Lower Duwamish Waterway Source Control Status Report April 2008 through August 2008

October 2008

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Lower Duwamish Waterway Source Control Status Report April 2008 through August 2008

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Executive Summary

This report summarizes source control activities conducted by the Lower Duwamish Waterway (LDW) Source Control Work Group between April 1 and August 31, 2008. Previous status reports (Ecology 2007e, 2008b) provided an overview of the LDW site, the strategy for controlling sources of pollutants to the LDW, the process for developing Source Control Action Plans (SCAPs), the methods and process for implementing SCAPs, issues associated with permitted discharges, and a summary of source control actions conducted between 2003 and March 2008. This current report updates this information, including:

- Updated SCAP publication and implementation schedule;
- Status of business inspections, other 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; and
- Source control activities conducted between April and August 2008 at each of the identified source control areas, including the seven Early Action Areas (EAAs).

Source Control Action Plans

Since publication of the previous Source Control Status Report, reports summarizing existing information were completed for EAA-6 (Boeing Isaacson/Central KCIA), River Mile (RM) 0.9-1.0 East (Slip 1), RM 2.0-2.3 East (Slip 3 to Seattle Boiler Works), RM 2.3-2.8 East (Seattle Boiler Works to Slip 4), and RM 3.9-4.4 East (Slip 6). These reports, known as Data Gaps reports, are currently being used to prepare SCAPs for these source control areas. In addition, Data Gaps reports are in preparation for RM 0-0.1 East (Spokane St. to Ash Grove Cement), RM 1.4-1.7 East (St. Gobain to Glacier Northwest), and RM 1.7-2.0 East (Slip 2 to Slip 3).

A total of 258 source control action items have been identified based on the seven SCAPs published as of August 2008; 76 of these action items have been completed, and 6 are not needed or have been combined with another action item (a total of 32 percent). Of the remaining 176 action items, 51 (29 percent of the remaining action items) are considered high priority (to be completed prior to sediment cleanup), 76 (43 percent) are medium priority (to be completed prior to or concurrent with sediment cleanup), and 49 (28 percent) are low priority (ongoing actions or actions to be completed as resources become available). The current status of action items is shown in Figure ES-1.

Additional action items will be identified as SCAPs are completed for the remaining 16 source control areas. High priority action items which are not yet complete, as identified in or subsequent to SCAPs completed through August 2008, are listed in Table ES-1 at the end of this section.

Source Control Implementation

Business inspection and source tracing efforts continue. Under the Urban Waters Initiative, inspectors from the Washington Department of Ecology's (Ecology) Water Quality (WQ) and Hazardous Waste Treatment and Reduction (HWTR) programs, together with Seattle Public

Utilities (SPU) inspectors and Toxics Cleanup Program (TCP) staff, have developed a master list of facilities, priorities for coordinating inspections and avoiding overlap, and a multimedia Source Control Checklist that is being used during source control inspections. SPU conducted inspections at 86 facilities between January and August 2008, and Ecology has conducted or participated in approximately 100 inspections during this period.

Source tracing activities are continuing, including collection of sediment trap samples, catch basin samples, and in-line sediment samples. Through an inter-agency agreement between Ecology and SPU, up to 25 additional in-line sediment traps are being installed throughout the LDW basin. The inter-agency agreement also includes funding to collect catch basin sediments in areas where there has been little or no sampling to date. These samples will be collected between November 2008 and March 2009.

Site characterization or cleanup is in progress at 10 facilities that are known or suspected threats to LDW sediments. Terminal 117, Rhone-Poulenc, and Boeing Plant 2, which includes part of Jorgensen Forge, are being managed by the U.S. Environmental Protection Agency (EPA). The upland portion of Jorgensen Forge, the 8801 Site (former PACCAR facility), and North Boeing Field/Georgetown Steam Plant are being managed by Ecology with Agreed Orders under the Model Toxics Control Act (MTCA). Ecology is developing Agreed Orders for the Crowley Marine Services, Duwamish Shipyard, Glacier Northwest/Reichhold, and Industrial Container Services/Former Northwest Cooperage sites. Ecology contractors have sampled soil, groundwater, and sediment at Industrial Container Services (formerly Northwest Cooperage) and Douglas Management Company properties, and soil/groundwater and bank soils at South Park Marina.

Ecology has updated the assumptions and long-term projection for implementing source control. The schedule for river-wide source control continues to be dependent on the time and resources needed to conduct cleanup at contaminated upland sites. Additional upland sites that may require site assessment and cleanup continue to be identified as additional SCAPs are completed. Ecology's TCP currently has three full-time site managers dedicated to contaminated upland sites in the LDW, and a fourth position has been established and will be filled.

Ecology has modified the basic scheduling assumptions since the May 2008 Status Report to reflect a more realistic estimate of the length of time needed to conduct the site cleanup process. The long-term schedule projection for implementing source control assumes that up to 21 upland contaminated cleanup sites[1] will be identified. Work has started at five of these sites. The projected schedule estimates that source control from all 21 potentially contaminated upland sites could be implemented by January 2018. This prediction falls between the estimated implementation date of 2021 presented in the July 2007 Status Report and the more optimistic predicted implementation date of August 2016 presented in the May 2008 Status Report. Ecology believes that while the current estimate is conservative, it is also realistic.

Source Control Activities

Major source control actions completed during April through August 2008 include:

- EAA-1 (Duwamish/Diagonal Way)

[1] The 21 upland sites include only those for which Ecology will need to assign one of its full-time site managers.

  - The city of Seattle cleaned over 4,200 storm drain structures in the Diagonal Avenue S. CSO/SD basin between August 2007 and June 2008.
  - The Port of Seattle submitted a draft Terminal 108 – Environmental Conditions Report on July 31; the purpose of the report was to present and discuss the operational and development history of the Terminal 108 property, evaluate existing environmental data, and identify potential source control issues.
  - The Port of Seattle is developing Source Control Strategy Plans for the Eastern and Western parcels.
  - In June 2008, CH2M Hill (for Union Pacific Railroad Company) submitted a Groundwater Remediation Site Closure Report for the groundwater remediation of historical releases of petroleum products at the UPRR Argo Yard Fueling Facility. According to the report, concentrations of chemicals of concern (COCs) in groundwater resulting from diesel fuel releases have continued to decrease and no off-site migration has occurred. Ecology is reviewing the report.
- EAA-2 (Trotsky Inlet)
  - Final Potentially Liable Party (PLP) letters were mailed to the property owner, Herman Trotsky, and the operator, Industrial Container Services, on July 24, 2008. Negotiations on a draft Agreed Order will begin in September.
  - Ecology sampled five new and four existing groundwater monitoring wells at the Douglas Management Company property in June 2008. Soil samples were collected from the borings, and bank soils were collected adjacent to the Trotsky Inlet. Sampling results have not yet been received.
- EAA-3 (Slip 4)
  - SPU collected a composite storm drain solids sample from two catch basins at the Crowley Marine Services property in July 2008. Sampling results are not yet available.
  - In June and July 2008, SLR International (for Crowley Marine Services) conducted an environmental investigation to evaluate the potential for hazardous substance releases from the site to impact sediments in Slip 4. SLR drilled seven borings adjacent to the LDW and Slip 4, and completed each coring as a groundwater monitoring well. They collected soil, groundwater, seep, and surface water samples, conducted a tidal study, and assessed the potential for soil erosion form the banks. Ecology is reviewing the report.
  - Ecology and Crowley Marine Services began negotiating an Agreed Order to investigate contamination at the property on August 29.
  - Ecology approved the 100 percent design drawings and specifications for the Georgetown Steam Plant (GTSP) flume removal/replacement project. The work has been delayed until fall 2008 due to staff shortages at SPU and competition with other priority projects.
  - On August 13, the city of Seattle submitted a revised GTSP Flume Outfall Work Plan, which included a revised work sequence which reduces stormwater management requirements by leaving the outfall open throughout most of the flume cleaning process. Field work is anticipated to begin in mid-December, and work is scheduled to be completed in late June 2009.

  - A draft Agreed Order (No. DE-5685) was signed by all PLPs (Boeing, city of Seattle, King County) and Ecology, with an effective date of August 14, 2008. Under the terms of the Order, Ecology will complete an RI/FS and conduct one or more interim actions, if appropriate, at the North Boeing Field/Georgetown Steam Plant Site. The PLPs will pay remedial action costs for Ecology-conducted remedial actions at the site.

- EAA-4 (Boeing Plant 2/Jorgensen Forge)
  - Boeing is continuing site investigation and remediation under EPA jurisdiction, including continued shoreline groundwater monitoring, planning and implementation of interim measures, upland comprehensive planning and remedy selection, PCB-contaminated caulk assessment, and stormwater source control sampling, as described in Section 4.4.1.
  - Under an Agreed Order with Ecology, Jorgensen Forge submitted a final Source Control Evaluation Report on May 20. This report evaluated existing data and identified potential ongoing sources of contaminants to sediment.
  - Jorgensen Forge submitted a draft Data Gap Investigation Work Plan on May 20. Ecology provided comments, and the document is being finalized.
  - Jorgensen Forge has begun removal of metal and grinding wheel spoils called "swarf." Most of the swarf has been removed from the site, and Jorgensen will begin storing the material within a contained area near the billet grinding baghouse.
  - Ecology, Jorgensen Forge, Boeing, the city of Tukwila, and King County met to discuss the polychlorinated biphenyl (PCB)-contaminated pipes located between Jorgensen Forge and Boeing Plant 2. Boeing has agreed to take responsibility for the 12-inch pipe. Ecology is working to facilitate removal of PCB-contaminated solids from the 24-inch pipe.
- EAA-5 (Terminal 117)
  - A final Work Plan for Revised Engineering Evaluation/Cost Analysis (EE/CA) was submitted by the Port of Seattle and city of Seattle on May 1, 2008. The work plan includes a comprehensive compilation of existing site data, identifies preliminary removal action alternatives, evaluates data gaps, and describes tasks associated with revision of the 2005 EE/CA.
  - The Port of Seattle installed five new groundwater monitoring wells at Terminal 117; these and five existing wells were sampled in March 2008. Low concentrations of volatile organic compounds (VOCs) were detected in two of the new wells. Preliminary results of the second quarter of groundwater sampling indicated the presence of PCBs, polycyclic aromatic hydrocarbons (PAHs), total petroleum hydrocarbons (TPH), and arsenic at concentrations above screening criteria.
  - The Port of Seattle and city of Seattle submitted a draft Revised Engineering Evaluation/Cost Analysis report to EPA on July 30, 2008. This report is being reviewed.
  - A recent review of data collected in 2005 by the city of Seattle revealed elevated levels of dioxin in a street dirt sample collected from an unpaved portion of the

road shoulder within the Adjacent Streets area. The street and underlying soil at this location had been cleaned up in 2005 (subsequent to sampling) as part of an interim action performed by the City to address PCB contamination.

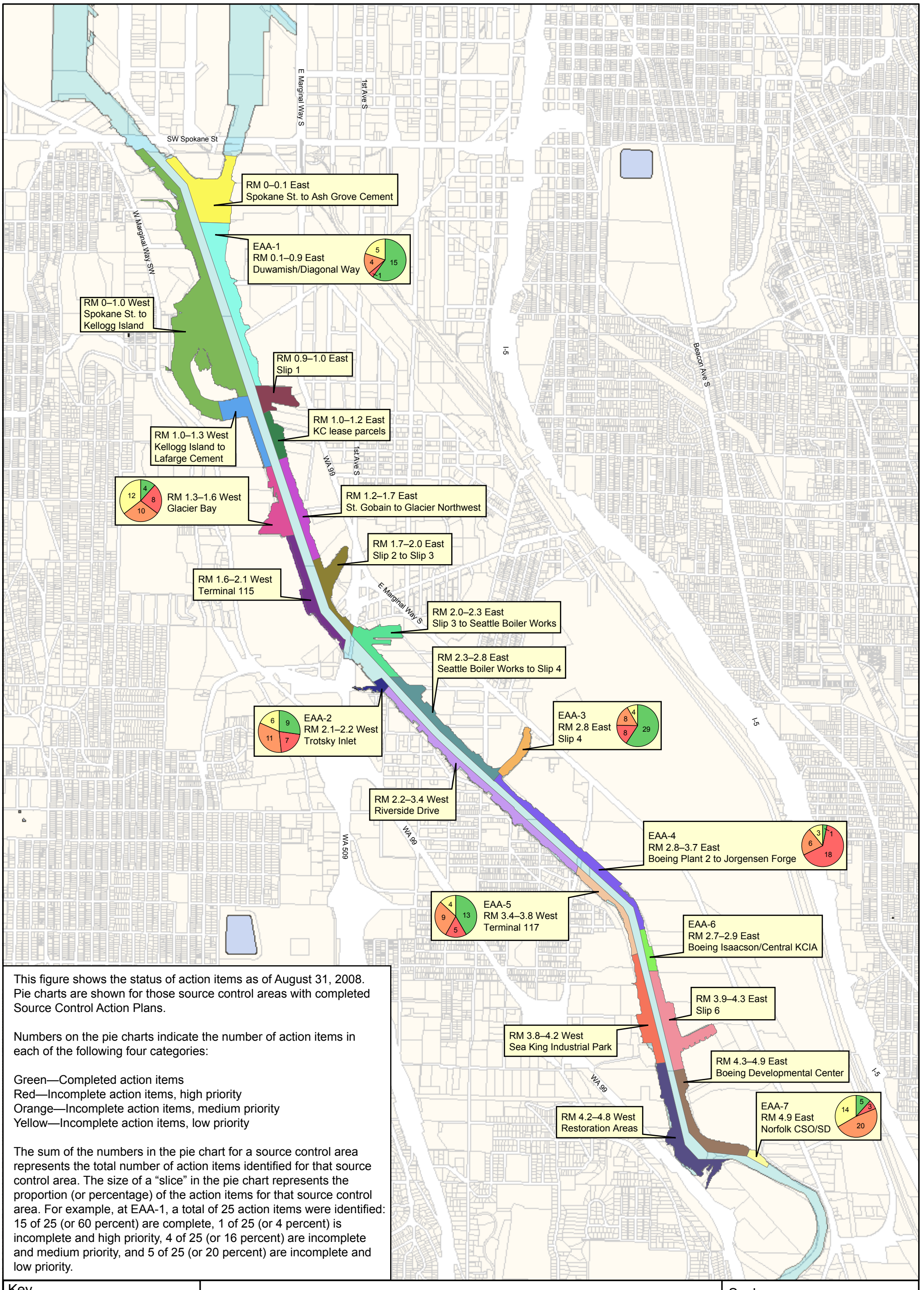
  - On June 6, the city of Seattle submitted a Proposed Approach for Investigation of Potential Dioxin Contamination in Soil: City of Seattle Streets and Yards Adjacent to the T-117 Early Action Area. The Port of Seattle intends to conduct dioxin sampling on Terminal 117 in conjunction with the city's effort.
  - Sampling was conducted in August, and preliminary results are expected in September 2008. The Terminal 117 EE/CA will likely be delayed by a minimum of 3 to 6 months in order to incorporate results of the dioxin sampling.
  - In April 2008, Ecology sent a letter to the owner of Basin Oil regarding remaining sampling issues relating to closure of the former used oil recycling facility. Ecology staff visited the site on June 18 and discussed the confirmation sampling requirements with the property owner, and identified boring and monitoring well locations. As of August 31, Basin Oil has made no effort to complete closure of the site. Ecology is considering enforcement options.
  - Ecology contractor SAIC prepared an Additional Site Characterization Activities Data Report for South Park Marina in June 2008, which summarized results of soil, groundwater, and sediment sampling conducted between September 2007 and March 2008. PCBs, metals, chlorinated pesticides, semivolatile and volatile organics, and TPH exceeded screening levels. Additional sampling and testing of mercury in groundwater at ultra-low detection limits was completed in August; results are expected in September.

- EAA-7 (Norfolk CSO/SD)
  - Sediment trap sampling is being conducted at five locations within this drainage system.
- RM 3.9-4.4 East (Slip 6)
  - Ecology is negotiating an Agreed Order for upland cleanup actions at the 8801 Site (former Kenworth Truck/PACCAR), which includes preparation of an RI/FS, a sediment report, and a cleanup action or interim action plan.
  - Phase 2 sediment sampling conducted in February 2008 indicated PCBs, phthalates, and metals above screening criteria; a report had not been received at the time this Status Report was prepared. Based on preliminary results, Ecology and EPA have agreed that there are sufficient data to show that a sediment cleanup will be needed.
  - PACCAR prepared a draft Upland Cleanup Action Plan in May 2008. Ecology will review this document after the Agreed Order has been signed.
  - Ecology conducted a stormwater inspection at the property on May 6 and collected storm drain samples at two of the three outfalls. Preliminary results show elevated concentrations of PCBs, SVOCs, and metals.
  - Following Ecology's inspection and observations of a petroleum sheen and odor in the north outfall of the stormwater system, the current operator (Insurance Auto Auctions, Inc. [IAAI]) at the property collected water samples at pre- and post-

treatment locations for all three outfall points. Two effluent samples contained diesel and motor oil above MTCA Method A cleanup levels.

  - Windward Environmental prepared a work plan for stormwater sampling and drain line video inspection of the north storm drain system, on behalf of IAAI. A water sample was collected on July 28 from Catch Basin 74; vinyl chloride exceeded the MTCA Method A groundwater limit in this sample, and nickel exceeded water quality criteria. A video inspection of the storm drain system was conducted in August.

- RM 1.3-1.6 West (Glacier Bay)
  - Ecology is negotiating an Agreed Order with Duwamish Shipyard for investigation and cleanup of this site.
  - Duwamish Shipyard submitted a draft RI/FS Work Plan to Ecology for review; Ecology provided comments in July 2008.
  - Ecology sent final PLP letters to Glacier Northwest, Inc. and Reichhold, Inc., and is currently negotiating an Agreed Order.
- RM 1.6-2.1 West (Terminal 115)
  - The Port of Seattle collected sediment samples in support of maintenance dredging in March 2008. A Sediment Characterization Report submitted to the Dredged Material Management Office in June 2008 identified PCBs, PAHs, and dioxins/furans above Dredged Material Management Program screening criteria.
  - On July 9, the Port recommended overdepth dredging and placement of a 1-foot clean sand layer. The dredged material would be transferred to an approved upland disposal facility.



This figure shows the status of action items as of August 31, 2008. Pie charts are shown for those source control areas with completed Source Control Action Plans.

Numbers on the pie charts indicate the number of action items in each of the following four categories:

Green—Completed action items
Red—Incomplete action items, high priority
Orange—Incomplete action items, medium priority
Yellow—Incomplete action items, low priority

The sum of the numbers in the pie chart for a source control area represents the total number of action items identified for that source control area. The size of a "slice" in the pie chart represents the proportion (or percentage) of the action items for that source control area. For example, at EAA-1, a total of 25 action items were identified: 15 of 25 (or 60 percent) are complete, 1 of 25 (or 4 percent) is incomplete and high priority, 4 of 25 (or 16 percent) are incomplete and medium priority, and 5 of 25 (or 20 percent) are incomplete and low priority.

Key

EAA = Early Action Area
RM = River Mile

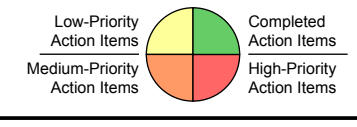


Figure ES-1. Status of Source Control Action Items Through August 2008

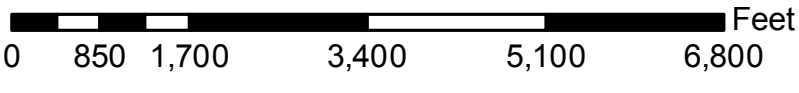


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Table ES-1. High Priority Source Control Action Items to be Completed

Source Control Area	Source Control Facility	Action Item	Type	Responsible Party	Status	Estimated Completion Date	Follow-On Actions
EAA-1 (Duwamish/ Diagonal Way)	Diagonal Ave. S. CSO/SD	Conduct sediment trap sampling	New	SPU	Ongoing	2010	
EAA-2 (Trotsky Inlet)	Second Avenue S. Storm Drainage	Evaluate results of outfall pipe sediment and water samples	Follow-On	Ecology	In Progress	May 2008	
		Collect additional inline sediment samples to evaluate the levels of COCs with respect to sediment recontamination in this drainage.	SCAP	SPU	Ongoing	2009	If COCs are present in the storm drain line, conduct source tracing
		If COCs are present in the storm drain line, conduct source tracing to identify sources of contaminants.	SCAP	SPU	Planned	2008	
	Industrial Container Services	Identify additional data gaps based on sampling results and determine means to fill them	SCAP	Ecology	In Progress	2008	
		Conduct cleanup as needed to eliminate sources of contaminants to EAA-2	SCAP	Industrial Container/Trotsky	Planned	2008/2009	
		Investigate destination of roof drainage from northwest corner of property	SCAP	King County/ Ecology/ SPU/ Industrial Container Services	Planned	2008	
	Douglas Management Company	Identify data gaps based on sampling results, and determine means to fill them.	SCAP	Ecology	Planned	2008	
EAA-3 (Slip 4)	North Boeing Field/KCIA/I-5	Reinstall sediment traps and continue monitoring as needed	SCAP	SPU, Boeing	Ongoing		
	Georgetown Flume	Close connections, remove contaminated sediment, and demolish and/or replace the flume	SCAP	SCL, SPU	In Progress	June 2009	
	GTSP	Conduct sitewide site characterization to assess need for additional remediation	SCAP	SCL	Planned	2008	To be done as part of Agreed Order for NBF/GTSP
	North Boeing Field	Characterize extent of PCBs in new joint sealant material	Follow-On	Boeing	In Progress	TBD	
		Continue source tracing in north drain line to identify and/or eliminate transport of PCBs to Slip 4	Follow-On	Boeing	In Progress	TBD	
	KCIA	Complete source tracing	SCAP	KCIA	In Progress	TBD	
		Clean out catch basins and lines (if required)	SCAP	KCIA	In Progress	TBD	
	NBF/GTSP	Conduct RI/FS	New	Ecology, Boeing, city of Seattle, King County	Planned	2012	

Table ES-1. High Priority Source Control Action Items to be Completed

Source Control Area	Source Control Facility	Action Item	Type	Responsible Party	Status	Estimated Completion Date	Follow-On Actions
EAA-4 (Boeing Plant 2/Jorgensen Forge)	Boeing Plant 2	Complete design and implementation of dredging, capping, and/or backfilling of the Duwamish Sediment Other Area (DSOA) Interim Measure	SCAP	EPA, Ecology, Boeing	In Progress	TBD	
		Remove contaminated bank fill material	SCAP	EPA, Boeing	Planned	TBD	
		Continue quarterly shoreline groundwater monitoring	SCAP	EPA, Boeing	In Progress	2008	
		Excavate PCB-contaminated soil in the substation area (southwest corner of Plant 2)	New	Boeing, Jorgensen	Planned	2008	
		Address removal of materials containing PCBs, including joint caulk material	SCAP	EPA, Boeing	In Progress	TBD	
		Conduct a joint hydrologic investigation with Jorgensen Forge to provide additional hydrogeologic data at the boundary of the two facilities	SCAP	Boeing, Jorgensen	Planned	TBD	
		Collect in-line sediment samples in the city of Seattle and city of Tukwila systems immediately prior to discharge to Plant 2's storm drain system	SCAP	EPA, Boeing	Planned	TBD	
		Conduct stormwater source control sampling of suspended solids and/or water along active storm drain lines	New	Boeing	In Progress	TBD	
		Implement catch basin solids sampling program	New	Boeing	In Progress	TBD	
	Jorgensen Forge	Determine ownership of the 12- and 24-inch diameter stormwater lines located in an easement along the Jorgensen/Boeing property line, and determine the exact locations of the connections between these lines and the stormwater systems of Jorgensen, Boeing, city of Tukwila, and KCIA	SCAP	Ecology, Jorgensen Forge, Boeing, city of Tukwila, KCIA	In Progress	Fall 2008	Boeing has agreed to take responsibility for the 12-inch line; discussions continue regarding the 24-inch line
		Continue to address PCB and metal contamination in sediments of the LDW and Shoreline Bank Area through EPA CERCLA Order No. 10-2003-0001	SCAP	EPA, Jorgensen	Planned	TBD	

Table ES-1. High Priority Source Control Action Items to be Completed

Source Control Area	Source Control Facility	Action Item	Type	Responsible Party	Status	Estimated Completion Date	Follow-On Actions
		Conduct a source control investigation through Agreed Order No. DE 4127 to determine if the facility is an ongoing source of contamination to LDW sediments	SCAP	Jorgensen, Ecology	In Progress	2009	
		Develop a hydrogeologic site model as part of the source control investigation to characterize the groundwater system on site, including tidal influence	SCAP	Jorgensen, Boeing	In Progress	TBD	
		Negotiate an Amended Administrative Order on Consent (AOC) for preparation of an EE/CA for cleanup of affected sediments along a portion of the LDW adjacent to this property	New	Ecology, Jorgensen, Earle M. Jorgensen	In Progress	TBD	
		Facilitate removal of PCB-contaminated sediments from the 24-inch storm drain line	Follow-On	Ecology	Planned	Spring 2008	
	KCIA	Determine the connections between the KCIA stormwater system, the city of Tukwila system, and the 24-inch stormwater pipeline along the Jorgensen/Boeing property line	SCAP	Ecology, KCIA, Jorgensen, Boeing, city of Tukwila	In Progress	Summer 2008	
	East Marginal Way S.	Determine location and connection of large pipe crossing the northern edge of the Jorgensen property	SCAP	City of Tukwila, Jorgensen, KCIA	In Progress	Summer 2008	
		Determine connections between the KCIA stormwater system and the city of Tukwila system	SCAP	City of Tukwila, KCIA	In Progress	Summer 2008	
EAA-5 (Terminal 117)	Adjacent Streets/Dallas Ave	Continue monitoring of stormwater and catch basin sediments	Follow-On	City of Seattle, Port of Seattle	Ongoing	TBD	
	Terminal 117	Revise the July 2005 EE/CA to incorporate all relevant upland and right-of-way data	New	City of Seattle, Port of Seattle, EPA	In Progress	May 2009	
		Install and sample additional groundwater monitoring wells	New	City of Seattle, Port of Seattle	In Progress	January 2009	Five new wells installed; two rounds of sampling conducted as of August 2008
		Complete needed assessments of portions of the site formerly occupied by the Malarkey plant	Follow-On	City of Seattle, Port of Seattle	In Progress	May 2009	
		Conduct soil sampling at former Malarkey plant location to determine whether contamination is present in subsurface soil	Follow-On	City of Seattle, Port of Seattle	Planned	October 2008	

Table ES-1. High Priority Source Control Action Items to be Completed

Source Control Area	Source Control Facility	Action Item	Type	Responsible Party	Status	Estimated Completion Date	Follow-On Actions
EAA-7 (Norfolk CSO/SD)	Boeing Developmental Center (BDC)	Continue sediment monitoring in the vicinity of the south storm drain sediment removal activities	SCAP	Boeing	In Progress	TBD	
		Determine the source of PCBs in storm drain solids and conduct source control activities to remove PCBs from the system	SCAP	Boeing	Planned	TBD	
		Continue monitoring storm drain solids	SCAP	Boeing	In Progress	TBD	
RM 1.3-1.6 West (Glacier Bay)	Duwamish Shipyard	Negotiate an Agreed Order to address soil and groundwater contamination	SCAP	Ecology, Duwamish Shipyard	In Progress	2008	
		Prepare work plans for further site investigations as specified in the Agreed Order	SCAP	Duwamish Shipyard	Planned	2009	
		Conduct site investigations as specified in the Agreed Order Statement of Work	SCAP	Duwamish Shipyard	Planned	2010	
		Review site investigation results and assess potential for sediment recontamination and need for remedial actions	SCAP	Ecology	Planned	2010/2011	
	Glacier Northwest	Direct current and/or previous property owners/operators to conduct site characterization investigations	SCAP	Ecology	In Progress	Summer 2009	
		Prepare work plans for site investigations as specified by Ecology	SCAP	Property owner/operator	Planned	March 2009	
		Upon approval of work plans by Ecology, conduct site investigations as specified	SCAP	Property owner/operator	Planned	2009/2010	
		Review site investigation results and assess potential for sediment recontamination and need for remedial actions	SCAP	Ecology	Planned	2009/2010	
All	NA	Complete development of LDW Source Control Database	NA	Ecology	In Progress	August 2008	

List of Acronyms

ATSDR	Agency for Toxic Substances and Disease Registry
AWQC	Ambient Water Quality Criteria
BDC	Boeing Developmental Center
BEHP	bis(2-ethylhexyl)phthalate
BMP	best management practice
CB	catch basin
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
COC	chemical of concern
CSL	Cleanup Screening Level
CSO	combined sewer overflow
DDT	dichloro-diphenyl-trichloroethane
DNS	Determination of Nonsignificance
DOH	Washington State Department of Health
DRCC	Duwamish River Cleanup Coalition
DSOA	Duwamish Sediment Other Area
DW	dry weight
EAA	Early Action Area
E&E	Ecology and Environment, Inc.
Ecology	Washington State Department of Ecology
EE/CA	Engineering Evaluation/Cost Analysis
EOF	Emergency Overflow
EPA	U.S. Environmental Protection Agency
EPI	Environmental Partners, Inc.
FS	feasibility study
GTSP	Georgetown Steam Plant
GSA	General Services Administration
HWTR	Hazardous Waste Treatment and Reduction
IAAI	Insurance Auto Auctions, Inc.
IM	Interim Measures
KC	King County
KCIA	King County International Airport
KCIW	King County Industrial Waste
LDW	Lower Duwamish Waterway
LDWG	Lower Duwamish Waterway Group
MFC	Military Flight Center
MTCA	Model Toxics Control Act
NA	not available
NBF	North Boeing Field
NEC	not elsewhere classified
NPDES	National Pollutant Discharge Elimination System
NTCRA	Non-Time Critical Removal Action
OC	organic carbon
PAH	polycyclic aromatic hydrocarbon
PCB	polychlorinated biphenyl

List of Acronyms (Continued)

PCE	tetrachloroethene
PHSKC	Public Health – Seattle and King County
PLP	potentially liable party
PRP	potentially responsible party
PSCAA	Puget Sound Clean Air Agency
QAPP	Quality Assurance Program Plan
RAA	Recontamination Assessment Area
RCRA	Resource Conservation and Recovery Act
RI	Remedial Investigation
RI/FS	Remedial Investigation/Feasibility Study
RM	river mile
ROD	Record of Decision
SAIC	Science Applications International Corporation
SBW	Seattle Boiler Works
SCAP	Source Control Action Plan
SCL	Seattle City Light
SCWG	Source Control Work Group
SD	storm drain
SEPA	State Environmental Policy Act
SHA	Site Hazard Assessment
SMS	Sediment Management Standards
SPU	Seattle Public Utilities
SQS	Sediment Quality Standard
SVOC	semivolatile organic compound
TBD	to be determined
TBT	tributyltin
TCDD	2,3,7,8-tetrachlorodibenzo-*p*-dioxin
TCE	trichloroethylene
TCP	Toxics Cleanup Program
TEF	toxic equivalency factor
TEQ	toxic equivalency concentration
TMCL	Target Media Cleanup Level
TPH	total petroleum hydrocarbons
TOC	total organic carbon
TSCA	Toxic Substances Control Act
UPRR	Union Pacific Railroad
UST	underground storage tank
VOC	volatile organic compound
WQ	Water Quality

1.0 Introduction

This report summarizes the status of source control efforts in the Lower Duwamish Waterway (LDW) from April 1, 2008 through August 31, 2008. The Washington State Department of Ecology (Ecology) published the first Source Control Status Report in July 2007, covering the period from 2003 to June 2007 (Ecology 2007e). The reader is referred to the July 2007 Source Control Status Report for more detailed information on:

- The history of the LDW Superfund site,
- Agency roles and responsibilities,
- The LDW source control strategy and Source Control Work Group,
- The Lower Duwamish Waterway Group (LDWG) and the Remedial Investigation/Feasibility Study, and
- Site-wide source control programs.

An update of LDW Source Control Status for the period July 2007 to March 2008 was published in May 2008 (Ecology 2008b). Detailed background on individual source control areas is provided in the Data Gaps evaluation reports and Source Control Action Plans (SCAPs) for each area, as referenced in the text.

This section summarizes background information on the LDW site. Section 2 describes the process for developing SCAPs for known or potential sediment cleanup areas. Section 3 describes source control methods and the process for implementing SCAPs, and describes the status of source control activities being conducted for the entire LDW. Section 4 describes recent source control activities associated with the Early Action Areas, while Section 5 describes Tier Two and Three source control areas. Section 6 presents a list of references. Figures are presented at the end of the report.

1.1 Lower Duwamish Waterway Site

The LDW is the downstream portion of the Duwamish River, which extends from the southern tip of Harbor Island to just south of the Norfolk Combined Sewer Overflow (CSO) (Figure 1).

Chemicals of concern in the waterway include mercury and other metals, polycyclic aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), phthalates, and other organic compounds. These chemicals may pose a threat to people, fish, and wildlife.

The Remedial Investigation (RI) for the LDW Superfund Site is being conducted in two phases. Results of Phase 1 were published in July 2003 (Windward 2003a). The Phase 1 RI used existing data to provide an understanding of the nature and extent of chemical distributions in LDW sediments, develop preliminary risk estimates, and identify candidate sites for early cleanup action within the LDW.

The Technical Memorandum: Data Analysis and Candidate Site Identification, issued in June 2003 (Windward 2003b), described seven candidate sites for early sediment cleanup action

(Windward 2003b). The seven sites, shown in Figure 1 and identified as Early Action Areas (EAAs), are listed below:[2]

- Area 1: Duwamish/Diagonal CSO and storm drain (SD), east side of the waterway (River Mile [RM] 0.4 to 0.6)
- Area 2: RM 2.2, west side of the waterway, just south of the First Avenue S. bridge
- Area 3: Slip 4 (RM 2.8)
- Area 4: South of Slip 4, on the east side of the waterway, just offshore of Boeing Plant 2 and Jorgensen Forge properties (RM 2.9 to 3.7)
- Area 5: Terminal 117/Malarkey, west side of the waterway (approximately RM 3.6)
- Area 6: RM 3.8, east side of the waterway
- Area 7: Norfolk CSO, east side of the waterway (RM 4.9 to 5.5)

The Phase 2 sediment RI is designed to fill critical data gaps identified in Phase 1 and to complete human health and ecological risk assessments. The draft Phase 2 RI was published in December 2007. A feasibility study is being developed to address cleanup options in the LDW.

Further information about the LDW can be found at the U.S. Environmental Protection Agency (EPA) LDW website: http://yosemite.epa.gov/r10/cleanup.nsf/sites/lduwamish and the LDWG website: http://www.ldwg.org.

1.2 Lower Duwamish Waterway Source Control Strategy

The LDW Source Control Strategy (Ecology 2004a) involves developing and implementing a series of detailed, area-specific SCAPs. SCAPs document what is known about the area, potential sources of recontamination, and actions needed to address them. Each SCAP is unique to a specific sediment area because the scope of source control for each sediment area varies.

The source control strategy can be found at Ecology's website:
http://www.ecy.wa.gov/programs/TCP/sites/lower_duwamish/source_control/sc.html

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

and at the King County/Seattle Public Utilities Joint Business Inspection website:[3]
http://www.dnr.metrokc.gov/wlr/indwaste/duwamish.htm

[2] In this report, the seven candidate sites are referred to by the following designations:
Area 1 – EAA-1 (Duwamish/Diagonal Way)
Area 2 – EAA-2 (Trotsky Inlet)
Area 3 – EAA-3 (Slip 4)
Area 4 – EAA-4 (Boeing Plant 2/Jorgensen Forge)
Area 5 – EAA-5 (Terminal 117)
Area 6 – EAA-6 (Boeing Isaacson/Central KCIA)
Area 7 – EAA-7 (Norfolk CSO/SD)

[3] Note: King County website addresses will change by late 2008 to reflect the new domain name "kingcounty.gov."

1.3 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, the city of Tukwila, and the EPA. Together they are known as the LDW Source Control Work Group (SCWG).

The roles of the SCWG agencies are summarized in the July 2007 Source Control Status Report (Ecology 2007e). Any additional roles that may be developed will be described in the area-specific SCAPs. Roles for other public agencies, such as the Washington Department of Transportation, Puget Sound Clean Air Agency (PSCAA), or Public Health – Seattle and King County (PHSKC), may also be developed as information collection and source control proceeds.

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2.0 Developing Source Control Action Plans

2.1 Background

Ecology is developing SCAPs for 23 subbasins (or source control areas) that drain to the LDW site (Figure 2).

The Source Control Strategy established four prioritized tiers of work:

- Tier 1: Source control associated with Early Action sediment cleanups
- Tier 2: Source control associated with EAAs identified in Phase 1 and cleanup areas identified in Phase 2 of the sediment 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
- Tier 4: Source control necessary to address any recontamination identified by post-cleanup monitoring of sediment

SCAPs were developed for the Tier 1 source control areas along the LDW, which includes the seven EAAs identified in Section 1.1. In 2007, Ecology, in consultation with EPA, identified eight potential Tier 2 source control areas. These were 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 subdrainage basins for the areas of the LDW that were not already included in a SCAP or planned SCAP. Using the same criteria as in 2007, eight additional potential source control areas were added to the list.

The designation of a sediment area as Tier 2 or Tier 3 depends on whether it needs cleanup. Since the RI is still being developed and the ROD will not be published until 2010, that decision will not be made for several more months. Until that time, there is no way to distinguish Tier 2 and Tier 3 areas with any certainty. This report addresses the Tier 1 areas in Section 4 and the remaining 16 source control areas in Section 5. The seven EAAs and 16 Tier 2 and Tier 3 areas are shown on Figure 2.

The SCAP for each of these sediment areas identifies potential contaminant sources and 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.

Ecology works with the SCWG members to develop SCAPs. Members of the SCWG provide information that is incorporated into the SCAPs, such as information needed to define the storm drain and CSO basins as well as to identify and evaluate National Pollutant Discharge Elimination System (NPDES) permitted facilities and contaminated properties.

2.2 SCAP Publication Schedule

Seven SCAPs have been published to date; four are scheduled to be completed in 2008 and four more will be prepared by April of 2009. Publication of the remaining eight SCAPs depends on the availability of funding in the 2009-2011 biennium. The publication dates and schedule for the 23 SCAPs are as follows:[4]

Source Control Site	Complete	Planned Start	Publication Date
EAA-1 (Duwamish/Diagonal Way)	●	February 2003	Issued December 2004
EAA-2 (Trotsky Inlet)	●	August 2006	Issued June 2007
EAA-3 (Slip 4)	●	May 2004	Issued July 2006
EAA-4 (Boeing Plant 2/Jorgensen Forge)	●	November 2006	Issued December 2007
EAA-5 (Terminal 117)	●	April 2004	Issued July 2005
EAA-6 (Boeing Isaacson/Central KCIA)		October 2007	November 2008
EAA-7 Norfolk CSO/SD	●	September 2006	Issued September 2007
RM 0-0.1 East (Spokane St. to Ash Grove Cement)		April 2008	February 2009
RM 0.9-1.0 East (Slip 1)		March 2008	January 2009
RM 1.0-1.2 East (KC lease parcels)		TBD	TBD
RM 1.2-1.7 East (St. Gobain to Glacier Northwest)		April 2008	April 2009
RM 1.7-2.0 East (Slip 2 to Slip 3)		April 2008	March 2009
RM 2.0-2.3 East (Slip 3 to Seattle Boiler Works)		October 2007	November 2008
RM 2.3-2.8 East (Seattle Boiler Works to Slip 4)		December 2007	November 2008
RM 3.9-4.3 East (Slip 6)		October 2007	September 2008
RM 4.3-4.9 East (Boeing Developmental Center)		TBD	TBD
RM 0-1.0 West (Spokane St. to Kellogg Island)		TBD	TBD
RM 1.0-1.3 West (Kellogg Island to Lafarge Cement)		TBD	TBD
RM 1.3-1.6 West (Glacier Bay)	●	February 2007	Issued November 2007
RM 1.6-2.1 West (Terminal 115)		TBD	TBD
RM 2.2-3.4 West (Riverside Drive)		TBD	TBD
RM 3.8-4.2 West (Sea King Industrial Park)		TBD	TBD
RM 4.2-4.8 West (Restoration Areas)		TBD	TBD

2.3 SCAP Implementation Schedule

The early stage of source control within a drainage basin, which includes conducting business/industrial inspections and tracing sources, is an intensive effort and continues until apparent sources are controlled. As businesses and land use change, the potential sources change as well. For large drainage basins such as the Duwamish/Diagonal Way CSO/SD, business inspections and source tracing are long-term, ongoing efforts. While it may be possible to reduce the level of effort needed over time within a given drainage basin, inspections and source tracing

[4] Company names are used only to designate source control area locations; source control area names are not intended to assign responsibility for contamination or to identify properties which may need remediation.

must continue regularly over the longer term in order to identify and control new potential sources as they arise.

For discrete upland sources, such as facilities that require cleanup under the Model Toxics Control Act (MTCA) or federal cleanup laws, cleanup and control are also long-term efforts. Contaminated soil may be a source of sediment recontamination through several pathways. Contaminants in soil adjacent to the LDW can enter the waterway through erosion. Some soil contaminants migrate into groundwater or change the chemistry of the soil and cause other contaminants to become more mobile. Some groundwater contaminants accumulate as they come into contact with sediments. These sites may directly affect sediments in the river and, while identifying them and bringing them under control is possible, it often takes several years. Due to the time it takes to clean up a contaminated site, Ecology believes the time and available resources needed to complete upland site cleanups will be a limiting factor for achieving river-wide source control. This will affect the schedule for the cleanup of sediment areas identified in the ROD.

A total of 258 source control action items have been identified based on the seven SCAPs published as of August 2008:

- 76 (29 percent) of these action items have been completed,
- 44 (17 percent) are in progress,
- 102 (40 percent) are planned,
- 30 (12 percent) are ongoing, long-term actions, and
- 6 (2 percent) have been cancelled (if they were not needed) or combined with another action item.

Of the 176 action items that are active (i.e., in progress, planned, or ongoing), 51 (29 percent) are considered high priority (to be completed prior to sediment cleanup), 76 (43 percent) are medium priority (to be completed prior to or concurrent with sediment cleanup), and 49 (28 percent) are low priority (ongoing actions, or actions to be completed as resources become available). Additional action items will be identified as SCAPs are completed for the remaining 16 source control areas. The status of action items for each source control area is shown in Figure ES-1.

Ecology developed long-term projections for implementing source control in the LDW during preparation of the July 2007 Source Control Status Report, and updated them in May 2008. These projections have been updated again for the October 2008 Source Control Status Report.

The updated schedule for upland site assessment and cleanup activities is presented in Table 1; the entire schedule, including SCAP preparation and implementation, is shown in more detail in Appendix A.

Table 1. Projected Source Control Site Assessment and Cleanup Schedule

	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	
Site Manager 1													
EAA-3 (Slip 4 - NBF/GTSP)										Start Apr 2007 Finish Feb 2015			
RM 1.3-1.6 W (Duwamish Shipyard)								Start May 2007 Finish Nov 2013					
RM 2.0-2.3 E (Slip 3 to SBW)										Start Dec 2008 Finish Mar 2015			
RM 0-0.1 E (Spokane St. to AshGrove Cement)										Start Apr 2009 Finish Aug 2015			
Site Manager 2													
EAA-2 (Trotsky Property)									Start Jan 2008 Finish Jun 2014				
EAA-3 (Slip 4 - Crowley)									Start Apr 2008 Finish Apr 2014				
RM 1.7-2.0 E (Slip 2 to Slip 3)										Start Jul 2009 Finish Oct 2015			
EAA-7 (Norfolk CSO/SD)								Start Jan 2010 Finish May 2013					
Site Manager 3													
RM 1.3-1.6 W (Glacier NW/Reichhold)									Start Mar 2008 Finish Jul 2014				
RM 2.3-2.8 E (SBW to Slip 4)										Start Jan 2009 Finish Apr 2015			
RM 1.2-1.7 E (St. Gobain to Glacier NW)											Start Jan 2010 Finish Apr 2016		
RM 0-1.0 W (Spokane St. to Kellogg Isl.)											Start Jul 2010 Finish Nov 2016		
Site Manager 4													
EAA-6 (Boeing Thompson/Isaacson)										Start Dec 2008 Finish Mar 2015			
RM 0.9-1.0 E (Slip 1)										Start Apr 2009 Finish Jul 2015			
RM 1.0-1.2 E (KC Lease Parcels)											Start May 2010 Finish Sep 2016		
RM 1.0-1.3 W (Kellogg Island to LaFarge)												Start Oct 2010 Finish Jan 2017	
Site Manager 5													
RM 4.3-4.9 E (BDC)											Start May 2010 Finish Sep 2016		
RM 1.6-2.1 W (Terminal 115)												Start Oct 2010 Finish Jan 2017	
RM 2.2-3.4 W (Riverside Drive)												Start Apr 2011 Finish Jul 2017	
RM 3.8-4.2 W (Sea King Industrial Park)													Start Oct 2011 Finish Jan 2018
Site Manager 6													
RM 4.2-4.8 W (Restoration Areas)													Start Oct 2011 Finish Jan 2018
Part-Time Site Managers													
EAA-4 (Boeing Plant 2)									Start Jan 2003 Finish Aug 2014				
EAA-4 (Jorgensen Forge)						Start Apr 2007 Finish Nov 2011							
RM 3.9-4.3 E (PACCAR Site)						Start Jan 2008 Finish Sep 2011							
RM 3.9-4.3 E (Rhone-Poulenc Site)							Start Jan 2009 Finish May 2012						
Other Agencies													
EAA-1 (Duwamish/Diagonal): Port of Seattle/Independent Cleanup						Start Jan 2005 Finish Jul 2011							
EAA-5 (Terminal 117): EPA Oversight								Start Aug 2005 Finish Apr 2013					

Note: Start date is initiation of PLP Determination process; Finish date is completion of Source Control Determination

The schedule for river-wide source control continues to be dependant on the time and resources needed to conduct cleanup at contaminated upland sites. Additional upland sites that may require site assessment and cleanup continue to be identified as additional SCAPs are completed. Ecology's Toxics Cleanup Program (TCP) currently has three full-time site managers dedicated to contaminated upland sites in the LDW, and a fourth position has been established and will be filled. (The projected schedule assumes that a fifth site manager will be required by October 1, 2010.)

The long-term schedule projection for implementing source control is based on a number of scheduling assumptions. Ecology has modified the basic scheduling assumptions since the May 2008 Status Report to reflect a more realistic estimate of the length of time needed to conduct the site cleanup process. These updated assumptions are presented in Appendix A. The current schedule projection assumes that the SCAPs will identify up to 21 upland contaminated cleanup sites.[5] Work has started at five of these sites. The projected schedule estimates that source control from all of the 21 potentially contaminated upland sites could be implemented by January 2018. This prediction falls between the estimated implementation date of 2021 presented in the July 2007 Status Report and the more optimistic predicted implementation date of August 2016 presented in the May 2008 Status Report. Ecology believes that while the current estimate is conservative, it is also realistic.

It should be noted that the schedule projection in Appendix A makes assumptions with regard to site manager staffing, but does not address the availability of staff needed for planning, coordination, reporting, oversight, or community involvement. These functions are vital to the overall source control effort for the LDW Superfund Site; the availability of staff in these areas may influence the overall source control schedule.

[5] The 21 upland sites include only those for which Ecology will need to assign one of its full-time site managers.

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3.0 Source Control Implementation

The three main types of source control activities are business inspections, source tracing, and upland site assessment and cleanup. These and other source control methods that are being implemented for the LDW as a whole were described in the July 2007 Source Control Status Report (Ecology 2007e); an update was provided in the May 2008 Source Control Status Report (Ecology 2008b). The following sections provide updates on the status of these activities. Action items associated with LDW-wide source control activities are summarized in Table 2. Source control activities related to specific source control areas are discussed in Sections 4 and 5.

3.1 Business Inspections

3.1.1 SPU and King County Business Inspection Program

Seattle Public Utilities (SPU) and the King County Industrial Waste (KCIW) Program inspect businesses in areas that discharge to the LDW through either the city-owned storm drain system or the combined sanitary/storm sewer system (King County and SPU 2005b).

SPU conducts most of the inspections and investigations in the LDW and coordinates with King County when necessary. King County continues with pretreatment inspections in the LDW through its Industrial Waste program.

The city of Seattle operates the local sanitary/combined sewers that collect wastewater and route it to the King County interceptor system, and it operates the municipal storm drains within the city of Seattle. King County operates the large interceptor pipes that convey municipal and industrial wastewater to the West Point treatment plant, and it operates the storm drain system in unincorporated King County. The sanitary/combined sewer and storm drains (including private storm drains) serve an area of about 19,800 and 8,940 acres, respectively.

During 2008, SPU has continued inspecting local businesses in the Lower Duwamish service area to ensure that businesses are implementing appropriate pollution prevention practices and complying with local stormwater, industrial pretreatment, and hazardous waste regulations.

Table 2. General Source Control Action Items

Action Item	Priority	Responsible Party	Status	Estimated Completion Date	Date Completed	Follow-On Actions
Prepare semi-annual LDW Source Control Status Reports	Medium	Ecology	Ongoing	NA		
Locate/track 22 "unknown" outfalls	Medium	Ecology, SPU	Planned	TBD		
Conduct sampling of bank soils and high intertidal sediments	Medium	Ecology	Planned	TBD		
Monitor upland spills	Low	Ecology	Ongoing	NA		
Continue source control and NPDES inspections as needed within LDW drainage basin	Medium	SPU, Ecology	Ongoing	NA		
Collect storm drain system solids samples (in-line and grab samples) as needed to conduct source tracing within the LDW drainage basin	Medium	SPU	Ongoing	TBD		
Continue study of the air-to-stormwater-to-sediment contaminant pathway	Medium	City of Tacoma, City of Seattle, King County, Ecology, EPA	Ongoing	TBD		
Evaluate and implement stormwater source control and treatment options to address air-to-stormwater-to-sediment pathway, as appropriate	Medium	City of Tacoma, City of Seattle, King County, Ecology, EPA	Planned	TBD		
Continue public involvement and outreach efforts	Medium	Ecology, EPA, King County, DRCC	Ongoing	NA		
Complete development of LDW Source Control Database	High	Ecology	In Progress	December 2008		

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

A total of 86 facilities have been inspected in 2008 as of the end of August; these are listed in Appendix B. The locations of 2008 inspections are shown in Figure 3. Inspections were conducted in the following subbasins:

Subbasin	No. of Facilities Inspected
Diagonal CSO	3
Diagonal SD	35
Duwamish (NEC) CSO	8
Duwamish (NEC) SD	8
Glacier Bay	1
Norfolk SD	5
Slip 4	3
South Park	14
Trotsky	9
Total	**86**

NEC – Not Elsewhere Classified

3.1.2 Ecology NPDES Inspections

Ecology issues NPDES permits for some businesses in the LDW. While the permits limit and control the discharge of a number of water quality pollutants, they do not necessarily control contaminants that pose a threat to sediments, such as PCBs, phthalates, arsenic, mercury and PAHs. As of August 2008, Ecology has approximately 112 NPDES permits for different types of industrial discharges on record:

- 103 Industrial Stormwater General Permits
- One Boatyard General Permit
- Four Sand & Gravel General Permits
- Four individual Industrial Permits

The permit types are described in more detail in the July 2007 Source Control Status Report (Ecology 2007e).

Ecology is continuing to inspect NPDES-permitted facilities to ensure compliance with permit conditions. In addition, Ecology's Water Quality Division has been visiting facilities as needed to determine whether a permit is required.

3.1.3 Urban Waters Initiative

The Urban Waters Initiative, a component of the Puget Sound Initiative, proposed a comprehensive, multi-program approach to:

- Identify potential sources of contamination,
- Ensure facilities that are required to be permitted are both permitted and in compliance with their permit terms,
- Increase inspections of regulated facilities,
- Assist in the development of appropriate source control measures,
- Provide assistance on toxics reduction and pollution prevention, and
- Build capacity at the local level to safely manage and reduce toxics at small businesses and households.

The initiative is described in more detail in the May 2008 LDW Source Control Status Report (Ecology 2008b).

Ecology's Water Quality (WQ) and Hazardous Waste Treatment and Reduction (HWTR) inspectors, along with SPU inspectors and TCP staff, continued to coordinate inspections of facilities and priorities to avoid overlap in the field. King County coordinates with Ecology and SPU in conducting inspections and has provided a list to Ecology of KCIW permittees in the LDW.

The HWTR program has purchased a modified version of the inspection tracking database used by SPU and King County. Ecology inspectors associated with the Urban Waters Initiative, from WQ, HWTR, and TCP, are testing the modified inspection-tracking database (Ecology 2008c). Some improvements will be made based on their tests before the database is ready for general use.

Ecology developed a Source Control/Urban Waters Inspection focus sheet for use by the source control inspectors. The purpose of the focus sheet is to help businesses understand the reason for the inspections and the background on the program. The focus sheet was printed and distributed to the inspectors in May 2008.

Between April and August 2008, the inspectors conducted 72 inspections at 53 facilities, as listed in Appendix C.

3.2 Source Tracing

SPU and King County have been conducting source tracing and identification sampling activities since 2003 to support source control efforts (King County and SPU 2004, 2005a, 2005b). Source tracing sampling is designed to identify sources by strategically collecting samples at key locations within the drainage/combined sewer service areas. Source identification sampling focuses on product testing to determine whether specific products contain chemicals that are a concern for waterway sediments.

Source tracing samples have been collected at the following locations to identify sources of chemicals of concern (Figure 4):

- Key manholes in the combined/sanitary sewer (King County)
- In-line sediment traps installed in the storm drain system (SPU)

- Onsite catch basins (SPU)
- Catch basins in the public right-of-way (SPU)
- In-line grab samples from storm drain main lines (SPU)

Storm drain sediment data are compared to the Washington State Sediment Management Standards (SMS) to provide a rough indication of overall quality. The SMS include the Sediment Quality Standards (SQS), which identify surface sediments that have no adverse effects on biological resources, and Cleanup Screening Levels (CSL), which are used as an upper regulatory threshold for making decisions about source control and cleanup. It should be emphasized that the SQS and CSL values do not apply to storm drain sediments. It is important to note that any comparison of this kind is most likely conservative given that sediments discharged from storm drains are highly dispersed in the receiving environment and mixed with the natural sedimentation taking place in the system. For organics, the measured dry weight concentrations were organic carbon (OC) normalized to allow comparison to the CSL/SQS.

3.2.1 Outfalls

Based on a comprehensive survey of outfall or outfall-like structures terminating in the LDW conducted in 2004 by SPU, along with information from the Phase 1 RI, and updated information from Ecology, EPA, the city of Seattle, the city of Tukwila, the Port of Seattle, King County, and Boeing, approximately 250 outfalls were identified within the LDW study area. The July 2007 Source Control Status Report listed 39 “unknown” outfalls. Of these, 17 have been resolved and are now identified as private outfalls, abandoned outfalls, or in some cases were determined not to be an outfall based on subsequent investigation. As identified in the May 2008 Source Control Status Report (Ecology 2008b), a total of 22 outfalls are currently identified as a “pipe of unresolved origin and/or use.” The source of discharge, if any, to these outfalls needs to be determined; this is considered a source control action item (Table 2).

3.2.2 Key Manhole Samples

King County periodically samples wastewater at key locations in the collection system to provide baseline data for comparisons when tracking down spills at the treatment plants. Twenty-four hour composite samples are collected over a 7-day period twice per year, once during the wet season and once during the dry season. Figure 4 shows the three key manhole sampling stations located within the combined sewer service area discharging to the LDW.

The LDW Source Control Status Report, 2003 to July 2007, summarized results of key manhole sampling in 2003 and 2004. No new key manhole data are available.

3.2.3 In-line Sediment Trap Samples

In-line sediment traps consist of a small bracket mounted inside the collection system pipe that holds a wide-mouth sample bottle. Traps are installed at selected locations in the drainage system to identify and isolate problem areas. Samples represent contributions from relatively large areas (>50 acres). They are installed for a period of 4 to 6 months to passively collect solids in the stormwater flow passing that location.

Traps have been installed in the following areas (Figure 4):[6]

- Six sites in the Diagonal Avenue CSO/SD drainage basin
- Ten sites in the Slip 4 drainage basin
- Five locations in the Norfolk CSO/SD basin

Sediment trap sampling results are discussed in Section 5 for each source control area.

Ecology signed an inter-agency agreement with the city of Seattle to conduct source tracing sampling. As part of this agreement, Ecology is paying SPU to install and sample up to 25 additional in-line sediment traps (Ecology 2008c). To date, sediment traps have been installed in the following areas: 1st Ave S. SD (4 locations), 7th Ave S. (3 locations), Highland Park Way (3 locations), SW Dakota SD (one location), SW Idaho SD (two locations), SW Kenny SD (one location), KCIA (three locations in non-Slip 4 drainage basins). Installation of sediment traps at S. 96th Street (3 locations) and Hamm Creek (one location) is planned.

3.2.4 Catch Basin Samples

A catch basin is a storm drain structure that contains a sump to capture sediment and other debris before it can enter the collection system. Catch basin samples are grab samples of sediment that has accumulated in the catch basin sump. Catch basins collect runoff from the nearby area (<0.5 acres). These samples are used to characterize contributions from specific sites and confirm whether they are sources of pollutants to the drainage system.

As of December 2007, 93 onsite and 76 right-of-way catch basin samples have been collected in the LDW study area (Figure 4). In addition, over 200 sediment and soil samples were collected from the public right-of-way and adjacent properties near EAA-5 (Terminal 117) as part of an emergency cleanup conducted by SPU in 2004–2005. Samples included catch basin sediment, street dust, and soil samples from the public right-of-way and adjacent yards. A recent review of the 2005 data revealed elevated levels of dioxin in a street dirt sample collected from an unpaved portion of the road shoulder; the street dirt and underlying soil were subsequently removed as part of an interim action cleanup by the City. This issue is discussed in more detail in Section 4.5.1 (Terminal 117 and Adjacent Streets).

Onsite catch basin samples have been collected at sites of interest identified during the business inspections or simply at sites where sufficient sediment was available for chemical analysis. Approximately 80 percent of the onsite samples were collected from sites where contamination problems were suspected either due to the nature of the onsite activities or because specific problems were observed during the inspection. Results for all samples will be published in a future source tracing progress report. Key findings to date were summarized in the July 2007 Source Control Status Report (Ecology 2007e).

The Ecology-SPU interagency agreement described above includes funding to collect catch basin samples in areas where there has been little or no sampling to date. The scope of work is for the collection of samples from 100 locations between November 2008 and March 2009.

[6] Sediment trap sampling locations in the Norfolk CSO/SD basin were unavailable at the time this Status Report was prepared.

3.2.5 In-Line Sediment Samples

In-line sediment samples are grab samples collected from manholes located on the drainage mainline, and represent contributions from the entire drainage basin upstream of the sampling location. In-line sediment samples are usually collected prior to installing a sediment trap or before and after cleaning the drain to characterize the chemical quality of sediment in the storm drain system.

Between January 2002 and December 2007, SPU, Seattle City Light, and King County collected 92 in-line sediment samples from various locations in the Diagonal Avenue S. CSO/SD, Seventh Avenue S. and Second Avenue S. storm drains in South Park, King County Airport SD#3/PS44 Emergency Overflow (EOF), I-5 storm drain, Georgetown flume, and the Norfolk CSO/SD. Key findings were summarized in the July 2007 Source Control Status Report (Ecology 2007e). Validated data for sediment samples collected after December 2007 were unavailable at the time this Status Report was prepared.

3.3 Site Assessment and Cleanup

During SCAP development, Ecology and its contractors identify contaminated properties that may recontaminate a source control area. The consultants review available information about each property and prepare an assessment of whether the site poses a threat to the source control area. The detailed information on each property is reported in either a Property Review report (Duwamish/Diagonal Way, Duwamish Basin Terminal 117, Slip 4) or in a Data Gaps report (all other Source Control Areas). As of August 31, 2008, Ecology and its contractors had conducted assessments on 123 properties in 12 source control areas (Table 3).

The investigation or cleanup of a contaminated property may be performed before a SCAP is written. This may occur when an owner wants to expedite cleanup or Ecology considers it necessary for source control. Site characterization or cleanup is in progress at several facilities which are known or suspected threats to LDW sediments.

EPA is managing three sites under the Resource Conservation and Recovery Act (RCRA) and/or Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA):

- Terminal 117 (EAA-5)
- Rhone-Poulenc (RM 2.9-4.4 East)
- Boeing Plant 2, including part of Jorgensen Forge (EAA-4)

Table 3. Property Assessments Completed, 2003 to August 2008

EAA-1 (Duwamish/Diagonal) - 5 properties	
Chevron USA Site No. 4097 (Chiyoda Property)	Janco United
Container-Care International, Inc. (Port of Seattle Terminal 106)	Transportation Services CFS (Port of Seattle Terminal 106W/106NW)
Federal Center South	
EAA-2 (Trotsky) - 26 properties	
Alaska Washington Company	Northwest Building Tech Inc
Alki Construction Company	NW Center for the Retarded
ATC Distribution Group Inc./Automatic Transmission Parts	Pacific American Commercial (PACO)
BJ Truck Wrecking	Pacific Northwest Fasteners
Boyer Towing, Inc./Boyer Alaska Barge Lines/Boyer Logistics	Pacific Plumbing Supply
Cascade Mattress Factory	PCT Construction
Cunningham Manufacturing	Pioneer Human Services
DaVinci Gourmet	Trotsky Property (Industrial Container Services)
Douglas Management Company/Alaska Marine Lines Dock 2	Tucker-Weitzel Assoc.
Ferguson Construction	United Iron Works
Fox Plumbing & Heating	W.G. Wright and Associates
Hurlen Construction	Wells Trucking & Leasing
Industrial Battery Systems	WHECO
J & M Stamp & Form	
EAA-3 (Slip 4) - 13 properties	
Alaska Logistics	Georgetown Steam Plant
American Avionics	King County Airport Maintenance Shop
ARCO #5218	King County International Airport (portion draining to EAA-3)
Aviation Fuel Storage/Shultz Distributing	Marine Vacuum Service
Boeing Plant 2	North Boeing Field
Crowley Marine Services	North Coast Chemical Company
First South Properties/Emerald Services	
EAA-4 (Boeing Plant 2/Jorgensen Forge) - 3 properties	
Boeing Plant 2	King County International Airport (portion draining to EAA-4)
Jorgensen Forge	
EAA-5 (Terminal 117) - 4 properties	
Basin Oil	South Park Marina
Boeing South Park	Terminal 117
EAA-6 (Boeing Isaacson/Central KCIA) - 21 properties	
Boeing Isaacson	Clay Lacy Aviation
Boeing Thompson	Nordstrom, Inc.
King County International Airport (portion drianing to EAA-6)	DHL Express (ABX Air, Airborne Express)
UPS Boeing Field	Airwest Repair Services (Airwest Sales & Services, Bicknell)
Caliber Inspection, Inc.	BAX Global, Inc.
GSM, Inc.	Clay Lacy Aviation (Gateway USA, Flight Center, Flightcraft, Inc.)
Ameriflight, Inc.	Wings Aloft/Southeast "T" Hangars
Federal Express Perimeter Road	Aeroflight National Charter Network
Hangar Holdings, Inc. (Vulcan, TAG Aviation, Former Shell Oil)	Federal Drug Enforcement Administration
Western Metal Products, Inc.	South Seattle Community College Aviation Department
Galvin Flying Services	

Table 3. Property Assessments Completed, 2003 to August 2008

EAA-7 (Norfolk CSO/SD) - 7 properties	
Affordable Auto Wrecking	Boeing Military Flight Center
ARCO Gas Station	King County International Airport (portion draining to EAA-7)
Associated Grocers	Northwest Auto Wrecking
Boeing Developmental Center	
RM 0.9-1.0 East (Slip 1) - 3 properties	
Federal Center South	Manson Construction Company
Snopac Products, Inc.	
RM 2.0-2.3 East (Slip 3 to SBW) - 9 properties	
South Seattle Community College	Riverside Industrial Park (Carmody Property)
SCS Refrigerated Services	Shultz Distributing
Seattle Distribution Center	Cascade Columbia Distribution
Glacier Marine Services (Northland Services, Marine Power & Equipment)	Bunge Foods
V. Van Dyke	
RM 2.3-2.8 East (SBW to Slip 4) - 16 properties	
Guimont Parcel	Whitehead Company/Former Tyee Industries
Seattle Boiler Works, Inc.	Whitehead Company/Former Perkins Lot
Seattle Iron & Metals Corporation	Trim Systems
Puget Sound Truck Lines	Nitze-Stagen/Frye Parcels
Phil's Finishing Touch	Nelson Trucking
Seattle City Light Parcel	Former Sternoff Parcel
Crowley Marine Services	Markey Machinery Company
Fox Avenue Bldg/Bldg #2 (Great Western Chemical)	El Gallo D'Oro/James Dore
RM 3.9-4.4 East (Slip 6) - 5 properties	
Former PACCAR Site	Museum of Flight
Former Rhone-Poulenc Site	Boeing Developmental Center
King County International Airport (portion draining to Slip 6)	
RM 1.3-1.6 West (Glacier Bay) - 11 properties	
Alaska Marine Lines (Parcel 1)	Glacier Northwest
Alaska Marine Lines (Parcel 2)	Klier-D.B. Property
Allen Property	MRI Corp
Chemithon	Sayler Property
City of Seattle Parks	Wise Property
Duwamish Shipyard	

Ecology is managing the following sites under MTCA:

- Jorgensen Forge, upland of the EPA-managed area (EAA-4) – Agreed Order signed July 2007
- North Boeing Field/Georgetown Steam Plant (EAA-3) – Draft Agreed Order signed August 2008
- 8801 Site (RM 3.9-4.4 East) – Draft Agreed Order scheduled to be signed September 2008
- Duwamish Shipyard (RM 1.3-1.6 West) – Draft Agreed Order negotiations in progress
- Crowley Marine Services (EAA-3) – Agreed Order negotiations began August 2008
- Industrial Container Services/Trotsky Property/Former Northwest Cooperage (EAA-2) – Agreed Order negotiations scheduled to begin September 2008
- Glacier Northwest/Reichhold Chemical (RM 1.3-1.6 West) – PLP determination pending

Ecology contractors have collected site characterization samples at the following sites:

- Soil, groundwater, and sediment at Industrial Container Services/Trotsky Property/Former Northwest Cooperage (EAA-2) – April through July 2007
- Soil, groundwater, and sediment at Douglas Management Company (EAA-2) – June through July 2008
- Soil, groundwater, and bank sediment/soil at South Park Marina (EAA-5) – September 2007 through July 2008

The total number of sites which need to be assessed in the entire LDW storm drain and CSO basin has not been estimated at this time.

3.4 Public Involvement

3.4.1 Public Outreach

Ecology works with EPA and stakeholders in an enhanced public participation effort for the LDW Superfund site. Ecology public involvement activities are underway for all of the MTCA sites addressing source control issues within the LDW. Ecology coordinates with the Duwamish River Cleanup Coalition (DRCC) throughout the public involvement process. This may include such activities as coordination for public meetings and sharing of documents with DRCC for review, as appropriate.

Urban Waters Initiative Focus Sheet

Ecology, with assistance from the SCWG, prepared a focus sheet on business inspections in the Lower Duwamish area. The purpose of this focus sheet was to provide inspectors with information that they could provide to business owners/operators to explain why they are being inspected and what the inspectors are looking for. This focus sheet was published in May 2008.

Source Control Focus Sheet

Members of the SCWG published an updated version of the Source Control focus sheet in August 2008. The focus sheet contains an update from summer 2007, and incorporated information included in the May 2008 Source Control Status Report. The focus sheet was distributed at the Duwamish River Festival (Ecology 2008c) and is posted online.

Duwamish River Festival (August 23, 2008)

The 4th annual Duwamish River Festival was held on August 23 in Seattle's South Park neighborhood. Staff from 25 agencies and organizations participated, and there were 20 booths with information on the LDW Superfund site, source control efforts, health information, natural yard care tips, and more. Water taxi and kayak tours were also available. Approximately 1,000 people attended the festival, including visits from Representative Zack Hudgins and Port Commissioners Lloyd Hara and Gael Tarleton.

Program sponsors of this year's festival included: EPA, Ecology, DRCC, King County, Port of Seattle, The Boeing Company, SPU, PHSKC, PSCAA, city of Tukwila, Cascade Land Conservancy, and others.

Source Control E-Tour

The SCWG Communication subcommittee began work on an E-Tour, a virtual boat tour of the LDW. The E-tour focuses on source control activities and giving an overview of the LDW source control story. An initial video shoot was conducted on August 6 on King County's research boat; scripting and editing are in progress (Ecology 2008c).

Student Outreach

On June 20, Ecology and EPA hosted a group of Seattle University students at EPA's Region 10 office. The students were participating in a week-long service immersion project on the Green River watershed. Ecology and EPA project managers and community involvement staff presented an overview of the history of the LDW contamination, current updates on the cleanup process, source control, and community and stakeholder involvement (Ecology 2008d).

EPA/Ecology Sediment Source Control Tours

EPA and Ecology are also working to educate other programs within their own agencies, along with other SCWG agencies and stakeholders. These small tours of 8 to 10 are intended to educate audiences about sediment source control – the general work involved, the activities and responsibilities of the SCWG, and how source control differs from the sediment RI process. Discussions include: how the agencies "do source control" according to the LDW Source Control Strategy, how it is complicated, and how it works. Audiences to date have included inspectors from various agencies (King County, Ecology, Seattle, Port of Seattle, EPA, the Corps of Engineers) and from different programs within those agencies (RCRA, MTCA, TSCA, IWP, NPDES, standards, TMDLs, etc.), as well as managers and executives for most of these programs.

3.4.2 Public Meetings

EPA hosted the quarterly stakeholder meeting in May 2008. Updates were presented on Terminal 117, Boeing Plant 2, background contamination levels, the Potentially Responsible Party (PRP) search, source control activities, and DRCC activities (Ecology 2008d).

EPA hosted another quarterly meeting in July 2008. Updates focused on Terminal 117, the former Boeing Electronics Manufacturing Facility (EMF), Jorgensen Forge, the PRP search, DRCC activities, source control activities, and background contaminant levels.

3.5 Other City of Seattle and King County Activities

3.5.1 Dioxin Sampling in Source Sediments and Street Dirt

In October 2005, the city of Seattle analyzed archived solids samples for dioxin and furan congeners. These samples had been collected in 2004 and 2005 from catch basins, maintenance

holes, and street dirt (one location). Samples were analyzed for dioxin and furan congeners. The samples had been collected as part of routine source tracing for the LDW source control program, and were selected for analysis of dioxins and furans because they were from locations with relatively high PCB concentrations among the source samples collected in 2004 and 2005. Analysis of the source samples for dioxins and furans was triggered by an interest in understanding background concentrations of these chemicals of interest for the LDW remedial investigation (Integral 2008a).

Nine sediment samples from catch basins and maintenance holes, one sediment sample from a settling tank upstream of an oil-water separator at Basin Oil (EAA-5), and one street dirt sample from the right-of-way of 16th Avenue South were collected (also EAA-5). The street dirt sample was collected from an area in which soil was removed in June 2005 to a depth of 6 inches and covered with clean gravel. To summarize information on dioxins and furans, toxic equivalent (TEQ) concentrations of 2,3,7,8-tetrachlorodibenzo-*p*-dioxin (TCDD) were calculated for each sample using the mammalian toxic equivalency factors (TEFs) for each dioxin and furan congener (Integral 2008a).

Sample Station	Sample Type	TEQ (ng/kg DW)	Location
CB40	Catch basin sediment	11.3 J	7585 Perimeter Rd.
CB41	Catch basin sediment	15.2 J	8661 Dallas Ave. S., from a settling tank immediately upstream of an oil-water separator at Basin Oil
CB52	Catch basin sediment	18.1 J	SW Idaho St. and West Marginal Way SW
CB65	Catch basin sediment	25.6 J	3419 11th Ave. SW
MH100	Maintenance hole sediment	26.3	MH100 on Georgetown flume at North Boeing Field
MH20	Maintenance hole sediment	22.3 J	MH at S. Riverside and S. Holden St.
MH221A	Maintenance hole sediment	6.2 J	King County Airport SD3 - east line
MH229A	Maintenance hole sediment	7.6 J	Sediment trap T4 upstream of Boeing
MH3	Maintenance hole sediment	24.1 J	Manhole adjacent to Hyster washpad
MH363	Maintenance hole sediment	11.6 J	King County Airport SD3 – north line
SD52	Street dirt	90.5	16th Ave. S., 60 feet from Dallas
LDW Surface Sediments		1.1 J – 2,100 J	
LDW Subsurface Sediments		0.15 J – 194 J	
Surface Sediments in the Greater Seattle Area		2.2 J – 63.1 J	

J – Estimated concentration DW – dry weight

Results of the dioxin and furan analyses were described in a report prepared in May 2008 by Integral Consulting for the city of Seattle (Integral 2008a). Dioxin/furan TEQs in the sediment and street dirt samples are listed below; TEQs for LDW sediments and for surface sediments in the greater Seattle area are also shown. Additional investigations are planned in the Terminal 117 source control area (see Section 4.5). Maps and additional information are presented in Integral 2008a.

3.5.2 Seattle Street Sweeping Pilot

The city of Seattle conducted a pilot project to evaluate street sweeping as a tool to reduce the amount of pollutants discharged from city storm drains (SPU 2007a). New high efficiency street sweepers are being used to remove street dirt and debris from designated streets in two residential areas (West Seattle and Columbia City) and one industrial area (Duwamish/Diagonal Way).

Testing in the two residential areas began in June 2006 and concluded in June 2007. Testing in the Diagonal industrial area began in November 2006 and finished in June 2007. At each test site, a 10 to 25 block area was divided into a control area and a sweep area. Both control and sweep areas were cleaned at the beginning of the pilot, establishing a baseline for analyzing whether street sweeping reduces pollutants and sediment.

The test area was swept every two weeks, but the control area was not swept. Catch basin sediment, sweeper waste, and street dirt accumulations were measured every month from the test and control areas to evaluate the quantity of material removed by the sweeping effort. Catch basin, sweeper waste, and street dirt samples were also collected every month. These samples were composited on a quarterly basis and analyzed for metals, semivolatile organic compounds (SVOCs), PCBs, grain size, and total organic carbon (TOC) content.

SPU is analyzing the collected data and will report its findings in 2008.

3.5.3 King County CSO Technology Pilot

The King County Wastewater Treatment Division plans to conduct testing of CSO treatment technologies. The pilot program will assess the feasibility of CSO treatment technologies and will help determine the best technologies to control LDW CSOs. The county held a workshop in December 2007 to share information about the technologies being considered, and to hear stakeholder views on technologies to consider for testing, and specific pollutants of concern. A work plan for the pilot project will be completed in fall 2008. The current schedule calls for pilot testing to occur during the winter of 2009.

High rate clarification processes will be tested, while conventional primary clarification remains the baseline technology. Test results will support decision-making on future control options.

The range of CSO control options includes:

- Stormwater control or separation from the sanitary sewer,
- Conveyance improvements,
- Storage and transfer to secondary treatment plants, and
- Local (satellite) treatment in the vicinity of existing CSO outfalls.

Since 1990, the King County Wastewater Treatment Division has reduced CSOs in the LDW from 784 million gallons per year to 79 million gallons in 2006-2007. More information is available at: http://dnr.metrokc.gov/wtd/cso.

3.6 Other Ecology Activities

3.6.1 Source Control Database Development

Ecology started work on a web-based LDW Source Control Database in March 2005. Users will be able to track source control activities for each source control area, including site evaluations, chemicals of concern, location, actions taken, and parties responsible.

Ecology contractor SAIC was hired to load the database. Various problems have delayed progress of this task; SAIC has been working with Ecology's database programmer to resolve problems with database functionality. Most issues have now been resolved. Initial loading of the database began in August 2008, and data associated with the EAAs are expected to be in the database by the end of October 2008. The reporting function is currently in development. A publicly available version is planned but at this time no date has been established.

3.6.2 LDW Industrial Stormwater Monitoring Study

Ecology plans to collect and analyze samples of stormwater sediment from selected, representative industrial stormwater facilities. The goal is to assess the potential for these types of facilities to contaminate sediments and to estimate the loading contribution to sediments. The project is the first step in determining if facilities covered under the Industrial Stormwater General Permit are potential sources of sediment recontamination.

A Sampling and Analysis Plan was prepared by Ecology contractor SAIC in early Spring 2008; implementation of the sampling program is scheduled for Fall 2008. Facilities sampled are intended to be representative of industry types and geographic locations within the LDW.

3.6.3 Bank Sampling

Ecology was planning to conduct a reconnaissance-level sampling effort to help characterize the nature and extent of contamination of the upland shoreline along the LDW. As part of the LDW Superfund Site RI, over 1,200 surface sediment samples have been analyzed to characterize sediment contamination in the LDW. None of these samples characterize the higher intertidal zone or nearshore upland areas; this represents a source control data gap. To date there have been a few property-specific sampling events, usually associated with a MTCA order for a complete

site characterization. However, most of the adjacent properties along the LDW are not under an order nor are they listed as contaminated sites by Ecology.

Ecology tentatively planned to collect samples at approximately eight locations along the LDW upland shoreline, including sand beaches with pilings, armored riprap, fill material of questionable origins, and apparent slag piles from industrial operations. Samples will be collected from the intertidal zone above the +4 foot elevation, as well as from above the mean higher high water line.

Due to budget and staffing constraints, this activity has been postponed to a future date (to be determined).

3.7 Modeling of Air Pollutant Impacts

Residents of the Georgetown and South Park neighborhoods in the Duwamish Valley asked the Washington State Department of Health (DOH) to conduct an assessment of pollutant impacts on their health. DOH hired a consultant to model air emissions from multiple sources in south Seattle. The objective of the multiple source air modeling project was to identify air pollutants of concern, key air pollution sources impacting residential areas of south Seattle, and the geographic areas of south Seattle that are impacted by air pollutants (DOH 2008).

DOH compiled an emissions inventory, modeled the dispersion and ground level impact of these emissions using local meteorological and terrain conditions, and calculated cancer risks and noncancer hazard based on modeled ground level pollutant concentrations at locations throughout the project area (DOH 2008). Air emissions in the Duwamish Valley include point (or stationary) sources, mobile sources (such as motor vehicle traffic on highways), and wood stove sources. Assumptions were made to fill data gaps in the emissions inventory, and therefore the modeled estimates of ground level pollutant concentrations and health risk are uncertain.

The study concluded that on-road mobile sources contribute to the highest risks near major roadways over a large area of south Seattle; these risks and hazards drop off dramatically about 200 meters from the center of highways. Point sources, especially those that emit chromium compounds, have the potential to impact residential areas in south Seattle, and wood stove/fireplace use in the winter season also contributes to health risk.

The following actions were recommended (DOH 2008):

- Refine the point source emissions inventory so that priorities can be identified and pollutant control strategies can be developed; in particular, all chromium sources should be located and inventoried.
- Determine wood stove and fireplace usage in the south Seattle area and the need for a focused wood stove change-out program.
- Determine impacts from other mobile sources that were not included in this assessment, such as rail, port operations, and airport operations.
- PSCAA and other regulatory air agencies (including Ecology) should consider cumulative impacts from all emission units at each facility when issuing air permits.

- Health agencies (including DOH, PHSKC, and the Agency for Toxic Substances and Disease Registry [ATSDR]) should partner with regulatory agencies to increase education about air pollution and steps individuals can take to reduce their impact and exposure.
- Land use decisions should be made with an attempt to protect sensitive individuals from areas where air pollution is expected.

PSCAA has worked to identify chromium sources and refine chromium compound emission rates from point sources in south Seattle. DOH is planning to work with PSCAA and other agencies to conduct follow-up assessments and analyses once completed emission inventories are compiled (DOH 2008).

4.0 Source Control Activities: Tier 1 Areas

Based on results of the RI Phase 1, seven early action candidate sites were proposed. These EAAs, also referred to as Tier 1 areas, are shown in Figure 1. Tier 2 and Tier 3 areas are discussed in Section 5.

The potential for sediment recontamination associated with these EAAs is described in detail in the Data Gaps reports and SCAPs, as cited in the text below for each EAA. These documents are available from Ecology's LDW Source Control website.[7] Source control actions that were conducted between 2003 and June 2007 are described in the July 2007 Source Control Status Report (Ecology 2007e); source control actions conducted between July 2007 and March 2008 are discussed in the May 2007 Source Control Status Report (Ecology 2008b). The current status report describes source control actions that were conducted from April 1 through August 31, 2008.

Tables 4 through 10 list the action items that were identified for the seven source control areas for which final SCAPs have been completed. It includes new source control action items that have been added since initial publication of the SCAPs. Source control activities conducted between April 1 and August 31, 2008 are described in the following sections. Properties for which no source control activities were conducted during this period are not discussed below, however all identified actions items (completed, in progress, or planned) are listed in Tables 4 through 10.

Site maps are presented in Figures 5 through 11 to help identify locations discussed in the text below; these maps are located after Section 6. Additional figures are available in the referenced reports.

4.1 Early Action Area 1 (Duwamish/Diagonal Way)

EAA-1 and relevant adjacent and upland properties are shown in Figure 5. Action items for this source control area are listed in Table 4.

Location	RM 0.1-0.9 East
Chemicals of Concern	PCBs, BEHP, PAHs, lead, zinc
Data Gaps Evaluation	June 9, 2003 (SAIC 2003)
SCAP	December 1, 2004 (Ecology 2004b)

[7] http://www.ecy.wa.gov/programs/tcp/sites/lower_duwamish/lower_duwamish_hp.html

Table 4. Source Control Action Items — Early Action Area 1 (Duwamish/Diagonal Way)

Source Control Facility or Outfall	Action Item	Priority	Type	Responsible Party	Status	Estimated Completion Date	Date Completed	Follow-On Actions
Diagonal Ave. S. CSO/SD	Conduct inspections of 200 businesses in the western portion of the Diagonal Ave. S. CSO/SD basin	Medium	SCAP	SPU	Complete	2001	March 2002	Over 90% of facilities in compliance with stormwater source control requirements; reinspect as needed to achieve compliance
	Remove accumulated sediment from the lower portion of the Diagonal Ave. S. CSO/SD	High	SCAP	SPU	Complete	Fall 2004	November 2004	Video-inspect to identify connections and potential dischargers, and to verify that sediment removal was complete
	Video-inspection to identify connections and potential dischargers and to verify that sediment removal was complete	High	Follow-On	SPU	Complete	--	February 2005	
	Clean catch basins in the public right-of-way	Medium	New	SPU	Complete	June 2008	June 2008	
	Conduct sediment trap sampling	High	New	SPU	Ongoing	2010		
Duwamish/Diagonal Basin	Conduct first round of multi-agency business inspections	Medium	SCAP	SPU, King County	Complete	July 2004	September 2004	Over 90% of facilities in compliance with stormwater source control requirements; reinspect as needed to achieve compliance
	Conduct second round of multi-agency business inspections	Medium	Follow-On	SPU, King County	Complete	2007	2008	
Nevada Street SD	Investigate the Nevada Street SD to locate the outfall, identify connections, confirm drainage areas, and sample sediments	High	SCAP	SPU	Complete	2004	June 2005	All manholes in the right-of-way were clean and could not be sampled; determine whether any further action is needed.
	Collect a sediment sample from the last manhole above the outfall	Medium	Follow-On	SPU	Planned	2008		
Container Care Int'l (T-106 SW)	Conduct inspection to confirm that all issues related to poor housekeeping and BMPs have been addressed	Low	SCAP	SPU, Ecology	Complete	May 2003	May 2003	
UPRR Argo Yard	Review existing information to assess the potential for sediment recontamination from this property	Low	SCAP	Ecology, SPU, UPRR	Complete	Summer 2005	2005	Refer to King County for Site Hazard Assessment; source control staff will remain vigilant for evidence of contaminant infiltration
	Conduct Site Hazard Assessment	Low	Follow-On	King County	Planned	TBD		
Terminal 108	Conduct groundwater investigation to quantify levels of COCs in groundwater, obtain information about groundwater flow, and assess the potential for sediment recontamination	Medium	SCAP	Port of Seattle	Complete	Spring 2005	October 2007	
	Develop work plan describing source control strategy to be implemented	Medium	New	Port of Seattle	Complete	--	February 2008	
	Develop Environmental Conditions Report and Source Control Strategy Plans for Eastern and Western parcels	Medium	New	Port of Seattle	In Progress	December 2008		Implement appropriate source control actions
	Implement appropriate source control actions	Medium	Follow-On	Port of Seattle	Planned	2009		
GSA / Federal Center South	Investigate to determine whether this facility is a potential source of sediment recontamination	Low	SCAP	Ecology, EPA, SPU, GSA	Complete	June 2004	June 2004	Clean and repair drainage system; correct housekeeping issues
	Clean and repair storm drain system; correct housekeeping issues	Medium	Follow-On	GSA	Planned	2005		

Table 4. Source Control Action Items — Early Action Area 1 (Duwamish/Diagonal Way)

JANCO-United, Inc.	Review existing information and conduct a site inspection to determine if wastes dumped on ground have been removed and to assess the potential for sediment recontamination	Low	SCAP	Ecology	Complete	February 2005	December 2006	Reviewed data December 2006. Soil samples collected by EPA in 1984 contained VOCs and SVOCs; no record that the soil was removed or the illegal pipe to storm drain was sealed. Conduct Site Hazard Assessment.
	Conduct Site Hazard Assessment	Low	Follow-On	Public Health-Seattle & King County	Planned	August 2008		
Former Rainier Brewery Property	Sample catch basin solids; identify required actions	Medium	New	SPU	Complete	NA	January 2008	Require property owner/operator to take corrective action; verify completion
	Require property owner/operator to take corrective action to remove catch basin solids; verify completion	Medium	New	SPU	Complete	2008	January 2008	Piping and downstream catch basins cleaned; resample system in 2009 to confirm that PCBs have been controlled.
	Resample storm drain system to confirm that PCBs have been controlled.	Low	New	SPU	Planned	2009		
Other Upland Properties	Review files for 37 identified upland sites	Low	SCAP	Ecology	Planned	March 2005		
	Review files for LUST sites; determine need for additional action	Low	SCAP	Ecology	Planned	April 2005		

Priority:

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

Type:

SCAP	Action item identified in the EAA-1 SCAP
Follow-On	Action item is a follow-on to an action item identified in the EAA-1 SCAP
New	Action item identified after publication of the EAA-1 SCAP

Source control actions that are area-wide (i.e., not associated with a specific adjacent or upland property) are described below.

Source Control Actions

- SPU continued conducting business inspections in the Duwamish/Diagonal Way basin in 2008. Three inspections were conducted in the Diagonal CSO basin, and 35 inspections were conducted in the Diagonal SD basin. A total of 71 corrective actions were identified. Facilities that were inspected in 2008 are listed in Appendix B. Inspection locations are shown on Figure 3.
- An initial inspection conducted by SPU at North Star Casteel (3901 9th Ave S.) on May 15, 2008 identified multiple issues that needed to be addressed, including the presence of degraded open chemical containers, improper storage and labeling of product/waste (including containerized and non-containerized materials), improper material transfer practices, leakage and spills from storage areas, improper designation of waste, poor housekeeping, and inadequate education of employees. A follow-up inspection on June 27, 2008 found that adequate corrective action had not been taken and that storm drain facilities at this property are in need of cleaning (Schmoyer 2008a). Follow-up inspections are needed.
- SPU continues to monitor storm drain particulates using sediment traps to identify sources of chemicals which may recontaminate sediments. Sediment traps have been installed at seven sites in the Diagonal Avenue CSO/SD system. Zinc, total petroleum hydrocarbons (TPH)-oil, and bis(2-ethylhexyl)phthalate (BEHP) continue to be the primary chemicals of concern in the system. Zinc concentrations exceeded the SQS in 49 percent of the 45 samples collected through 2007, while BEHP exceeded the SQS in about 86 percent of the samples. TPH-oil was above the MTCA Method A soil cleanup level (2,000 mg/kg) in 52 percent of the samples. PCBs were detected in 96 percent of the samples, but only one sample exceeded the SQS (Sample ST5, collected on March 28, 2006). As of the date of this report, a total of 10 rounds of sediment trap samples had been collected. The next sample collection is scheduled for September 2008.
- The city of Seattle hired a contractor to clean all of the catch basins located in the public right-of-way within the Diagonal Avenue S. CSO/SD basin. The contractor cleaned over 4,200 structures between August 2007 and June 2008. This action item is complete.

4.1.1 Port of Seattle Terminal 108 / Former Chiyoda Property

Current Operations	Container storage
Historical Operations	Sewage treatment plant; PCB-contaminated sediment treatment lagoons
Address	4525 Diagonal Ave. S., Seattle 98108
Facility/Site ID	2344 (Chevron Seattle Terminal 4097)
Chemicals of Concern	PCBs, PAHs, cadmium, lead, chromium, petroleum hydrocarbons
Media Affected	Groundwater, soil

Source Control Actions

- Low levels of PCBs (0.5 to 3.0 mg/kg) were detected in shallow soils near the LDW bank, and higher concentrations have been detected farther inland and at depth on the property. Because of concerns about the potential for soil erosion to the LDW, the Port of Seattle prepared the Terminal 108 – Source Control Strategy Work Plan in February (Windward 2008a). The work plan describes the development of source control strategies to be implemented by the Port as an independent action at Terminal 108.
- The Port of Seattle submitted the draft Terminal 108 – Environmental Conditions Report on July 31, 2008 (Windward 2008b). The purpose of this report was to present and discuss the operational and development history of the Terminal 108 property, evaluate existing environmental data, and identify potential source control issues, focusing on long-term source control strategy efforts. The Port and Ecology will meet in mid-October to discuss and finalize the report.
- The Port of Seattle is developing Source Control Strategy Plans for the Eastern and Western parcels to provide a framework to identify and assess source control issues on the property, determine the most appropriate and effective implementation and control systems (e.g., best management practices and remedial actions), and establish long-term monitoring procedures to assess source control performance and ongoing environmental conditions at the property (Windward 2008a). The Strategy Plans for the Eastern and Western parcels are scheduled to be completed by the end of 2008.

4.1.2 Former JANCO-United Site

Current Operations	Air conditioning and heating storage warehouse
Historical Operations	Janitorial supply
Address	4412 4th Ave. S., Seattle 98108
Facility/Site ID	5568786 (Lennox Industries Inc)
Chemicals of Concern	Phthalates, chlorinated benzenes
Media Affected	Soil, stormwater

Source Control Actions

- PHSKC was scheduled to perform a Site Hazard Assessment (SHA) at this location in 2007. PHSKC reports that it will complete the SHA for JANCO-United during 2008.

4.1.3 Union Pacific Railroad Argo Yard

Current Operations	Rail transportation
Historical Operations	Unknown
Address	4700 Blk Denver Ave S, Seattle 98134
Facility/Site ID	21429717
Chemicals of Concern	Petroleum hydrocarbons
Media Affected	Soil, groundwater

Source Control Actions

- In June 2008, CH2M Hill (for Union Pacific Railroad Company [UPRR]) submitted a Groundwater Remediation Site Closure Report for the groundwater remediation of historical releases of petroleum products at the UPRR Argo Yard Fueling Facility (CH2M Hill 2008). The Fueling Facility area has been undergoing investigation, remediation and monitoring for releases of petroleum products to soil and groundwater from underground storage tanks (USTs) and an aboveground fuel spill.
- According to the report, groundwater sample results indicate that concentrations of COCs in groundwater resulting from diesel fuel releases have continued to decrease and no off-site migration has occurred. Due to the continual decline of detected compounds in groundwater, and no apparent migration off site from January 2001 through November 2007, CH2M Hill recommends no further action at this site (CH2M Hill 2008).
- Ecology is currently reviewing the report.

4.2 Early Action Area 2 (Trotsky Inlet)

EAA-2 and relevant adjacent and upland properties are shown in Figure 6. Action items for this source control area are listed in Table 5.

Location	RM 2.1-2.2 West
Chemicals of Concern	PCBs, phthalates, mercury, lead, zinc, dichloro-diphenyl-trichloroethane (DDT), dieldrin
Data Gaps Evaluation	February 2007 (SAIC 2007b)
SCAP	June 29, 2007 (Ecology 2007a)

Table 5. Source Control Action Items — Early Action Area 2 (Trotsky Inlet)

Source Control Facility or Outfall	Action Item	Priority	Type	Responsible Party	Status	Estimated Completion Date	Date Completed	Follow-On Actions
Second Avenue S. Storm Drainage	Collect storm drain outfall pipe sediment and water samples to evaluate whether contaminants are currently being transported to the EAA-2 inlet via this pathway.	High	SCAP	Ecology	Complete	--	August 2007	
	Evaluate results of outfall pipe sediment and water samples	High	Follow-On	Ecology	In Progress	May 2008		
	Collect additional inline sediment samples to evaluate the levels of COCs with respect to sediment recontamination in this drainage.	High	SCAP	SPU	Ongoing	2009		If COCs are present in the storm drain line, conduct source tracing
	If COCs are present in the storm drain line, conduct source tracing to identify sources of contaminants.	High	SCAP	SPU	Planned	2008		
	Review and update NPDES permits as needed.	Low	SCAP	Ecology	Ongoing	As needed		
	Conduct business source control inspections/re-inspections to verify that facilities comply with applicable regulations and BMPs and to conduct source control, as needed	Medium	SCAP	SPU, Ecology	In Progress	2007/2008		
	Review facility SWPPPs as needed to ensure control of potential contaminant releases to EAA-2 sediments.	Low	SCAP	Ecology/SPU	Planned	2007		
	Review responses to CERCLA 104(e) letter by Wells Trucking and Leasing, Inc. and Ferguson Enterprises, Inc.	Medium	New	Ecology, EPA	Planned	December 2008		
Reservoir Overflow	Repair West Seattle Reservoir to remove source of water to the overflow pipe that discharges to the head of the inlet	Low	New	City of Seattle	Planned	2010		
Industrial Container Services	Conduct additional site characterization to evaluate concentrations of COCs in groundwater, bank and intertidal sediments, and seeps	High	SCAP	Ecology	Complete	--	August 2007	Identify additional data gaps based on sampling results
	Identify additional data gaps based on sampling results and determine means to fill them	High	SCAP	Ecology	In Progress	2008		
	Conduct cleanup as needed to eliminate sources of contaminants to EAA-2	High	SCAP	Industrial Container/Trotsky	Planned	2008/2009		
	Issue CERCLA 104(e) letter to facility/site/property owners to obtain additional information on historic contamination sources.	Medium	SCAP	EPA	Complete	--	October 2006	Review responses to CERCLA 104(e) letter
	Review responses to CERCLA 104(e) letter	Medium	SCAP	EPA/Ecology	Planned	2008		
	Identify PLPs for this site.	Low	New	Ecology	Complete	2008		Negotiate Agreed Order for cleanup
	Negotiate Agreed Order for site cleanup	Medium	Follow-On	Ecology	In Progress	May 2009		
	Conduct periodic inspections to verify that facility complies with applicable regulations and BMPs	Medium	SCAP	KCIW	Ongoing	As needed		
	Investigate destination of roof drainage from northwest corner of property	High	SCAP	King County/ Ecology/ SPU/ Industrial Container Services	Planned	2008		
	Evaluate the need for stormwater characterization (solids and whole water) from this facility if overflow occurs during heavy rainfall events	Medium	SCAP	Ecology/ KCIW/ SPU	Planned	2008		
	Conduct periodic air permit inspections to ensure compliance with permit conditions and BMPs	Low	SCAP	PSCAA	Ongoing	As needed		

Table 5. Source Control Action Items — Early Action Area 2 (Trotsky Inlet)

Source Control Facility or Outfall	Action Item	Priority	Type	Responsible Party	Status	Estimated Completion Date	Date Completed	Follow-On Actions
Douglas Management Company	Conduct groundwater sampling along southern portion of property (adjacent to EAA-2 inlet) to evaluate potential for groundwater transport of contaminants from this site. Collect bank and seep samples	High	SCAP	Ecology	Complete	July 2008		
	Identify data gaps based on sampling results, and determine means to fill them.	High	SCAP	Ecology	Planned	2008		
	Conduct cleanup as needed to eliminate sources of contaminants to EAA-2.	Medium	SCAP	Alaska Marine Lines/ Douglas Management Company	Planned	2009 (if needed)		
	Issue CERCLA 104(e) letter to facility/property owners to obtain additional information on historic contamination sources.	Medium	SCAP	EPA	Complete	--	October 2006	Review responses to CERCLA 104(e) letter
	Review responses to CERCLA 104(e) letter	Medium	SCAP	EPA/Ecology	In Progress	November 2008		
	Continue periodic inspections to verify that site operations do not result in release of contaminants to EAA-2.	Low	SCAP	Ecology/SPU	Ongoing	As needed		
	Verify storm drainage pathway on the southern portion of the property.	Medium	SCAP	Ecology/SPU	In Progress	2008		If discharge is confirmed, assess the need for stormwater characterization.
	If stormwater discharge to EAA-2 is confirmed, assess the need for stormwater characterization (solids and whole water). Collect stormwater samples as needed.	Medium	SCAP	Ecology/ SPU/ Alaska Marine Lines/ Douglas Management	In Progress	2008		
Boyer Towing	Issue CERCLA 104(e) letter to facility/property owners to obtain additional information on historic contamination sources.	Medium	SCAP	EPA	Complete	--	October 2006	Review responses to CERCLA 104(e) letter
	Review responses to CERCLA 104(e) letter	Medium	SCAP	EPA/Ecology	In Progress	2008		
	Continue source control inspections to verify that facility complies with applicable regulations and BMPs.	Low	SCAP	SPU	Ongoing	As needed		
	Verify storm drainage pathway on the southern portion of the property.	Medium	SCAP	SPU	Planned	2007		If stormwater discharge to EAA-2 is confirmed, assess the need for stormwater characterization sampling
	If stormwater discharge to EAA-2 is comfirmed, assess the need for stormwater characterization (solids and whole water) and conduct review of facilty's SWPPP. Collect stormwater samples as needed.	Medium	SCAP	Ecology/ SPU/ Boyer Towing	Planned	2007		
	Conduct source control inspections at tenant facilities on Boyer-owned property	Low	SCAP	SPU	Complete	2007	December 2007	

Priority:

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

Type:

SCAP	Action item identified in the EAA-2 SCAP
Follow-On	Action item is a follow-on to an action item identified in the EAA-2 SCAP
New	Action item identified after publication of the EAA-2 SCAP

Source control actions that are area-wide (i.e., not associated with a specific adjacent or upland property) are described below.

Source Control Actions

- During 2008, SPU has conducted nine business inspections in the EAA-2 storm drain basin that discharges at the Second Avenue S. outfall. A total of 20 corrective actions were identified. Facilities inspected are listed in Appendix B; inspection locations are shown in Figure 3.
- Two facilities inspected (Industrial Battery Systems and Jon's Recycling) were told that they need to apply for a NPDES stormwater permit (Schmoyer 2008a). Industrial Battery Systems had been discharging process wastewater to a storm drain; other issues noted during the inspection include improper storage and labeling of product/waste, improper washing practices, improper housekeeping, inadequate spill response procedures, and a storm drain facility in need of cleaning. Jon's Recycling had similar housekeeping issues; in addition, the SPU inspector noted leaks and spills from storage areas (Schmoyer 2008a).
- EPA sent CERCLA 104(e) Request for Information letters to Wells Trucking and Leasing, Inc. and Ferguson Enterprises, Inc. on July 17, 2008.

4.2.1 Industrial Container Services / Trotsky Property / Former Northwest Cooperage

Current Operations	Steel drum reconditioning
Historical Operations	Same as above
Address	7152 First Ave. S., Seattle 98108
Facility/Site ID	2154 (Industrial Container Services WA LLC)
Chemicals of Concern	PCBs, metals, phthalates, PAHs, DDT, chlorobenzenes, petroleum hydrocarbons
Media Affected	Soil, groundwater, sediment

Source Control Actions

- In April 2008, SAIC submitted a draft data interpretation report for the soil, groundwater, intertidal sediment, and seep sampling conducted at the Trotsky property in 2007. Ecology is currently reviewing the draft.
- Final PLP letters were mailed to the property owner, Herman Trotsky, and the operator, Industrial Container Services, on July 24. 2008. In addition, a draft Agreed Order, scope of work, and schedule were also mailed to the PLPs.
- Negotiations on the draft Agreed Order will begin in early September (Ecology 2008c).

4.2.2 Douglas Management Company / Alaska Marine Lines

Current Operations	Shipping container storage
Historical Operations	Shipbuilding, metal and salvage, sand & gravel batch plant, marine cargo handling
Address	7100 Second Ave. S., Seattle 98108
Facility/Site ID	97573251 (Douglas Management Dock)
Chemicals of Concern	Petroleum hydrocarbons, PCBs, mercury, volatile organic compounds (VOCs), SVOCs
Media Affected	Soil, groundwater

Source Control Actions

- Ecology contractor SAIC prepared a Sampling and Analysis Plan and associated work plans to install monitoring wells and collect samples to determine if the property may be a source of contaminants to sediments in the adjacent inlet.
- Ecology and SAIC personnel conducted a site visit on May 30 to select drilling and sampling locations, locate utilities, and determine if existing wells could be sampled (Sutton 2008). Monitoring well locations were identified along the Trotsky inlet.
- SAIC installed five groundwater monitoring wells and redeveloped four existing site wells for sampling on June 18–20, 2008. Soil samples were collected from the borings; preliminary analysis results are undergoing review. Seep, bank soil, and groundwater samples from the five new wells and four existing wells were collected on July 16-17; preliminary results are expected to be received near the end of August 2008 (Ecology 2008c).
- SAIC prepared a draft update to the EAA-2 Data Gaps report based on new information received about the Douglas Management site. The report is being reviewed by Ecology.

4.3 Early Action Area 3 (Slip 4)

EAA-3 and relevant adjacent and upland properties are shown in Figure 7. Action items for this source control area are listed in Table 6.

Location	RM 2.8 East
Chemicals of Concern	PCBs, phthalates, PAHs, metals
Data Gaps Evaluations	Slip 4: January 15, 2004 (SEA 2004) Crowley and First South Properties: October 2006 (SAIC 2006e) Upland property reviews: October 2006 – February 2007 (SAIC 2006a,b,c,d, 2007f,g) North Boeing Field (NBF)/GTSP: February 2007 (SAIC 2007d)
SCAP	July 2006 (Ecology 2006); Status Report – February 2007 (SAIC 2007e)

Table 6. Source Control Action Items — Early Action Area 3 (Slip 4)

Source Control Facility or Outfall	Action Item	Priority	Type	Responsible Party	Status	Estimated Completion Date	Date Completed	Follow-On Actions
North Boeing Field / KCIA / I-5	Distribute 2005/2006 inline sedment trap data for wet winter season	High	SCAP	SPU	Complete	May 2006	2006	Continue monitoring of sediment trap data
	Reinstall sediment traps and continue monitoring as needed	High	SCAP	SPU, Boeing	Ongoing			
	Conduct comprehensive analysis of sediment trap and catch basin data	High	SCAP	Ecology	Complete	August 2006	February 2007	
I-5 / Residential Drainage	Complete source tracing	High	SCAP	SPU	Complete	2006	2006	Continue monitoring of sediment trap data
	Clean out catch basins and lines	Medium	SCAP	Ecology, SPU, WSDOT	Planned	TBD		
Georgetown Flume	Investigate connection toward North Boeing Field as a possible source of PCBs	High	SCAP	SPU, Boeing	Complete	June 2006	August 2006	
	Close connections, remove contaminated sediment, and demolish and/or replace the flume	High	SCAP	SCL, SPU	In Progress	June 2009		
Crowley Marine / Alaska Logistics	Conduct physical site inspection confirming outfalls and what they drain(ed)	Medium	SCAP	Ecology, SPU	Complete	2006	2006	
	Collect stormwater runoff and inline solids to assess recontamination potential of current operations	Medium	SCAP	Ecology, SPU	Planned	Fall 2008		
	Clean catch basins and drain lines	Medium	SCAP	Crowley	Planned	Fall 2008		
	Compile and evaluate historic groundwater quality data; complete historic use invetigation to identify data gaps for recontamination potential (soil and groundwater).	Low	SCAP	Ecology, SAIC	Complete	2006	October 2006	Determine means to fill data gaps
	Determine means to fill data gaps	Low	SCAP	Ecology	Complete	2006	October 2006	Conduct groundwater investigation to fill data gaps
	Conduct groundwater investigation	Medium	Follow-On	Crowley	Planned	Fall 2008		
	Conduct a Site Hazard Assessment (SHA)		New	Ecology	Complete	--	February 2008	
	Review CERCLA 104(e) responses submitted by Crowley Marine Services, Inc. and Samson Tug & Barge Company, Inc.	Medium	New	Ecology, EPA	Planned	--	December 2008	
First South Properties / Emerald Services	Collect stormwater runoff and inline solids to assess recontamination potential from any ongoing operations	Medium	SCAP	Ecology, SPU	Complete	August 2006	November 2006	
	Investigate two 4- to 6-inch outfalls located on the bank of First South Properties. Determine if the outfalls are still funtioning and their drainage ares	Medium	SCAP	Ecology, SPU	Complete	August 2006	2006	
	Clean catch basins and drain lines	Medium	SCAP	Emerald Services	Complete	June 2006	2006	
	Reassess drainage swale for erosion and recontamination potential for phthalates	Medium	SCAP	Ecology	Complete	August 2006	2006	

Table 6. Source Control Action Items — Early Action Area 3 (Slip 4)

Source Control Facility or Outfall	Action Item	Priority	Type	Responsible Party	Status	Estimated Completion Date	Date Completed	Follow-On Actions
	Compile and evaluate historic groundwater quality data; complete historic use invetigation to identify data gaps for recontamination potential (soil and groundwater).	Low	SCAP	Ecology/SAIC	Complete	2006	October 2006	
	Determine means to fill data gaps	Low	SCAP	Ecology	Canceled	NA		Not Required
	Conduct sampling if necessary	Low	SCAP	Ecology	Canceled	NA		Not Required
	Review CERCLA 104(e) responses submitted by First South Properties and Evergreen Marine Leasing	Medium	New	Ecology, EPA	Planned	December 2008		
Boeing Plant 2	Inspect Bldg. 2-122 area	Medium	SCAP	Ecology	Complete	Spring 2007	April 2007	Re-inspect as needed to ensure compliance with permit
	Re-inspect as needed to ensure compliance witih NPDES permit	Low	Follow-On	Ecology	Planned	TBD		
	Sample onsite storm drain solids	Medium	SCAP	Ecology	Complete	Spring 2007	May 2007	
	Clean onsite storm drain system as necessary	Medium	SCAP	Boeing	Ongoing	NA		
	Assess existing groundwater data in the area.	Low	SCAP	Ecology, EPA	Planned	2007		
GTSP	Remove PCB contaminated soils; implement erosion or other source contrl as needed	High	SCAP	SCL	Complete	May 2006	May 2006	Conduct site-wide site characterazation
	Conduct sitewide site characterization to assess need for additional remediation	High	SCAP	SCL	Planned	2008		To be done as part of Agreed Order for North KCIA/GTSP
North Boeing Field	Remove last 1,400 linear feet of PCB joint sealant	High	SCAP	Boeing	Complete	May 2006	2006	Characterize extent of PCBs in new joint seal
	Characterize extent of PCBs in new joint sealant material	High	Follow-On	Boeing	In Progress	TBD		
	Complete source evaluation at north drain line and complete clean-out	High	SCAP	Boeing	Complete	June 2006	November 2006	Continue source tracing in north drain line
	Continue source tracing in north drain line to identify and/or eliminate transport of PCBs to Slip 4	High	Follow-On	Boeing	In Progress	TBD		
	Slip-line and/or replace sections of the north storm drain line to reduce the potential for PCB transport to Slip 4	High	New	Boeing	Complete	2008	March 2008	
	Characterize the extent of PCBs in soil adjacent to the north drain line		New	Boeing	Complete	--	November 2007	
	Clean Oil/Water Separator 640 and catch basins	High	SCAP	Boeing	Complete	September 2006	August 2006	
	Clean out catch basins	High	SCAP	Boeing	Complete	NA		Continue source tracing in north drain line
	Review results of Ecology's TCP, Waste and Water programs, and King County/Hazardous Waste Inspections of NBF (Nov -Dec 2005)	Medium	SCAP	Ecology, EPA	Complete	June 2006	February 2007	
	Revise Stormwater Management Plan; conduct additional inspections of the NBF facility as necessary	Medium	SCAP	Ecology, Boeing	Planned	Summer 2007		

Table 6. Source Control Action Items — Early Action Area 3 (Slip 4)

Source Control Facility or Outfall	Action Item	Priority	Type	Responsible Party	Status	Estimated Completion Date	Date Completed	Follow-On Actions
KCIA	Sample eight oil/water separators	High	SCAP	KCIA	Complete	September 2006	October 2006	Continue source tracing at KCIA
	Complete source tracing	High	SCAP	KCIA	In Progress	TBD		
	Test for PCB joint sealant (~1acre); remove as necessary	High	SCAP	KCIA	Complete	October 2006	October 2006	
	Clean out catch basins and lines (if required)	High	SCAP	KCIA	In Progress	TBD		
	Reinspect KC Surplus Storage, NE T-Hangars, and Shultz Distributing, Inc. as necessary to achieve compliance with BMPs	Medium	SCAP	SPU, Ecology	Complete	--	July 2007	Conduct periodic re-inspections as needed
	Conduct follow-up inspections at Shultz Distributing, Inc. until compliance is achieved. Evaluate potential contaminants of concern and pathways.	Low	SCAP	SPU, Ecology	Complete	--	July 2007	Conduct periodic re-inspections as needed
	Continue business source control inspections and re-inspections as needed to verify that facilities comply with applicable regulations and BMPs	Low	Follow-On	SPU, Ecology	Ongoing			
NBF/GTSP	Negotiate an Agreed Order for investigation and cleanup of the this site	High	New	Ecology, King County, city of Seattle, Boeing	Complete	2008	August 2008	
	Update NBF/GTSP *Summary of Existing Information and Identification of Data Gaps* report to incorporate recent activities and data.	Medium	New	Ecology	Planned	March 2009		Conduct RI/FS
	Conduct RI/FS	High	New	Ecology, Boeing, city of Seattle, King County	Planned	2012		
Upland Properties	Review data for contaminants of concern or pathways to Slip 4 for upland properties	Low	SCAP	Ecology, SAIC	Complete	June 2006	December 2006	
Adjacent and Upland Properties	Review municipal and industrial NPDES permits for COCs found in sediments	Low	SCAP	Ecology, EPA	Planned	2007		

Priority:

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

Type:

SCAP	Action item identified in the EAA-3 SCAP
Follow-On	Action item is a follow-on to an action item identified in the EAA-3 SCAP
New	Action item identified after publication of the EAA-3 SCAP

Source control actions that are area-wide (i.e., not associated with a specific adjacent or upland property) are described below.

Source Control Actions

- During 2008, SPU has conducted three business inspections in the Slip 4 storm drain basin. A total of 19 corrective actions were identified. Facilities inspected are listed in Appendix B; inspection locations are shown in Figure 3.
- SPU inspections at two facilities located at the Crowley Marine Services property found numerous corrective actions needed, including cleaning of storm drain facilities, proper storage and labeling of product/waste, proper disposal of waste, implementation of housekeeping improvements, development of spill response procedures, and obtaining adequate spill response materials. Follow-up inspections are needed.
- Boeing and SPU have been sampling sediment traps in the Slip 4 storm drains since 2005. Boeing collected samples from the seven sediment traps located on Boeing-leased property on March 18 and July 30, 2008 (Bach 2008). PCB concentrations continue to drop in comparison to results from 2006 and 2007, particularly along the north drain line in sediment traps T5 and T1, which previously contained the highest levels of PCBs:

Data Sampled	Total PCBs in Sediment Trap T1 (mg/kg DW)	Total PCBs in Sediment Trap T5 (mg/kg DW)
August 2005	10.0	24.0
March 2006	107	114
October 2006	110	800
January 2007	260	200
May 2007	420	183
October 20007	21.8	62.0
March 2008	7.60	16.0
July 2008	10.0	4.20

  The south drain line continues to show PCB concentrations of less than 1 mg/kg DW.
- EPA sent CERCLA 107(e) General Notice and 104(e) Request for Information letters to First South Properties and Evergreen Marine Leasing on July 17, 2008.

4.3.1 Crowley Marine Services

Current Operations	Cargo container storage, berthing facility, railroad operations
Historical Operations	Hydraulic parts manufacturing, lumber mill, pole-dipping, excelsior (wood packing material) manufacturing
Address	7400-8th Ave S., Seattle 98108
Facility/Site ID	1940187 (Crowley Marine Services Inc 8th Ave S) 63123962 (Alaska Logistics LLC)
Chemicals of Concern	Arsenic, copper, PAHs, PCBs, phthalates, petroleum hydrocarbons
Media Affected	Sediment, soil, groundwater

Source Control Actions

- SPU collected a composite storm drain solids sample from two catch basins on this property in July 2008. Sampling results were not available at the time this report was prepared.
- Ecology mailed a preliminary PLP letter to Crowley Marine Services on April 24. A final PLP letter, draft Agreed Order, scope of work, and schedule were mailed to Crowley on June 24, 2008 (Ecology 2008e).
- In June and July 2008, SLR International (for Crowley Marine Services) conducted an environmental investigation to evaluate the potential for hazardous substance releases form the site to impact sediments in Slip 4 (SLR 2008). As part of the investigation, SLR drilled seven soil borings adjacent to the LDW and Slip 4, and completed each boring as a shallow groundwater monitoring well; collected and analyzed at least one soil sample from each boring; collected and analyzed up to two groundwater samples from each new monitoring well; conducted a tidal study to develop a conceptual model of the site groundwater flow; observed the seawall and riprap for seeps and collected a seep sample; collected a surface water sample from Slip 4 at low tide; and assessed the potential for soil erosion from the banks along the site (SLR 2008).
- Groundwater samples collected by SLR indicated few exceedances of groundwater-to-sediment screening levels; samples from two wells slightly exceeded the screening level for acenaphthene. The tidal study indicated that groundwater flow during low tide conditions flows toward the ends of the sheet pile wall and out to the LDW through riprap at the ends of the sheet pile seawall. At high tide, surface water flows into the site through riprap areas and shallow groundwater flows inland beneath the site. A crack and hole in the seawall was also identified, through which groundwater may flow at low tide.
- The Crowley site is currently leased to Alaska Logistics (southern portion) and UPRR (northern portion). In addition to 29 catch basins connected to six stormwater conveyance lines that discharge to Slip 4 and the LDW, SLR identified six additional apparent stormwater catch basins in the northern portion of the UPRR facility; the discharge location for these catch basins is unknown (SLR 2008). Crowley will identify the discharge locations of the six catch basins in the northern portion of the UPRR facility (SLR 2008).

- SLR concluded that groundwater discharge, soil erosion, stormwater discharge, direct discharge, and sheet flow discharge do not represent "reasonable potential for hazardous substance releases from the site to impact the sediment in Slip 4" (SLR 2008).
- Ecology began negotiations with Crowley Marine Services on August 29, 2008 to investigate contamination at the property. The Agreed Order is intended to produce an RI/FS and draft Cleanup Action Plan which will identify the nature and extent of the contamination and identify possible ways to clean up the site (Ecology 2008f).
- EPA sent CERCLA 104(e) Request for Information letters to Crowley Marine Services, Inc. and Samson Tug & Barge Company, Inc. on July 17, 2008.

4.3.2 Georgetown Steam Plant (GTSP) and Flume

Current Operations	Museum
Historical Operations	Power plant, cooling water discharge
Address	6700-13th Ave S., Seattle 98108
Facility/Site ID	63485131 (Georgetown Steamplant) 6487827 (Seattle City Light Steamplant Georgetown)
Chemicals of Concern	PCBs, PAHs, tributyl phosphate, cadmium, chromium, petroleum hydrocarbons
Media Affected	Soil, groundwater, stormwater

Source Control Actions

- Ecology approved the 100 percent design drawings and specifications for the GTSP flume removal/replacement project; the work was scheduled to begin in late spring or early summer 2008. In late June, Seattle City Light (SCL) notified Ecology that work on the GTSP flume construction project would be delayed until fall 2008 due to staff shortages at SPU and competition with other priority projects.
- SCL requested Ecology review of revised construction sequencing to address concerns with working during the wet season; Ecology reviewed and approved the conceptual information regarding revised construction sequencing (Ecology 2008d).
- On August 13, 2008, the city of Seattle submitted a revised GTSP Flume Outfall Work Plan (SCL 2008). The revised work sequence reduces the stormwater management requirements by leaving the outfall open throughout most of the flume cleaning process (the original plan called for a cover plate to be installed over the flume outfall prior to sediment removal). To prevent tidal inundation, a steel plate will be driven through the flume (wooden sections only) into the ground to create a downstream water-tight barrier as the crews work from upstream to downstream, creating isolated work areas. Stormwater within the isolated work area will be routed to a water treatment facility. Stormwater collecting downstream of the steel plate will flow out to Slip 4 through the open outfall pipe as it did prior to construction. The steel plate will be relocated downstream as the work progresses (SCL 2008).

- Field work is currently anticipated to begin in mid-December, according to the schedule submitted with the revised Outfall Work Plan; work is scheduled to be completed in late June 2009 (SCL 2008).

Additional source control actions associated with this property are described in Section 4.3.5 (North Boeing Field/Georgetown Steam Plant Site).

4.3.3 North Boeing Field

Current Operations	Aircraft finishing and testing; aircraft research and development
Historical Operations	Same
Address	7500 East Marginal Way S., Seattle 98108
Facility/Site ID	2050 (Boeing North Field) 2053 (Boeing North Field JP4 Tanks) 2753918 (Boeing North Boeing Field)
Chemicals of Concern	PCBs, PAHs, metals, VOCs, phthalates, petroleum hydrocarbons
Affected Media	Soil, groundwater, stormwater

Source Control Actions

- Ecology is planning to update the NBF/GTSP Summary of Existing Information and Identification of Data Gaps report (SAIC 2007d) in late 2008 as part of the RI at the NBF/GTSTP Site (see below), which will provide maps and data tables summarizing recent activities at North Boeing Field.

Additional source control actions associated with this property are described in Section 4.3.5 (North Boeing Field/Georgetown Steam Plant Site).

4.3.4 King County International Airport

Current Operations	General aviation airport and related activities
Historical Operations	Military airport operations; general aviation
Address	7277 Perimeter Road S (main terminal); various tenant addresses
Facility/Site ID	2051 (King County Int Airport Maint Shop)
Chemicals of Concern	PAHs, phthalates, copper, zinc, petroleum hydrocarbons, PCBs
Affected media	Stormwater, groundwater

Source Control Actions

- SPU completed re-inspections at the Shultz Distributing facility in July 2007. All corrective actions had been implemented and the oil/water separator sump had been pumped out (SPU 2007b). Two storm drain lines are located at this facility; the east side of the property clearly drains to KC Airport SD #3/PS44 EOF (Slip 4). Some uncertainty remains with regard to the west (airport) side of the property.

4.3.5 North Boeing Field/Georgetown Steam Plant Site

Source Control Actions

- A draft Agreed Order (No. DE-5685) was signed by all PLPs (Boeing, city of Seattle, King County) and Ecology, with an effective date of August 14, 2008 (Ecology 2008g). Under the terms of the Order, Ecology will complete an RI/FS and conduct one or more interim actions, if appropriate, at the North Boeing Field/Georgetown Steam Plant Site. The PLPs will be given first opportunity to perform any interim actions that may be required under the Agreed Order. The PLPs will pay remedial action costs for Ecology-conducted remedial actions at the Site.
- Ecology published a fact sheet in August which provides background on the NBF/GTSP Site and requests public input on the Agreed Order, the Public Participation Plan, and the Scope of Work (Ecology 2008h). The public comment period for this site began on August 14 and will continue through September 26 (Ecology 2008c).
- Ecology will hold a public meeting on September 18 at the South Seattle Community College. The PLPs were invited to participate by providing information on past and ongoing work during the Open House portion of the public meeting (Ecology 2008c).
- Ecology is currently working on procurement documents for a contractor to begin work on the first phase of the Remedial Investigation, which will include preparation of a Supplemental Data Gaps report (Ecology 2008c).
- Based on the preliminary schedule for the RI/FS, the draft RI would be completed in October 2011, and interim actions, if needed, would occur during 2012-2013.

4.4 Early Action Area 4 (Boeing Plant 2/Jorgensen Forge)

EAA-4 and relevant adjacent and upland properties are shown in Figure 8. Action items for this source control area are listed in Table 7.

Location	RM 2.8-3.7 East
Chemicals of Concern	PCBs, phthalates, PAHs, metals
Data Gaps Evaluation	June 2007 (E&E 2007a)
SCAP	December 2007 (Ecology 2007b)

No area-wide source control actions were completed during the April through August 2008 period.

Table 7. Source Control Action Items — Early Action Area 4 (Boeing Plant 2/Jorgensen Forge)

Source Control Facility or Outfall	Action Item	Priority	Type	Responsible Party	Status	Estimated Completion Date	Date Completed	Follow-On Actions
Boeing Plant 2	Evaluate the remaining Corrective Measures Study (CMS) study areas and continue to determine needed source control actions	Medium	SCAP	EPA, Boeing	In Progress	TBD		
	Continue to delineate and evaluate the EMF plume	Medium	SCAP	EPA, Boeing	In Progress	TBD		
	Complete design and implementation of dredging, capping, and/or backfilling of the Duwamish Sediment Other Area (DSOA) Interim Measure	High	SCAP	EPA, Ecology, Boeing	In Progress	TBD		
	Remove contaminated bank fill material	High	SCAP	EPA, Boeing	Planned	TBD		
	Conduct monthly sampling, including groundwater sampling and vapor sampling of the DDC wells and multiple points along the vapor treatment system	Medium	SCAP	EPA, Boeing	In Progress	TBD		
	Continue quarterly shoreline groundwater monitoring	High	SCAP	EPA, Boeing	In Progress	2008		
	Re-evaluate the SWPPP and make necessary changes if process/operational changes are made at Plant 2	Low	SCAP	Ecology, Boeing	Ongoing	TBD		
	Excavate PCB-contaminated soil in the substation area (southwest corner of Plant 2)	High	New	Boeing, Jorgensen	Planned	2008		
	Address removal of materials containing PCBs, including joint caulk material	High	SCAP	EPA, Boeing	In Progress	TBD		
	Conduct a joint hydrologic investigation with Jorgensen Forge to provide additional hydrogeologic data at the boundary of the two facilities	High	SCAP	Boeing, Jorgensen	Planned	TBD		
	Collect in-line sediment samples in the city of Seattle and city of Tukwila systems immediately prior to discharge to Plant 2's storm drain system	High	SCAP	EPA, Boeing	Planned	TBD		
	Conduct stormwater source control sampling of suspended solids and/or water along active storm drain lines	High	New	Boeing	In Progress	TBD		
	Implement catch basin solids sampling program	High	New	Boeing	In Progress	TBD		
	Determine if the city storm drain outfall discharging to EAA-4 at the South Park Bridge is Outfall J or another outfall	Medium	SCAP	EPA, city of Seattle	Complete	2008	August 2008	Completed during reconnaissance for sediment trap installation
Jorgensen Forge	Conduct a joint hydrologic investigation with Boeing to provide additional hydrogeologic data at the boundary of the two facilities	Medium	SCAP	Boeing, Jorgensen	Planned	TBD		
	Conduct a source control investigation through Ecology Agreed Order No. DE 4127 to determine if the facility is an ongoing source of contamination to LDW sediments	High	SCAP	Jorgensen, Ecology	In Progress	2009		
	Conduct soil and groundwater sampling in the southeast portion of the site (historically thought to have been occupied by a wood treating facility) to determine if arsenic contamination is present and if so, whether the contamination is leaching into the adjacent sediments	High	SCAP	Ecology, Jorgensen	Cancelled	TBD		Will be addressed as part of Jorgensen Source Control Evaluation through Agreed Order No. DE 4127 (see above)
	Review current groundwater monitoring data to ensure that groundwater is not a pathway for contaminants to the LDW	High	SCAP	Ecology, Jorgensen	Cancelled	TBD		Will be addressed as part of Jorgensen Source Control Evaluation through Agreed Order No. DE 4127 (see above)

Table 7. Source Control Action Items — Early Action Area 4 (Boeing Plant 2/Jorgensen Forge)

Source Control Facility or Outfall	Action Item	Priority	Type	Responsible Party	Status	Estimated Completion Date	Date Completed	Follow-On Actions
	Conduct groundwater sampling in the center of the property (previously occupied by Isaacson Iron Works) to determine if contaminants are present above screening levels	High	SCAP	Ecology, Jorgensen	Cancelled	TBD		Will be addressed as part of Jorgensen Source Control Evaluation through Agreed Order No. DE 4127 (see above)
	Determine ownership of the 12- and 24-inch diameter storm drain lines located in an easement along the Jorgensen/Boeing property line; determine the exact locations of the connections between these lines and the stormwater systems of Jorgensen, Boeing, city of Tukwila, and KCIA.	High	SCAP	Ecology, Jorgensen Forge, Boeing, city of Tukwila, KCIA	In Progress	Fall 2008		Boeing has agreed to take responsibility for the 12-inch line; discussions continue regarding the 24-inch line
	Facilitate removal of PCB-contaminated sediments from the 24-inch storm drain line	High	Follow-On	Ecology	Planned	Spring 2009		
	Assess the quality of discharged water and process through which water is discharged from the vacuum degasser pit, railroad scale sumps, argon-oxygen-decarbonization, and scale sumps.	Low	SCAP	EPA, Jorgensen	Planned	TBD		
	Continue to address PCB and metal contamination in sediments of the LDW and Shoreline Bank Area through EPA CERCLA Order No. 10-2003-0001	High	SCAP	EPA, Jorgensen	Planned	TBD		
	Develop a hydrogeologic site model as part of the source control investigation to characterize the groundwater system on site, including tidal influence	High	SCAP	Jorgensen, Boeing	In Progress	TBD		
	Negotiate an Amended Administrative Order on Consent (AOC) for preparation of an EE/CA for cleanup of affected sediments along a portion of the LDW adjacent to this property	High	New	EPA, Jorgensen	In Progress	TBD		
KCIA	Determine the connections between the KCIA stormwater system, the city of Tukwila system, and the 24-inch stormwater pipeline along the Jorgensen/Boeing property line	High	SCAP	Ecology, KCIA, Jorgensen, Boeing, city of Tukwila	In Progress	Summer 2008		
	Determine whether additional sampling of PCBs in the KCIA stormwater system and joint caulk material is necessary, based on review of PCB sampling results for KCIA Lot 12	Medium	SCAP	Ecology	Planned	TBD		
	Test, and as needed, remove any material that contains elevated levels of PCBs in this portion of KCIA (including caulk containing PCBs)	Medium	SCAP	Ecology, KCIA	Planned	TBD		
	Review the SWPPP and make necessary changes to prevent contaminants from entering the KCIA stormwater system	Low	SCAP	Ecology, KCIA	Planned	TBD		
East Marginal Way S.	Determine location and connection of large pipe crossing the northern edge of the Jorgensen property	High	SCAP	City of Tukwila, Jorgensen, KCIA	In Progress	Summer 2008		
	Determine connections between the KCIA stormwater system and the city of Tukwila system	High	SCAP	City of Tukwila, KCIA	In Progress	Summer 2008		

Table 7. Source Control Action Items — Early Action Area 4 (Boeing Plant 2/Jorgensen Forge)

Source Control Facility or Outfall	Action Item	Priority	Type	Responsible Party	Status	Estimated Completion Date	Date Completed	Follow-On Actions

Priority:

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

Type:

SCAP	Action item identified in the EAA-4 SCAP
Follow-On	Action item is a follow-on to an action item identified in the EAA-4 SCAP
New	Action item identified after publication of the EAA-4 SCAP

4.4.1 Boeing Plant 2

Current Operations	Airplane parts manufacturing
Historical Operations	Same
Address	7755 East Marginal Way S., Seattle 98108
Facility/Site ID	2100 (Boeing Plant 2)
Chemicals of Concern	VOCs, PCBs, PAHs, metals, petroleum hydrocarbons
Media Affected	Groundwater, stormwater, soil, air, sediment

Boeing is conducting RCRA Corrective Actions at Boeing Plant 2 under an Administrative Order on Consent issued to Boeing in 1994 by EPA. Corrective actions consist of the following major elements (Geomatrix 2008a):

- RCRA Facility Investigation, Corrective Measures Study, Interim Measures, and Corrective Measure Implementation at the Upland area of Boeing Plant 2. This work is inland from the top of the bank and includes cleanup of soil areas, groundwater plumes, and control of stormwater discharge.
- RCRA Facility Investigation, Corrective Measures Study, and Interim Measures for the Duwamish Sediment Other Area (DSOA), the Southwest Bank, the 2-40s Under-building area, and any RCRA units that exist within the DSOA boundary or on the bank side of the top of the bank.

Source Control Actions

Upland Area

- On July 3, 2008, Boeing consultant Environmental Partners Inc. (EPI) completed the Interim Measure Work Plan for 2066 Sheetpile (EPI 2008a). The objectives of the interim measure are to destroy chlorinated VOC contaminant mass inside the 2-66 Sheetpile and collect monitoring analytical data; provide data to support the potential applicability of this technology to meet cleanup goals in other areas of Plant 2 affect by similar organic compounds and with similar hydrogeologic and geochemical conditions; and gather data as part of the completion of the Interim Measure that can be used in the Corrective Measures Study to assess whether additional measures are needed.
- On July 7, 2008, EPA completed the Interim Measure Work Plan for Other Area 9 (EPI 2008b). Other Area 9 consists of three former USTs and a nearby former oil-water separator. The objectives of the Interim Measure are to destroy contaminant mass (TPH and associated VOCs) in the subsurface and monitor the reduction in mass; provide data to support the potential applicability of these technologies to meet cleanup goals in other areas of Plant 2 affected primarily by petroleum hydrocarbons or similar organic compounds; and obtain groundwater concentration data as part of the completion of the Interim Measure that can be used in the Corrective Measures Study to assess whether additional measures are needed. Post-Interim Measure soil data will not be collected due to the number of utilities and structures in the area; however, groundwater data will be

used to assess the potential of residual contamination remaining in the vadose zone soil (EPI 2008b).

DSOA and Southwest Bank

- In April 2008, Boeing consultant Geomatrix prepared a Horizontal Boundary Technical Memorandum (Geomatrix 2008a) to clarify the horizontal boundaries of Boeing's Plant 2 sediment interim measure.
- Also in April 2008, Boeing submitted the Building 2-41 Complex Under-Building Investigation Work Plan (Geomatrix 2008b), which describes the approach to the collection of sediment samples to characterize the horizontal and vertical distribution of chemicals in the Building 2-41 complex under-building area.

4.4.2 Jorgensen Forge

Current Operations	Manufacture of steel forgings and rolled aluminum rings; processing of nickel, titanium, and specialized alloys
Historical Operations	Manufacture of structural steel, tractors, and road equipment; prefabricated steel cutting and distribution
Address	8531 East Marginal Way S., Seattle 98108
Facility/Site ID	2382 (Jorgensen Forge Corp) 36575469 (Jorgensen Forge Area 3 Gasoline)
Chemicals of Concern	Metals, PCBs, petroleum hydrocarbons, non-halogenated solvents
Media Affected	Soil, groundwater

Source Control Actions

- Ecology and Jorgensen Forge Corporation negotiated an Agreed Order (No. DE 4127, effective July 12, 2007). The order requires Jorgensen Forge to evaluate existing data, identify potential ongoing sources of contaminants to sediment, and conduct additional investigations to fill identified data gaps, if necessary (Ecology 2007f).
- Jorgensen Forge submitted a Response to Comments letter and a final draft Source Control Evaluation Report on May 20, 2008.
- Jorgensen Forge submitted a draft Data Gap Investigation Work Plan on May 20. Ecology prepared comments on the draft Data Gap Investigation Work Plan (Ecology 2008c), received a response to these comments, and made additional comments.
- Jorgensen Forge is currently taking some cleanup actions prior to the required sampling (Barth 2008). These include removal of metal and grinding wheel spoils called "swarf." Most of the swarf (a mix of grinding wheel grit and metals) has been removed from the site. In early 2008, Jorgensen identified a buyer that is purchasing the swarf as it is created, eliminating their need to store large amounts of this material on the site. Jorgensen Forge will begin storing the swarf within a contained (via Ecology blocks) area on a concrete pad that is directly adjacent to the billet grinding baghouse. The baghouse conveys swarf through a closed system to an enclosed bin. The swarf within the enclosed

bin will be transferred to the containment area pending subsequent transfer (less than a 20-foot distance) to rail cars available via a spur along the southern property boundary. Jorgensen will implement the appropriate best management practices (BMPs) for this new storage and transfer system to significantly minimize the potential for future migration of the swarf to the LDW.

- Ecology met with representatives from Jorgensen Forge, Boeing, the city of Tukwila, and King County International Airport (KCIA) on April 14 to discuss the PCB-contaminated pipes located between the Jorgensen Forge and Boeing Plant 2 sites (Ecology 2008c). Boeing has agreed to take responsibility for the 12-inch storm drain line. Discussions continue regarding responsibilities and actions to be taken regarding the 24-inch storm drain line. High levels of PCBs have been detected in stormwater and sediment within this pipe. Ecology is working to facilitate removal of PCB-contaminated solids from this pipe (Ecology 2008d).

4.5 Early Action Area 5 (Terminal 117)

EAA-5 and relevant adjacent and upland properties are shown in Figure 9. Action items for this source control area are listed in Table 8.

Location	RM 3.4-3.8 West
Chemicals of Concern	PCBs, PAHs, phenol, phthalates, DDT
Data Gaps Evaluations	Terminal 117: September 2003 (Windward 2003c) South Park Marina: June 2007 (SAIC 2007c)
SCAP	July 2005 (Ecology 2005a)

Source control actions that are area-wide (i.e., not associated with a specific adjacent or upland property) are described below.

Source Control Actions

- SPU continues to collect monthly stormwater samples as required by discharge authorization with King County. Since February 2005, PCBs have been detected in only one sample (0.12 ug/L in January 2008). Sediment in a new catch basin installed during interim cleanup, sampled in March 2007, contained 0.31 mg/kg PCBs.
- SPU has inspected 14 businesses in the South Park subbasin in 2008; one facility (National Products Inc., located at 8410 Dallas Ave. S.) was notified that it should obtain a NPDES stormwater permit (Schmoyer 2008a). Businesses inspected by SPU in 2008 are listed in Appendix B; inspection locations are shown in Figure 3.

Table 8. Source Control Action Items — Early Action Area 5 (Terminal 117)

Source Control Facility or Outfall	Action Item	Priority	Type	Responsible Party	Status	Estimated Completion Date	Date Completed	Follow-On Actions
Terminal 117	Verify placement of institutional controls and write/adopt restrictive covenants to prevent recontamination, check soil cover/barrier, discuss further assessment of subsurface contamination at Malarky plant	Medium	SCAP	Port of Seattle, Ecology	Complete	June 2006	September 2007	Amendment to the scope of work requires more extensive removal of contamination. The basis for this has changed and is no longer applicable.
	Conduct a time-critical removal action to remove additional PCB-contaminated soil in the upland portion of Terminal 117	Medium	New	Port of Seattle	Complete	--	2006	
	Check soil cover/barrier across site for industrial use based on suspected residual subsurface contamination	Medium	SCAP	Port of Seattle, Ecology	Complete	June 2006	September 2007	Amendment to the scope of work requires more extensive removal of contamination. The basis for this has changed and is no longer applicable.
	Continue discussions between the Port, the city of Seattle, EPA, and Ecology regarding how to further address the potential presence of subsurface contamination in portions of the site formerly occupied by the Malarkey plant	High	SCAP	Port of Seattle, Ecology, city of Seattle, EPA	Complete	Summer 2008	September 2008	Conduct soil sampling to determine whether subsurface contamination is present.
	Conduct soil sampling at former Malarkey plant location to determine whether contamination is present in subsurface soil	High	Follow-On	City of Seattle, Port of Seattle	Planned	October 2008		
	Revise the July 2005 EE/CA to incorporate all relevant upland and right-of-way data	High	New	City of Seattle, Port of Seattle, EPA	In Progress	May 2009		
	Complete needed assessments of portions of the site formerly occupied by the Malarkey plant	High	Follow-On	City of Seattle, Port of Seattle	In Progress	May 2009		This work has been incorporated into the EE/CA (above).
	Install and sample additional groundwater monitoring wells	High	New	City of Seattle, Port of Seattle	In Progress	January 2009		Five new wells installed; two rounds of sampling conducted as of August 2008
	Install and sample deeper monitoring well on Dallas Ave. to evaluate presence of NAPL	Medium	Follow-On	City of Seattle, Port of Seattle	In Progress	January 2009		
	Inspect current tenants in coordination with the Port of Seattle to determine if they are potential sources of recontamination	Low	SCAP	Port of Seattle, Ecology	Complete	June 2006	September 2006	The North Building tenant vacated in September 2006
	Discuss condition and maintenance of onsite septic system with the Port	Low	SCAP	Port of Seattle, Ecology	Complete	June 2006	February 2007	The South Building tenant vacated on February 28, 2007
	Investigate T-117 property and sediments for the presence of dioxin	Medium	Follow-On	Port of Seattle, City of Seattle	In Progress	TBD		
Adjacent Streets/Dallas Ave.	Conduct Interim Action to clean up PCBs in street soils	High	SCAP	City of Seattle	Complete	December 2004	December 2004	Continue monitoring of stormwater and catch basin sediments
	Continue monitoring of stormwater and catch basin sediments	High	Follow-On	City of Seattle, Port of Seattle	Ongoing	TBD		
	Remove PCB-contaminated soils in residential yards at 8601 and 8609 17th Avenue S., and restore yards	High	SCAP	City of Seattle	Complete	June 2005	June 2005	
	Conduct cleanup action to remove PCB-contaminated street soils, install new storm drainage, and restore roads.	Medium	SCAP	City of Seattle	In Progress	2011		Install permanent stormwater collection/treatment system per Seattle code

Table 8. Source Control Action Items — Early Action Area 5 (Terminal 117)

Source Control Facility or Outfall	Action Item	Priority	Type	Responsible Party	Status	Estimated Completion Date	Date Completed	Follow-On Actions
	Install permanent stormwater collection/treatment system per Seattle code	Medium	Follow-On	City of Seattle	Planned	TBD		
	Investigate nearby streets and yards for the presence of dioxin	Medium	Follow-On	City of Seattle	In Progress	TBD		
South Park Marina	Conduct inspection at South Park Marina, including review of waste management practices and compliance with permit	Medium	SCAP	Ecology	Complete	June 2005		Conduct follow-up inspection
	Conduct follow-up inspections until compliance is achieved	Low	Follow-On	Ecology	Ongoing	TBD		
	Investigate sewer connections and discharge loations of storm drains and catch basins	Low	SCAP	Ecology	Planned	December 2005		
	Investigate location and fate of A&B Barrel waste lagoon	Medium	SCAP	Ecology	Complete	December 2005	June 2007	Conduct soil, groundwater, and bank sampling
	Conduct soil, groundwater, and bank sampling	Medium	Follow-On	Ecology, SAIC	In Progress	September 2008		
	Sample soils adjacent to fence between Terminal 117 and South Park Marina due to contamination observed in borings at Terminal 117	Medium	SCAP	Ecology	In Progress	June 2008		
	Sample catch basins for metals and phthalates	Low	SCAP	Ecology	Planned	December 2005		
Basin Oil	Monitor facility demolition and characterize soil and groundwater contamination.	Medium	SCAP	Ecology	In Progress	2008		
	Refer for Site Hazard Assessment	Medium	SCAP	Ecology	Complete	December 2005		Conduct Site Hazard Assessment
	Conduct Site Hazard Assessment	Medium	Follow-On	Ecology	Planned	TBD		
	Conduct joint EPA/Ecology compliance inspection	Medium	SCAP	Ecology, EPA	Complete	May 2005	May 2005	Re-inspect as needed to ensure compliance
	Re-inspect as needed to ensure compliance	Low	Follow-On	Ecology, SPU	Ongoing	TBD		
Boeing South Park	Conduct inspection; review drainage system and stormwater pollution prevention practices, check status of hydraulic oil recovery, and look for other potential sources	Low	SCAP	Ecology	Complete	December 2005	April 2007	

Priority:

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

Type:

SCAP	Action item identified in the EAA-5 SCAP
Follow-On	Action item is a follow-on to an action item identified in the EAA-5 SCAP
New	Action item identified after publication of the EAA-5 SCAP

4.5.1 Terminal 117 and Adjacent Streets

Current Operations	Port of Seattle operations (International Inspection, Construction Services)
Historical Operations	Asphalt manufacturing; untreated lumber storage
Address	8700 Dallas Avenue S., Seattle
Facility/Site ID	37657495 (Malarkey Asphalt Company)
Chemicals of Concern	PCBs
Media Affected	Soil, groundwater, sediment

Source Control Actions

- In September 2007, the Statement of Work for the Non-Time Critical Removal Action (NTCRA) was amended by EPA, the Port of Seattle, and the city of Seattle, to expand EAA-5 (Terminal 117) to include contamination discovered in the upland soils after execution of the previous (2005) Settlement Agreement and to integrate cleanup of contamination in the street rights-of-way with the rest of the Terminal 117 EAA. Three subareas were identified: the Sediment Study Area, the T-117 Upland Area, and the Adjacent Streets. In addition, the scope of the NTCRA has also been expanded to include an assessment of the potential for recontamination of the T-117 EAA by the adjoining Basin Oil Company and South Park Marina properties, collectively referred to as the recontamination assessment areas (RAAs) (Windward 2008c).
- The Port of Seattle and the city of Seattle submitted a final Work Plan for Revised Engineering Evaluation/Cost Analysis on May 1, 2008 (Windward 2008c). The work plan includes a comprehensive compilation of existing site data, identifies preliminary removal action alternatives, evaluates data gaps related to the T-117 EAA and potential for recontamination for the RAAs, and describes the tasks associated with revision of the 2005 EE/CA.
- A meeting with EPA and stakeholders was conducted on May 22, 2008 to discuss the EE/CA and receive feedback from the stakeholders (Windward 2008d). The Port of Seattle presented details regarding their proposal to remove an estimated 55,000 cubic yards of PCB- and petroleum-contaminated soils. The Port discussed technology selection, the screening process, proposed sediment and upland soil removal boundaries, and use of institutional controls in the Cleanup Action Plan.
- The Port of Seattle installed five new groundwater monitoring wells; these and five existing wells were sampled in March 2008. Soil samples from five well locations contained 0.44 to 4.2 mg/kg PCBs and 13 to 45,000 mg/kg TPH. In groundwater samples, PCBs and chrysene were detected above screening criteria. A final First Quarter 2008 Interim Groundwater Monitoring Data Results Report was submitted to EPA on July 31, 2008 (Windward 2008e).
- In addition, low concentrations of TCE and tetrachloroethene (PCE) were detected in two of the new wells (MW-9 and MW-10) located on Dallas Avenue S. between T-117 and Basin Oil (Windward 2008e).

- The Port of Seattle plans to install an additional deeper well in September, waterward of the Basin Oil site, to follow-up on TCE/PCE contamination in that area (Port of Seattle 2008).
- The draft Second Quarter 2008 Interim Groundwater Monitoring Data Results Report was submitted to EPA on August 12. Preliminary results indicate the presence of PCBs, PAHs, TPH, and arsenic at concentrations above screening criteria (ENSR/AECOM 2008).
- The Port of Seattle and city of Seattle submitted a draft Revised Engineering Evaluation/Cost Analysis report to EPA on July 30, 2008 (Windward 2008g). Comments are due back to EPA on September 26 with a 60-day public comment period beginning on October 1, 2008 (Ecology 2008c).

Dioxin Investigation

- A recent review of data collected in 2005 by the city of Seattle revealed elevated levels of dioxin in a street dirt sample collected from an unpaved portion of the road shoulder within the Adjacent Streets area and in a sample collected from a former settling tank located on the Basin Oil property (Windward 2008e). The settling tank is no longer in operation. The street dirt and underlying soil at the dirt sampling location was subsequently cleaned up in 2005 as part of an interim action performed by the City to address PCB contamination.
- On June 6, 2008, the city of Seattle submitted a Proposed Approach for Investigation of Potential Dioxin Contamination in Soil: City of Seattle Streets and Yards Adjacent to the T-117 Early Action Area (Integral 2008b). EPA provided comments on the memorandum on June 27 (USEPA 2008). The Port of Seattle intends to conduct dioxin sampling on Terminal 117 in conjunction with the city's effort (Ecology 2008c).
- The City submitted a draft Quality Assurance Project Plan (QAPP) to EPA on July 28, 2008 for the investigation of potential dioxin contamination in soil in the Adjacent Streets area and nearby residential yards (Windward 2008f).
- The first round of unvalidated results will be made available to stakeholders on September 8, 2008. All lab data are expected back by September 26. The stakeholders will meet on September 29 to discuss the data and next steps. An adaptive management strategy has been adopted based on several likely scenarios. At a minimum, the Terminal 117 EE/CA will be delayed for public comment by 3 to 6 months in order to incorporate the results of the dioxin sampling (Ecology 2008c).

4.5.2 Basin Oil

Current Operations	Container (drum) storage
Historical Operations	Asphalt production; collection, transport, and marketing of used oil
Address	8661 Dallas Ave. S. and 8617 17th Ave. S., Seattle 98108
Facility/Site ID	83476734 (Basin Oil Co Dallas Ave) 8901731 (Basin Oil Drum Storage 17th Ave S)
Chemicals of Concern	PCBs, petroleum hydrocarbons
Media Affected	Soil, groundwater, stormwater, sediment

Source Control Actions

- On April 25, 2008, Ecology sent a letter to the owner of Basin Oil to convey the remaining confirmational sampling issues at Basin Oil related to the closure of the former used oil recycling facility (Ecology 2008i). Ecology is requiring soil sampling at 10 locations, with samples collected at seven sampling depths at each location. A phased approach to sample analysis was suggested. A groundwater monitoring well will be required to be installed if the downgradient Port of Seattle wells indicate the presence of chemicals of concern at elevated levels.
- Hideo Fujita and Dan Cargill of Ecology conducted a site visit to Basin Oil on June 18, 2008 (Fujita 2008). They discussed Ecology expectations for the confirmation sampling and identified nine boring locations for soil sampling and a groundwater monitoring well location. Ecology is waiting to receive a Sampling and Analysis Plan from Basin Oil.
- As of August 31, 2008, Basin Oil has made no effort to finish closure at the site. Ecology is considering enforcement options (Cargill 2008).

4.5.3 South Park Marina

Current Operations	Marina operations (moorage, support facilities, boat maintenance and repair)
Historical Operations	Barrel reconditioning and painting; boat building; mobile home park
Address	8604 Dallas Ave. S., Seattle 98108
Facility/Site ID	44653368 (South Park Marina)
Chemicals of Concern	Metals, PAHs, phthalates, PCBs, pesticides, petroleum hydrocarbons, VOCs
Media Affected	Soil, groundwater

Source Control Actions

- Ecology contractor SAIC prepared an Additional Site Characterization Activities Data Report in June 2008, which summarized results of soil, groundwater, and sediment sampling conducted between September 2007 and March 2008 (SAIC 2008d). Soil-to-

groundwater screening levels were exceeded for metals, PCBs, chlorinated pesticides, SVOCs, VOCs, and TPH, particularly in five shallow borings within the outline of the former disposal pond area. Groundwater sampling results show exceedances of groundwater-to-sediment screening levels for arsenic, dieldrin, and PCE. Dieldrin and PCE were also detected in two soil samples in the disposal pond area. Bank soil and intertidal sediment samples also show exceedances of screening levels for metals, PCBs, and SVOCs; however, it is uncertain whether contaminants in intertidal sediment originate from erosion of the bank or via deposition of suspended material from upstream (SAIC 2008d).

- Additional sampling and testing of mercury in groundwater at ultra-low detection limits was completed in August to determine if there is a groundwater pathway for mercury to the LDW. Validated mercury data from recent groundwater sampling and testing are expected to be available in mid-September 2008. After these data are reviewed, Ecology will evaluate the need for future actions at this site (Ecology 2008c).

4.6 Early Action Area 6 (Boeing Isaacson/Central KCIA)

EAA-6 and relevant adjacent and upland properties are shown in Figure 10. The SCAP has not yet been prepared for this source control area, and therefore action items have not been identified at this time.

Location	RM 3.7-3.9 East
Chemicals of Concern	Arsenic, PAHs, phthalates, PCBs, benzoic acid, benzyl alcohol, dibenzofuran, other metals
Data Gaps Evaluation	May 2008 (SAIC 2008c)
SCAP	In Progress

Source control actions that are area-wide (i.e., not associated with a specific adjacent or upland property) are described below.

Source Control Actions

- A *Summary of Existing Information and Identification of Data Gaps* report was completed in May 2008 (SAIC 2008c).
- Preparation of the SCAP is currently in progress. It is scheduled to be completed in November 2008.
- No other source control actions were completed at EAA-6 between April and August 2008.

4.7 Early Action Area 7 (Norfolk CSO/SD)

EAA-7 and relevant adjacent and upland properties are shown in Figure 11. Action items for this source control area are listed in Table 9.

Table 9. Source Control Action Items — Early Action Area 7 (Norfolk CSO/SD)

Source Control Facility or Outfall	Action Item	Priority	Type	Responsible Party	Status	Estimated Completion Date	Date Completed	Follow-On Actions
Norfolk CSO/SD	Compile available GIS data to gain a better understanding of the configurations, relationships, and interconnections of the various stormwater systems; conduct dye testing if needed	Medium	SCAP	SPU, city of Tukwila, King County	Complete		July 2008	
	Obtain drainage plans for private properties along East Marginal Way S. to better delineate drainage basin boundaries in this area	Low	SCAP	SPU, city of Tukwila, King County	Planned	TBD		
	Conduct further source tracing and sampling within the Norfolk CSO/SD	Medium	SCAP	Ecology, property owners	In Progress	TBD		
Boeing Developmental Center (BDC)	Continue sediment monitoring in the vicinity of the south storm drain sediment removal activities	High	SCAP	Boeing	In Progress	TBD		
	Determine the source of PCBs in storm drain solids and conduct source control activities to remove PCBs from the system	High	SCAP	Boeing	Planned	TBD		
	Continue monitoring storm drain solids	High	SCAP	Boeing	In Progress	TBD		
	Determine cleanup of PCB-containing caulk and other building materials	Medium	SCAP	Ecology, Boeing	Planned	TBD		
	Re-evaluate SWPPP to determine whether process/operational changes have been made at the BDC, and modify as necessary to address new conditions	Low	SCAP	Ecology, Boeing	Planned	TBD		
	Re-evaluate the Industrial Stormwater General Permit to assure that the appropriate parameters are measured to assess ongoing sources	Low	SCAP	Ecology, Boeing	Planned	TBD		
	Determine whether groundwater and soil sampling are needed at Parcel 0423049016 to assess possible historic contamination	Medium	SCAP	Ecology, Boeing	Planned	TBD		
Military Flight Center (MFC)	Conduct testing to assess the effectiveness of removal of PCB-contaminated material; provide caulk removal and testing reports to Ecology	Medium	SCAP	Boeing	Planned	TBD		
	Re-evaluate the SWPPP and NPDES permit and make any necessary changes, including parameters to address potential ongoing sources	Low	SCAP	Ecology, Boeing	Planned	TBD		
	Conduct inspection to ensure that pollutant prevention practices are adequate and the facility is in compliance with its stormwater permit	Low	SCAP	Ecology	Planned	TBD		
	Monitor stormwater for PCBs at discharge points to assess potential ongoing sources	Medium	SCAP	Boeing	Planned	TBD		
	Discuss cleanup options for removal of caulk containing PCBs at less than 50 mg/kg	Medium	SCAP	Ecology, Boeing	Planned	TBD		
KCIA	Determine where the KCIA storm drain system connects to the Norfolk CSO/SD	Low	SCAP	KCIA	Planned	TBD		
	Test and remove any material, if needed, in the southern portion of KCIA that contains elevated levels of PCBs (e.g., caulk containing PCBs)	Medium	SCAP	KCIA	Planned	TBD		
	Re-evaluate the SWPPP and make any necessary changes to address ongoing sources	Low	SCAP	Ecology, KCIA	Planned	TBD		

Table 9. Source Control Action Items — Early Action Area 7 (Norfolk CSO/SD)

Source Control Facility or Outfall	Action Item	Priority	Type	Responsible Party	Status	Estimated Completion Date	Date Completed	Follow-On Actions
Associated Grocers	Sample monitoring wells located near the former truck shop to evaluate current groundwater flow and extent of the contaminant plume; determine if additional monitoring wells are needed	Medium	SCAP	Property owner	Planned	TBD		
	Re-evaluate the free product removal strategy to determine its source control effectiveness	Medium	SCAP	Property owner	Planned	TBD		
	Determine whether additional groundwater and soil assessment is needed for the maintenance building where UST removal activities took place in 1995	Medium	SCAP	Ecology	Planned	TBD		
	Apprise the city of Seattle Department of Planning & Development of the potential for new construction or redevelopment activities to encounter contaminated soil or groundwater, so that this can be addressed in the project construction dewatering plan	Low	SCAP	SPU	Complete		Spring 2008	
	Evaluate spill prevention/cleanup plan for the two operational USTs to assure adequate control of potential spills	Low	SCAP	Ecology, Property owner	Planned	TBD		
	Continue to conduct business inspections at the facility to ensure compliance	Low	SCAP	SPU	Ongoing	TBD		
	Determine whether a SWPPP is required to address potential ongoing sources	Low	SCAP	Ecology	Planned	TBD		
Northwest Auto Wrecking	Conduct soil, groundwater, surface water, and sediment sampling, as appropriate, to evaluate potential historical sources	Medium	SCAP	Northwest Auto Wrecking	Planned	TBD		Review sampling results and assess potential for sediment recontamination
	Review results of soil, groundwater, surface water, and/or sediment sampling to assess potential for sediment recontamination	Medium	SCAP	Ecology	Planned	TBD		
	Conduct facility inspection to assess potential ongoing sources	Low	SCAP	SPU	Complete	--	July 2007	Business has closed; property is vacant. Conduct facility inspection once a new business is in place.
	Determine whether a NPDES permit and SWPPP are required	Low	SCAP	Ecology	Not Required	--	July 2007	Not required; property is vacant
	Obtain information pertaining to the storm drain system from Northwest Auto Wrecking to assess potential historic and ongoing sources	Low	SCAP	Ecology	Complete	--	2005	
	Determine whether the storm drain system connects to the Norfolk CSO/SD	Medium	SCAP	Northwest Auto Wrecking	Complete	--	2005	Business has closed; property is vacant
	Once a new business is operating at this site, conduct a facility inspection to assess the potential for sediment recontamination associated with this property	Low	Follow-On	Ecology, SPU, KCIW	Planned	TBD		

Table 9. Source Control Action Items — Early Action Area 7 (Norfolk CSO/SD)

Source Control Facility or Outfall	Action Item	Priority	Type	Responsible Party	Status	Estimated Completion Date	Date Completed	Follow-On Actions
Affordable Auto Wrecking	Conduct surface water, soil, and groundwater sampling to assess the potential for sediment recontamination	Medium	SCAP	Affordable Auto Wrecking	Planned	TBD		
	Determine whether the storm drain system connects to the Norfolk CSO/SD	Medium	SCAP	Affordable Auto Wrecking, SPU, city of Tukwila	Planned	TBD		
	Inspect facility to ensure that recent drainage system modifications are functioning properly and that contaminated runoff does not flow into the municipal storm drain system on MLK Way	Medium	SCAP	Ecology, SPU, KCIW	Planned	TBD		
	Determine cleanup options for removal of historically-contaminated media, as appropriate	Medium	SCAP	Ecology, Affordable Auto Wrecking	Planned	TBD		
	Re-evaluate the SWPPP and make necessary changes to address potential ongoing sources	Low	SCAP	Ecology, Affordable Auto Wrecking	Planned	TBD		
	Oversee and monitor discharges to the combined sewer system	Medium	SCAP	KCIW	Planned	TBD		
Arco Gas Station	Conduct soil sampling in the area adjacent to the former tank farm under the Voluntary Cleanup Program, to determine if soils are impacted and if remediation is necessary to control this potential contaminant pathway	Medium	SCAP	Arco	Planned	TBD		
	Conduct additional groundwater monitoring	Medium	SCAP	Arco	Planned	TBD		
	Based on results of soil and groundwater sampling, determine whether further actions are needed to address potential historical sources	Medium	SCAP	Ecology	Planned	TBD		
	Determine if a SWPPP is required to address potential ongoing sources	Low	SCAP	Ecology	Planned	TBD		
	Gain a better understanding of the storm drain system and possible historic or present connections to the Norfolk CSO/SD	Low	SCAP	Ecology	Planned	TBD		

Priority:

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

Type:

SCAP	Action item identified in the EAA-7 SCAP
Follow-On	Action item is a follow-on to an action item identified in the EAA-7 SCAP
New	Action item identified after publication of the EAA-7 SCAP

Location	RM 4.9 East
Chemicals of Concern	PCBs, PAHs, phthalates, hexachlorobenzene, metals
Data Gaps Evaluation	September 2007 (E&E 2007b)
SCAP	September 2007 (Ecology 2007c)

Source control actions that are area-wide (i.e., not associated with a specific adjacent or upland property) are described below.

- A facility inspection was conducted in July 2007 at Northwest Auto Wrecking to assess potential ongoing sources (SPU 2007c). At that time, the business was closed and the property was vacant. No further actions were identified.
- In 2007, SPU installed sediment traps at five locations in the Norfolk CSO/EOF/SD system. Sampling locations and results were unavailable at the time this Status Report was prepared.
- In 2008, SPU has inspected five businesses in the Tukwila portion of the Norfolk basin under a Memorandum of Agreement with Tukwila. A total of 7 corrective actions were identified. Businesses that were inspected in 2008 are listed in Appendix B and their locations are shown in Figure 3.
- One inspected facility, Unified Grocers, was discharging process wastewater to the storm drain (Schmoyer 2008a). SPU requested that this practice be discontinued.

5.0 Source Control Activities: Tier 2 and Tier 3 Areas

Additional source control areas where long-term sediment cleanup actions may be implemented as part of the EPA ROD for the LDW Superfund Site are identified as Tier 2 Areas. At Tier 3 Areas, source control is necessary to prevent future sediment contamination from basins that may not drain directly to an identified sediment cleanup area.

As discussed in Section 2.1, the designation as a Tier 2 or Tier 3 source control area depends on whether or not it needs cleanup. Since the RI is still being developed and the ROD will not be published until 2010, there is currently no way to distinguish between Tier 2 and Tier 3 areas. This section discusses the 16 potential Tier 2 or Tier 3 source control areas.

Ecology will conduct source control evaluations for each of these areas, including review of existing information, identification of data gaps, and preparation of a SCAP. The 16 Tier 2 and Tier 3 areas and the seven EAAs (a total of 23 source control areas) are shown on Figure 2.

Site maps are presented in Figures 12 through 16 for those source control areas with completed Data Gaps reports; these maps are intended to help identify locations discussed in the text below. Additional figures are available in the referenced reports.

5.1 RM 0.0-0.1 East (Spokane St. to Ash Grove Cement)

A SCAP has not yet been prepared for this source control area, and therefore action items have not been identified at this time.

Location	RM 0.0-0.1 East
Chemicals of Concern	To be determined
Data Gaps Evaluation	In Progress
SCAP	In Progress

Source control actions that are area-wide (i.e., not associated with a specific adjacent or upland property) are described below.

- Preparation of a Summary of Existing Information and Identification of Data Gaps report is in progress. A draft report was submitted to Ecology in August 2008.
- A SCAP will be developed after completion of the Data Gaps report.

5.2 RM 0.9-1.0 East (Slip 1)

RM 0.9-1.0 East (Slip 1) and relevant adjacent and upland properties are shown in Figure 12. The SCAP has not yet been prepared for this source control area, and therefore action items have not been identified at this time.

Location	RM 0.9-1.9 East
Chemicals of Concern	Metals, PAHs, BEHP, PCBs, dioxins/furans
Data Gaps Evaluation	August 2008 (SAIC 2008a)
SCAP	In Progress

Source control actions that are area-wide (i.e., not associated with a specific adjacent or upland property) are described below.

Source Control Actions

- A Summary of Existing Information and Identification of Data Gaps report was completed in August 2008 (SAIC 2008a).
- Preparation of the SCAP is currently in progress; it is expected to be completed in January 2009.

5.3 RM 1.0-1.2 East (King County lease parcels)

No source identification or control activities have been conducted to date.

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

A SCAP has not yet been prepared for this source control area, and therefore action items have not been identified at this time.

Location	RM1.2-1.7 East
Chemicals of Concern	To be determined
Data Gaps Evaluation	In Progress
SCAP	In Progress

Source control actions that are area-wide (i.e., not associated with a specific adjacent or upland property) are described below.

Source Control Actions

- Preparation of a Summary of Existing Information and Identification of Data Gaps report is in progress.
- A SCAP will be developed after completion of the Data Gaps report.

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

A SCAP has not yet been prepared for this source control area, and therefore action items have not been identified at this time.

Location	RM1.7-2.0 East
Chemicals of Concern	To be determined
Data Gaps Evaluation	In Progress
SCAP	In Progress

Source control actions that are area-wide (i.e., not associated with a specific adjacent or upland property) are described below.

Source Control Actions

- Preparation of a Summary of Existing Information and Identification of Data Gaps report is in progress.
- A SCAP will be developed after completion of the Data Gaps report.
- SPU conducted a source control inspection at Duwamish Metal Fabrication (located at 16 S Michigan St) on July 23, 2008. The inspector indicated that Duwamish Metal Fabrication should clean out its storm drain facilities and obtain a NPDES stormwater permit (Schmoyer 2008a).
- SPU conducted a source control inspection at Samson Tug and Barge (located at 6361 1st Ave S) on July 28, 2008. The inspector indicated that Samson Tug and Barge should clean out its storm drain facilities and obtain an NPDES stormwater permit (Schmoyer 2008a).

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

RM 2.0-2.3 East (Slip 3 to Seattle Boiler Works) and relevant adjacent and upland properties are shown in Figure 13. The SCAP has not yet been prepared for this source control area, and therefore action items have not been identified at this time.

Location	RM 2.0-2.3 East
Chemicals of Concern	Metals, PAHs, PCBs, chlorobenzene, benzyl alcohol
Data Gaps Evaluation	June 2008 (E&E 2008b)
SCAP	In Progress

Source control actions that are area-wide (i.e., not associated with a specific adjacent or upland property) are described below.

Source Control Actions

- A Summary of Existing Information and Identification of Data Gaps report was completed in June 2008 (E&E 2008b).
- Preparation of the SCAP is currently in progress. It is expected to be completed in November 2008.

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

RM 2.8-2.8 East (Seattle Boiler Works to Slip 4) and relevant adjacent and upland properties are shown in Figure 14. The SCAP has not yet been prepared for this source control area, and therefore action items have not been identified at this time.

Location	RM 2.3-2.8 East
Chemicals of Concern	Mercury, PCBs, PAHs, dioxins/furans, organo-tin compounds
Data Gaps Evaluation	May 2008 (SAIC 2008b)
SCAP	In Progress

Source control actions that are area-wide (i.e., not associated with a specific adjacent or upland property) are described below.

Source Control Actions

- A Summary of Existing Information and Identification of Data Gaps report was completed in May 2008 (SAIC 2008b).
- Preparation of the SCAP is currently in progress. It is expected to be completed in November 2008.
- SPU conducted a source control inspection at Svendsen Brothers Fish Company (located at 745 S. Myrtle Street) on July 22, 2008. The inspector indicated that Svendsen Brothers should discontinue discharging process water to the storm drain, clean out its storm drain facilities, improve housekeeping practices, obtain a wastewater discharge permit, and obtain a NPDES stormwater permit (Schmoyer 2008a). A follow-up inspection is needed.
- SPU conducted a source control inspection at Taxi King (located at 720 S. Orchard Street) on July 22, 2008. The inspector indicated that Taxi King should improve housekeeping practices and obtain a NPDES stormwater permit (Schmoyer 2008a). A follow-up inspection is needed.

5.7.1 Seattle Iron & Metals

Current Operations	Metals recycling
Historical Operations	Dangerous waste transport, construction, machine shop
Address	601 S. Myrtle St., Seattle 98108
Facility/Site ID	94727791 (Seattle Iron Metals Corp)
Chemicals of Concern	Metals (copper, zinc), petroleum hydrocarbons
Media Affected	Soil, groundwater, stormwater

Source Control Actions

- This facility currently operates under an individual NPDES permit, issued in 2007. Due to concerns about the capacity of the facility's stormwater treatment system during heavy

rain events and other issues, Ecology, SPU, King County, and Seattle Iron & Metals will meet in September to discuss the possibility of disconnecting the facility from the stormwater system and instead directing stormwater to the sanitary sewer (Abbasi 2008).

5.8 RM 3.9-4.3 East (Slip 6)

RM 3.9-4.3 East (Slip 6) and relevant adjacent and upland properties are shown in Figure 15. The SCAP has not yet been prepared for this source control area, and therefore action items have not been identified at this time.

Location	RM 3.9-4.4 East
Chemicals of Concern	Metals, PCBs, PAHs, phthalates, VOCs, petroleum hydrocarbons
Data Gaps Evaluation	February 2008 (E&E 2008a)
SCAP	In Progress

Source control actions that are area-wide (i.e., not associated with a specific adjacent or upland property) are described below.

Source Control Actions

- Preparation of the SCAP is currently in progress. It is expected to be completed in September 2008.

5.8.1 8801 Site (former Kenworth Truck/PACCAR)

Current Operations	Damaged vehicle storage
Historical Operations	Truck manufacturing; airplane assembly
Address	8801 East Marginal Way S., Tukwila
Facility/Site ID	2072 (Kenworth Truck Co)
Chemicals of Concern	Petroleum hydrocarbons, PAHs, VOCs, PCBs, metals (arsenic, lead, copper), SVOCs
Media Affected	Soil, groundwater, stormwater, sediment

Source Control Actions

- Ecology drafted an Agreed Order in March 2008 for the upland cleanup actions, which include completion of an RI/FS and an Interim Action Work Plan. The Agreed Order will not address sediment cleanup.
- PACCAR and Merrill Creek Holdings (the current property owner) have been meeting with Ecology to negotiate the upland cleanup and Agreed Order beginning in April 2008. The draft Agreed Order will be signed in September 2008.
- Ecology prepared a draft Fact Sheet and Public Participation Plan (Ecology 2008j).
- Preliminary sediment core results from the Phase 2 sediment sampling (completed in February 2008) show PCBs, butylbenzyl phthalate, and metals above SMS criteria. A

report was expected in August 2008.[8] These sediment results will be used to determine the extent of contamination and evaluate the need for source control.

- Ecology and EPA have evaluated sediment results and have agreed that there are sufficient data to show that a sediment cleanup will be needed. No additional sediment sampling will be requested at this time. The PLP is preparing a Draft Sediment Evaluation Data Report, which should be complete in October 2008.
- Outstanding issues at the site include a trichloroethylene (TCE) and vinyl chloride plume in groundwater across the western portion of the upland area, petroleum and metals contamination at the northwest corner of the upland area that appears to extend into LDW sediment, PCBs and other chemicals of concern (COCs) at the middle outfall, and PAHs, metals and other COCs at the former hazardous materials storage area.
- PACCAR prepared a Draft Upland Cleanup Action Plan, dated May 16. Ecology will review this document after the Agreed Order has been signed.

Stormwater System

- Ecology conducted a stormwater inspection at the site on May 6 and collected storm drain solids samples at two of the three outfalls. A two-inch accumulation of solids at the base of the filtering system was observed in two of the outfalls. Preliminary sample results show elevated concentrations of PCBs, SVOCs, and metals. The following chemicals exceeded SQS criteria: PCBs (Aroclor 1254), 4-methylphenol, indeno(1,2,3-cd)pyrene, mercury, and zinc (Ecology 2008d). While these results do not document releases to the LDW, they indicate a potential for release and subsequent sediment recontamination (Ecology 2008d).
- Following Ecology's inspection and observations of a petroleum sheen and odor in the north outfall of the stormwater system, Industrial Auto Auctions, Inc. (IAAI) collected water samples on May 14 at pre- and post-treatment locations for all three outfall points at the site (Krazan 2008). Samples were tested for diesel, motor oil, oil & grease, pH, and turbidity. Two effluent samples contained levels of diesel and motor oil in excess of the MTCA Method A cleanup level for surface water discharges (Lane Powell 2008). IAAI planned to determine the source of the petroleum hydrocarbons and review its BMPs to prevent any additional releases of petroleum hydrocarbons to the stormwater system (Lane Powell 2008).
- Windward Environmental (for Schiff Hardin LLP) prepared a work plan for stormwater sampling and drain line video inspection of the north storm drainage system at the former PACCAR site on behalf of IAAI (Windward 2008h). The purpose of the sampling and inspection was to identify the source(s) and possible locations of dry-weather (non-storm) flow into the north system in order to evaluate the possible impacts on IAAI's end-of-pipe treatment system.

[8] Report was unavailable at the time this Source Control Status Report was prepared.

- On July 28, Windward (for IAAI) collected a water sample from Catch Basin 74 (CB-74) in the north storm drain system and analyzed it for PCBs, SVOCs, VOCs, metals, and TPH. PACCAR collected a duplicate sample. In the stormwater sample, vinyl chloride (0.9 ug/L) exceeded the MTCA Method A groundwater limit of 0.2 ug/L, and nickel (10 ug/L) exceeded the Ecology chronic and Ambient Water Quality Criteria (AWQC) limits (Windward 2008i). A video inspection of the storm drain system was conducted in August.

5.9 RM 4.3-4.9 East (Boeing Developmental Center)

No source identification or control activities have been conducted to date.

5.10 RM 0-1.0 West (Spokane St. to Kellogg Island)

No source identification or control activities have been conducted to date.

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

No source identification or control activities have been conducted to date.

5.12 RM 1.3-1.6 West (Glacier Bay)

RM 1.3-1.6 West (Glacier Bay) and relevant adjacent and upland properties are shown in Figure 16. Action items for this source control area are listed in Table 10.

Location	RM 1.3-1.6 West
Chemicals of Concern	Metals (arsenic, mercury, zinc, copper, lead, antimony, tin), dioxins/furans, PCBs, phthalates, PAHs, 1,2-dichlorobenzene, pentachlorophenol, benzyl alcohol, organo-tin compounds
Data Gaps Evaluation	June 2007 (SAIC 2007a)
SCAP	December 2007 (Ecology 2007d)

Source control actions that are area-wide (i.e., not associated with a specific adjacent or upland property) are described below.

Source Control Actions

- SPU conducted one business inspection in the Glacier Bay area in 2008. The remaining businesses in this area were inspected in 2006 and 2007. Businesses inspected by SPU in 2008 are listed in Appendix B.

5.12.1 Duwamish Shipyard

Current Operations	Equipment and container storage
Historical Operations	Repair and maintenance of floating vessels and equipment
Address	5658 West Marginal Way SW, Seattle 98106
Facility/Site ID	2071 (Duwamish Shipyard Inc)
Chemicals of Concern	Metals (arsenic, lead, mercury, cadmium, copper, zinc), PAHs, VOCs, petroleum hydrocarbons, phthalates, PCBs
Media Affected	Soil, groundwater, stormwater

Source Control Actions

- Ecology submitted a Draft Agreed Order to Duwamish Shipyard on November 28, 2007. A draft Public Participation Plan and Fact Sheet were submitted to Duwamish Shipyard on December 31, 2007. The Assistant Attorney General has reviewed PLP comments on the draft Agreed Order, and comments will be submitted to Duwamish Shipyard in September (Ecology 2008d).
- Duwamish Shipyard submitted a draft RI/FS Work Plan for Ecology review on February 28, 2008. Ecology met with the PLP and provided written and verbal comments on the work plan on July 25, 2008 (Ecology 2008d).

Table 10. Source Control Action Items — RM 1.3-1.6 West (Glacier Bay)

Source Control Facility or Outfall	Action Item	Priority	Type	Responsible Party	Status	Estimated Completion Date	Date Completed	Follow-On Actions
Glacier Bay Outfall	Collect inline sediment samples to evaluate whether contaminants are currently being transported to Glacier Bay via this pathway	Medium	SCAP	SPU	Planned	2007/2008		If COCs are present, conduct source tracing as needed.
	If COCs are present in the storm drain line, conduct source tracing to identify sources of contaminants	Medium	SCAP	SPU	Planned	2008		
Alaska Marine Lines	Sample groundwater along shoreline to determine whether residual site contaminants are being discharged to Glacier Bay.	Medium	SCAP	Alaska Marine Lines	Planned	2008		
	Confirm location of former USTs that were removed in 1990	Low	SCAP	Alaska Marine Lines	Planned	2007		
	Conduct follow-up inspection to ensure that concerns and recommendations from the January 2006 inspection have been addressed	Low	SCAP	Ecology	Planned	2007		
	Verify that remediation associated with filling of graving dock was completed and all conditions met	Low	SCAP	Ecology	Planned	2008		
	Oversee and inspect site through Industrial Waste program	Low	SCAP	KCIW	Ongoing			
	Continue periodic inspections as needed to ensure compliance with the facility's NPDES permit	Low	SCAP	Ecology	Ongoing			
Duwamish Shipyard	Negotiate an Agreed Order to address soil and groundwater contamination	High	SCAP	Ecology, Duwamish Shipyard	In Progress	2008		
	Clean out stormwater catch basins and lines, sample solids, and report results; clean and prepare videodocumentation of stormwater system	High	SCAP	Duwamish Shipyard	Complete	November 2007	January 2008	
	Evaluate results of test pit and soil stock pile testing	Low	New	Duwamish Shipyard	Complete	--	January 2008	None needed; no exceedances of MTCA cleanup levels
	Prepare work plans for further site investigations as specified in the Agreed Order	High	SCAP	Duwamish Shipyard	Planned	2009		
	Conduct site investigations as specified in the Agreed Order Statement of Work	High	SCAP	Duwamish Shipyard	Planned	2010		
	Review site investigation results and assess potential for sediment recontamination and need for remedial actions	High	SCAP	Ecology	Planned	2010/2011		
	Continue to oversee and inspect this site through Industrial Waste Program	Low	SCAP	KCIW	Ongoing			
	Continue periodic inspections as needed to ensure compliance with the facility's NPDES permit	Low	SCAP	Ecology	Ongoing			

Table 10. Source Control Action Items — RM 1.3-1.6 West (Glacier Bay)

Source Control Facility or Outfall	Action Item	Priority	Type	Responsible Party	Status	Estimated Completion Date	Date Completed	Follow-On Actions
Glacier Northwest	Direct current and/or previous property owners/operators to conduct site characterization investigations	High	SCAP	Ecology	In Progress	Summer 2009		
	Prepare work plans for site investigations as specified by Ecology	High	SCAP	Property owner/operator	Planned	March 2009		
	Upon approval of work plans by Ecology, conduct site investigations as specified	High	SCAP	Property owner/operator	Planned	2009/2010		
	Review site investigation results and assess potential for sediment recontamination and need for remedial actions	High	SCAP	Ecology	Planned	2009/2010		
	Conduct a site inspection to evaluate current operations with respect to stormwater and waste management	Low	SCAP	Ecology, SPU	Planned	Winter 2008		
	Verify the storm drainage pathway at the site; if stormwater flow to the LDW is confirmed, assess the need for stormwater characterization	Medium	SCAP	SPU, Ecology	Planned	Winter 2008		
	Conduct periodic source control inspections as needed to verify that current operations do not result in release of contaminants to the LDW	Low	SCAP	SPU, Ecology	Ongoing			
	Issue CERCLA 104(e) request to the facility and property owners to obtain additional information on current and historical operations	Low	New	EPA	Complete	--	2008	
	Review CERCLA 104(e) response submitted by Glacier Northwest	Medium	Follow-up	EPA, Ecology	Complete	--	2008	
	Review CERCLA 104(e) response submitted by Reichhold, Inc.	Medium	New	EPA, Ecology	Planned	December 2008		
Former MRI Corporation	Pursue further investigation of the potential for groundwater transport of contaminants to Glacier Bay or to storm drain lines which discharge to Glacier Bay; review results and determine whether remedial action is required	Medium	SCAP	Ecology	Planned	Winter 2008/2009		
	Conduct a site inspection to evaluate current operations with respect to stormwater and waste management	Medium	SCAP	Ecology, SPU	Planned	Winter 2008/2009		
	Verify the storm drainage pathway at the site; if stormwater flow to the LDW is confirmed, assess the need for stormwater characterization	Medium	SCAP	SPU, Ecology	Planned	Winter 2008/2009		
	Conduct periodic source control inspections as needed	Low	SCAP	SPU, Ecology	Ongoing			
Chemithon	Prepare and/or update the SWPPP and processes to ensure that site activities do not resul tin transport of contaminants to the LDW	Low	SCAP	Chemithon	Planned	2007		
	Conduct follow-up inspections and sampling as needed	Medium	SCAP	Ecology, SPU	Ongoing	2007/2008		
Upland Properties	Conduct source control inspections of upland properties as needed	Medium	SCAP	SPU, Ecology	Ongoing	2007/2008		
	Review and update NPDES permits as needed	Low	SCAP	Ecology-WQ	Ongoing			

Table 10. Source Control Action Items — RM 1.3-1.6 West (Glacier Bay)

Source Control Facility or Outfall	Action Item	Priority	Type	Responsible Party	Status	Estimated Completion Date	Date Completed	Follow-On Actions

Priority:

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

Type:

SCAP	Action item identified in the Glacier Bay SCAP
Follow-On	Action item is a follow-on to an action item identified in the Glacier Bay SCAP
New	Action item identified after publication of the Glacier Bay SCAP

5.12.2 Glacier Northwest, Inc./Reichhold

Current Operations	Cement terminal
Historical Operations	Lumber mill, chemical manufacturing, cement production
Address	5900-5902 West Marginal Way SW, Seattle 98106
Facility/Site ID	23881883 (Glacier Northwest Seattle Terminal) 67234947 (Glacier Northwest Marginal Way Truck Shop)
Chemicals of Concern	Metals (arsenic, zinc), phthalates, PCBs, dioxins/furans, chlorophenols
Media Affected	Soil, groundwater, surface water, sediment

Source Control Actions

- Ecology sent preliminary PLP letters to Glacier Northwest, Inc., Reichhold, Inc. and the U.S. Army. Glacier Northwest and Reichhold accepted their status as PLPs; however, the U.S. Army challenged its status as a PLP.
- Ecology sent final PLP letters to Glacier Northwest, Inc. and Reichhold, Inc., and re-sent the preliminary PLP letter to the U.S. Army with updated information. The U.S. Army continues to challenge its PLP status.
- Ecology received copies of various documents associated with investigations and remediation at the site from Glacier Northwest and Reichhold, including: a preliminary study for the Reichhold/Lonestar facility; a Draft RI Report for the Lonestar/Reichhold site; and a Remedial Activities Summary Report reviewing remediation work that has been performed since 1990 plus a description of monitoring following remediation and recommended actions for completion (Shaw 2008). The report identified pentachlorophenol and arsenic as COCs at the site, and recommended development of a groundwater monitoring program.
- Ecology met with Reichhold attorneys and consultants and Glacier attorneys on June 11, during which Ecology explained its position that additional investigation work is required. Ecology technical staff met with Reichhold and Glacier consultants on June 27 to discuss what additional work will be required (Ecology 2008c).
- EPA sent CERCLA 107(e) General Notice and 104(e) Request for Information letters to Reichhold, Inc. on August 27, 2008.

5.13 RM 1.6-2.1 West (Terminal 115)

A SCAP has not yet been prepared for this source control area, and therefore action items have not been identified at this time.

Location	RM 1.6-2.1 West
Chemicals of Concern	To be determined
Data Gaps Evaluation	Not scheduled
SCAP	Not scheduled

No area-wide source control actions (i.e., not associated with a specific adjacent or upland property) have been conducted to date.

5.13.1 Terminal 115

Current Operations	Water freight transportation; seafood processing
Historical Operations	To be determined
Address	6020-6760 West Marginal Way SW, Seattle 98106
Facility/Site ID	4040072 (Seattle Port Terminal 115) 82536515 (Seafreeze Ltd Terminal 115) 98422914 (Crowley Marine Services Inc Terminal 115)
Chemicals of Concern	To be determined
Media Affected	To be determined

Source Control Actions

- In support of maintenance dredging at Port of Seattle Terminal 115 to re-establish adequate depth for barge loading and unloading, the Port of Seattle collected sediment samples on March 14, 2008.
- On June 20, 2008, Anchor Environmental (for the Port of Seattle) submitted a *Sediment Characterization Report* to the Dredged Material Management Office on the material to be removed during maintenance dredging (Anchor 2008b).
- Results identified PCBs, PAHs, and dioxins/furans above Dredged Material Management Program screening criteria. Elevated concentrations of these contaminants were found in the sediment beneath the dredge prism; therefore, there is a concern for the sediment quality of the surface that would be exposed after dredging (Anchor 2008a).
- On July 9, the Port recommended overdepth dredging and placement of a 1-foot clean sand layer. The dredged material would be transferred to an approved upland disposal facility (Anchor 2008b). No additional information was available at the time this Status Report was prepared.

5.14 RM 2.2-3.4 West (Riverside Drive)

No source identification or control activities have been conducted to date.

5.15 RM 3.8-4.2 West (Sea King Industrial Park)

No source identification or control activities have been conducted to date.

5.16 RM 4.2-4.8 West (Restoration Areas)

No source identification or control activities have been conducted to date.

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Figures

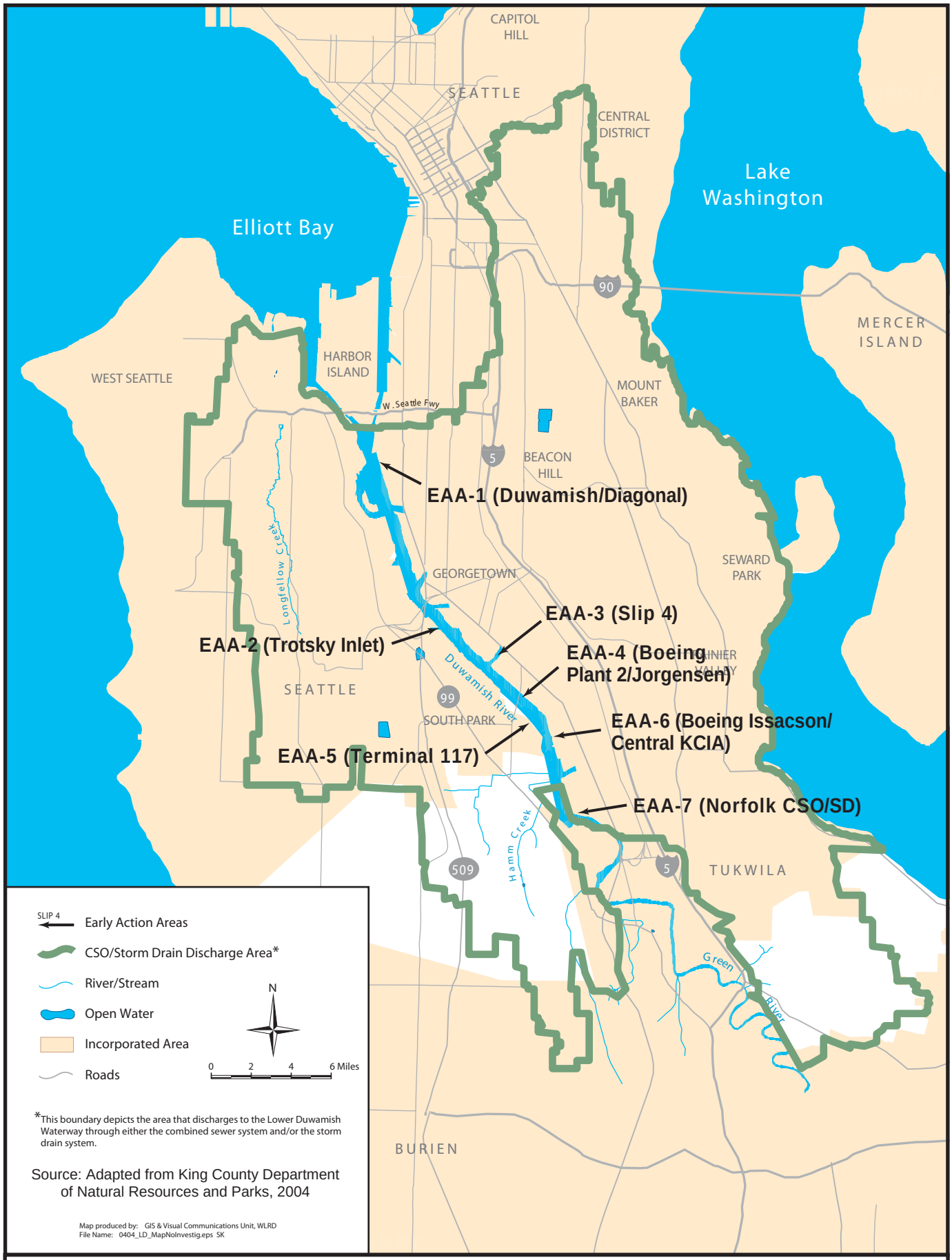

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Figure 1. Lower Duwamish Waterway Site

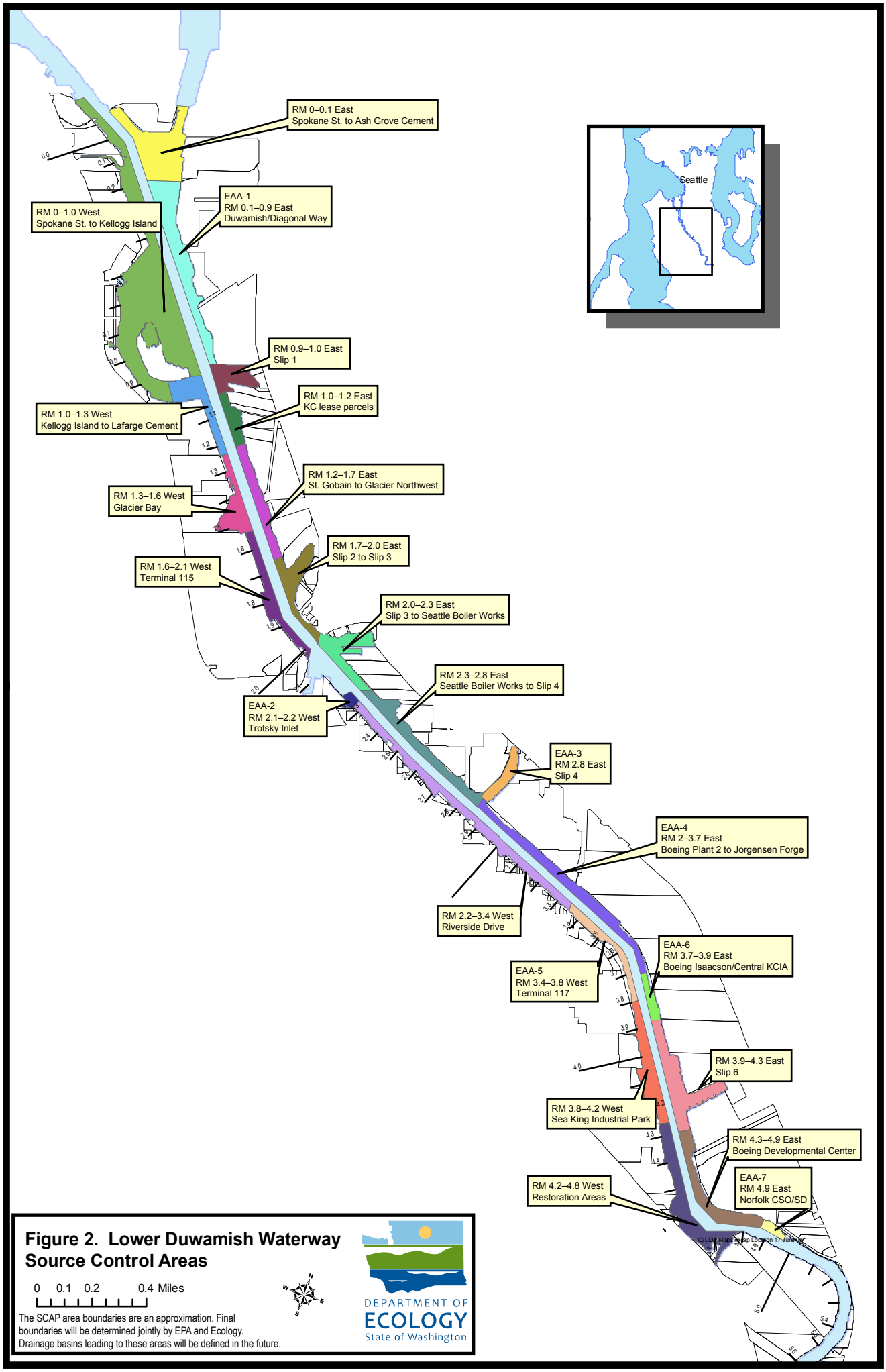
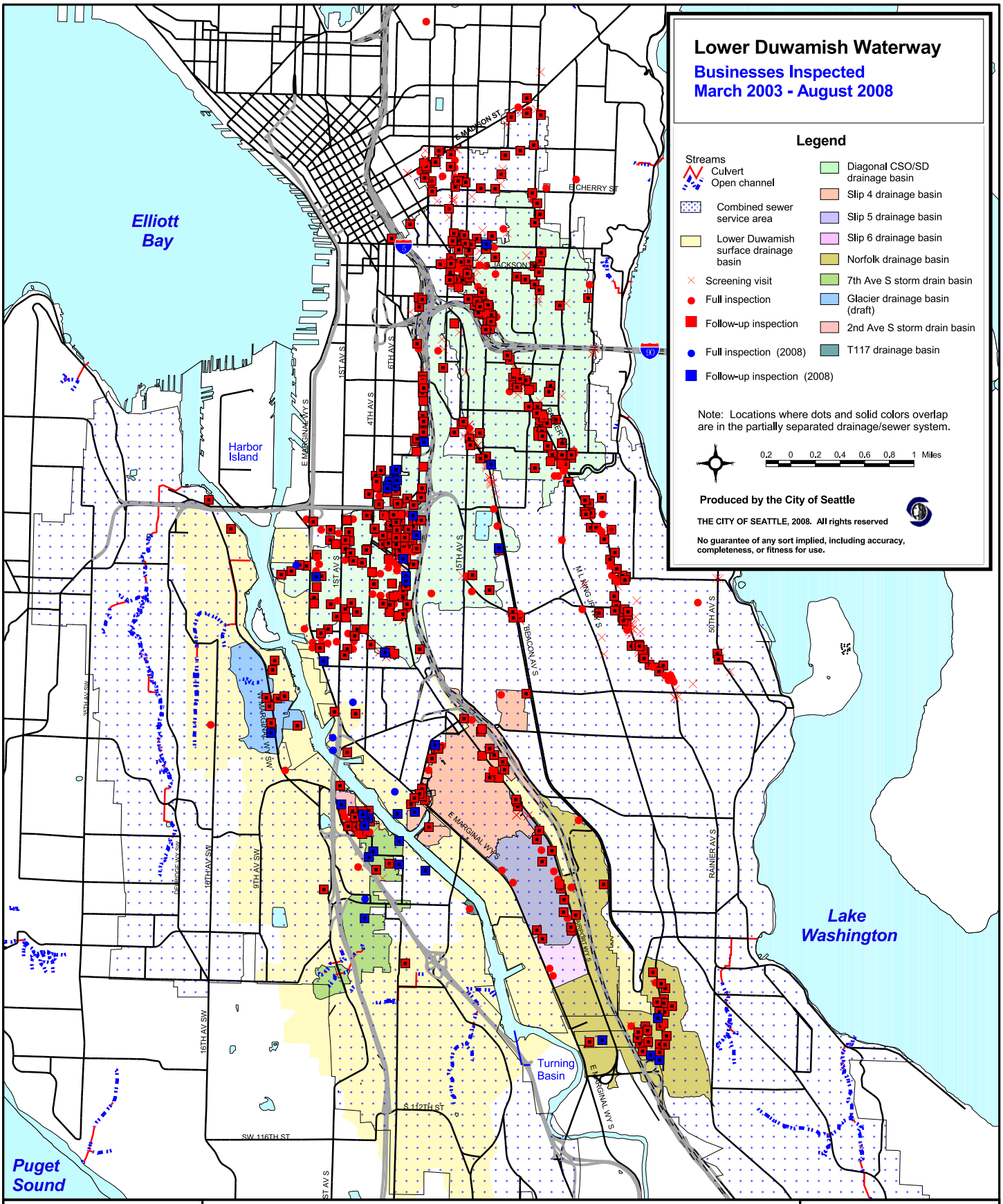


Figure 2. Lower Duwamish Waterway Source Control Areas

The SCAP area boundaries are an approximation. Final boundaries will be determined jointly by EPA and Ecology. Drainage basins leading to these areas will be defined in the future.



Key

Road

water body

Figure 3. SPU Business Inspections

0 0.250.5 1 1.5 2 Miles

Scale: 1:65,000

WA State Plane North, NAD83

N

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L. Delwiche SAIC, 2008

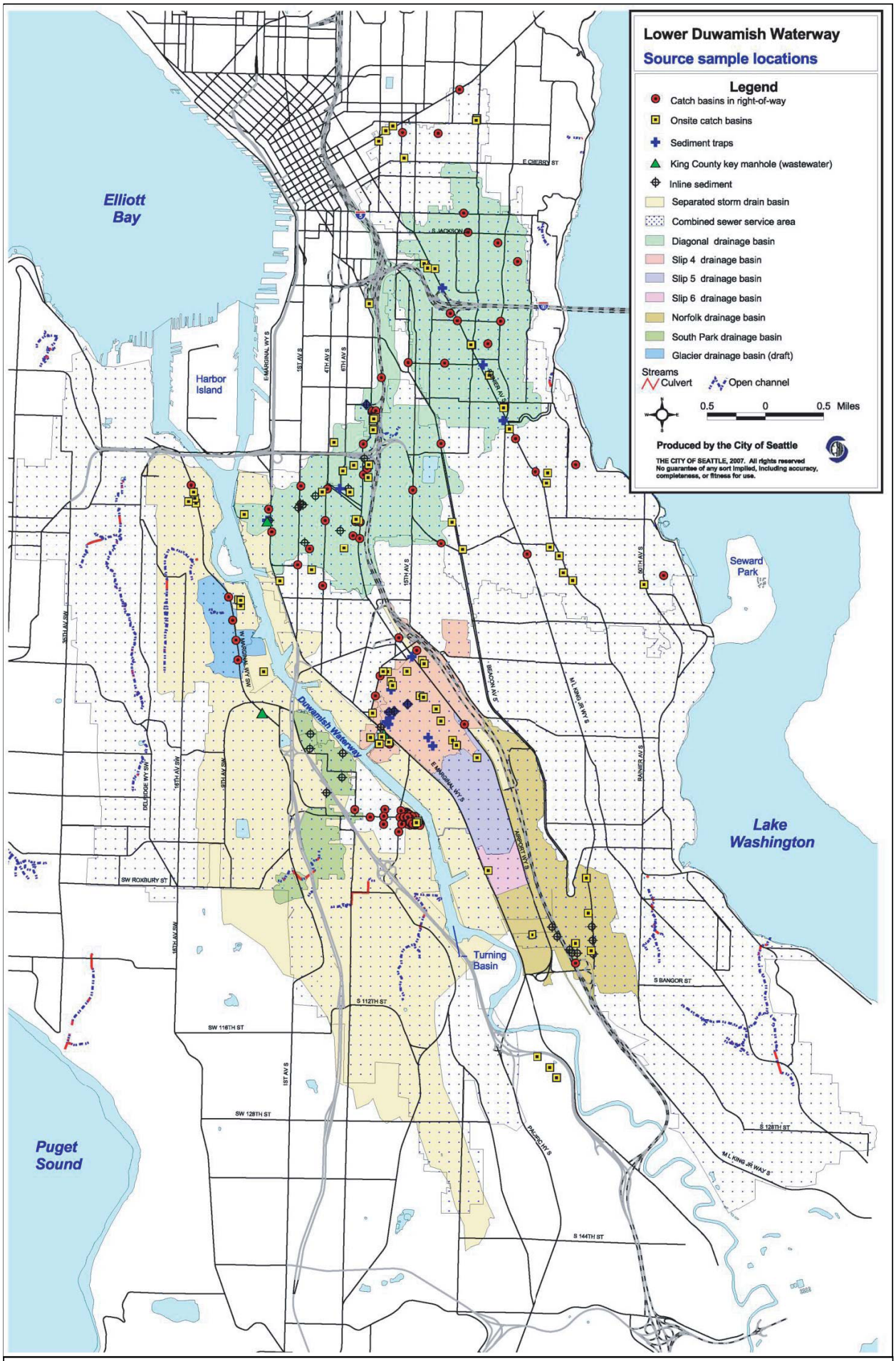

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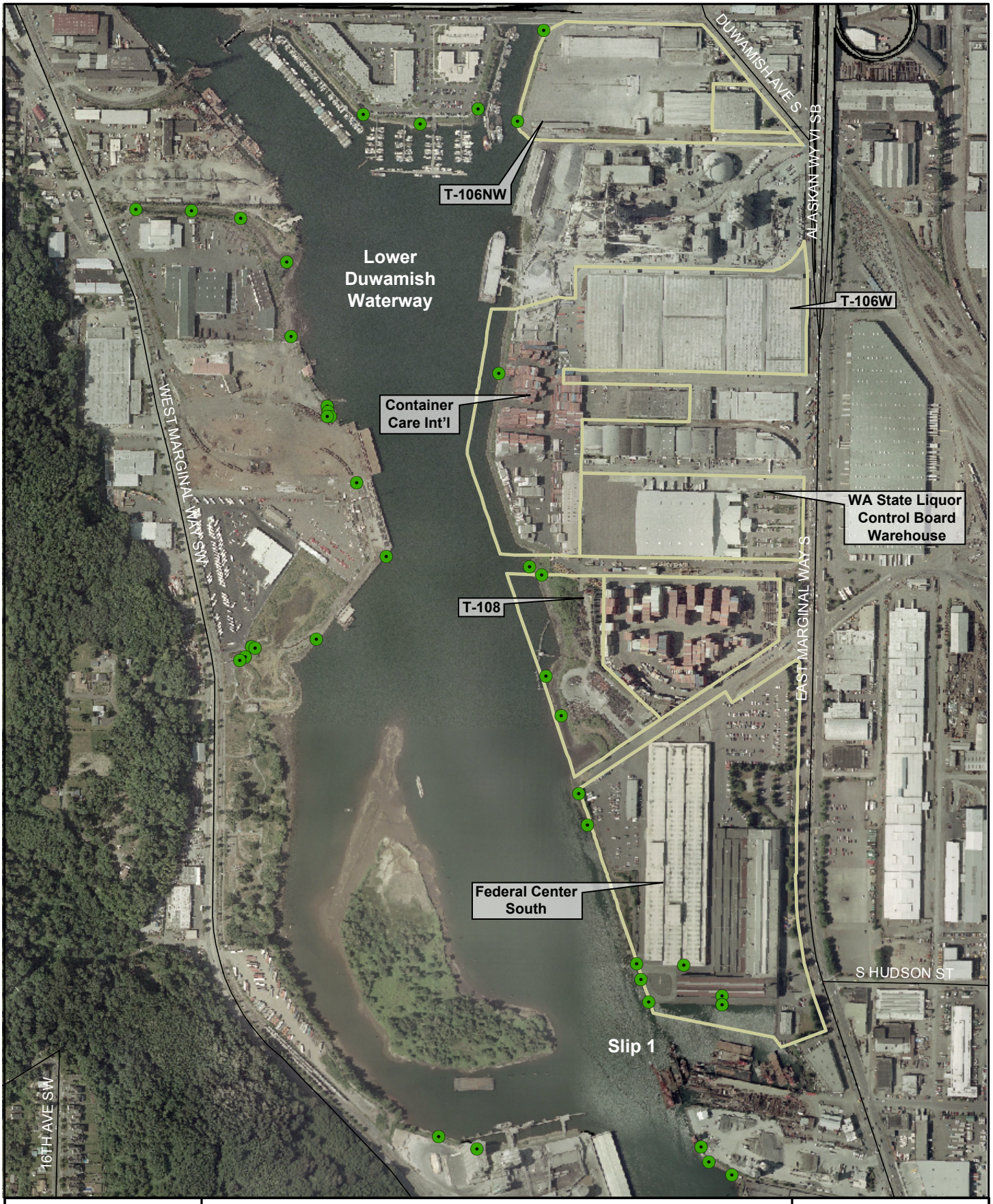
Figure 4. Source Tracing Sample Locations



Key

- Property Boundary
- Road
- Outfall

Figure 5. Early Action Area 1 (Duwamish/Diagonal Way)

0 225 450 900 1,350 1,800 Feet

Scale: 1:8,000

WA State Plane North, NAD83

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N

Key
- Property Boundary
- Road
- Outfall

Figure 6. Early Action Area 2 (Trotsky Inlet)

0 100 200 400 600 800 Feet

Scale: 1:3,200
WA State Plane North, NAD83

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N

Key
- Property Boundary
- Road
- Outfall

Figure 7. Early Action Area 3 (Slip 4)

0 250 500 1,000 1,500 2,000 Feet

Scale: 1:11,000
WA State Plane North, NAD83

N

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L. Delwiche SAIC, 2008

Key

- Property Boundary
- Road
- Outfall

Figure 8. Early Action Area 4
(Boeing Plant 2 to Jorgensen Forge)

0 187.5375 750 1,125 1,500 Feet

Scale: 1:8,000
WA State Plane
North, NAD83

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N

Key

- Property Boundary
- Road
- Outfall

Figure 9. Early Action Area 5 (Terminal 117)

0 100 200 400 600 800 Feet

Scale: 1:3,500

WA State Plane North, NAD83

N

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L. Delwiche SAIC, 2008

Key

- Property Boundary
- Road
- Outfall

Figure 10. Early Action Area 6 (Boeing Isaacson/Central KCIA)

0 125 250 500 750 1,000 Feet

Scale: 1:4,500

WA State Plane North, NAD83

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N

Key

- Property Boundary
- Road
- Outfall

Figure 11. Early Action Area 7 (Norfolk CSO/SD)

0 250 500 1,000 1,500 2,000 Feet

Scale: 1:9,000

WA State Plane North, NAD83

N

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L. Delwiche SAIC, 2008

Key

- Property Boundary
- Road
- Outfall

Figure 12. RM 0.9–1.0 East (Slip 1)

0 100 200 400 600 800 Feet

Scale: 1:3,600

WA State Plane North, NAD83

N

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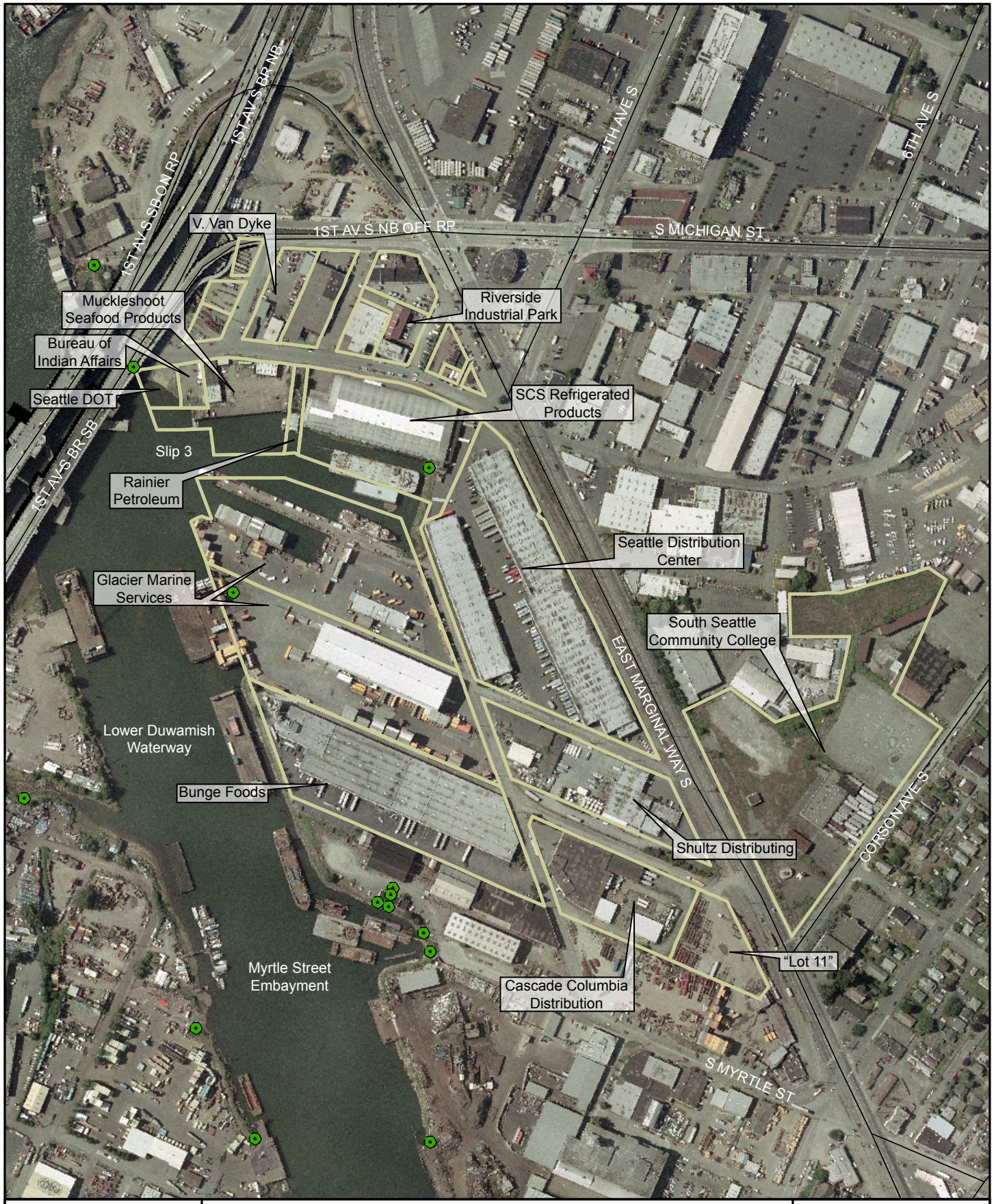

Key

- Property Boundary
- Road
- Outfall

Figure 13. RM 2.0–2.3 East (Slip 3 to Seattle Boiler Works)

0 135 270 540 810 1,080 Feet

Scale: 1:4,800

WA State Plane North, NAD83

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N

Key

- Property Boundary
- Road
- Outfall

Figure 14. RM 2.3–2.8 East (Seattle Boiler Works to Slip 4)

0 125 250 500 750 1,000 Feet

Scale: 1:5,000

WA State Plane North, NAD83

N

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L. Delwiche SAIC, 2008

Key

- Property Boundary
- Road
- Outfall

Figure 15. RM 3.9–4.3 East (Slip 6)

0 175 350 700 1,050 1,400 Feet

Scale: 1:7,000

WA State Plane North, NAD83

N

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L. Delwiche, SAIC 2008

Key

- Property Boundary
- Road
- Outfall

Figure 16. RM 1.3–1.6 West (Glacier Bay)

0 75 150 300 450 600 Feet

Scale: 1:3,000
WA State Plane North, NAD83

N

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Appendices

Appendix A
LDW Source Control Schedule

Basic Assumptions for Creating Schedule and Timeline

A set of basic assumptions was used to model the scenario for those tasks yet to be started or completed. For sites where work has already begun, actual dates were used wherever possible.

The following process assumptions were made:

- For areas where a SCAP has not been completed, each SCAP yields one site where soil or groundwater contamination requires cleanup to stop contamination or recontamination of sediments.
- For areas where a SCAP has been completed, each site identified in the SCAP that requires cleanup to stop contamination or recontamination of sediments will be shown on the chart.
- Upland site cleanup is the critical path for source control for most sediment cleanup areas.
- Only sites that require cleanup or source control for the LDW Superfund contaminants of concern will be addressed in this schedule.
- This schedule does not include sites involving chlorinated solvents, pesticides or those actions needed to protect the water column.
- Ecology will use the MTCA rules and procedures for cleanup.
- All sites will require an administrative order, an RI/FS, and a cleanup action plan or one or more interim action plans.
- Once a site manager is assigned, an Agreed Order takes approximately 12 months to complete, as follows:
    - Credible evidence exists to support issuing a preliminary PLP notice letter to the owner/operator within two months of publication of the SCAP.
    - Owner/operator does not respond to preliminary PLP letter until the last day of the 30-day response period.
    - No new potential PLPs are identified who must be notified and included in negotiations.
    - PLP determination letter is sent one month after receiving the owner/operator response.
    - Negotiations for an Agreed Order begin 30 days after Ecology sends the PLP determination letter.
    - Negotiations are complete within five months of start of negotiations.
    - The public comment period includes two weeks to set up, 30 days for comment, two weeks for responses.
- The draft RI takes 24 months. This includes sampling plans, field work, and first draft and final draft RI reports.
- The draft RI will identify interim actions necessary to control sources of sediment contamination/recontamination.

- An interim action plan will be started upon Ecology's acceptance of the draft RI.
- After completion of the draft RI, work on the interim actions and production of the final RI will be done concurrently. The FS and Cleanup Action Plan will also be done concurrently.
- The FS will be completed 12 months after acceptance of the final RI.
- **The interim actions do not require in-water work**.
- Interim actions to stop the release of contaminants are completed 24 months after completion of the draft RI. This includes negotiating the scope, developing the work plan, review and approval of design and monitoring plans, completion of the SEPA checklist, a 30 day public comment period, issuance of a DNS or Mitigated DNS, obtaining necessary permits, field work, and Ecology acceptance of the final action reports.
- Monitoring of the interim action starts one month after completion of field work, and continues for 12 months (assume quarterly monitoring), for a total of 13 months.
- Ecology accepts a final compliance monitoring report four months after the end of the monitoring period. Ecology determines the source is controlled.

The staffing scenario is based on known or anticipated assignments as of August 2008. The following staffing assumptions were made:

- A full-time site manager can handle a total of four sites.
- A full-time site manager, with no existing workload, can initially handle two sites, starting six months apart. Starting means initial file review to prepare the Preliminary PLP notice letter.
- Eighteen months after starting the first site, a full-time site manager will start file review for a third site. Six months later, they will start work on a fourth site.
- Three full-time site managers are assigned exclusively to the LDW.
- A fourth full-time site manager will be hired. For planning purposes, the new site manager is assumed to start in October 2008.
- Work at EAA-1 (Duwamish/Diagonal Way) is underway. The work at EAA-1 is being done by the Port of Seattle at Terminal 108 as an independent action. The Port is working with Ecology.
- Work at is underway at three EPA-lead sites.
    - EAA-4 (Boeing Plant 2/Jorgensen Forge bank)
    - EAA-5 (Terminal 117)
    - Rhone-Poulenc (RM 3.9-4.4 East; Slip 6) and
- Work has started at the following Ecology-lead sites; site managers for these sites are not dedicated to work on the LDW. They are not included in the projected schedule for full-time site managers:
    - EAA-4 (Jorgensen Forge uplands)
    - 8801 Site (RM 3.9-4.4 East; Slip 6)

- Work has started at the following Ecology-lead sites (with full-time site managers):
    - North Boeing Field/Georgetown Steam Plant (EAA-3, Slip 4)
    - Crowley Marine Services (EAA-3, Slip 4)
    - Trotsky Property (EAA-2)
    - Duwamish Shipyard (RM 1.3-1.6 West; Glacier Bay)
    - Glacier Northwest/Reichhold (RM 1.3-1.6 West; Glacier Bay)
- If more than 16 sites need to be worked on, additional site managers will be added as necessary, subject to availability of positions and funding.
- Sufficient legal, technical and public involvement support will be added as the number of sites increases.

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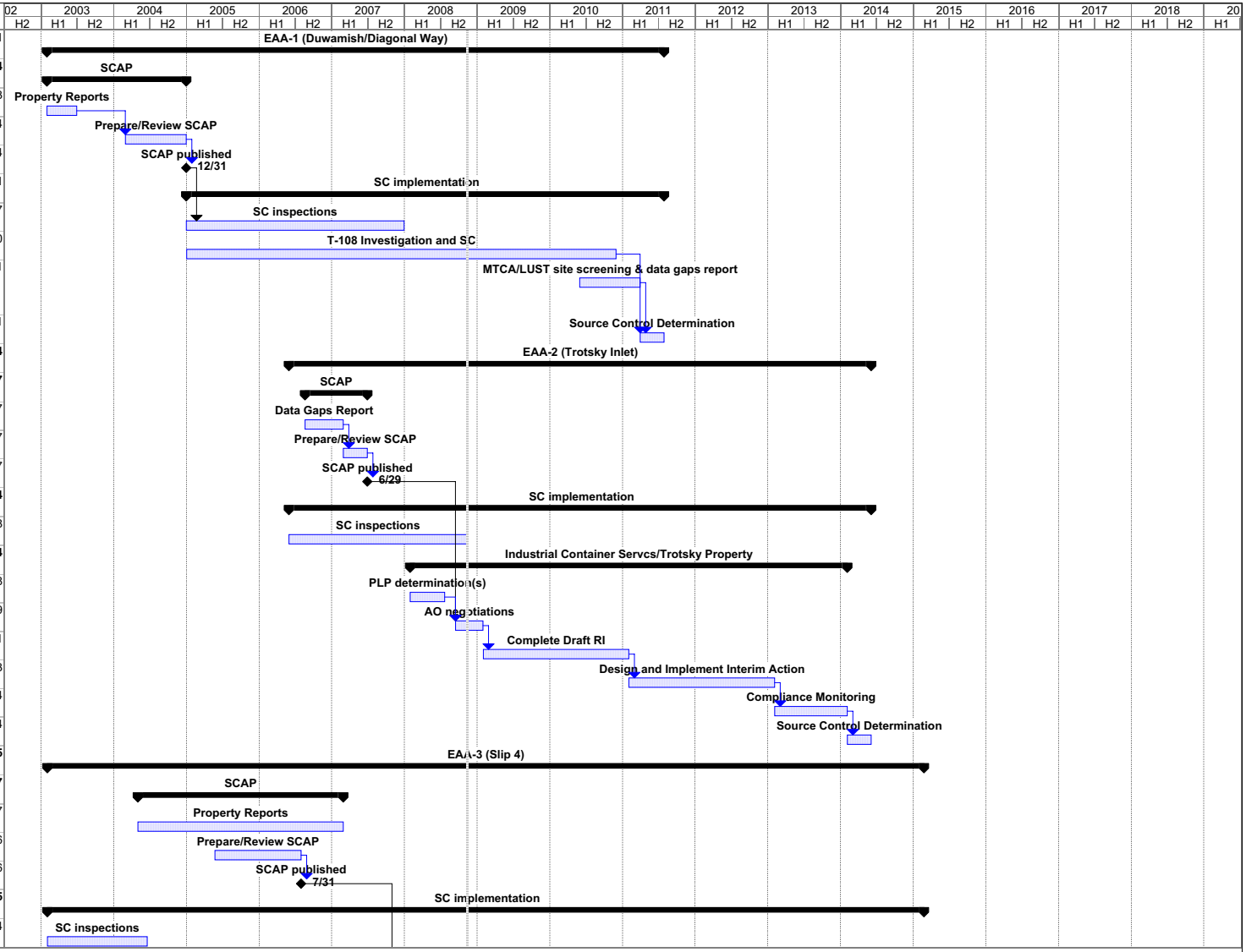
ID	Task Name	Start	Finish
1	**EAA-1 (Duwamish/Diagonal Way)**	**Sat 2/1/03**	**Fri 7/29/11**
2	**SCAP**	**Sat 2/1/03**	**Fri 12/31/04**
3	Property Reports	Sat 2/1/03	Mon 6/30/03
4	Prepare/Review SCAP	Mon 3/1/04	Fri 12/31/04
5	SCAP published	Fri 12/31/04	Fri 12/31/04
6	**SC implementation**	**Sat 1/1/05**	**Fri 7/29/11**
7	SC inspections	Sat 1/1/05	Mon 12/31/07
8	T-108 Investigation and SC	Mon 1/3/05	Tue 11/30/10
9	MTCA/LUST site screening & data gaps report	Tue 6/1/10	Thu 3/31/11
10	Source Control Determination	Fri 4/1/11	Fri 7/29/11
11	**EAA-2 (Trotsky Inlet)**	**Thu 6/1/06**	**Wed 6/4/14**
12	**SCAP**	**Mon 8/21/06**	**Fri 6/29/07**
13	Data Gaps Report	Mon 8/21/06	Wed 2/28/07
14	Prepare/Review SCAP	Thu 3/1/07	Fri 6/29/07
15	SCAP published	Fri 6/29/07	Fri 6/29/07
16	**SC implementation**	**Thu 6/1/06**	**Wed 6/4/14**
17	SC inspections	Thu 6/1/06	Wed 11/12/08
18	**Industrial Container Servcs/Trotsky Property**	**Thu 1/31/08**	**Tue 2/4/14**
19	PLP determination(s)	Thu 1/31/08	Tue 7/22/08
20	AO negotiations	Mon 9/15/08	Fri 1/30/09
21	Complete Draft RI	Mon 2/2/09	Wed 2/2/11
22	Design and Implement Interim Action	Thu 2/3/11	Mon 2/4/13
23	Compliance Monitoring	Tue 2/5/13	Tue 2/4/14
24	Source Control Determination	Wed 2/5/14	Wed 6/4/14
25	**EAA-3 (Slip 4)**	**Mon 2/3/03**	**Tue 2/24/15**
26	**SCAP**	**Mon 5/3/04**	**Wed 2/28/07**
27	Property Reports	Mon 5/3/04	Wed 2/28/07
28	Prepare/Review SCAP	Wed 5/25/05	Mon 7/31/06
29	SCAP published	Mon 7/31/06	Mon 7/31/06
30	**SC implementation**	**Mon 2/3/03**	**Tue 2/24/15**
31	SC inspections	Mon 2/3/03	Fri 6/18/04



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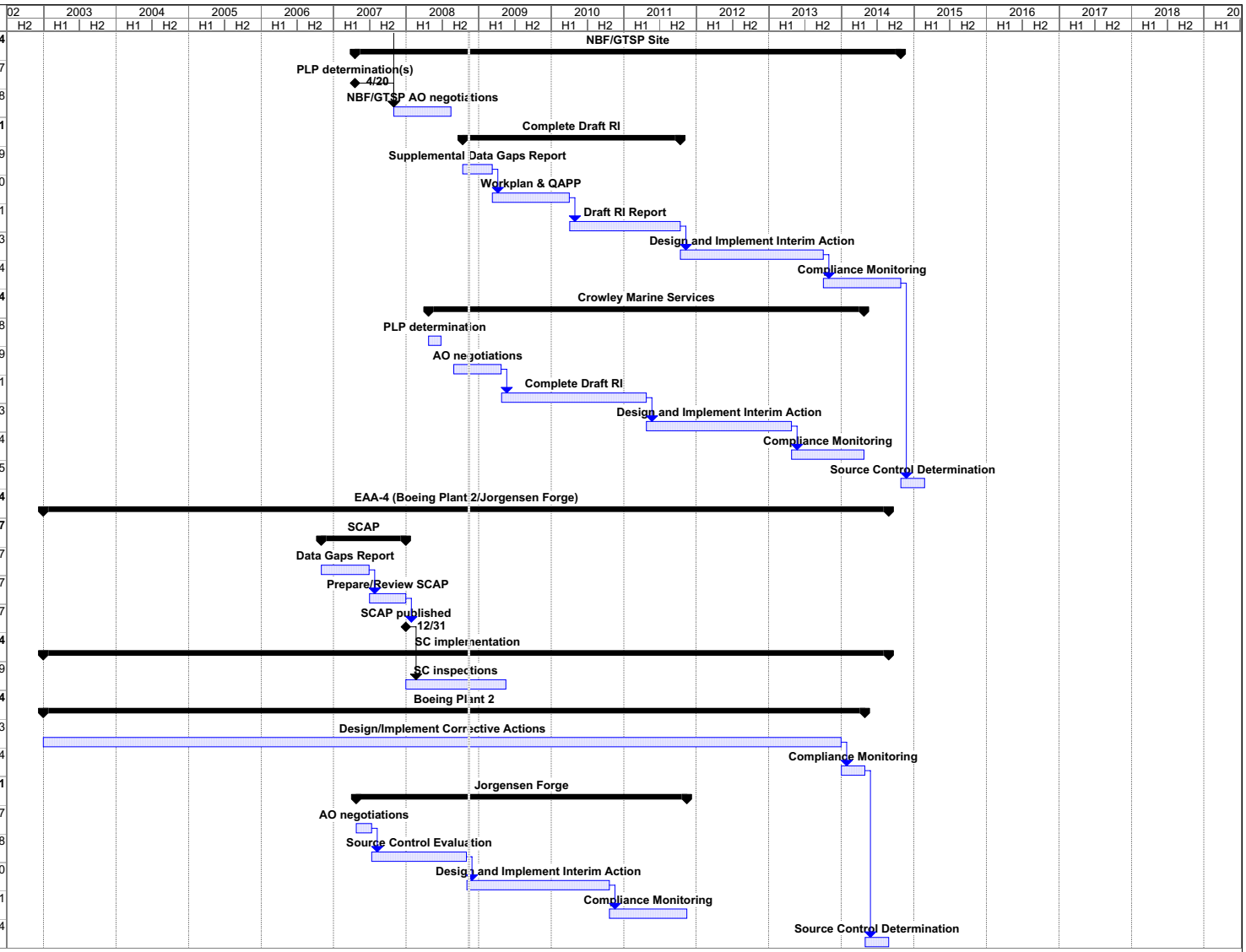
Task — Progress — Summary — External Tasks — Split
Split — Milestone — Project Summary — External MileTask

ID	Task Name	Start	Finish
32	**NBF/GTSP Site**	**Fri 4/20/07**	**Mon 10/27/14**
33	PLP determination(s)	Fri 4/20/07	Fri 4/20/07
34	NBF/GTSP AO negotiations	Thu 11/1/07	Thu 8/14/08
35	**Complete Draft RI**	**Mon 10/13/08**	**Thu 10/13/11**
36	Supplemental Data Gaps Report	Mon 10/13/08	Tue 3/10/09
37	Workplan & QAPP	Wed 3/11/09	Fri 4/2/10
38	Draft RI Report	Mon 4/5/10	Thu 10/13/11
39	Design and Implement Interim Action	Fri 10/14/11	Wed 10/2/13
40	Compliance Monitoring	Thu 10/3/13	Mon 10/27/14
41	**Crowley Marine Services**	**Thu 4/24/08**	**Fri 4/25/14**
42	PLP determination	Thu 4/24/08	Wed 6/25/08
43	AO negotiations	Fri 8/29/08	Fri 4/24/09
44	Complete Draft RI	Mon 4/27/09	Mon 4/25/11
45	Design and Implement Interim Action	Tue 4/26/11	Thu 4/25/13
46	Compliance Monitoring	Fri 4/26/13	Fri 4/25/14
47	Source Control Determination	Tue 10/28/14	Tue 2/24/15
48	**EAA-4 (Boeing Plant 2/Jorgensen Forge)**	**Wed 1/1/03**	**Thu 8/28/14**
49	**SCAP**	**Wed 11/1/06**	**Mon 12/31/07**
50	Data Gaps Report	Wed 11/1/06	Fri 6/29/07
51	Prepare/Review SCAP	Mon 7/2/07	Mon 12/31/07
52	SCAP published	Mon 12/31/07	Mon 12/31/07
53	**SC implementation**	**Wed 1/1/03**	**Thu 8/28/14**
54	SC inspections	Tue 1/1/08	Mon 5/18/09
55	**Boeing Plant 2**	**Wed 1/1/03**	**Wed 4/30/14**
56	Design/Implement Corrective Actions	Wed 1/1/03	Tue 12/31/13
57	Compliance Monitoring	Wed 1/1/14	Wed 4/30/14
58	**Jorgensen Forge**	**Thu 4/26/07**	**Tue 11/15/11**
59	AO negotiations	Thu 4/26/07	Thu 7/12/07
60	Source Control Evaluation	Fri 7/13/07	Fri 10/31/08
61	Design and Implement Interim Action	Mon 11/3/08	Thu 10/21/10
62	Compliance Monitoring	Fri 10/22/10	Tue 11/15/11
63	Source Control Determination	Thu 5/1/14	Thu 8/28/14



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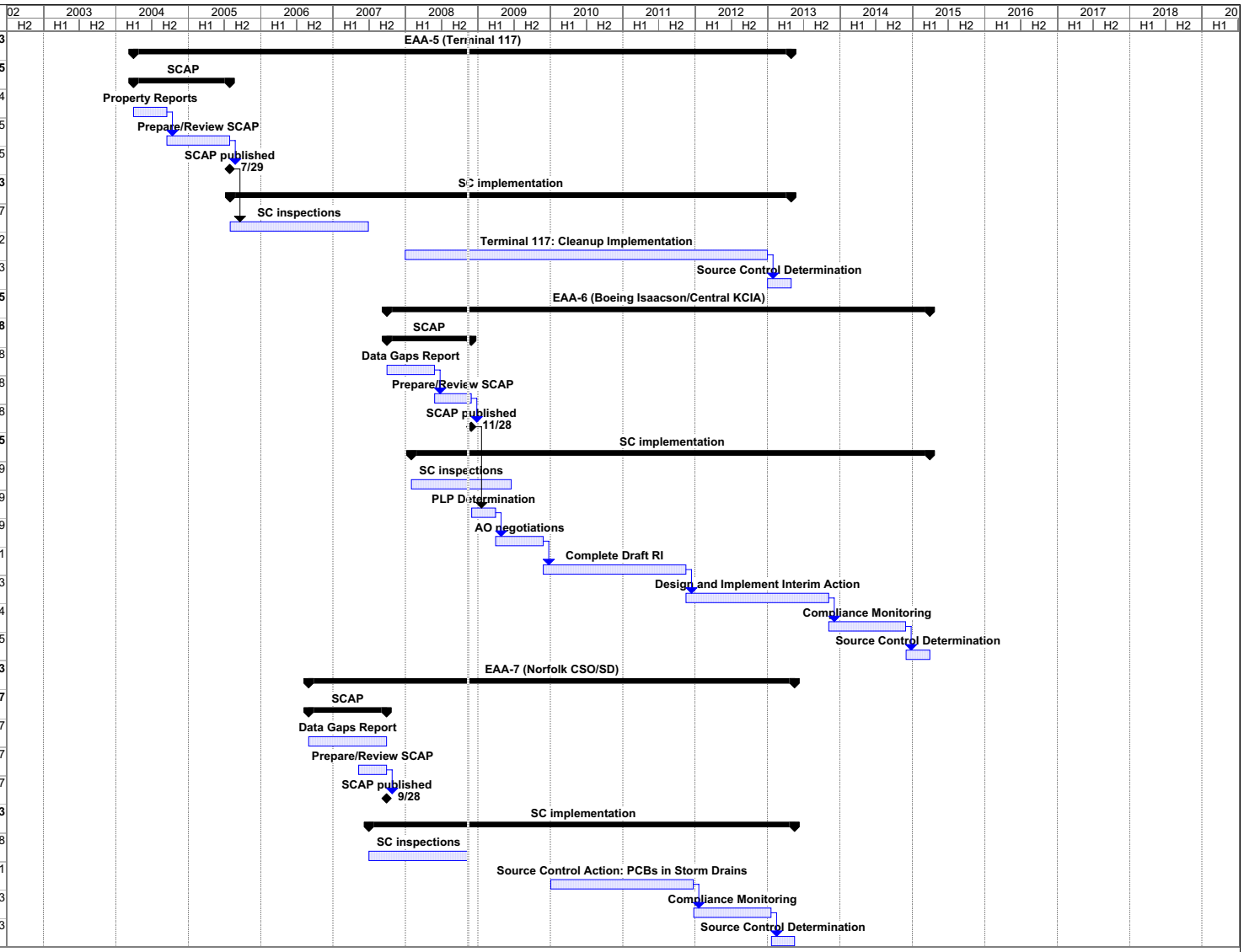
Task | Split | Progress | Milestone | Summary | Project Summary | External Tasks | External MileTask | Split

ID	Task Name	Start	Finish
64	**EAA-5 (Terminal 117)**	**Thu 4/1/04**	**Tue 4/30/13**
65	**SCAP**	**Thu 4/1/04**	**Fri 7/29/05**
66	Property Reports	Thu 4/1/04	Wed 9/15/04
67	Prepare/Review SCAP	Thu 9/16/04	Fri 7/29/05
68	SCAP published	Fri 7/29/05	Fri 7/29/05
69	**SC implementation**	**Mon 8/1/05**	**Tue 4/30/13**
70	SC inspections	Mon 8/1/05	Thu 6/28/07
71	Terminal 117: Cleanup Implementation	Tue 1/1/08	Mon 12/31/12
72	Source Control Determination	Tue 1/1/13	Tue 4/30/13
73	**EAA-6 (Boeing Isaacson/Central KCIA)**	**Mon 10/1/07**	**Mon 3/30/15**
74	**SCAP**	**Mon 10/1/07**	**Fri 11/28/08**
75	Data Gaps Report	Mon 10/1/07	Tue 5/27/08
76	Prepare/Review SCAP	Wed 5/28/08	Fri 11/28/08
77	SCAP published	Fri 11/28/08	Fri 11/28/08
78	**SC implementation**	**Fri 2/1/08**	**Mon 3/30/15**
79	SC inspections	Fri 2/1/08	Thu 6/18/09
80	PLP Determination	Mon 12/1/08	Tue 3/31/09
81	AO negotiations	Wed 4/1/09	Thu 11/26/09
82	Complete Draft RI	Fri 11/27/09	Wed 11/16/11
83	Design and Implement Interim Action	Thu 11/17/11	Tue 11/5/13
84	Compliance Monitoring	Wed 11/6/13	Fri 11/28/14
85	Source Control Determination	Mon 12/1/14	Mon 3/30/15
86	**EAA-7 (Norfolk CSO/SD)**	**Fri 9/1/06**	**Fri 5/17/13**
87	**SCAP**	**Fri 9/1/06**	**Fri 9/28/07**
88	Data Gaps Report	Fri 9/1/06	Fri 9/28/07
89	Prepare/Review SCAP	Fri 5/11/07	Fri 9/28/07
90	SCAP published	Fri 9/28/07	Fri 9/28/07
91	**SC implementation**	**Mon 7/2/07**	**Fri 5/17/13**
92	SC inspections	Mon 7/2/07	Fri 11/14/08
93	Source Control Action: PCBs in Storm Drains	Mon 1/4/10	Fri 12/23/11
94	Compliance Monitoring	Mon 12/26/11	Fri 1/18/13
95	Source Control Determination	Mon 1/21/13	Fri 5/17/13



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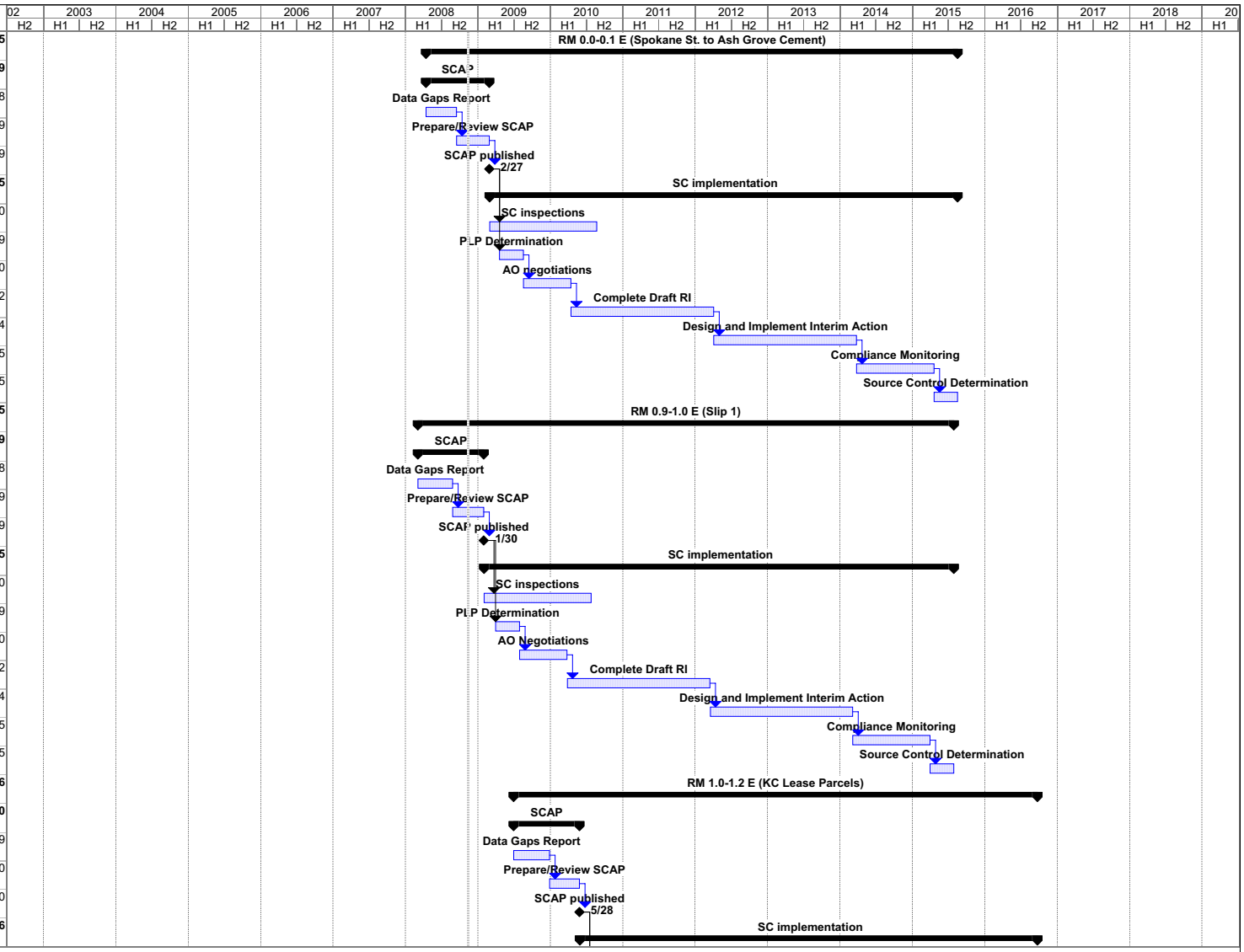
Task | Split | Progress | Milestone | Summary | Project Summary | External Tasks | External MileTask | Split

ID	Task Name	Start	Finish
96	**RM 0.0-0.1 E (Spokane St. to Ash Grove Cement)**	**Tue 4/15/08**	**Mon 8/17/15**
97	**SCAP**	**Tue 4/15/08**	**Fri 2/27/09**
98	Data Gaps Report	Tue 4/15/08	Mon 9/15/08
99	Prepare/Review SCAP	Tue 9/16/08	Fri 2/27/09
100	SCAP published	Fri 2/27/09	Fri 2/27/09
101	**SC implementation**	**Mon 3/2/09**	**Mon 8/17/15**
102	SC inspections	Mon 3/2/09	Mon 8/23/10
103	PLP Determination	Mon 4/20/09	Tue 8/18/09
104	AO negotiations	Wed 8/19/09	Thu 4/15/10
105	Complete Draft RI	Fri 4/16/10	Wed 4/4/12
106	Design and Implement Interim Action	Thu 4/5/12	Tue 3/25/14
107	Compliance Monitoring	Wed 3/26/14	Mon 4/20/15
108	Source Control Determination	Tue 4/21/15	Mon 8/17/15
109	**RM 0.9-1.0 E (Slip 1)**	**Wed 3/5/08**	**Wed 7/29/15**
110	**SCAP**	**Wed 3/5/08**	**Fri 1/30/09**
111	Data Gaps Report	Wed 3/5/08	Tue 8/26/08
112	Prepare/Review SCAP	Wed 8/27/08	Fri 1/30/09
113	SCAP published	Fri 1/30/09	Fri 1/30/09
114	**SC implementation**	**Mon 2/2/09**	**Wed 7/29/15**
115	SC inspections	Mon 2/2/09	Mon 7/26/10
116	PLP Determination	Wed 4/1/09	Thu 7/30/09
117	AO Negotiations	Fri 7/31/09	Fri 3/26/10
118	Complete Draft RI	Mon 3/29/10	Fri 3/16/12
119	Design and Implement Interim Action	Mon 3/19/12	Thu 3/6/14
120	Compliance Monitoring	Fri 3/7/14	Tue 3/31/15
121	Source Control Determination	Wed 4/1/15	Wed 7/29/15
122	**RM 1.0-1.2 E (KC Lease Parcels)**	**Wed 7/1/09**	**Fri 9/23/16**
123	**SCAP**	**Wed 7/1/09**	**Fri 5/28/10**
124	Data Gaps Report	Wed 7/1/09	Mon 12/28/09
125	Prepare/Review SCAP	Tue 12/29/09	Fri 5/28/10
126	SCAP published	Fri 5/28/10	Fri 5/28/10
127	**SC implementation**	**Mon 5/31/10**	**Fri 9/23/16**



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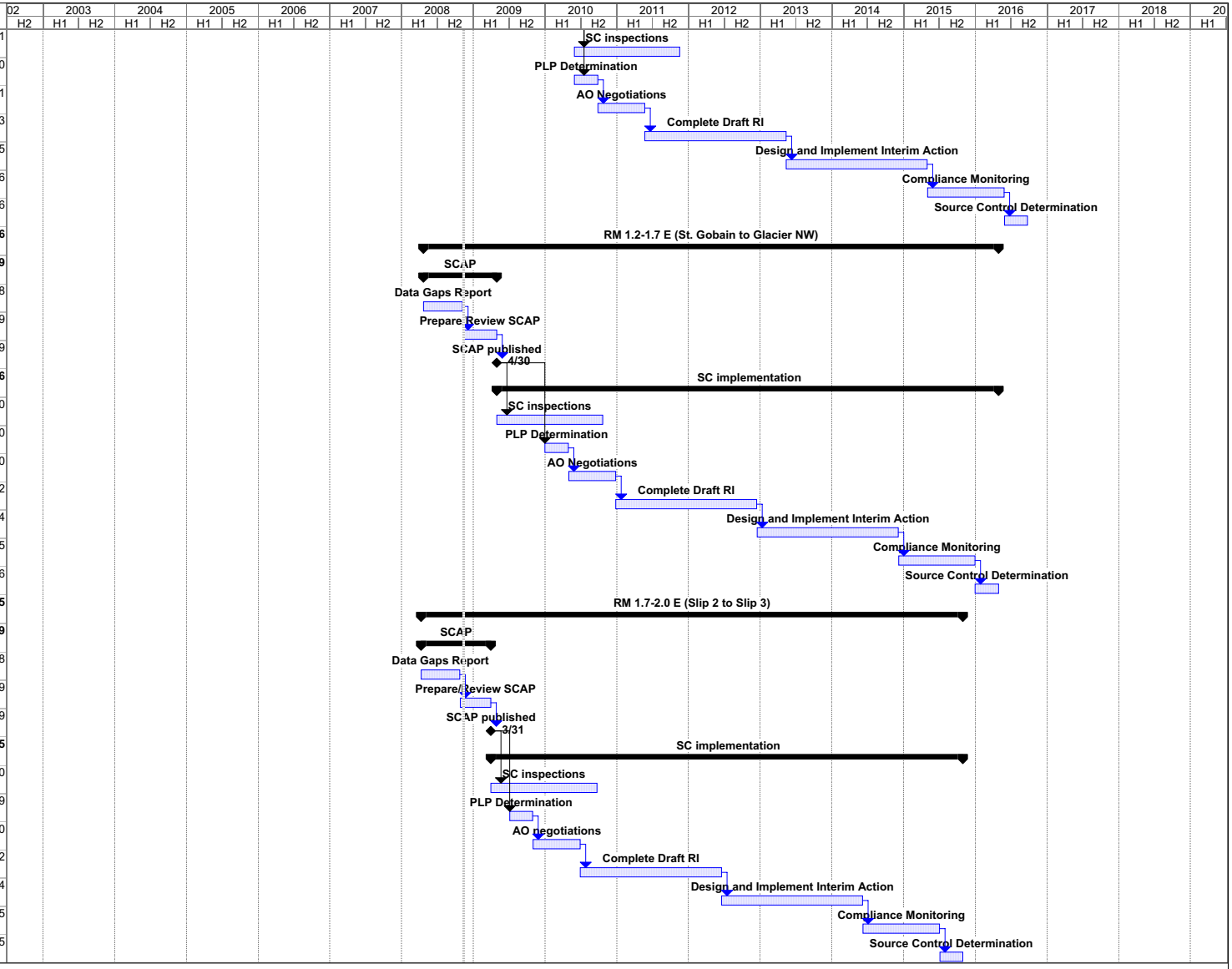
Task | Split | Progress | Milestone | Summary | Project Summary | External Tasks | External MileTask | Split

ID	Task Name	Start	Finish
128	SC inspections	Mon 5/31/10	Fri 11/18/11
129	PLP Determination	Mon 5/31/10	Mon 9/27/10
130	AO Negotiations	Tue 9/28/10	Tue 5/24/11
131	Complete Draft RI	Wed 5/25/11	Mon 5/13/13
132	Design and Implement Interim Action	Tue 5/14/13	Fri 5/1/15
133	Compliance Monitoring	Mon 5/4/15	Fri 5/27/16
134	Source Control Determination	Mon 5/30/16	Fri 9/23/16
135	**RM 1.2-1.7 E (St. Gobain to Glacier NW)**	**Wed 4/23/08**	**Fri 4/29/16**
136	**SCAP**	**Wed 4/23/08**	**Thu 4/30/09**
137	Data Gaps Report	Wed 4/23/08	Fri 11/7/08
138	Prepare/Review SCAP	Mon 11/10/08	Thu 4/30/09
139	SCAP published	Thu 4/30/09	Thu 4/30/09
140	**SC implementation**	**Fri 5/1/09**	**Fri 4/29/16**
141	SC inspections	Fri 5/1/09	Fri 10/22/10
142	PLP Determination	Fri 1/1/10	Fri 4/30/10
143	AO Negotiations	Mon 5/3/10	Mon 12/27/10
144	Complete Draft RI	Tue 12/28/10	Fri 12/14/12
145	Design and Implement Interim Action	Mon 12/17/12	Fri 12/5/14
146	Compliance Monitoring	Mon 12/8/14	Thu 12/31/15
147	Source Control Determination	Fri 1/1/16	Fri 4/29/16
148	**RM 1.7-2.0 E (Slip 2 to Slip 3)**	**Fri 4/11/08**	**Fri 10/30/15**
149	**SCAP**	**Fri 4/11/08**	**Tue 3/31/09**
150	Data Gaps Report	Fri 4/11/08	Fri 10/24/08
151	Prepare/Review SCAP	Mon 10/27/08	Tue 3/31/09
152	SCAP published	Tue 3/31/09	Tue 3/31/09
153	**SC implementation**	**Wed 4/1/09**	**Fri 10/30/15**
154	SC inspections	Wed 4/1/09	Thu 9/23/10
155	PLP Determination	Mon 7/6/09	Fri 10/30/09
156	AO negotiations	Mon 11/2/09	Tue 6/29/10
157	Complete Draft RI	Wed 6/30/10	Mon 6/18/12
158	Design and Implement Interim Action	Tue 6/19/12	Fri 6/6/14
159	Compliance Monitoring	Mon 6/9/14	Fri 7/3/15
160	Source Control Determination	Mon 7/6/15	Fri 10/30/15



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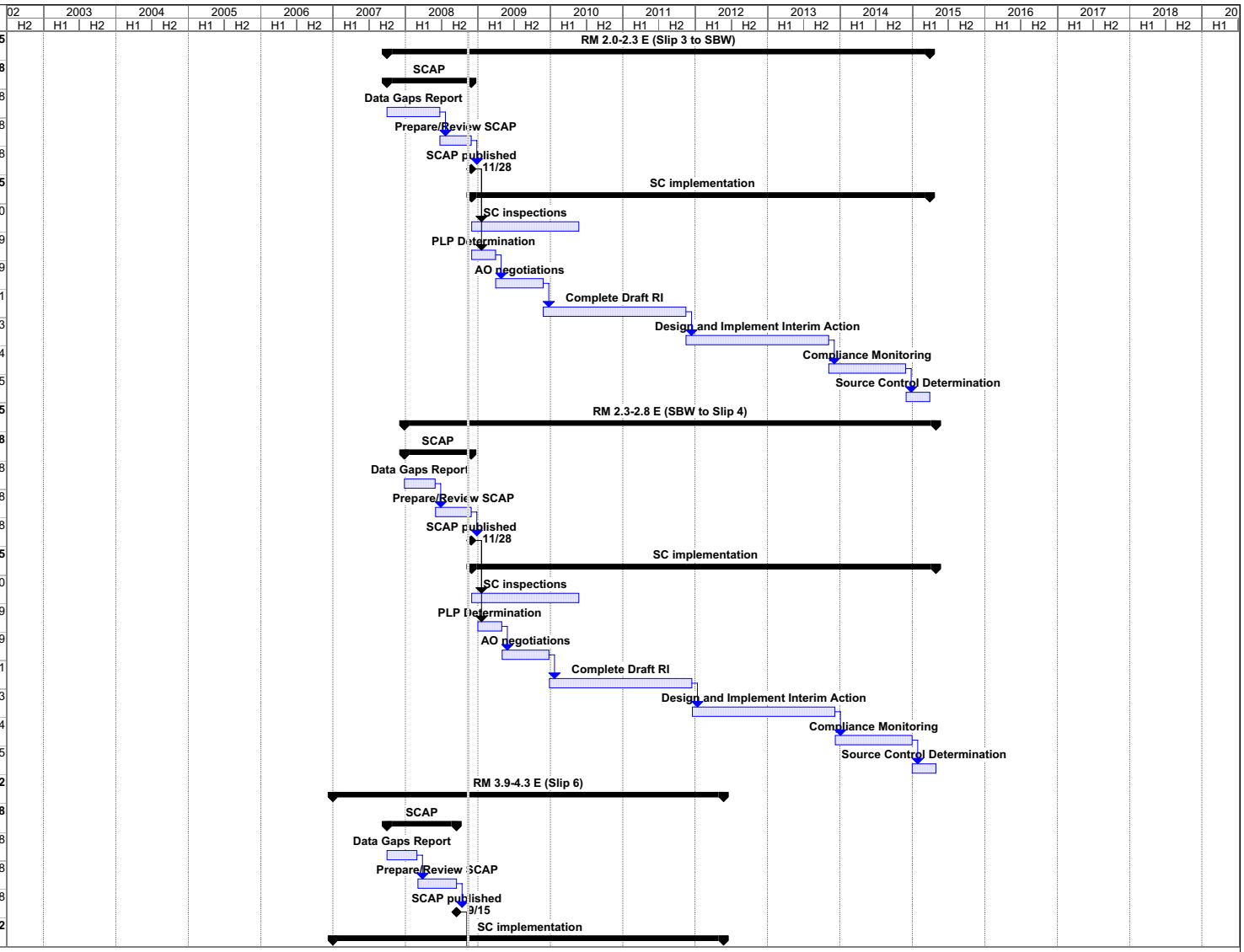
Task | Split | Progress | Milestone | Summary | Project Summary | External Tasks | External MileTask | Split

ID	Task Name	Start	Finish
161	**RM 2.0-2.3 E (Slip 3 to SBW)**	**Mon 10/1/07**	**Mon 3/30/15**
162	**SCAP**	**Mon 10/1/07**	**Fri 11/28/08**
163	Data Gaps Report	Mon 10/1/07	Mon 6/23/08
164	Prepare/Review SCAP	Tue 6/24/08	Fri 11/28/08
165	SCAP published	Fri 11/28/08	Fri 11/28/08
166	**SC implementation**	**Mon 12/1/08**	**Mon 3/30/15**
167	SC inspections	Mon 12/1/08	Tue 5/25/10
168	PLP Determination	Mon 12/1/08	Tue 3/31/09
169	AO negotiations	Wed 4/1/09	Thu 11/26/09
170	Complete Draft RI	Fri 11/27/09	Wed 11/16/11
171	Design and Implement Interim Action	Thu 11/17/11	Tue 11/5/13
172	Compliance Monitoring	Wed 11/6/13	Fri 11/28/14
173	Source Control Determination	Mon 12/1/14	Mon 3/30/15
174	**RM 2.3-2.8 E (SBW to Slip 4)**	**Fri 12/28/07**	**Thu 4/30/15**
175	**SCAP**	**Fri 12/28/07**	**Fri 11/28/08**
176	Data Gaps Report	Fri 12/28/07	Fri 5/30/08
177	Prepare/Review SCAP	Mon 6/2/08	Fri 11/28/08
178	SCAP published	Fri 11/28/08	Fri 11/28/08
179	**SC implementation**	**Mon 12/1/08**	**Thu 4/30/15**
180	SC inspections	Mon 12/1/08	Tue 5/25/10
181	PLP Determination	Thu 1/1/09	Fri 5/1/09
182	AO negotiations	Mon 5/4/09	Fri 12/25/09
183	Complete Draft RI	Mon 12/28/09	Fri 12/16/11
184	Design and Implement Interim Action	Mon 12/19/11	Fri 12/6/13
185	Compliance Monitoring	Mon 12/9/13	Wed 12/31/14
186	Source Control Determination	Thu 1/1/15	Thu 4/30/15
187	**RM 3.9-4.3 E (Slip 6)**	**Mon 1/1/07**	**Thu 5/24/12**
188	**SCAP**	**Mon 10/1/07**	**Mon 9/15/08**
189	Data Gaps Report	Mon 10/1/07	Thu 2/28/08
190	Prepare/Review SCAP	Wed 3/5/08	Mon 9/15/08
191	SCAP published	Mon 9/15/08	Mon 9/15/08
192	**SC implementation**	**Mon 1/1/07**	**Thu 5/24/12**



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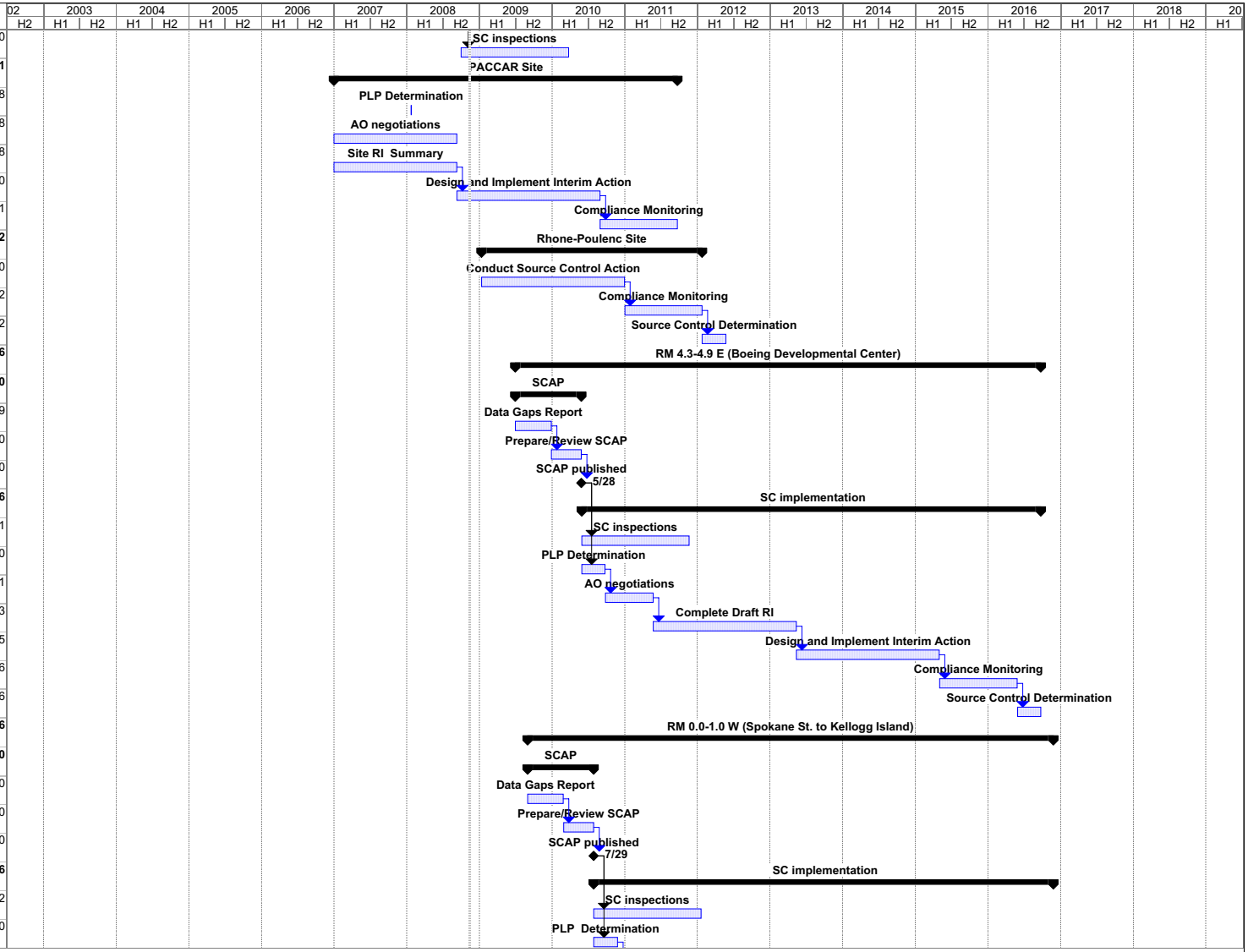
ID	Task Name	Start	Finish
193	SC inspections	Wed 10/1/08	Thu 3/25/10
194	**PACCAR Site**	**Mon 1/1/07**	**Fri 9/23/11**
195	PLP Determination	Thu 1/24/08	Thu 1/24/08
196	AO negotiations	Mon 1/1/07	Tue 9/9/08
197	Site RI Summary	Mon 1/1/07	Tue 9/9/08
198	Design and Implement Interim Action	Wed 9/10/08	Mon 8/30/10
199	Compliance Monitoring	Tue 8/31/10	Fri 9/23/11
200	**Rhone-Poulenc Site**	**Mon 1/12/09**	**Wed 1/25/12**
201	Conduct Source Control Action	Mon 1/12/09	Fri 12/31/10
202	Compliance Monitoring	Mon 1/3/11	Wed 1/25/12
203	Source Control Determination	Thu 1/26/12	Thu 5/24/12
204	**RM 4.3-4.9 E (Boeing Developmental Center)**	**Wed 7/1/09**	**Fri 9/23/16**
205	**SCAP**	**Wed 7/1/09**	**Fri 5/28/10**
206	Data Gaps Report	Wed 7/1/09	Mon 12/28/09
207	Prepare/Review SCAP	Tue 12/29/09	Fri 5/28/10
208	SCAP published	Fri 5/28/10	Fri 5/28/10
209	**SC implementation**	**Mon 5/31/10**	**Fri 9/23/16**
210	SC inspections	Mon 5/31/10	Mon 11/21/11
211	PLP Determination	Mon 5/31/10	Fri 9/24/10
212	AO negotiations	Mon 9/27/10	Tue 5/24/11
213	Complete Draft RI	Wed 5/25/11	Mon 5/13/13
214	Design and Implement Interim Action	Tue 5/14/13	Fri 5/1/15
215	Compliance Monitoring	Mon 5/4/15	Fri 5/27/16
216	Source Control Determination	Mon 5/30/16	Fri 9/23/16
217	**RM 0.0-1.0 W (Spokane St. to Kellogg Island)**	**Tue 9/1/09**	**Fri 11/25/16**
218	**SCAP**	**Tue 9/1/09**	**Thu 7/29/10**
219	Data Gaps Report	Tue 9/1/09	Fri 2/26/10
220	Prepare/Review SCAP	Mon 3/1/10	Thu 7/29/10
221	SCAP published	Thu 7/29/10	Thu 7/29/10
222	**SC implementation**	**Fri 7/30/10**	**Fri 11/25/16**
223	SC inspections	Fri 7/30/10	Fri 1/20/12
224	PLP Determination	Fri 7/30/10	Fri 11/26/10



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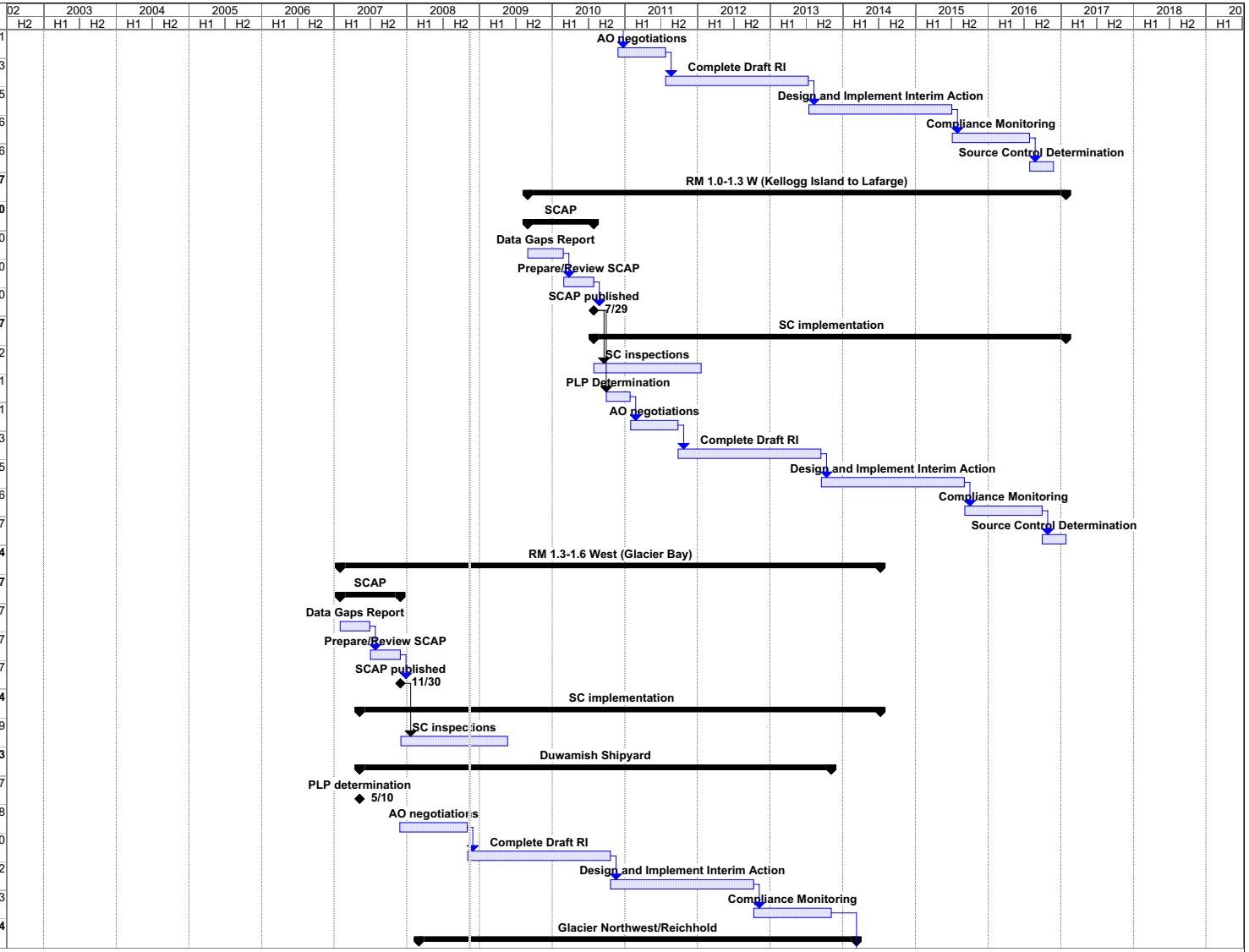
Task | Progress | Summary | External Tasks | Split
Split | Milestone | Project Summary | External MileTask

ID	Task Name	Start	Finish
225	AO negotiations	Mon 11/29/10	Mon 7/25/11
226	Complete Draft RI	Tue 7/26/11	Fri 7/12/13
227	Design and Implement Interim Action	Mon 7/15/13	Fri 7/3/15
228	Compliance Monitoring	Mon 7/6/15	Thu 7/28/16
229	Source Control Determination	Fri 7/29/16	Fri 11/25/16
230	**RM 1.0-1.3 W (Kellogg Island to Lafarge)**	**Tue 9/1/09**	**Fri 1/27/17**
231	**SCAP**	**Tue 9/1/09**	**Thu 7/29/10**
232	Data Gaps Report	Tue 9/1/09	Fri 2/26/10
233	Prepare/Review SCAP	Mon 3/1/10	Thu 7/29/10
234	SCAP published	Thu 7/29/10	Thu 7/29/10
235	**SC implementation**	**Fri 7/30/10**	**Fri 1/27/17**
236	SC inspections	Fri 7/30/10	Fri 1/20/12
237	PLP Determination	Fri 10/1/10	Fri 1/28/11
238	AO negotiations	Mon 1/31/11	Mon 9/26/11
239	Complete Draft RI	Tue 9/27/11	Fri 9/13/13
240	Design and Implement Interim Action	Mon 9/16/13	Fri 9/4/15
241	Compliance Monitoring	Mon 9/7/15	Thu 9/29/16
242	Source Control Determination	Fri 9/30/16	Fri 1/27/17
243	**RM 1.3-1.6 West (Glacier Bay)**	**Thu 2/1/07**	**Wed 7/9/14**
244	**SCAP**	**Thu 2/1/07**	**Fri 11/30/07**
245	Data Gaps Report	Thu 2/1/07	Fri 6/29/07
246	Prepare/Review SCAP	Tue 7/3/07	Fri 11/30/07
247	SCAP published	Fri 11/30/07	Fri 11/30/07
248	**SC implementation**	**Thu 5/10/07**	**Wed 7/9/14**
249	SC inspections	Mon 12/3/07	Fri 5/22/09
250	**Duwamish Shipyard**	**Thu 5/10/07**	**Mon 11/4/13**
251	PLP determination	Thu 5/10/07	Thu 5/10/07
252	AO negotiations	Wed 11/28/07	Fri 10/31/08
253	Complete Draft RI	Mon 11/3/08	Thu 10/21/10
254	Design and Implement Interim Action	Fri 10/22/10	Wed 10/10/12
255	Compliance Monitoring	Thu 10/11/12	Mon 11/4/13
256	**Glacier Northwest/Reichhold**	**Mon 3/3/08**	**Tue 3/11/14**



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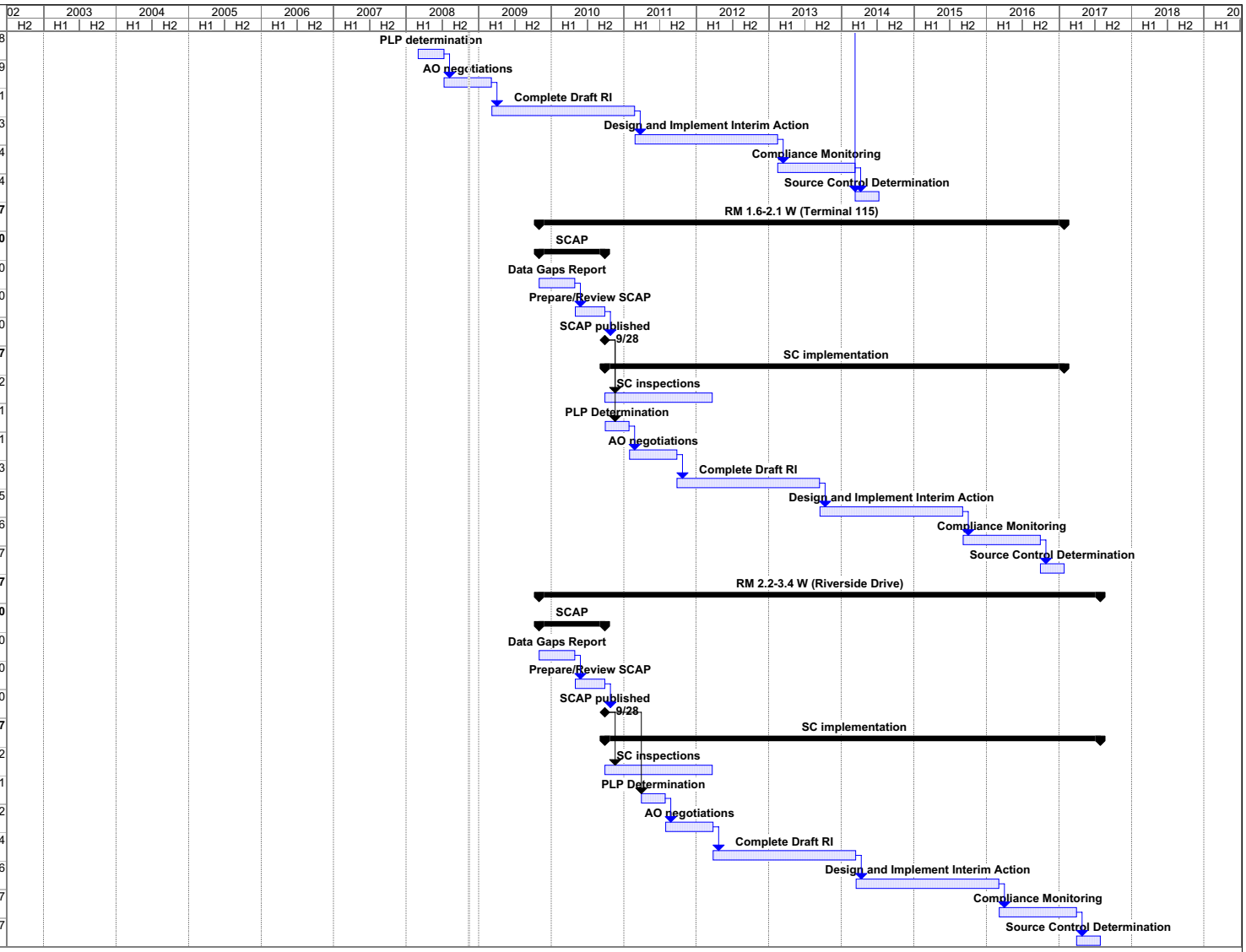
ID	Task Name	Start	Finish
257	PLP determination	Mon 3/3/08	Thu 7/10/08
258	AO negotiations	Fri 7/11/08	Fri 3/6/09
259	Complete Draft RI	Mon 3/9/09	Fri 2/25/11
260	Design and Implement Interim Action	Mon 2/28/11	Thu 2/14/13
261	Compliance Monitoring	Fri 2/15/13	Tue 3/11/14
262	Source Control Determination	Wed 3/12/14	Wed 7/9/14
263	**RM 1.6-2.1 W (Terminal 115)**	**Mon 11/2/09**	**Fri 1/27/17**
264	**SCAP**	**Mon 11/2/09**	**Tue 9/28/10**
265	Data Gaps Report	Mon 11/2/09	Fri 4/30/10
266	Prepare/Review SCAP	Mon 5/3/10	Tue 9/28/10
267	SCAP published	Tue 9/28/10	Tue 9/28/10
268	**SC implementation**	**Wed 9/29/10**	**Fri 1/27/17**
269	SC inspections	Wed 9/29/10	Thu 3/22/12
270	PLP Determination	Fri 10/1/10	Fri 1/28/11
271	AO negotiations	Mon 1/31/11	Mon 9/26/11
272	Complete Draft RI	Tue 9/27/11	Fri 9/13/13
273	Design and Implement Interim Action	Mon 9/16/13	Fri 9/4/15
274	Compliance Monitoring	Mon 9/7/15	Thu 9/29/16
275	Source Control Determination	Fri 9/30/16	Fri 1/27/17
276	**RM 2.2-3.4 W (Riverside Drive)**	**Mon 11/2/09**	**Fri 7/28/17**
277	**SCAP**	**Mon 11/2/09**	**Tue 9/28/10**
278	Data Gaps Report	Mon 11/2/09	Fri 4/30/10
279	Prepare/Review SCAP	Mon 5/3/10	Tue 9/28/10
280	SCAP published	Tue 9/28/10	Tue 9/28/10
281	**SC implementation**	**Wed 9/29/10**	**Fri 7/28/17**
282	SC inspections	Wed 9/29/10	Thu 3/22/12
283	PLP Determination	Fri 4/1/11	Fri 7/29/11
284	AO negotiations	Mon 8/1/11	Mon 3/26/12
285	Complete Draft RI	Tue 3/27/12	Fri 3/14/14
286	Design and Implement Interim Action	Mon 3/17/14	Fri 3/4/16
287	Compliance Monitoring	Mon 3/7/16	Thu 3/30/17
288	Source Control Determination	Fri 3/31/17	Fri 7/28/17



Project: LDW SC functional level
Date: Mon 11/10/08

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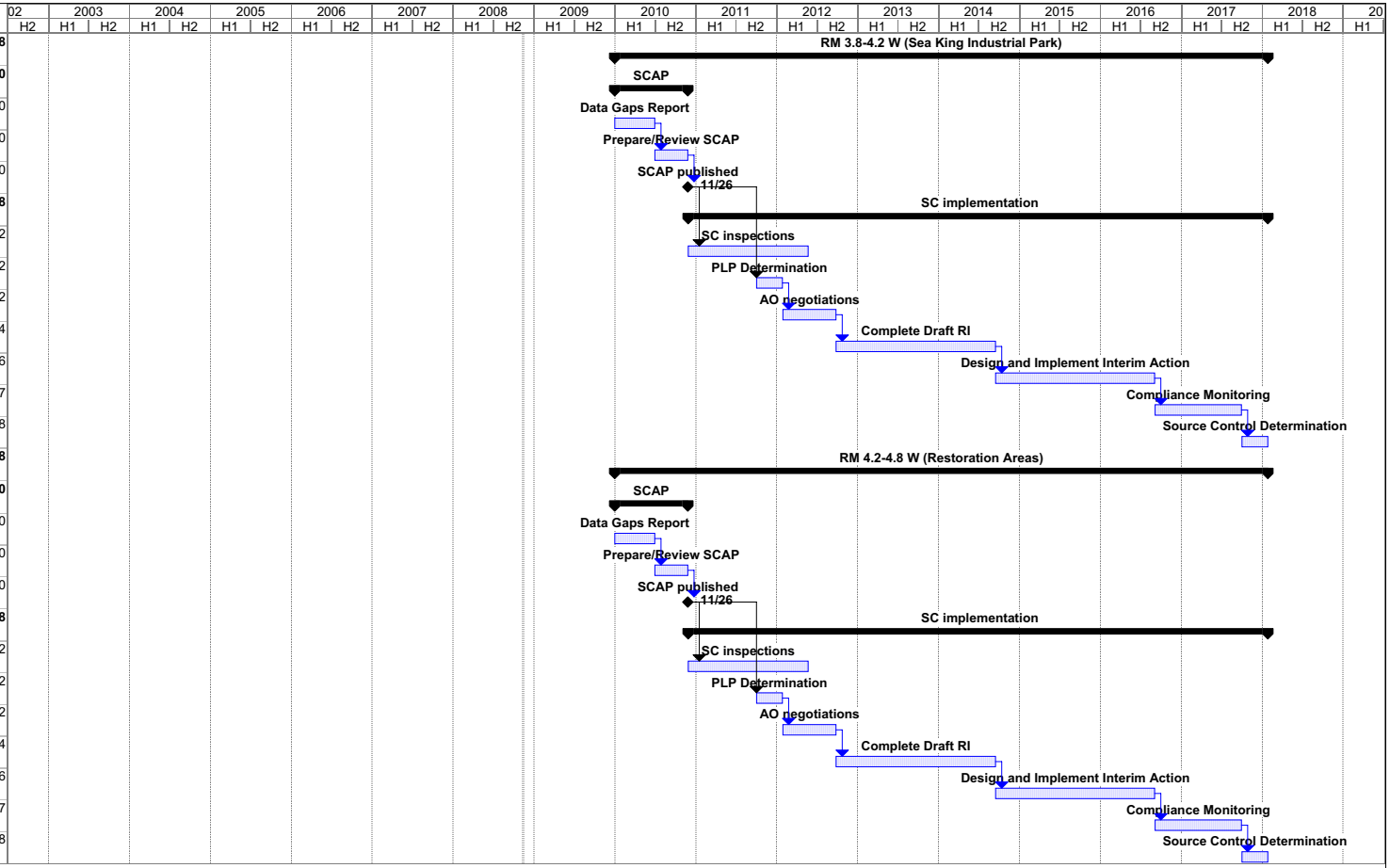
ID	Task Name	Start	Finish
289	**RM 3.8-4.2 W (Sea King Industrial Park)**	**Fri 1/1/10**	**Fri 1/26/18**
290	**SCAP**	**Fri 1/1/10**	**Fri 11/26/10**
291	Data Gaps Report	Fri 1/1/10	Wed 6/30/10
292	Prepare/Review SCAP	Thu 7/1/10	Fri 11/26/10
293	SCAP published	Fri 11/26/10	Fri 11/26/10
294	**SC implementation**	**Mon 11/29/10**	**Fri 1/26/18**
295	SC inspections	Mon 11/29/10	Tue 5/22/12
296	PLP Determination	Mon 10/3/11	Fri 1/27/12
297	AO negotiations	Mon 1/30/12	Tue 9/25/12
298	Complete Draft RI	Wed 9/26/12	Mon 9/15/14
299	Design and Implement Interim Action	Tue 9/16/14	Fri 9/2/16
300	Compliance Monitoring	Mon 9/5/16	Fri 9/29/17
301	Source Control Determination	Mon 10/2/17	Fri 1/26/18
302	**RM 4.2-4.8 W (Restoration Areas)**	**Fri 1/1/10**	**Fri 1/26/18**
303	**SCAP**	**Fri 1/1/10**	**Fri 11/26/10**
304	Data Gaps Report	Fri 1/1/10	Wed 6/30/10
305	Prepare/Review SCAP	Thu 7/1/10	Fri 11/26/10
306	SCAP published	Fri 11/26/10	Fri 11/26/10
307	**SC implementation**	**Mon 11/29/10**	**Fri 1/26/18**
308	SC inspections	Mon 11/29/10	Tue 5/22/12
309	PLP Determination	Mon 10/3/11	Fri 1/27/12
310	AO negotiations	Mon 1/30/12	Tue 9/25/12
311	Complete Draft RI	Wed 9/26/12	Mon 9/15/14
312	Design and Implement Interim Action	Tue 9/16/14	Fri 9/2/16
313	Compliance Monitoring	Mon 9/5/16	Fri 9/29/17
314	Source Control Determination	Mon 10/2/17	Fri 1/26/18



Project: LDW SC functional level
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Appendix B
LDW Business Inspections
(January through August 2008)

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Appendix B
LDW Business Inspections (January through August 2008)

Facility	Address	Date Inspected	Inspection Type	In Compliance?	Basin	Subbasin
Alaskan Copper & Brass	628 S Hanford St	7/31/2008	Followup	●	Diagonal CSO	Diagonal CSO
Alaskan Copper & Brass	2958 6th Ave S	7/31/2008	Followup	●	Diagonal CSO	Diagonal CSO
Mikado Restaurant	1306 S King St	2/27/2008	Followup		Diagonal CSO	Diagonal CSO
Airgas	4401 Airport Wy S	7/14/2008	Followup	●	Duwamish	Diagonal SD
Alaskan Copper & Brass	3300 6th Ave S	7/31/2008	Followup	●	Duwamish	Diagonal SD
Alaskan Copper & Brass	3200 6th Ave S	7/31/2008	Followup	●	Duwamish	Diagonal SD
Alaskan Copper & Brass	3223 6th Ave S	7/31/2008	Followup	●	Duwamish	Diagonal SD
Alaskan Copper & Brass	3301 6th Ave S	7/31/2008	Followup	●	Duwamish	Diagonal SD
Alaskan Copper & Brass	3317 6th Ave S	7/31/2008	Followup	●	Duwamish	Diagonal SD
Alaskan Copper & Brass	3405 6th Ave S	7/31/2008	Followup	●	Duwamish	Diagonal SD
Budget Batteries	2006 Rainier Ave S	1/25/2008	Followup		Duwamish	Diagonal SD
C & C Food Store	3002 Beacon Ave S	4/24/2008	Followup		Duwamish	Diagonal SD
City of Seattle	2700 Airport Wy S	3/12/2008	Followup		Duwamish	Diagonal SD
DHL Express	4450 E Marginal Wy S	2/20/2008	Followup		Duwamish	Diagonal SD
Firestone	2915 Rainier Ave S	1/8/2008	Followup		Duwamish	Diagonal SD
Global Fulfillment	4S Idaho St	8/28/2008	Initial		Duwamish	Diagonal SD
Greenwater Construction Inc.	4337 15th Ave S	8/21/2008	Screening		Duwamish	Diagonal SD
Inca Marble & Granite	5212 6th Ave S	1/16/2008	Followup		Duwamish	Diagonal SD
Jefferson Park Golf Course Clubhouse	4101 Beacon Ave S	3/6/2008	Followup		Duwamish	Diagonal SD
Jefferson Park Golf Maintenance Building	4101 Beacon Ave S	3/6/2008	Followup		Duwamish	Diagonal SD
Laird Plastics	650 S Industrial Wy	7/15/2008	Initial		Duwamish	Diagonal SD
Liberty Sidecars	2310 Rainier Ave S	2/15/2008	Followup		Duwamish	Diagonal SD
M&R Equipment, Inc.	3626 Airport Wy S	3/25/2008	Followup		Duwamish	Diagonal SD
MacMillan Piper Inc.	655 S Edmunds St	7/1/2008	Followup		Duwamish	Diagonal SD
MDE Engineers, Inc.	700 S Industrial Wy	1/22/2008	Followup		Duwamish	Diagonal SD
North Star Casteel	3901 9th Ave S	8/14/2008	Followup		Duwamish	Diagonal SD
NW Container Services Inc.	635 S Edmunds St	1/23/2008	Followup		Duwamish	Diagonal SD
Pacific Publishing Co.	636 S Alaska St	2/6/2008	Followup		Duwamish	Diagonal SD
Precision Welder & Engine Repair	4429 Airport Wy S	2/21/2008	Followup		Duwamish	Diagonal SD
Puget Sound Industry Services	4429 Airport Wy S	2/21/2008	Followup		Duwamish	Diagonal SD
Rainier Grocery Outlet	2901 27th Ave S, #C	5/12/2008	Followup		Duwamish	Diagonal SD
Safelite Glass Corp.	665 S Dakota St	8/14/2008	Followup	●	Duwamish	Diagonal SD
Seattle Goodwill	1400 S Lane St	1/29/2008	Followup		Duwamish	Diagonal SD
Seattle Granite Countertops	4700 Ohio Ave S, #A	7/25/2008	Initial	●	Duwamish	Diagonal SD

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Facility	Address	Date Inspected	Inspection Type	In Compliance?	Basin	Subbasin
Seattle Lighthouse-The Lighthouse for the Blind, Inc.	2501 S Plum St	1/28/2008	Followup		Duwamish	Diagonal SD
Ted's Auto Repair	1622 E Yesler Wy	2/15/2008	Followup		Duwamish	Diagonal SD
Veterans Administration Medical Center	1660 S Columbia Wy	5/29/2008	Followup	●	Duwamish	Diagonal SD
Zevia LLC	14 S Idaho St	4/25/2008	Initial		Duwamish	Diagonal SD
Argo Blower	5400 E Marginal WY S	4/28/2008	Followup	●	Duwamish	Duwamish (NEC) CSO
Atlas Paving Co.	6259 Airport Wy S	8/26/2008	Followup		Duwamish	Duwamish (NEC) CSO
Benz Friendz	6249 Flora Ave S	8/7/2008	Followup	●	Duwamish	Duwamish (NEC) CSO
Cleanscapes	5939 4th Ave S	8/14/2008	Initial		Duwamish	Duwamish (NEC) CSO
Commercial Welding & Fabrication, Inc.	711 S Myrtle St	7/17/2008	Initial	●	Duwamish	Duwamish (NEC) CSO
Independent Metals Co.	747 S Monroe ST	8/20/2008	Followup	●	Duwamish	Duwamish (NEC) CSO
Mobile Crane	5900 2nd Ave S	7/15/2008	Initial	●	Duwamish	Duwamish (NEC) CSO
Shell Gas Station & Food Mart	6200 Corson Ave S	4/14/2008	Followup	●	Duwamish	Duwamish (NEC) CSO
Big Leaf Manufacturing	700 S Orchard St	7/22/2008	Initial		Duwamish	Duwamish (NEC) SD
Compressed Gas Western Inc	4535 W West Marginal Wy SW	7/10/2008	Screening		Duwamish	Duwamish (NEC) SD
Duwamish Metal Fabrication	16 S Michigan St	7/23/2008	Initial		Duwamish	Duwamish (NEC) SD
Fittings Inc	5979 4th Ave S	8/28/2008	Followup	●	Duwamish	Duwamish (NEC) SD
Puget Sound Truck Lines	7303 8th Ave S	2/27/2008	Followup		Duwamish	Duwamish (NEC) SD
Samson Tug and Barge	6361 1st Ave S	7/28/2008	Initial		Duwamish	Duwamish (NEC) SD
Svendsen Bothers Fish Company	745 S Myrtle St	7/22/2008	Initial	●	Duwamish	Duwamish (NEC) SD
Taxi King	720 S Orchard St	7/22/2008	Initial	●	Duwamish	Duwamish (NEC) SD
Catholic Printery Inc.	6327 W Marginal Wy SW	7/8/2008	Followup	●	Duwamish	Glacier Bay
Harrington Industrial Plastics LLC	4322 S 104th Pl	3/6/2008	Followup		Duwamish	Norfolk SD
Nelson Trucking	9747 M L King Jr WY S	5/28/2008	Followup		Duwamish	Norfolk SD
Pacific Grip & Lighting	10401 Martin Luther King Jr Wy S	3/6/2008	Followup		Duwamish	Norfolk SD
Reliable Auto Parts	4345 S 104th Pl	2/20/2008	Followup		Duwamish	Norfolk SD
Unified Grocers	3301 S Norfolk St	6/9/2008	Followup	●	Duwamish	Norfolk SD
Alaska Logistics	7400 8th Ave S	8/20/2008	Followup	●	Duwamish	Slip 4
Samson Tug and Barge	7400 8th Ave S	8/20/2008	Followup	●	Duwamish	Slip 4
Show Quality Metal Finishing	1115 S Elizabeth St	4/1/2008	Followup	●	Duwamish	Slip 4
Braicks Construction Inc	309 S Cloverdale St, #B3	8/26/2008	Followup	●	Duwamish	South Park
Da Vinci Gourmet	7224 1st Ave S	1/16/2008	Followup		Duwamish	South Park

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Facility	Address	Date Inspected	Inspection Type	In Compliance?	Basin	Subbasin
Fire King of Seattle, Inc.	240 S Holden St	1/8/2008	Followup		Duwamish	South Park
Frontier Door	426 S Cloverdale St	6/20/2008	Initial	●	Duwamish	South Park
Glitsa American, Inc.	327 S Kenyon St	4/7/2008	Followup	●	Duwamish	South Park
Lukas Machine, Inc.	707 S Riverside St	7/9/2008	Followup	●	Duwamish	South Park
Modern Machine	519 S Elmgrove St	5/9/2008	Followup	●	Duwamish	South Park
Modern Machine	8000 5th Ave S	5/9/2008	Initial	●	Duwamish	South Park
National Products Inc	8410 Dallas Ave S	7/11/2008	Initial	●	Duwamish	South Park
National Products Inc.	1017 S Elmgrove St	2/5/2008	Followup		Duwamish	South Park
Rasmussen Equipment Co.	8727 5th Ave S	5/9/2008	Followup	●	Duwamish	South Park
Rogers Machinery Co.	7800 5TH Ave S	5/9/2008	Followup	●	Duwamish	South Park
Seattle Forging & Tool Inc.	218 S Holden St	1/8/2008	Followup		Duwamish	South Park
The Gear Works Seattle Inc	500 S Portland St	6/16/2008	Followup	●	Duwamish	South Park
American Environmental Construction LLC	7417 4th Ave S	1/17/2008	Followup		Duwamish	Trotsky
Elliot Bay Industries	7500 West Marginal Wy S	2/28/2008	Followup		Duwamish	Trotsky
Industrial Battery Systems	211 S Austin St	7/9/2008	Followup	●	Duwamish	Trotsky
Jon's Recycling	7620 2nd Ave S	7/9/2008	Followup		Duwamish	Trotsky
North Industries	401 S Webster St	1/10/2008	Followup		Duwamish	Trotsky
Northwest Center	7272 W Marginal Wy S	1/16/2008	Followup		Duwamish	Trotsky
Oppenheimer Cine Rental LLC	7400 3rd Ave S	4/21/2008	Followup		Duwamish	Trotsky
Pioneer Human Services	7440 W Marginal Wy S	1/16/2008	Followup		Duwamish	Trotsky
United Iron Works	7421 5th Ave S	3/12/2008	Followup		Duwamish	Trotsky

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Appendix C
Ecology Source Control Business Inspections
(January through August 2008)

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Ecology Source Control Business Inspections (January through August 2008)

NPDES Permit ID	Facility	Address	City	Date Inspected	In Compliance?
NA	Alaska Logistics	7400 8th Ave. S.	Seattle	June 24, 2008	
NA	Allied Body Works, Inc.	625 S. 96th St.	Seattle	August 26, 2008	
NA	Allied Technical Service	6239 Airport Way So.	Seattle	February 21, 2008	
NA	Auto-Chlor System	4315 7th Ave. S.	Seattle	August 25, 2008	
NA	B&G Machine Inc.	6400 Corson Ave. S.	Seattle	March 21, 2008	●
NA	Big Leaf Mfg. Co.	700 S. Orchard St.	Seattle	July 22, 2008	
NA	Blue Nile Inc.	5907 4th Ave. S.	Seattle	May 28, 2008	
NA	Branom Instrument Co.	5500 4th Ave S	Seattle	June 25, 2008	
NA	Branom Instrument Co.	5500 4th Ave S	Seattle	July 23, 2008	
NA	Branom Instrument Co.	5500 4th Ave S	Seattle	August 8, 2008	●
NA	Cascade Columbia Distribution	6900 Fox Ave S.	Seattle	July 17, 2008	
NA	Cascade Columbia Distribution	6900 Fox Ave S.	Seattle	August 27, 2008	●
SO3002274	CB Finishing	9587 8th Ave. S.	Seattle	April 8, 2008	
SO3002274	CB Finishing	9587 8th Ave. S.	Seattle	April 17, 2008	
NA	Coast Crane Co.	8250 5th Ave. S.	Seattle	August 8, 2008	
NA	Colorgraphics	1421 S. Dean St.	Seattle	August 21, 2008	
WAG030091C	Delta Marine Industries Inc	1608 S. 96th St.	Seattle	August 13, 2008	
NA	Diamond Painting, LLC	1601 S 92nd St, Ste B	Seattle	July 8, 2008	
NA	Diamond Painting, LLC	1601 S 92nd St, Ste B	Seattle	August 27, 2008	●
NA	Diamond Painting, LLC	1818 S. 93rd St.	Seattle	August 13, 2008	
NA	Dresser-Rand	225 S. Lucile St.	Seattle	June 25, 2008	
NA	Ecohaus	4121 1st Ave. S.	Seattle	June 10, 2008	
NA	Ecohaus	4121 1st Ave. S.	Seattle	July 18, 2008	●
NA	Emerald City Bindery	4809 Airport Way S.	Seattle	June 25, 2008	
NA	Emerald City Cleaners	850 Rainier Ave. S.	Seattle	May 14, 2008	●
NA	Emerald City Machine	160 S. 108th St.	Seattle	April 10, 2008	●
NA	Fabriform Plastics Inc.	3300 Airport Way S.	Seattle	June 10, 2008	
NA	Foam Fanatics LLC	1762 Airport Way S.	Seattle	June 10, 2008	
NA	Foam Fanatics LLC	1762 Airport Way S.	Seattle	July 23, 2008	
NA	Foam Fanatics LLC	1762 Airport Way S.	Seattle	August 19, 2008	
NA	Frog Hollow Corp.	1425 S. 93rd Street	Seattle	March 4, 2008	
NA	Frog Hollow Corp.	1425 S. 93rd Street	Seattle	April 11, 2008	●
NA	Gear Works	500 S. Portland St.	Seattle	April 15, 2008	
NA	Glitsa American Inc.	327 S.Kenyon St.	Seattle	February 20, 2008	
SO3009725	Independent Metals - Plant 2	816 South Kenyon Street	Seattle	February 6, 2008	
SO3001949	Industrial Automation Inc	1421 S 93RD ST	Seattle	February 12, 2008	
SO3001949	Industrial Automation Inc	1421 S. 93rd St.	Seattle	March 25, 2008	
NA	Industrial Battery	211 S. Austin St.	Seattle	April 15, 2008	

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NPDES Permit ID	Facility	Address	City	Date Inspected	In Compliance?
NA	Jon's Recycling	7620 2nd Ave. S.	Seattle	April 21, 2008	
NA	King County Biosolids/Skagit Transportation	6640 Ellis Ave. S.	Seattle	May 6, 2008	
NA	King Electrical Manufacturing Co.	9131 10th Ave. S.	Seattle	July 8, 2008	
NA	King Electrical Manufacturing Co.	9131 10th Ave. S.	Seattle	August 27, 2008	
WA0002232E	LaFarge North America Inc.	5400 W MARGINAL WAY SW	Seattle	February 5, 2008	
NA	Laird Plastics	650 S. Industrial Way	Seattle	July 15, 2008	●
NA	LC Jergens Painting Co., Inc.	417 18th Ave. S.	Seattle	July 18, 2008	
NA	Lowes	2700 Rainier Ave. S.	Seattle	May 14, 2008	
NA	Lowes	2700 Rainier Ave. S.	Seattle	July 23, 2008	
NA	Lowes	2700 Rainier Ave. S.	Seattle	August 27, 2008	
NA	Machinists Inc., Plant 1	751 S. Michigan St.	Seattle	March 21, 2008	
NA	Machinists Inc., Plant 2	7600 5th Ave. S.	Seattle	March 26, 2008	
NA	Magnetic & Penetrant Services Co., Inc.	8135 1st Ave S	Seattle	June 26, 2008	
NA	Magnetic & Penetrant Services Co., Inc.	8135 1st Ave S	Seattle	August 12, 2008	●
NA	Marine Vacuum	1516 S. Graham St.	Seattle	April 9, 2008	
NA	Metal Works Northwest Inc.	3834 4th Ave. S.	Seattle	May 15, 2008	
NA	Modern Machine	519 S. Elmgrove	Seattle	February 20, 2008	
NA	Moeller Design & Development Inc.	620 S. Industrial Way	Seattle	May 20, 2008	
NA	Moeller Design & Development Inc.	620 S. Industrial Way	Seattle	July 2, 2008	●
NA	Ness Cranes Inc.	500 S. Sullivan St.	Seattle	August 8, 2008	
NA	North Star Casteel	820 S. Bradford St.	Seattle	May 13, 2008	
NA	North Star Casteel	820 S. Bradford St.	Seattle	June 24, 2008	
NA	North Star Ice Equipment Corp.	8151 Occidental Ave. S.	Seattle	August 26, 2008	
NA	Northwind Marine	511 S. Webster St.	Seattle	June 5, 2008	
NA	Olympic Foundry	5200 Airport Way S.	Seattle	May 22, 2008	
NA	Olympic Foundry	5200 Airport Way S.	Seattle	July 17, 2008	●
NA	Pacific Industrial Supply	1231 S. Director St.	Seattle	June 5, 2008	
NA	Pacific Industrial Supply	1231 S. Director St.	Seattle	July 17, 2008	
NA	Pacific Rendering Co. Inc.	4034 West Marginal Way SW	Seattle	April 11, 2008	
NA	Power Distributing Inc.	4813 Airport Way S.	Seattle	February 20, 2008	●
SO3000264	PSF Mechanical Inc.	9322 14th Ave. S.	Seattle	March 4, 2008	
SO3000264	PSF Mechanical Inc.	9322 14th Ave. S.	Seattle	April 17, 2008	
SO3002142	Puget Sound Coatings	9220 8TH AVE S	Seattle	February 13, 2008	
NA	Quick Precision	108 South 108th St.	Seattle	April 10, 2008	
NA	Rasmussen Equipment Co.	8727 5th Ave. S.	Seattle	February 12, 2008	
NA	Repair Technology, Inc.	400 S. 96th St.	Seattle	May 28, 2008	
NA	Repair Technology, Inc.	400 S. 96th St.	Seattle	July 2, 2008	●
NA	Resource Recycling Technologies (RRT)	8000 5th Ave S.	Seattle	February 21, 2008	

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NPDES Permit ID	Facility	Address	City	Date Inspected	In Compliance?
NA	Rodda Paint	3838 4th Ave. S.	Seattle	July 8, 2008	
NA	Rogers Machinery Co.	7800 5th Ave. S.	Seattle	February 12, 2008	
NA	Rogers Machinery Co.	7800 5th Ave. S.	Seattle	February 21, 2008	
NA	Safelite Auto Glass	665 S. Dakota St.	Seattle	May 15, 2008	
NA	Scougal Rubber Corp.	6239 Corson Ave. S.	Seattle	March 27, 2008	
NA	SeaCast Inc.	207 S. Bennett St.	Seattle	Not Listed	
NA	Seafreeze LTD Parnership	206 SW Michigan St	Seattle	January 15, 2008	
NA	Seattle DOT Sunny Jim Site	4200 Airport Way S.	Seattle	May 7, 2008	
NA	Show Quality Metal Finishing	1115 S. Elizabeth St.	Seattle	January 30, 2008	
NA	Smoki Foods	206 SW Michigan St	Seattle	January 15,2008	
NA	The Heartwood Inc.	1414 S. Director Street	Seattle	May 20,2008	
NA	The Heartwood Inc.	1414 S. Director Street	Seattle	July 2, 2008	
NA	Trade-Marx Sign & Display Co.	818 S. Dakota St.	Seattle	August 25, 2008	
NA	Trim Systems	701 S. Orchard St.	Seattle	March 6, 2008	
NA	Unified Grocers	3301 South Norfolk St.	Seattle	March 19, 2008	
NA	Union Pacific Railroad	4700 Block of Denver Ave. S.	Seattle	April 24, 2008	●
SO3000434	UPS Boeing Field Gateway (United Parcel Service Waboe)	7575 Perimeter Road S.	Seattle	February 26, 2008	
SO3000444	UPS Seattle Hub (United Parcel Service Wasea)	4455 7th Ave S.	Seattle	February 26, 2008	
NA	Volvo Road Machinery Inc.	7739 1st Ave. S.	Seattle	August 26, 2008	
NA	WA State DOT Corson Ave. S.	6431 Corson Ave. S.	Seattle	April 3, 2008	
NA	Washington Liftruck Inc.	700 S. Chicage St.	Seattle	July 15, 2008	
SO3000582	Waste Management Sea Recycle Am	7901 1ST AVE S	Seattle	January 23, 2008	
NA	Western Trailer Repair	707 S. Lucile St.	Seattle	July 18, 2008	
NA	Western Trailer Repair	707 S. Lucile St.	Seattle	August 27, 2008	●

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