined sewer overflows and emergency overflows
- ✓ Surface runoff
- ✓ Groundwater discharges
- ✓ Bank soil erosion/leaching
- ✓ Spills, dumping, leaks, and inappropriate management practices
- ✓ Waterway operations and traffic
- ✓ Atmospheric deposition

In some cases, Supplemental Data Gaps Reports were prepared after completion of the SCAP for selected properties or drainage basins. These supplemental documents were prepared to incorporate important information that was not available at the time the source control area was originally evaluated. New information may include responses to EPA 104[e] Request for Information letters, new environmental sampling data, and source control inspection results. Supplemental Data Gaps Reports were prepared for North Boeing Field/Georgetown Steam Plant

(EAA-3), Douglas Management Company and Boyer Towing (EAA-2), and the Diagonal Avenue S CSO/storm drain (SD) basin (EAA-1).

Data Gaps Reports and related documents developed for each source control area are listed in Table 2.

Findings from the Data Gaps Reports were reviewed by LDW stakeholders and incorporated into the SCAP for each source control area. This process helped to ensure that the action items identified in the SCAP would be effective and implementable.

2.3 Develop Source Control Action Plans

The information presented in Data Gaps Reports, Supplemental Data Gaps Reports, and property reviews is used to develop a SCAP. Each SCAP identifies potential historical and ongoing contaminant sources and transport pathways that may affect sediments in and adjacent to a source control area. The purpose of the SCAP is to evaluate the significance of these sources and to determine if actions are needed to minimize the potential for recontamination of sediment near the source control area. The actions needed or currently underway to control these sources of contaminants become action items. In addition, each 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 draft SCAPs are reviewed by other agencies, community and environmental groups, and other interested parties.

The SCAP was a new type of document for Ecology's Toxics Cleanup Program. When Ecology published the first SCAP in December 2004, there was no guidance or template to follow. Ecology's source control team had the opportunity to design a document that would be a useful plan to assist with the source control efforts. The process of developing SCAPs was dynamic and flexible. Ecology was able to incorporate the lessons learned from the earlier SCAPs to improve upon the SCAPs that followed. This allowed for continual improvements to be incorporated into these documents. The SCAPs evolved into a better, more complete source control document. As a result of this process, there are some differences between the earlier SCAPs and the SCAPs that were completed in 2013.

The increased funding for the project in 2006 allowed Ecology to add an Environmental Planner to focus on producing the Data Gaps Reports and SCAPs for the LDW. From 2006 through 2013, Ecology continued to use contractor support to produce Data Gaps Reports and SCAPs.

2.4 Provide Updates in Source Control Status Reports

Ecology publishes periodic status updates that describe source control activities conducted during a specific time period. The first Status Report was published in July 2007. The Status Reports have included updates of the following information:

- Updated SCAP publication and implementation schedule;
- Status of business inspections, source tracing activities, site assessments and cleanups, and other source control activities described in previous status reports;
- Public involvement and outreach activities during the subject time period;
- Updated lists of action items, priorities, and expected completion dates;
- New action items that were identified during the reporting period, either as a follow-on to a previous action item or due to the identification of a new potential contaminant source.

It is not Ecology's intent to revise the SCAPs; updated information will be provided as part of the Status Reports.

The following Source Control Status Reports have been published (Figure 2):

Status Report No.	Reporting Period	Date Published
1	January 2003 through June 2007	July 2007
2	July 2007 through March 2008	May 2008
3	April 2008 through August 2008	October 2008
4	September 2008 through June 2009	August 2009
5	July 2009 through September 2010	August 2011
6	October 2010 through December 2011	July 2012
7	January 2012 through December 2012	June 2013

Ecology will continue to publish Source Control Status Reports, on an approximately annual basis.

3.0 General Considerations

This section provides additional general information relevant to the SCAP development process. Source control area specific information is presented in Section 4.0.

Source Control Area Assignments

As described in Section 2.1, properties were generally assigned to a source control area based on storm drain basin boundaries. In some cases, however, a property may have been assigned to multiple source control areas or may be discussed in more than one Data Gaps Report and SCAP. Some facilities are included in more than one source control area because the potential pathways for contaminant transport could lead to sediment recontamination in more than one source control area. Examples include:

- Facilities with stormwater drainage to one source control area, but potential groundwater discharges to another source control area, such as Great Western Chemical Company. Stormwater from this facility discharges to Slip 3 in the river mile (RM) 2.0-2.3 East (Slip 3 to Seattle Boiler Works) source control area, while groundwater discharges to the S Myrtle Street Embayment, within the RM 2.3-2.8 East (Seattle Boiler Works to Slip 4) source control area.
- Facilities with multiple stormwater outfalls located in more than one source control area. For example, stormwater from King County International Airport discharges to the LDW within four different source control areas.

Selection of Properties for Inclusion in a Data Gaps Report

During development of the early SCAPs, sites were selected for inclusion in a Data Gaps Report or SCAP based on their proximity to the LDW. Ecology provided a list of properties to be included in a SCAP to the contractor. Limited searches of Ecology's Facility/Site Database were performed to identify additional facilities that may represent contaminant sources. In late 2006, increased funding allowed Ecology's contractors to begin reviewing files for all facilities that had been assigned a Facility/Site ID number located within the defined boundaries of a source control area. This resulted in a greater level of detail in the SCAPs prepared after 2006.

Availability of Storm Drain Structure Maps and Data

Mapping data for storm drain structures and basins were not available initially. Until approximately 2008, Ecology used hard copy maps of storm drain lines, structures, and basins to delineate source control areas and evaluate facilities as potential sources of contamination via the stormwater pathway. Over time, more and better data became available to evaluate drainage basin boundaries and outfall locations, including the availability of geographic information system (GIS) data. These data resulted in modifications to storm drain basin and source control area boundaries.

Inclusion of Facilities in Combined Sewer Basins

Typically, facilities in a combined sewer basin that are either not adjacent to the LDW or not in a stormwater drainage basin are not included within the boundaries of a source control area. These facilities were discussed with the source control area where the CSO is located, although not addressed in the same level of detail as adjacent facilities or those within a storm drain basin. For example, the Brandon CSO discharges to the LDW within the King County Lease Parcels source control area; facilities within the Brandon CSO basin that were not already discussed in an earlier SCAP are included in the SCAP for King County Lease Parcels.

One exception to this is the Norfolk CSO basin. The EAA-7 (Norfolk CSO/SD) SCAP was one of the earliest to be completed (September 2007). The SCAP for EAA-7 included facilities in the Norfolk SD basin, but did not include those facilities that are within the combined sewer service area outside of the SD basin.

Development of Action Items

During preparation of each SCAP, Ecology identified source control action items needed to (a) assess the potential for sediment recontamination, or (b) reduce or eliminate sources of contaminants to LDW sediments. Action items were developed for each property identified as a potential source of sediment recontamination in a source control area. Some action items are for specific tasks, such as a remedial investigation and cleanup. For facilities where there is insufficient information to assess whether it is a potential source of sediment recontamination, action items may include inspections or sampling.

The action item listings for the first SCAP included a task name, the agency responsible for completing the task, an estimated completion date, applicability (e.g., to the entire LDW basin or to the Duwamish/Diagonal EAA only), and comments. As additional SCAPs were prepared, the action item listings were gradually modified to include the property or outfall name, a description of potential contaminant sources including historical and ongoing sources, an expanded action item description, milestones and parties involved, status (planned, in progress, complete), and priority. In 2010, due to budget and other constraints, completion dates could no longer be estimated, and were entered as TBD (to be determined).

Action item priorities are defined as follows:

- ✓ High – To be completed prior to sediment cleanup;
- ✓ Medium – To be completed prior to or concurrent with sediment cleanup;
- ✓ Low – Ongoing actions or actions to be completed as resources become available.

Priorities were assigned as low, medium, or high, and are relative to action items within a given source control area only. Priorities for the LDW as a whole could not be assigned until SCAPs for all source control areas had been completed, and proposed cleanup plans had been initiated.

Some action items have been modified from the original SCAP listings. These modifications are documented in the Source Control Status Reports. Modifications include:

- Addition of priority levels for action items from earlier SCAPs;
- Elimination of routine long-term functions, such as ongoing inspections and review of National Pollutant Discharge Elimination System (NPDES) permits;

- Elimination of several action items that were no longer needed;
- Consolidation of multiple action items into a single action item, as appropriate;
- Splitting of an action item into its component parts to allow more efficient tracking;
- Editing of action item descriptions for brevity and clarity;
- Updating of status, notes, and estimated completion dates;
- Addition of follow-on action items, as appropriate.

Availability of Source Tracing Data

Ecology, Seattle Public Utilities (SPU), King County, and other members of the Source Control Work Group have collected source tracing data, including sediment trap and grab samples of storm drain solids, since 2003. In 2008, Ecology signed an interagency agreement with SPU to begin collection of additional source tracing samples in municipal storm drains. As these and other source tracing data became available, they were incorporated into Data Gaps Reports and SCAPs. As a result, Ecology was able to more accurately identify chemicals of potential concern in storm drains for the later SCAPs because of this availability of significantly more data.

Availability of Source Control Inspection Results

SPU, Ecology, and King County have conducted thousands of site inspections, including city business inspections, NPDES inspections, and Urban Waters Initiative source control inspections. The increased availability of inspection results over the 10-year SCAP preparation period resulted in a greater level of detail in later reports.

Use of Multiple Contractors

Ecology has used two contractors during the SCAP development process: Science Applications International Corporation (SAIC) and Ecology & Environment (E&E). Report authors are listed in Table 2. SAIC provided primary support, assisting Ecology with the preparation of 18 SCAPs. When funds were available, and to speed up the preparation of SCAPs, Ecology used E&E to assist with six SCAPs during the period from 2007 to 2009. While the use of multiple contractors did increase the rate at which Data Gaps Reports and SCAPs were completed[3], it resulted in some inconsistencies in format and content between source control areas and reports.

Changes in Facilities and Properties

Within the LDW basin, some businesses move to other locations while new businesses move into the area. Many properties changed names, owners, or operators during the 10-year SCAP development period. Some facilities may have been excluded from a Data Gaps Report and/or SCAP because the business did not operate in the source control area at the time the reports were published. This constant state of flux represented a significant challenge during the preparation of the Data Gaps Reports and SCAPs.

[3] 12 SCAPs were completed during the 2.5-year period between January 2007 and June 2009.

Reliance on Ecology Databases and Records

Ecology's Facility/Site Database was the primary source used to identify facilities located within a given source control area. In some cases, coordinates listed in the Facility/Site Database were incorrect, and facilities were either placed in the wrong source control area, or were missed entirely. These were corrected prior to publication of a SCAP if possible; if errors were noted after SCAP publication, corrections were documented in the Source Control Status Reports.

Ecology's Integrated Site Information System (ISIS) and other databases undergo modifications and updates on a regular basis. The SCAPs were prepared with the information available at the time, and errors in Ecology databases, if any, may have been reflected in the facility descriptions.

4.0 Issues Specific to Source Control Areas

EAA-1 (Duwamish/Diagonal Way, RM 0.1-0.9 East)

A cleanup at Duwamish/Diagonal was partially completed in March 2004. The Duwamish/Diagonal cleanup was under King County management as part of the Elliott Bay-Duwamish Restoration Program.

EAA-1 is the largest source control area (over 2,600 acres), and was the first for which a SCAP was prepared. This source control area includes the Diagonal Avenue S SD basin, the Nevada Street SD basin, and portions of the Duwamish/Diagonal CSO basins.

Limited funding was available at the time the SCAP was developed. Property reviews were prepared in 2003 for key properties adjacent to the LDW, and the SCAP was published in 2004. In 2009, as funding became available, a Data Gaps report was prepared for facilities in the Diagonal Avenue S CSO/SD basin.

EAA-2 (Trotsky Inlet, RM 2.1-2.2 West)

EAA-2 was the fourth source control area for which a SCAP was prepared, and the first for which Ecology prepared a Data Gaps Report. The general format and content of Data Gaps Reports was developed at this time. Properties adjacent to the LDW and upland properties within the 2nd Avenue S SD basin are discussed. Significant uncertainty was present regarding the boundaries of the 2nd Avenue S SD basin, as well as the locations of and flow directions in storm drain lines. Supplemental Data Gaps Reports were prepared for two properties in this source control area: Douglas Management Company and Boyer Towing.

The Boyer Towing property, which is located at RM 2.2 to 2.6, is technically located within the RM 2.2-3.4 West (Riverside Drive) source control area. However, it was included with EAA-2 due to its proximity to the 2nd Avenue S SD.

EAA-3 (Slip 4, RM 2.8 East)

This source control area includes stormwater that discharges to the LDW from private outfalls, from the northern portion of King County International Airport (KCIA) via KC Airport SD#3/PS44 emergency overflow (EOF), the I-5 SD, and the Georgetown Flume.

A Data Gaps Report was prepared by a contractor for the City of Seattle in January 2004. SAIC prepared property reviews in 2006/2007 for key properties as identified by Ecology. The SCAP was published in July 2006, and was the third SCAP to be completed. A Data Gaps Report was prepared for the North Boeing Field/Georgetown Steam Plant site, which had been identified in the SCAP as a major contributor of PCB contamination to Slip 4, in 2006/2007. In 2009, a substantial amount of additional information became available and a Supplemental Data Gaps Report was prepared for the site.

The City of Seattle removed and replaced the Georgetown Flume in 2009. The city also completed a non-time critical removal action in 2011/2012 to address contaminated sediment in Slip 4. These activities were documented in the Source Control Status Reports.

The Crowley Marine Services (currently 8th Avenue Terminals) property is included in this source control area and in the Seattle Boiler Works to Slip 4 (RM 2.3-2.8 East) source control area because stormwater and groundwater from the east side of the property discharge to Slip 4, while the west side of the property discharges directly to the LDW.

Similarly, Boeing Plant 2 is included in both this source control area and the EAA-4 (Boeing Plant 2 to Jorgensen Forge, RM 2.8-3.7 East) source control area. Stormwater from a small portion of the Boeing Plant 2 property discharges to Slip 4, while the rest of the property discharges directly to the LDW.

KCIA is an upland property in this source control area. Stormwater from the northern portion of KCIA discharges to Slip 4. Other portions of KCIA discharge to the EAA-6, Slip 6, and Norfolk CSO/SD source control areas.

EAA-4 (Boeing Plant 2 to Jorgensen Forge, RM 2.8-3.7 East)

This source control area includes stormwater that discharges to the LDW from private outfalls (Boeing Plant 2 and Jorgensen Forge) and from the 16th Avenue S municipal outfall.

At the time this SCAP was prepared, stormwater from portions of KCIA and the City of Tukwila right-of-way discharged to the LDW through the KCIA-Jorgensen SD outfall, located within this source control area. This drainage was rerouted in December 2009; stormwater from this area currently discharges to KCIA SD#2, in the EAA-6 (Boeing Isaacson/Central KCIA, RM 3.7-3.9 East) source control area.

EAA-5 (Terminal 117, RM 3.4-3.8 West)

The SCAP for EAA-5 was the second one that was prepared. A Data Gaps Report was written in 2003 by the City of Seattle, and property reviews for key properties were prepared in 2004. A SCAP was completed by Ecology in 2005. EPA is the lead for managing cleanup at Terminal 117.

Several removal actions have been conducted in this source control area; updated information is presented in the Source Control Status Reports.

EAA-6 (Boeing Isaacson/Central KCIA, RM 3.7-3.9 East)

The EAA-6 source control area includes the Boeing Isaacson and Thompson properties adjacent to the LDW, and the portions of central KCIA that are within the drainage basin for KCIA SD#2/PS45 EOF.

EAA-7 (Norfolk CSO/SD, RM 4.9 East)

The SCAP for this source control area addressed properties adjacent to the LDW, including the southern portion of the Boeing Developmental Center, and key upland properties as identified by Ecology. Ecology's contractor reviewed and summarized information for the properties within the Norfolk SD basin that were listed on the Confirmed and Suspected Contaminated Sites List (CSCSL), leaking underground storage tank (LUST), and underground storage tank (UST) lists at the time the Data Gaps Report and SCAP were prepared in 2007. One property within the Norfolk SD basin, Ohno Construction Company, has been added to the CSCSL and LUST list since the SCAP was prepared for EAA-7.

A comprehensive file review for facilities within the Norfolk CSO basin (located outside of the Norfolk SD basin) has not been conducted.

RM 0.0-0.1 East (Spokane Street to Ash Grove Cement)

This source control area includes discharges from properties adjacent to the LDW. During preparation of the SCAP, it was determined that Ash Grove Cement and Port of Seattle Terminal 104 discharge stormwater to the East Waterway, not the LDW. There are no public storm drain outfalls located within RM 0.0-0.1 East.

RM 0.9-1.0 East (Slip 1)

This source control area includes discharges from properties adjacent to the LDW. Those portions of the Federal Center South property with stormwater drainage to Slip 1 are included in the RM 0.9-1.0 East (Slip 1) source control area; the rest of Federal Center South is included with EAA-1 (Duwamish/Diagonal Way). There are no public storm drain outfalls located within RM 0.9-1.0 East.

RM 1.0-1.2 East (King County Lease Parcels)

This source control area includes discharges from properties adjacent to the LDW; the S Brandon Street CSO is also located within RM 1.0-1.2 East. The SCAP for this source control area includes discussion of the 128 facilities, including GE Aviation, that are located within the S Brandon Street CSO basin.

RM 1.2-1.7 East (St. Gobain to Glacier Northwest)

The RM 1.2-1.7 East (St. Gobain to Glacier Northwest) source control area includes properties adjacent to the LDW. Four upland facilities of concern located within the S Brandon and Michigan Street CSO basins were discussed in this SCAP. Groundwater contamination associated with these facilities has migrated off the properties and into the RM 1.2-1.7 East (St. Gobain to Glacier Northwest) source control area and the RM 1.7-2.0 East (Slip 2 to Slip 3) source control area to the south.

Burlington Environmental/PSC Environmental Services is in the Michigan Street CSO basin; the other three upland facilities (Art Brass Plating, Blaser Die Casting, and Capital Industries) are in the S Brandon Street CSO basin. These facilities and GE Aviation, located in the S Brandon Street CSO basin, are included with the RM 1.2-1.7 East (St. Gobain to Glacier Northwest) source control area in Source Control Status Reports.

RM 1.7-2.0 East (Slip 2 to Slip 3)

One public storm drain (1st Avenue S Bridge SD), the Michigan Street CSO, and several private outfalls discharge to the LDW within RM 1.7-2.0 East. Facilities within the Michigan Street CSO that are not addressed as part of another SCAP were included in this source control area. Burlington Environmental/PSC Environmental Services was also discussed in this SCAP, which was prepared concurrently with the SCAP for the RM 1.2-1.7 East (St. Gobain to Glacier Northwest) source control area.

RM 2.0-2.3 East (Slip 3 to Seattle Boiler Works)

The RM 2.0-2.3 East (Slip 3 to Seattle Boiler Works) source control area includes properties adjacent to the LDW, and the S River Street SD and S Brighton Street SD basins. At the time the SCAP was prepared, there was also a city CSO at S Brighton Street. There is no longer a combined sewer discharge at this location.

RM 2.3-2.8 East (Seattle Boiler Works to Slip 4)

The RM 2.3-2.8 East (Seattle Boiler Works to Slip 4) source control area includes properties adjacent to the LDW, and the S Myrtle Street and S Garden Street SD basins. The northern portion of the Crowley Marine Services (currently 8th Avenue Terminals) property is also included in this source control area, because stormwater from this area discharges directly to the LDW.

RM 3.9-4.3 East (Slip 6)

The RM 3.9-4.3 East (Slip 6) source control area includes stormwater drainage from the south-central portion of KCIA, which discharges to the LDW through KCIA SD#1. It also includes the northern portion of the Boeing Developmental Center (BDC).

RM 4.3-4.9 East (Boeing Developmental Center)

The Boeing Developmental Center is included in three source control areas. The RM 4.3-4.9 East (Boeing Developmental Center) source control area includes drainage from 10 private outfalls located in the central portion of the BDC. Eight private outfalls in the northern and southern portions of the BDC facility discharge to Slip 6 (RM 3.9-4.3 East) and EAA-7 (Norfolk CSO/SD), respectively. There are no public storm drain outfalls located within RM 4.3-4.9 East.

RM 0.0-1.0 West (Spokane Street to Kellogg Island)

The RM 0.0-1.0 West (Spokane Street to Kellogg Island) source control area includes properties adjacent to the LDW, and the SW Dakota Street and SW Idaho Street SD basins. Properties in the Duwamish West CSO basin were reviewed also.

RM 1.0-1.3 West (Kellogg Island to Lafarge Cement)

Lafarge Cement is the only facility included in the SCAP for the RM 1.0-1.3 West source control area. As discussed below, the Chemithon property should have been included in this source control area.

RM 1.3-1.6 West (Glacier Bay)

The RM 1.3-1.6 West (Glacier Bay) source control area included three adjacent properties: Alaska Marine Lines, Duwamish Shipyard, and Glacier Northwest, Inc.

In addition, the former MRI Corporation (currently referred to as Terminal 115 North), located on the northwest corner of the Port of Seattle's Terminal 115, was included in this source control area because it was believed to discharge to Glacier Bay. It was included again in the SCAP for RM 1.6-2.1 West (Terminal 115).

Portions of the SW Kenny Street SD basin were addressed in the SCAP for the Glacier Bay source control area. At the time the SCAP was prepared, accurate storm drain maps were not available for this area. Because the SW Kenny Street SD basin is located in the Terminal 115 source control area, this basin should not have been included in the Glacier Bay source control area.

The Chemithon property, located to the northwest of Alaska Marine Lines, was also included in the Glacier Bay source control area. Based on available storm drain data, it was believed that stormwater from Chemithon discharged to the LDW within the Glacier Bay source control area. Subsequent storm drain maps have shown that the Chemithon property discharges to the LDW via an outfall located at the Lafarge Cement property, and should therefore have been included in the Kellogg Island to Lafarge (RM 1.0-1.3 West) source control area.

RM 1.6-2.1 West (Terminal 115)

The RM 1.6-2.1 West (Terminal 115) source control area includes the Port of Seattle Terminal 115 property adjacent to the LDW, the Highland Park Way SW SD basin, the Terminal 115 CSO basin, the SW Kenny Street SD basin, and the West Michigan CSO basin. The SW Kenny Street SD and the Terminal 115 CSO share an outfall within the RM 1.6-2.1 West source control area; consequently, this outfall is referred to as the SW Kenny Street SD/T115 CSO.

Properties in the SW Kenny Street SW SD basin which were not previously evaluated in the SCAP for the RM 1.3-1.6 West (Glacier Bay) source control area were included in the Terminal 115 SCAP.

RM 2.1 West (1st Avenue S SD)

The RM 2.1 West (1st Avenue S SD) source control area includes the 1st Avenue S SD basin. This source control area was the last to be identified, after discharges to the LDW via the 1st Avenue S engineered wetland system were documented. There are no facilities adjacent to the LDW within this source control area.

RM 2.2-3.4 West (Riverside Drive)

The RM 2.2-3.4 West (Riverside Drive) source control area includes properties adjacent to the LDW, upland facilities within the 7th Avenue S SD basin, and facilities within the 8th Avenue S CSO basin that were not located within the boundaries of another source control area.

The SCAP for the Riverside Drive source control area includes adjacent properties from RM 2.6 to RM 3.4. The Boyer Towing property, which is located at RM 2.2 to 2.6, was addressed in a Supplemental Data Gaps Report prepared for the EAA-2 source control area, and therefore is not included here.

RM 3.8-4.2 West (Sea King Industrial Park)

The RM 3.8-4.2 West (Sea King Industrial Park) source control area includes properties adjacent to the LDW and upland facilities in the S 96th Street SD basin.

RM 4.2-4.8 West (Restoration Areas)

The RM 4.2-5.8 West (Restoration Areas) source control area includes properties adjacent to the LDW and upland facilities in the Hamm Creek SD basin.

The boundary of the Restoration Areas source control area was extended from RM 4.2-4.8 West to RM 4.2-5.8 West in April 2013. The decision to extend the boundary to RM 5.8 West was made so that all properties on the peninsula between RM 4.7 and 5.8 West are included in the source control area. Stormwater from these facilities discharges to the LDW.

5.0 LDW Source Control Documents

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Figures

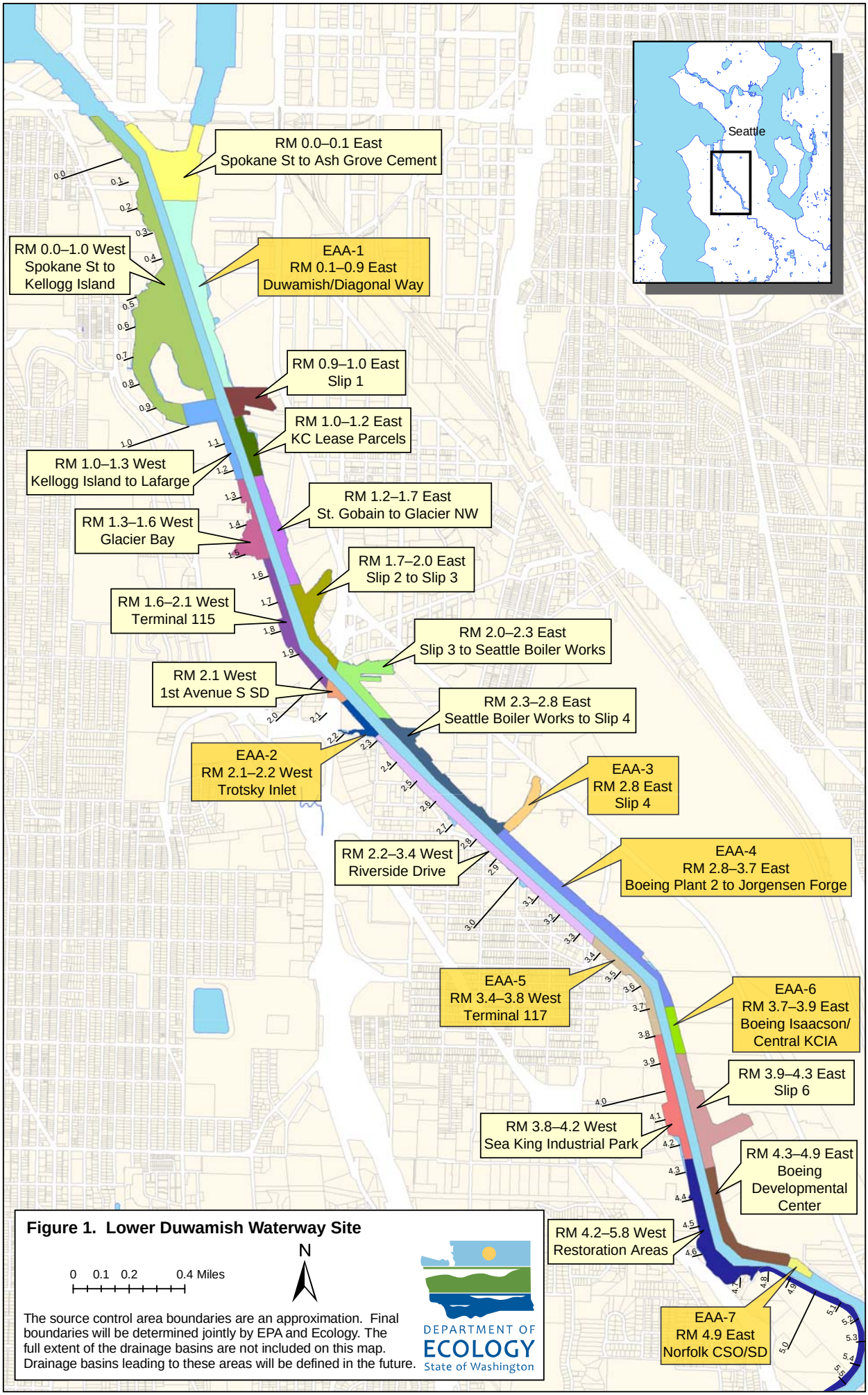

Figure 1. Lower Duwamish Waterway Site

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.

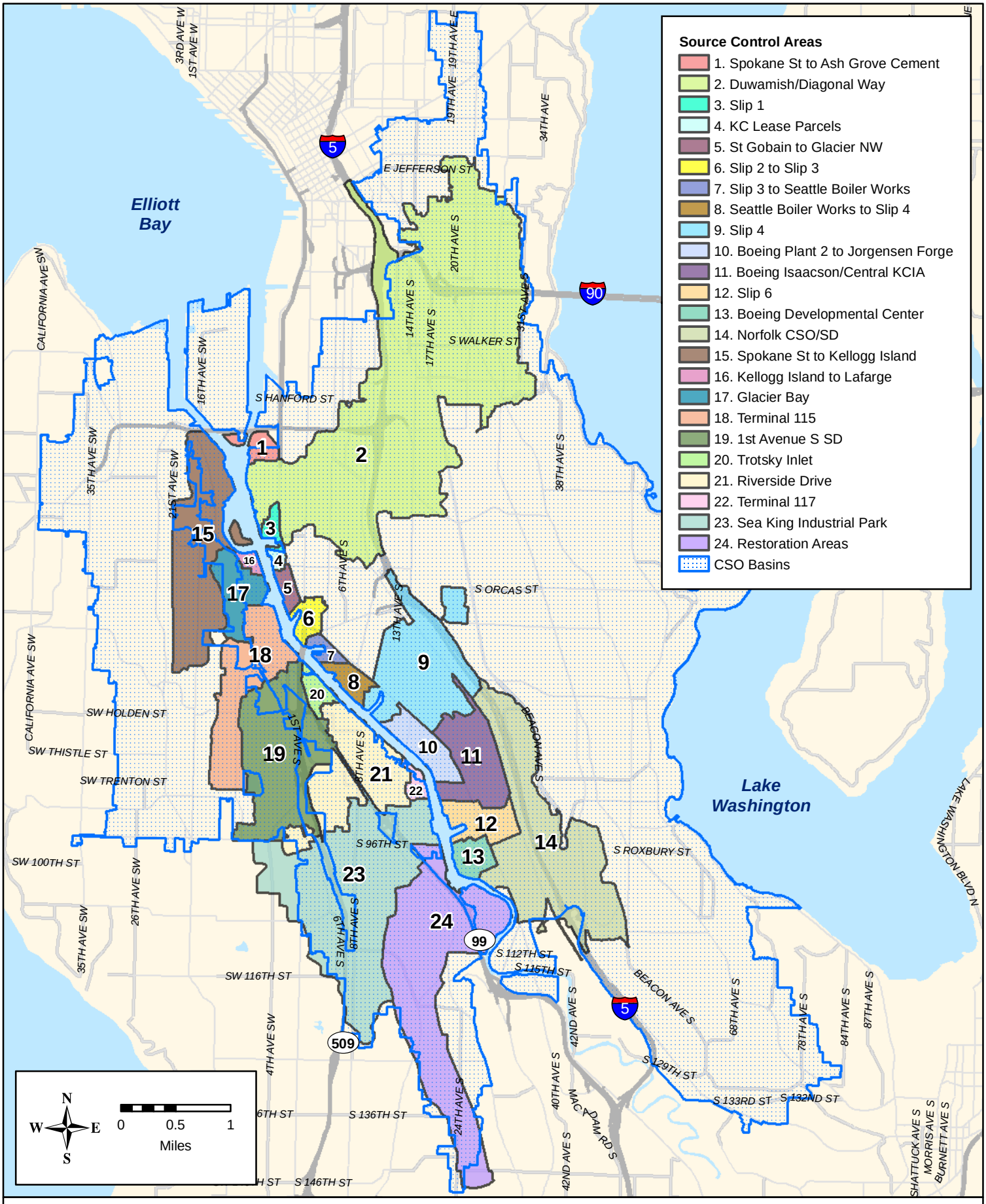

Figure 2. Lower Duwamish Waterway Source Control Areas

DEPARTMENT OF ECOLOGY
State of Washington

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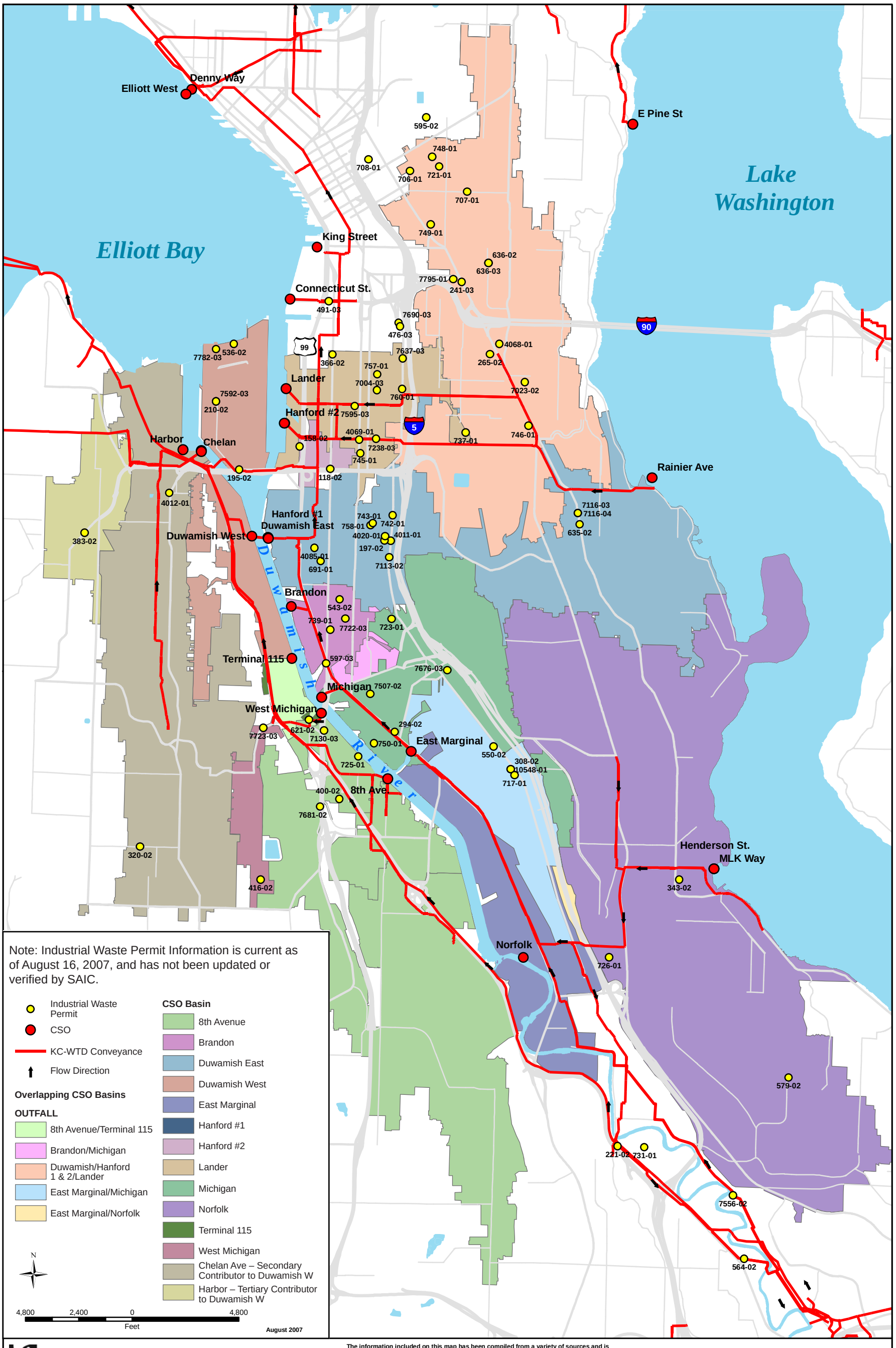
Coordinate System: NAD 1983 StatePlane Washington North FIPS 4601 Feet
Prepared By: mif
File: Fig2_LDW-SCA-Boundaries.mxd
Illustrative purposes only.



Note: Industrial Waste Permit Information is current as of August 16, 2007, and has not been updated or verified by SAIC.

- Industrial Waste Permit
- CSO
- KC-WTD Conveyance
- Flow Direction

Overlapping CSO Basins

OUTFALL

- 8th Avenue/Terminal 115
- Brandon/Michigan
- Duwamish/Hanford 1 & 2/Lander
- East Marginal/Michigan
- East Marginal/Norfolk

CSO Basin

- 8th Avenue
- Brandon
- Duwamish East
- Duwamish West
- East Marginal
- Hanford #1
- Hanford #2
- Lander
- Michigan
- Norfolk
- Terminal 115
- West Michigan
- Chelan Ave – Secondary Contributor to Duwamish W
- Harbor – Tertiary Contributor to Duwamish W

N

4,800 2,400 0 4,800

Feet

August 2007

King County
Department of Natural Resources and Parks
Wastewater Treatment Division

File Name: Q:\Projects\WTD/Projects\DiagDuam\Graphics\LDWCSOBasins.pdf - Alyssa Benson 08/16/07

DEPARTMENT OF ECOLOGY
State of Washington

Source: King County 2007

Figure 3. Lower Duwamish Waterway
King County Combined Sewer Overflow Basins

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Tables

Table 1
Data Gaps Report and Source Control Action Plan Completion Dates

Source Control Area	Data Gaps Complete	SCAP Complete
EAA-1 (Duwamish/Diagonal)	8/27/2009	12/31/2004
EAA-5 (Terminal 117)	NA	7/31/2005
EAA-3 (Slip 4)	NA	7/31/2006
EAA-2 (Trotsky Inlet)	2/28/2007	6/30/2007
EAA-7 (Norfolk CSO/SD)	9/28/2007	9/30/2007
RM 1.3-1.6 W (Glacier Bay)	6/30/2007	11/30/2007
EAA-4 (Boeing Plant 2/Jorgensen)	6/30/2007	12/31/2007
RM 3.9-4.3 E (Slip 6)	2/28/2008	9/30/2008
EAA-6 (Boeing Isaacson/Central KCIA)	5/27/2008	3/31/2009
RM 2.0-2.3 E (Slip 3 to SBW)	6/23/2008	4/30/2009
RM 0.9-1.0 E (Slip 1)	8/26/2008	5/31/2009
RM 0.0-0.1 E (Spokane St. to Ash Grove Cement)	12/31/2008	6/30/2009
RM 1.2-1.7 E (St. Gobain to Glacier NW)	2/28/2009	6/30/2009
RM 1.7-2.0 E (Slip 2 to Slip 3)	2/28/2009	6/30/2009
RM 2.3-2.8 E (SBW to Slip 4)	5/31/2008	6/30/2009
RM 1.0-1.2 E (KC Lease Parcels)	6/10/2010	10/2/2010
RM 4.3-4.9 E (BDC)	9/10/2010	12/9/2010
RM 1.0-1.3 W (Kellogg Island to Lafarge Cement)	4/22/2011	6/30/2011
RM 1.6-2.1 W (Terminal 115)	6/6/2011	10/1/2011
RM 2.2-3.4 W (Riverside Drive)	4/17/2012	8/8/2012
RM 0.0-1.0 W (Spokane St. to Kellogg Island)	9/13/2012	2/5/2013
RM 2.1 W (1st Ave S SD)	9/13/2012	3/22/2013
RM 3.8-4.2 W (Sea King Industrial Park)	5/31/2013	8/13/2013
RM 4.2-4.8 W (Restoration Areas)	7/8/2013	9/12/2013

NA - not applicable
West side of LDW
East side of LDW

Table 2
SCAPs and Supporting Documents Prepared by Ecology and its Contractors

Report Type	Report Name	Author	Publication Date
EAA-1 (Duwamish/Diagonal)			
Property Reviews	● Property Review: Container-Care International (Port of Seattle Terminal 106W/108)	SAIC	June 2003
	● Property Review: Transportation Services CFS (Port of Seattle Terminal 106W/106NW)		
	● Property Review: Chevron USA Site No. 4097 (Chiyoda Property)		
	● Property Review: Federal Center South		
SCAP	Source Control Action Plan for the Duwamish/Diagonal Way Early Action Cleanup (Publication No. 04-09-003)	Ecology	January 2004
Data Gaps	Early Action Area 1, Duwamish/Diagonal Way (RM 0.1 to 0.9 East), Summary of Existing Information and Identification of Data Gaps for the Duwamish/Diagonal CSO/SD Basin	SAIC	August 2009
EAA-2 (Trotsky Inlet)			
Data Gaps	Early Action Area 2, Summary of Existing Information and Identification of Data Gaps	SAIC	February 2007
SCAP	Source Control Action Plan for Early Action Area 2 (Publication No. 07-09-002)	Ecology	June 2007
Data Gaps	Early Action Area 2, Supplemental Data Gaps Report, Douglas Management Company Property, 7100 2nd Avenue SW, Seattle	SAIC	December 2008
Data Gaps	Early Action Area 2, Supplemental Data Gaps Report, Boyer Towing Property	SAIC	June 2009
EAA-3 (Slip 4)			
SCAP	Source Control Action Plan for the Slip 4 Early Action Area (Publication No. 06-09-046)	Ecology	July 2006
Property Reviews	● Property Summary: ARCO #5218, 7200 East Marginal Way S	SAIC	October 2006
	● Property Summary: Marine Vacuum Service, 1516 S Graham Street		October 2006
	● Property Summary: American Avionics, 7023 Perimeter Road S		December 2006
	● Property Summary: King County Airport Maintenance Shop, 6518 Ellis Avenue S		December 2006
	● Property Summary: Aviation Fuel Storage/Schultz Distributing, 1495 S Hardy Street		January 2007
Data Gaps	North Boeing Field and Georgetown Steam Plant, Summary of Existing Information and Identification of Data Gaps	SAIC	February 2007
Data Gaps	North Boeing Field and Georgetown Steam Plant, Supplemental Report: Summary of Existing Information and Identification of Data Gaps	SAIC	August 2009
EAA-4 (Boeing Plant 2/Jorgensen)			
Data Gaps	Early Action Area 4, Summary of Existing Information and Data Gaps Report	E&E	June 2007
SCAP	Source Control Action Plan for Early Action Area 4 (Publication No. 07-09-004)	Ecology	December 2007
EAA-5 (Terminal 117)			
Property Reviews	● Property Review: Boeing South Park	SAIC	June 2004
	● Property Review: South Park Marina		June 2004
	● Property Review: Terminal 117, Former Malarkey Asphalt Company		June 2004
	● Property Review: Basin Oil Company		June 2004
SCAP	Source Control Action Plan for the Terminal 117 Early Action Area (Publication No. 05-09-093)		July 2005
Data Gaps	South Park Marina, Summary of Existing Information and Identification of Data Gaps	SAIC	June 2007

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Report Type	Report Name	Author	Publication Date
EAA-6 (Boeing Isaacson/Central KCIA)			
Data Gaps	RM 3.7-3.9 East, Early Action Area 6, Summary of Existing Information and Identification of Data Gaps	SAIC	May 2008
SCAP	RM 3.7-3.9 East (Early Action Area 6), Source Control Action Plan (Publication No. 09-09-082)	Ecology	March 2009
EAA-7 (Norfolk CSO/SD)			
Data Gaps	Early Action Area 7, Final Summary of Existing Information and Identification of Data Gaps Report	E&E	September 2007
SCAP	Source Control Action Plan for Early Action Area 7 (Publication No. 07-09-003)	Ecology	September 2007
RM 0.0-0.1 E (Spokane St. to Ash Grove Cement)			
Data Gaps	River Mile 0.0-0.1 East (Spokane Street to Ash Grove Cement), Summary of Existing Information and Identification of Data Gaps	E&E	December 2008
SCAP	RM 0.0-0.1 East (Spokane Street to Ash Grove Cement), Source Control Action Plan (Publication No. 09-09-086)	Ecology	June 2009
RM 0.9-1.0 E (Slip 1)			
Data Gaps	RM 0.9 to 1.0 East, Slip 1, Summary of Existing Information and Identification of Data Gaps	SAIC	August 2008
SCAP	RM 0.9-1.0 East (Slip 1), Source Control Action Plan (Publication No. 09-09-084)	Ecology	May 2009
RM 1.0-1.2 E (KC Lease Parcels)			
Data Gaps	RM 1.0 to 1.2 East (King County Lease Parcels), Summary of Existing Information and Identification of Data Gaps	SAIC	June 2010
SCAP	RM 1.0-1.2 East (King County Lease Parcels), Source Control Action Plan (Publication No. 11-09-131)	Ecology	January 2011
RM 1.2-1.7 E (St. Gobain to Glacier NW)			
Data Gaps	River Mile 1.2-1.7 East (Saint Gobain to Glacier Northwest), Summary of Existing Information and Identification of Data Gaps	E&E	February 2009
SCAP	RM 1.2-1.7 East (Saint Gobain to Glacier Northwest), Source Control Action Plan (Publication No. 09-09-087)	Ecology	June 2009
RM 1.7-2.0 E (Slip 2 to Slip 3)			
Data Gaps	RM 1.7 to 2.0 East (Slip 2 to Slip 3), Summary of Existing Information and Identification of Data Gaps	SAIC	February 2009
SCAP	RM 1.7 to 2.0 East (Slip 2 to 3), Source Control Action Plan (Publication No. 09-09-085)	Ecology	June 2009
RM 2.0-2.3 E (Slip 3 to SBW)			
Data Gaps	River Mile 2.0-2.3 East (Slip 3 to Seattle Boiler Works) Source Control Area, Summary of Existing Information and Identification of Data Gaps	E&E	June 2008
SCAP	RM 2.0-2.3 East (Slip 3 to Seattle Boiler Works), Source Control Action Plan (Publication No. 09-09-081)	Ecology	April 2009

Table 2
SCAPs and Supporting Documents Prepared by Ecology and its Contractors

Report Type	Report Name	Author	Publication Date
RM 2.3-2.8 E (SBW to Slip 4)			
Data Gaps	RM 2.3-2.8 East, Seattle Boiler Works to Slip 4, Summary of Existing Information and Identification of Data Gaps	SAIC	May 2008
SCAP	RM 2.3-2.8 East (Seattle Boiler Works to Slip 4), Source Control Action Plan (Publication No. 09-09-083)	Ecology	June 2009
RM 3.9-4.3 E (Slip 6)			
Data Gaps	RM 3.9-4.4 East (Slip 6), Summary of Existing Information and Identification of Data Gaps	E&E	February 2008
SCAP	River Mile 3.9-4.3 East (Slip 6), Source Control Action Plan (Publication No. 08-09-001)	Ecology	September 2008
RM 4.3-4.9 E (BDC)			
Data Gaps	RM 4.3 to 4.9 East (Boeing Developmental Center), Summary of Existing Information and Identification of Data Gaps	SAIC	September 2010
SCAP	RM 4.3-4.9 East (Boeing Developmental Center), Source Control Action Plan (Publication No. 10-09-135)	Ecology	December 2010
RM 0-1.0 W Spokane St. to Kellogg Island)			
Data Gaps	RM 0.0 to 1.0 West (Spokane Street to Kellogg Island), Summary of Existing Information and Identification of Data Gaps	SAIC	September 2012
SCAP	RM 0.0 to 1.0 West (Spokane Street to Kellogg Island), Source Control Action Plan (Publication No. 12-09-137)	Ecology	February 2013
RM 1.0-1.3 W (Kellogg Island to Lafarge Cement)			
Data Gaps	RM 1.0 to 1.3 West (Kellogg Island to Lafarge), Summary of Existing Information and Identification of Data Gaps	SAIC	April 2011
SCAP	RM 1.0 to 1.3 West (Kellogg Island to Lafarge), Source Control Action Plan (Publication No. 11-09-134)	Ecology	June 2011
RM 1.3-1.6 W (Glacier Bay)			
Data Gaps	Glacier Bay Source Control Area, Summary of Existing Information and Identification of Data Gaps	SAIC	June 2007
SCAP	Source Control Action Plan for Glacier Bay Source Control Area (Publication No. 07-09-005)	Ecology	November 2007
RM 1.6-2.1 W (Terminal 115)			
Data Gaps	RM 1.6-2.1 West (Terminal 115), Summary of Existing Information and Identification of Data Gaps	SAIC	June 2011
SCAP	RM 1.6 to 2.1 West (Terminal 115), Source Control Action Plan (Publication No. 11-09-132)	Ecology	October 2011
RM 2.1 W (1st Ave S SD)			
Data Gaps	RM 2.1 West (1st Avenue South Storm Drain), Summary of Existing Information and Identification of Data Gaps	SAIC	September 2012

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SCAPs and Supporting Documents Prepared by Ecology and its Contractors

Report Type	Report Name	Author	Publication Date
SCAP	RM 2.1 West (1st Avenue South Storm Drain), Source Control Action Plan (Publication No. 12-09-138)	Ecology	March 2013
RM 2.2-3.4 W (Riverside Drive)			
Data Gaps	RM 2.2 to 3.4 West (Riverside Drive), Summary of Existing Information and Identification of Data Gaps	SAIC	April 2012
SCAP	RM 2.2 to 3.4 West (Riverside Drive), Source Control Action Plan (Publication No. 12-09-135)	Ecology	August 2012
RM 3.8-4.2 W (Sea King Industrial Park)			
Data Gaps	RM 3.8 to 4.2 West, Sea King Industrial Park, Summary of Existing Information and Identification of Data Gaps	SAIC	May 2013
SCAP	RM 3.8 to 4.2 West, Sea King Industrial Park, Source Control Action Plan (Publication No. 13-09-137)	Ecology	August 2013
RM 4.2-5.8 W (Restoration Areas)			
Data Gaps	RM 4.2 to 5.8 West (Restoration Areas), Summary of Existing Information and Identification of Data Gaps	SAIC	July 2013
SCAP	RM 4.2 to 5.8 West (Restoration Areas), Source Control Action Plan (Publication No. 13-09-138)	Ecology	September 2013